Appendix E

Soil Boring/Monitoring Well Completion Logs

BORING LOG

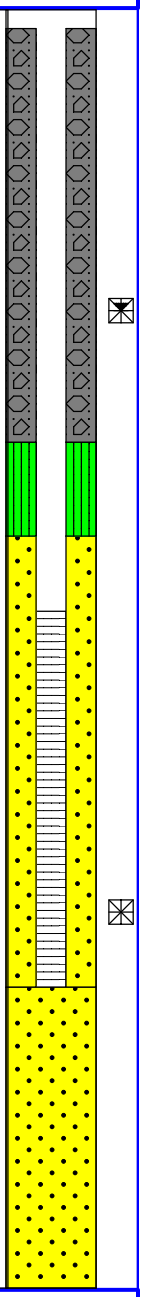
ID NO. **MW-15**

Groundwater and Environmental Services, Inc.

PROJECT:	**General Chemical Corporation**	SURFACE ELEV.:	**NSVD**	TOTAL DEPTH:	**34' bgs**
ADDRESS:	**133-138 Leland St., Framingham, MA**	WATER DEPTH	**~8' bgs**	CASING EL.:	**NSVD**
JOB NO.	**1603978**	BOREHOLE DIA.:	**8"**	WELL DIA.:	**2"**

Logged By:	**Mary Cathey**	Drilling Method:	**Vac Truck/Air Knife/Truck Mounted Drive and Wash**
Dates Drilled:	**7/25/2011 & 7/26/2011**	Sampling Method:	**Hand Auger/2' Split Spoon**
Drilling Company:	**Drilex Environmental**	Soil Class. System:	**Unified Soil Classification System (USCS)**
Drill Rig Type:	**Truck Mounted Drive and Wash**	Field Screening:	**PID 11.7 eV (ppmv)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec-overy	SAMPLE LITHOLOGY	Stratigraphy	COMPLETION DETAILS
0	0-4"	NA	NA	NA	ASPHALT	ASPHALT	Completed with 2' x 2' concrete pad and steel roadbox
	4"-2'	<1	NA	NA	SANDY SILT: Orange/brown fine sand (20%), silt (80%)	SANDY SILT	
	2-4'	<1	NA	NA	SANDY SILT: Similar As Above (SAA)		
	4-6'	316	NA	NA	SAND: Well graded, light brown, fine sand	SAND	
5	6-8'	460	NA	NA	SAND: Well graded, light grey, fine sand, saturated		
	8-10'	423	3/5/5/5	14 of 24"	SILT: Top 11": silt, wet. Bottom 3": medium to coarse sand (80%), silt (20%)	SILT	Portland grout 0.5 to 11.5' bgs
10	10-12'	32.1	3/3/2/2	18 of 24"	SAND: Medium to coarse sand (80%), silt (10%), gravel (10%), greenish grey	SAND	
	12-14'	76.9	3/2/1/1	18 of 24"	SAND: Medium to coarse sand (90%), gravel (10%), greenish grey		Bentonite seal 11.5 to 14' bgs
	14-16'	117	3/3/2/1	14 of 24"	SAND: Medium to coarse sand (80%), silt (10%), gravel (10%), greenish grey		
15	16-18'	101	1/2/2/2	12 of 24"	SAND: Top 2": SAA. Bottom 10": olive grey fine to medium sand (100%)		2" PVC casing 0.5 to 16' bgs
	18-20'	39.7	2/3/4/4	17 of 24"	SAND: Top 12": medium to coarse sand (80%), silt (10%). Bottom 5": olive grey fine sand (100%)		
20	20-22'	43.2	2/3/3/3	11 of 24"	SAND: Top 4": olive grey, medium to coarse sand (100%). Bottom 7": fine to medium sand (100%)		Silica sand pack 14 to 26' bgs
	22-24'	135	1/4/5/6	12 of 24"	SAND: Top 5": olive grey, fine to coarse sand (100%). Bottom 5": fine sand-silt (100%)		
	24-26'	153	5/6/9/11	14 of 24"	SILT: Olive grey silt (100%)	SILT	2" PVC well screen 16 to 26' bgs
25	26-28'	107	2/3/4/5	13 of 24"	SILT: SAA		Well completed at 26' bgs
	28-30'	14.2	4/4/4/5	12 of 24"	SILT: SAA		
30	30-32'	28.3	2/4/6/7	12 of 24"	SILT: SAA		Silica sand pack 26 to 34' bgs
	32-34'	9.2	7/6/7/7	19 of 24"	SILT: SAA		Boring terminated at 34' bgs



Location:

Northing/Latitude: **NA**
Easting/Longitude: **NA**
Horizontal Datum: **NA**
Vertical Datum: **NA**

General Comments:

NSVD= Not Surveyed, NA= Not Applicable, ppmv= parts per million by volume, "= inch, '= foot, bgs= below ground surface, NR= No Recovery, NS= Not Screened, NE= Not Encountered

Symbol Key:

Apparent Water Level
Lab Sample Location

BORING LOG

ID NO. **MW-16**

Groundwater and Environmental Services, Inc.

PROJECT:	**General Chemical Corporation**	SURFACE ELEV.:	**NSVD**	TOTAL DEPTH:	**30' bgs**
ADDRESS:	**133-138 Leland St., Framingham, MA**	WATER DEPTH	**~6' bgs**	CASING EL.:	**NSVD**
JOB NO.	**1603978**	BOREHOLE DIA.:	**8"**	WELL DIA.:	**2"**

Logged By:	**Mary Cathey**	Drilling Method:	**Vac Truck/Air Knife/Geoprobe**
Dates Drilled:	**7/25/2011 & 8/1/2011**	Sampling Method:	**Hand Auger/5' Macro Core**
Drilling Company:	**Drilex Environmental**	Soil Class. System:	**Unified Soil Classification System (USCS)**
Drill Rig Type:	**Geoprobe**	Field Screening:	**PID 11.7 eV (ppmv)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec-overy	SAMPLE LITHOLOGY	Stratigraphy
0	0-4"	NA	NA	NA	ASPHALT	**ASPHALT**
	4"-2'	59.9	NA	NA	SANDY SILT: Silt (80%), medium to coarse sand (15%) and gravel (5%), brown	**SANDY SILT**
	2-4'	21.3	NA	NA	GRAVEL: Gravel (80%) and silt (20%), moist	**GRAVEL**
	4-6'	129	NA	NA	SANDY SILT: dark brown silt (60%), medium sand (30%), gravel (10%), wet	**SANDY SILT**
5	6-7.5'	NS	NA	NA	NO RECOVERY: Vac/airknife refusal at 7.5'	**NO RECOVERY**
	7.5-10'	NS	NA	NA		
10	10-12.5'	616	NA	60 of 60"	SILTY SAND: Medium to coarse sand with silt (20%), dark grey to light brown, sewage odor	**SILTY SAND**
	12.5-15'	721			SILTY SAND: Top 8": medium to coarse sand with silt (20%) and gravel, dark grey to light brown. Bottom 22": fine sand	
15	15-17.5'	229	NA	50 of 60"	SAND: Olive grey to light brown fine sand	**SAND**
	17.5-20'	225			SAND: Similar As Above (SAA)	
20	20-22.5'	80.8	NA	50 of 60"	SILT: Olive grey to light brown silt (100%)	**SILT**
	22.5-25'	38.6			SILT: SAA	
25	25-27.5'	14.8	NA	60 of 60"	SILT: SAA	
	27.5-30'	12.3			SILT: SAA	
30						

COMPLETION DETAILS

Completed with 2' x 2' concrete pad and steel roadbox

Portland grout 0.5 to 2' bgs

Bentonite seal 2 to 3' bgs

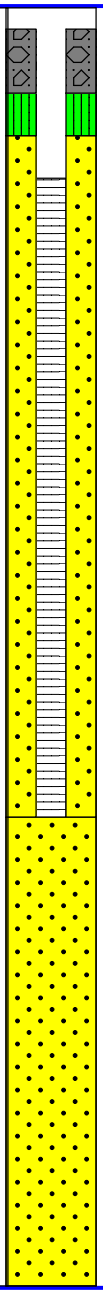
2" PVC casing 0.5 to 17' bgs

2" PVC well screen 4 to 19' bgs

Silica sand pack 3 to 19' bgs

Well completed at 19' bgs

Boring terminated at 30' bgs



Location:

Northing/Latitude: **NA**
Easting/Longitude: **NA**
Horizontal Datum: **NA**
Vertical Datum: **NA**

General Comments:

NSVD= Not Surveyed, NA= Not Applicable, ppmv= parts per million by volume, "= inch, '= foot, bgs= below ground surface, NR= No Recovery, NS= Not Screened, NE= Not Encountered

Symbol Key:

Apparent Water Level
Lab Sample Location

BORING LOG

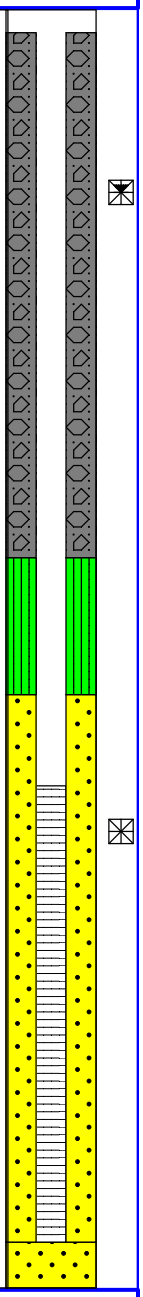
ID NO. **MW-17**

Groundwater and Environmental Services, Inc.

PROJECT:	**General Chemical Corporation**	SURFACE ELEV.:	**NSVD**	TOTAL DEPTH:	**28' bgs**
ADDRESS:	**133-138 Leland St., Framingham, MA**	WATER DEPTH	**~4' bgs**	CASING EL.:	**NSVD**
JOB NO.	**1603978**	BOREHOLE DIA.:	**8"**	WELL DIA.:	**2"**

Logged By:	**Mary Cathey**	Drilling Method:	**Vac Truck/Air Knife/Truck Mounted Drive and Wash**
Dates Drilled:	**7/25/2011 & 7/29/2011**	Sampling Method:	**Hand Auger/2' Split Spoon**
Drilling Company:	**Drilex Environmental**	Soil Class. System:	**Unified Soil Classification System (USCS)**
Drill Rig Type:	**Truck Mounted Drive and Wash**	Field Screening:	**PID 11.7 eV (ppmv)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec-overy	SAMPLE LITHOLOGY	Stratigraphy	COMPLETION DETAILS
0	0-4"	NA	NA	NA	ASPHALT	**ASPHALT**	Completed with 2' x 2' concrete pad and steel roadbox
	4"-2'	5.1	NA	NA	SAND: Medium to coarse sand (90%) and gravel (10%), light brown	**SAND**	
	2-4'	97.6	NA	NA	SAND: Medium to coarse sand (90%), and gravel (10%), light brownish grey, saturated		
	4-8'	NA	NA	NA	NO RECOVERY: Boring collapsing. Can not collect sample in hand auger due to sandy nature	**NO RECOVERY**	2" PVC casing 0.5 to 17' bgs
5							
	8-10'	8.2	4/4/5/6	13 of 24"	SANDY SILT: Silt (60%) with medium to coarse sand (40%), olive grey to light brown	**SANDY SILT**	Portland grout 0.5 to 12' bgs
10	10-12'	11.4	5/5/6/5	17 of 24"	SILT: Olive grey to light brown silt (100%)	**SILT**	
	12-14'	9.9	5/5/7/6	13 of 24"	SILT: Similar As Above (SAA)		Bentonite seal 12 to 15' bgs
	14-16'	17.7	2/3/3/3	11 of 24"	SILT: SAA		
15							
	16-18'	29.3	5/4/5/4	20 of 24"	SANDY SILT: Top 10": fine sand (100%). Bottom 10": silt (100%)	**SANDY SILT**	
	18-20'	13.9	3/3/4/5	13 of 24"	SILT: Olive grey to light brown silt (100%)	**SILT**	Silica sand pack 15 to 27' bgs
20	20-22'	4.9	3/5/6/6	16 of 24"	SILT: SAA		2" PVC well screen 17 to 27' bgs
	22-24'	2.1	4/5/6/6	22 of 24"	SILT: SAA		
	24-26'	4.0	3/5/5/6	10 of 24"	SILT: SAA		Well completed at 27' bgs
25							
	26-28'	4.0	5/5/8/9	14 of 24"	SILTY CLAY: Top 7": SAA. Bottom 7": Clay	**SILTY CLAY**	Boring terminated at 28' bgs



Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

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Symbol Key:

Apparent Water Level

Lab Sample Location

BORING LOG

ID NO. **MW-18S**

Groundwater and Environmental Services, Inc.

PROJECT:	**General Chemical Corporation**	SURFACE ELEV.:	**NSVD**	TOTAL DEPTH:	**34' bgs**
ADDRESS:	**133-138 Leland St., Framingham, MA**	WATER DEPTH	**~6' bgs**	CASING EL.:	**NSVD**
JOB NO.	**1603978**	BOREHOLE DIA.:	**8"**	WELL DIA.:	**2"**

Logged By:	**Jarrett Everton**	Drilling Method:	**Vac Truck/Air Knife/Drive and Wash Casing**
Dates Drilled:	**8/22/11 & 8/25/11**	Sampling Method:	**Hand Auger/2' Split Spoon**
Drilling Company:	**Drilex Environmental**	Soil Class. System:	**Unified Soil Classification System (USCS)**
Drill Rig Type:	**Truck Mounted Drive and Wash**	Field Screening:	**PID 11.7 eV (ppmv)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec-overy	SAMPLE LITHOLOGY	Stratigraphy
0	0-4"	NA	NA	NA	TOPSOIL: organic, roots, brown	**TOPSOIL**
	4"-2'	<1.0	NA	NA	SAND: fine sand (100%),light brown	**SAND**
	2-4'	3.4	NA	NA	SANDY SILT: fine sand (70%) with silt (30%), light brown	**SANDY SILT**
	4-6'	1.3	NA	NA	SANDY SILT: SAA, wet at 6' bgs	
5	6-8'	<1.0	NA	NA	SAND: fine to coarse sand (100%), light brown, wet	**SAND**
	8-10'	<1.0	2-1-3-4	12/24	SAND AND SILT: very fine to medium sand (50%) and silt (50%), well sorted, brown, wet	**SAND AND SILT**
10	10-12'	<1.0	5-5-4-5	24/24	SAND AND SILT: SAA	
	12-14'	<1.0	5-6-6-8	24/24	SAND AND SILT: Top 18": SAA, Bottom 6": silt (100%), brown, wet	
	14-16'	<1.0	14-16-16-11	6/24	SANDY SILT: Top 5": SAA, Bottom 1": rock in spoon tip (cobble)	
15	16-18'	<1.0	11-9-9-10	18/24	SILT: silt (100%), well sorted, brown, wet	**SILT**
	18-20'	2.6	6-5-5-6	18/24	SILT: SAA	
20	20-22'	<1.0	5-4-7-7	24/24	SILT: SAA	
	22-24'	<1.0	4-6-6-8	24/24	SILT: SAA	
	24-26'	<1.0	3-4-4-5	18/24	SANDY SILT: fine to medium sand (50%), silt (25%), broken stone (cobble) (25%), orange banding, poorly sorted, wet	**SANDY SILT**
25	26-28'	<1.0	5-6-6-8	24/24	SILT: very fine to medium sand (50%) and silt (50%), well sorted, brown, wet	**SILT**
	28-30'	<1.0	3-4-4-3	24/24	SILT: silt (100%), well sorted, olive gray, wet	
30	30-32'	55.4	4-7-7-8	24/24	SILT: SAA	
	32-34'	41.4	6-5-6-8	24/24	SILT: SAA	

COMPLETION DETAILS

Completed with 2' x 2' concrete pad and steel roadbox

Bentonite seal 6" to 2' bgs

2" PVC casing 0.5 to 4' bgs

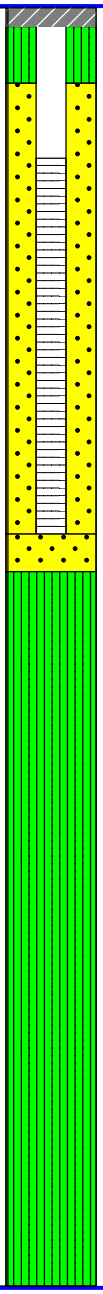
Silica sand pack 2 to 15' bgs

2" PVC well screen 4 to 14' bgs

Well completed at 14' bgs

Bentonite seal 15 to 34' bgs

Boring terminated at 34' bgs



Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum:

Vertical Datum: **NA**

General Comments:

NSVD= Not Surveyed, NA= Not Applicable, ppmv= parts per million by volume, "= inch, '= foot, bgs= below ground surface, NR= No Recovery, NS= Not Screened, NE= Not Encountered

Symbol Key:

Apparent Water Level

Lab Sample Location

BORING LOG

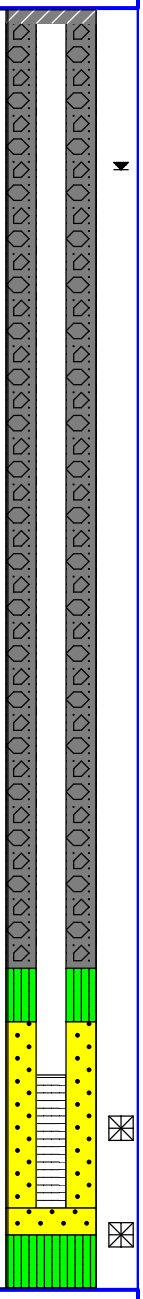
ID NO. **MW-18M**

Groundwater and Environmental Services, Inc.

PROJECT:	**General Chemical Corporation**	SURFACE ELEV.:	**NSVD**	TOTAL DEPTH:	**48' bgs**
ADDRESS:	**133-138 Leland St., Framingham, MA**	WATER DEPTH	**~6' bgs**	CASING EL.:	**NSVD**
JOB NO.	**1603978**	BOREHOLE DIA.:	**8"**	WELL DIA.:	**2"**

Logged By:	**Jarrett Everton**	Drilling Method:	**Vac Truck/Air Knife/Drive and Wash Casing**
Dates Drilled:	**8/22/11 & 8/26/11**	Sampling Method:	**Hand Auger/2' Split Spoon**
Drilling Company:	**Drilex Environmental**	Soil Class. System:	**Unified Soil Classification System (USCS)**
Drill Rig Type:	**Truck Mounted Drive and Wash**	Field Screening:	**PID 11.7 eV (ppmv)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec-overy	SAMPLE LITHOLOGY	Stratigraphy	COMPLETION DETAILS
0	0-34	NA	NA	NA	Drove casing to 34' bgs. No samples. Refer to MW-18S for sample lithology. Pre-cleared 0-8' bgs	**Not Sampled**	Completed with 2' x 2' concrete pad and steel roadbox
5							
10							Portland grout 0.5 to 36' bgs
15							2" PVC casing 0.5 to 40' bgs
20							
25							
30							
35	34-36'	16.6	4-6-6-6	24/24"	SAND AND SILT: very fine to medium sand (50%) and silt (50%), well sorted, brown, wet	**SAND AND SILT**	
	36-38'	10.8	5-5-4-6	24/24"	SANDY SILT: silt (75%) and very fine to medium sand (25%), well sorted, brown, wet	**SANDY SILT**	Bentonite seal 36 to 38' bgs
	38-40'	21.0	3-4-6-6	24/24"	SANDY SILT: SAA		Silica sand pack 38 to 46' bgs
40	40-42'	90.5	8-7-10-10	24/24"	SILT: silt (100%), brown, well sorted, brown, wet	**SILT**	2" PVC screen 40 to 45' bgs
	42-44'	242.9	10-9-9-7	24/24"	SILT: SAA		Well completed at 45' bgs
45	44-46'	18.7	7-11-7-7	24/24"	SILT: SAA, with orange banding		Bentonite seal 46 to 48' bgs
	46-48'	42.4	8-7-7-9	24/24"	SILT: SAA		Boring terminated at 48' bgs



Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

NSVD= Not Surveyed, NA= Not Applicable, ppmv= parts per million by volume, "= inch, '= foot, bgs= below ground surface, NR= No Recovery, NS= Not Screened, NE= Not Encountered

Symbol Key:

Apparent Water Level

Lab Sample Location

BORING LOG

ID NO. **MW-19**

Groundwater and Environmental Services, Inc.

PROJECT:	**General Chemical Corporation**	SURFACE ELEV.:	**NSVD**	TOTAL DEPTH:	**30' bgs**
ADDRESS:	**133-138 Leland St., Framingham, MA**	WATER DEPTH	**~3.5' bgs**	CASING EL.:	**NSVD**
JOB NO.	**1603978**	BOREHOLE DIA.:	**8"**	WELL DIA.:	**2"**

Logged By:	**Mary Cathey**	Drilling Method:	**Hand Auger/Geoprobe**
Dates Drilled:	**9/13/2011 & 9/14/2011**	Sampling Method:	**Hand Auger/5' Macro Core**
Drilling Company:	**Drilex Environmental**	Soil Class. System:	**Unified Soil Classification System (USCS)**
Drill Rig Type:	**Geoprobe**	Field Screening:	**PID 10.6 eV (ppmv)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec-overy	SAMPLE LITHOLOGY	Stratigraphy
0	0-2'	<1	NA	NA	SILTY SAND: fine to coarse sand, well graded, silt (15%), slightly plastic, gravel (5%), subrounded, organics (5%), moist, dark brown, (SM)	**SILTY SAND**
	2-4'	<1	NA	NA	SILTY SAND: fine sand, poorly graded, silt (15%), non plastic, saturated, tan, (SM)	
	4-6'	<1	NA	NA	SILTY SAND: similar to above, (SM)	
5	6-7'	<1	NA	NA	SILTY SAND: similar to above, (SM)	
	7-10'	<1	NA	30/30"	SAND AND SILT: Top 18": light brown fine to coarse sand, Bottom 12": silt (50%) and medium to coarse sand (50%)	**SAND AND SILT**
10	10-12.5'	<1	NA	34/60"	SILT: tan to olive grey silt (60%), medium to coarse sand (30%) and gravel, tight	**SILT**
	12.5-15'	<1	NA		SAND: tan to olive grey medium to coarse sand (70%) with gravel, up to 1"	**SAND**
15	15-17.5'	<1	NA	40/60"	CLAY AND SILT: Top 6": clayey silt, plastic, Bottom 14": tan to olive grey fine to medium sand	**CLAY AND SILT**
	17.5-20'	<1	NA		SILT: tan to olive grey silt, slightly plastic, tight	**SILT**
20	20-22.5'	<1	NA	56/60"	SAND AND SILT: Top 8": SAA, Bottom 20": fine to coarse sand	**SAND AND SILT**
	22.5-25'	<1	NA		SAND: Top 20": SAA, Bottom 8": fine sand	**SAND**
25	25-27.5'	<1	NA	60/60"	SAND: tan to olive grey fine to medium sand	
	27.5-30'	<1	NA		SAND AND SILT: Top 18": tan to olive grey fine to medium sand with gravel (20%), up to 1", Bottom 12": tight silt, slightly plastic	**SAND AND SILT**
30						

COMPLETION DETAILS

Completed with 2' x 2' concrete pad and steel roadbox

Portland grout 0.5 to 1.5' bgs

Bentonite seal 1.5 to 2.5' bgs

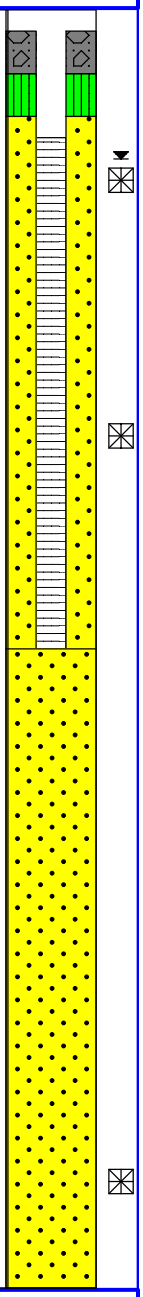
Silica sand pack 2.5 to 15' bgs

2" PVC casing 0.5 to 3' bgs

2" PVC well screen 3 to 15' bgs

Well completed at 15' bgs

Boring terminated at 30' bgs



Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

NSVD= Not Surveyed, NA= Not Applicable, ppmv= parts per million by volume, "= inch, '= foot, bgs= below ground surface, NR= No Recovery, NS= Not Screened, NE= Not Encountered

Symbol Key:

Apparent Water Level

Lab Sample Location

BORING LOG

ID NO. **MW-20**

Groundwater and Environmental Services, Inc.

PROJECT:	**General Chemical Corporation**	SURFACE ELEV.:	**NSVD**	TOTAL DEPTH:	**15' bgs**
ADDRESS:	**133-138 Leland St., Framingham, MA**	WATER DEPTH	**~3.5' bgs**	CASING EL.:	**NSVD**
JOB NO.	**1603978**	BOREHOLE DIA.:	**8"**	WELL DIA.:	**2"**

Logged By:	**Mary Cathey**	Drilling Method:	**Hand Auger/Geoprobe**
Dates Drilled:	**9/13/2011 & 9/14/2011**	Sampling Method:	**Hand Auger/5' Macro Core**
Drilling Company:	**Drilex Environmental**	Soil Class. System:	**Unified Soil Classification System (USCS)**
Drill Rig Type:	**Geoprobe**	Field Screening:	**PID 10.6 eV (ppmv)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec-overy	SAMPLE LITHOLOGY	Stratigraphy
0	0-2'	<1	NA	NA	SAND: fine to coarse sand, well graded, silt (15%), non plastic, organics (5%), moist, tan, (SM)	**SAND**
	2-4'	<1	NA	NA	SAND: SAA, fine sand, slightly plastic, saturated, tan, (SM)	
	4-6'	<1	NA	NA	SAND: SAA, organics (50%), black	
5	6-6.5'	<1	NA	NA	SAND: SAA	
	7-10'	<1	NA	30/30"	FINE SAND: Top 27": tan to olive grey fine sand, Bottom 3": fine-coarse SAA	**FINE SAND**
10	10-12.5'	<1	NA	52/60"	FINE SAND: tan to olive grey fine sand	
	12.5-15'	<1	NA		CLAY AND SILT: tan to olive grey clayey silt, slightly plastic	**CLAY AND SILT**
15						

COMPLETION DETAILS

Completed with 2' x 2' concrete pad and steel roadbox

Portland grout 0.5 to 1.5' bgs

Bentonite seal 1.5 to 2.5' bgs

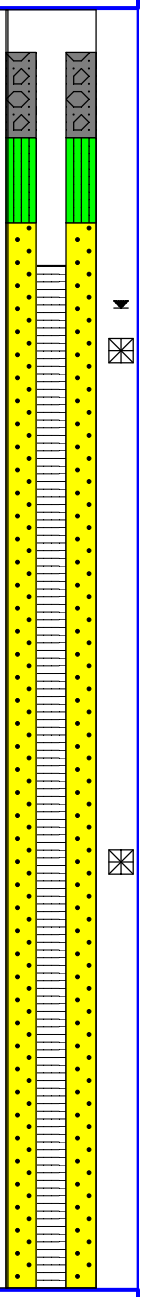
Silica sand pack 2.5 to 15' bgs

2" PVC casing 0.5 to 3' bgs

2" PVC well screen 3 to 15' bgs

Well completed at 15' bgs

Boring terminated at 15' bgs



Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

NSVD= Not Surveyed, NA= Not Applicable, ppmv= parts per million by volume, "= inch, '= foot, bgs= below ground surface, NR= No Recovery, NS= Not Screened, NE= Not Encountered

Symbol Key:

Apparent Water Level

Lab Sample Location

BORING LOG

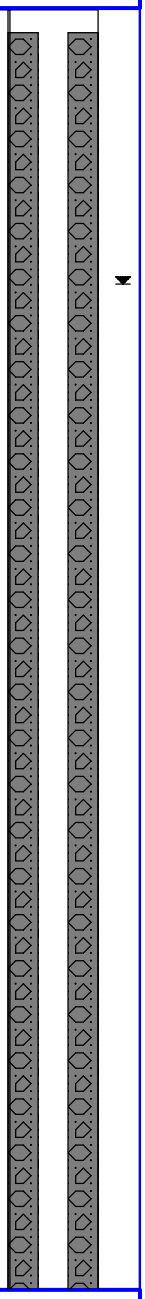
ID NO. **MW-21R**

Groundwater and Environmental Services, Inc.

PROJECT:	**General Chemical Corporation**	SURFACE ELEV.:	**NSVD**	TOTAL DEPTH:	**58' bgs**
ADDRESS:	**133-138 Leland St., Framingham, MA**	WATER DEPTH	**~6' bgs**	CASING EL.:	**NSVD**
JOB NO.	**1603978**	BOREHOLE DIA.:	**8"**	WELL DIA.:	**2"**

Logged By:	**Mary Cathey**	Drilling Method:	**Vac Truck/Air Knife/Drive and Wash Casing**
Dates Drilled:	**9/1/2011, 9/7/2011, & 9/13/2011**	Sampling Method:	**Hand Auger/2' Spilt Spoon**
Drilling Company:	**Drilex Environmental**	Soil Class. System:	**Unified Soil Classification System (USCS)**
Drill Rig Type:	**Truck Mounted Drive and Wash**	Field Screening:	**PID 10.6 eV (ppmv)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec-overy	SAMPLE LITHOLOGY	Stratigraphy	COMPLETION DETAILS
0	0-2'	<1	NA	NA	organic rich silt and sand, roots, brown	**Sand and Silt**	Completed with 2' x 2' concrete pad and steel roadbox
	2-4'	<1	NA	NA			
	4-6'	<1	NA	NA			
5	6-8'	<1	NA	NA			
	8-10'	<1	8/10/ 10/10	10 of 24"	Sandy Silt: Silt (60%) with fine-medium sand (40%), light brown to olive grey	**SANDY SILT**	
10	10-12'	<1	6/6/6/10	12 of 24"	Sandy Silt: SAA		2" PVC casing 0.5 to 50' bgs
	12-14'	<1	6/9/11/11	18 of 24"	Sandy Silt: Top 12" is SAA, bottom 6" is silt, light brown to olive grey		
	14-16'	<1	10/7/8/9	13 of 24"	Silt: Light brown to olive grey silt (100%)	**SILT**	
15							Portland grout 0.5 to 46' bgs
	16-18'	<1	5/7/8/8	21 of 24"	Sand: Top 4": course sand with gravel. Bottom 17": fine to coarse sand, light brown to olive grey	**SAND**	
	18-20'	<1	7/7/9/8	14 of 24"	Sand: Top 7": light brown to olive grey fine to coarse sand (80%) & silt (20%). Bottom 7": olive grey silt (80%) & fine-medium sand (20%)		
20	20-22'	<1	8/7/7/8	10 of 24"	Sand: olive grey silt (80%) & fine-medium sand (20%)		
	22-24'	<1	8/9/7/9	16 of 24"	CLAY: Top 6": olive grey silt (100%), Bottom 10": olice grey clay, medium-high plasticity	**CLAY**	
	24-26'	<1	5/7/10/10	15 of 24"	CLAY: olive grey clay (100%), high plasticity		
25	26-28'	<1	9/10/12/5	13 of 24"	CLAY: similar to above		



Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

NSVD= Not Surveyed, NA= Not Applicable, ppmv= parts per million by volume, "= inch, '= foot, bgs= below ground surface, NR= No Recovery, NS= Not Screened, NE= Not Encountered

Symbol Key:

Apparent Water Level

Lab Sample Location

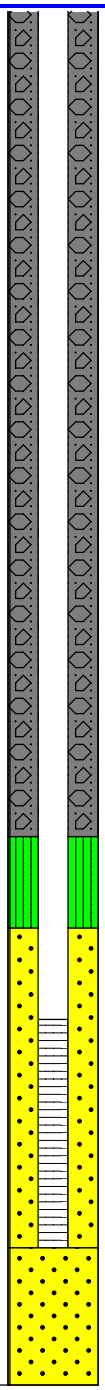
BORING LOG

ID NO. **MW-21R**

Groundwater and Environmental Services, Inc.

PROJECT:	General Chemical Corporation	SURFACE ELEV.:	NSVD	TOTAL DEPTH:	58' bgs
ADDRESS:	133-138 Leland St., Framingham, MA	WATER DEPTH	~6' bgs	CASING EL.:	NSVD
JOB NO.	1603978	BOREHOLE DIA.:	8"	WELL DIA.:	2"

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec-overy	SAMPLE LITHOLOGY	Stratigraphy	COMPLETION DETAILS
	28-30'	<1	11/11/ 12/12	17 of 24"	SILT: Top 3": SAA, Bottom 14": olive grey silt, medium plasticity	SILT	
30	30-32'	<1	9/10/ 12/11	19 of 24"	SILT: olive grey silt, medium plasticity		
	32-34'	<1	9/13/ 12/20	19 of 24"	SILT: Top 14: SAA, Bottom 5": SAA, light brown		
	34-36'	<1	9/10/ 12/12	14 of 24"	SILT: Top 5": SAA, Mid 3": fine to medium sand, Bottom 6": tan to olive grey silt, medium plasticity		
35	36-38'	<1	12/14/ 16/16	22 of 24"	SILT: tan silt, medium plasticity		
	38-40'	<1	6/8/8/8	13 of 24"	SILT: SAA		
40	40-42'	<1	10/5/6/6	10 of 24"	CLAY AND SILT: tan to olive grey clayey silt, slightly plastic	CLAY AND SILT	
	42-44'	<1	10/10/ 12/12	18 of 24"	SILT: light grey silt, low plasticity	SILT	
	44-46'	<1	11/21/ 19/19	15 of 24"	CLAY AND SILT: light grey clayey silt, stiff, very slight plasticity	CLAY AND SILT	
45	46-48'	<1	10/11/ 10/8	21 of 24"	SILT: light grey to olive grey silt, stiff, slightly plastic	SILT	Bentonite seal 46 to 48' bgs
	48-50'	<1	5/7/9/7	17 of 24"	SILT: light grey silty clay, low plasticity		Silica sand pack 48 to 55' bgs
50	50-52'	<1	12/12/ 14/12	15 of 24"	SAND AND SILT: Top 8": tan to grey fine sand-silt, Bottom 7": dark grey silt (50%), & fine to coarse sand (40%), gravel (10%), up to 1/2"	SAND AND SILT	2" PVC well screen 50 to 55' bgs
	52-54'	<1	6/7/8/8	18 of 24"	FINE SAND: fine sand (100%), olive grey to light grey	SAND	
	54-56'	<1	8/8/9/12	16 of 24"	SAND: Top 6": SAA, Bottom 12": medium to coarse sand (60%), with gravel, up to 1"		
55	56-58'	<1	6/11/ 12/13	17 of 24"	SAND: medium to coarse sand, with gravel, up to 1"		Well completed at 55' bgs Boring terminated at 58' bgs



Location:

Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

General Comments:

NSVD= Not Surveyed, NA= Not Applicable, ppmv= parts per million by volume, "= inch, '= foot, bgs= below ground surface, NR= No Recovery, NS= Not Screened, NE= Not Encountered

Symbol Key:

Apparent Water Level
Lab Sample Location

BORING LOG

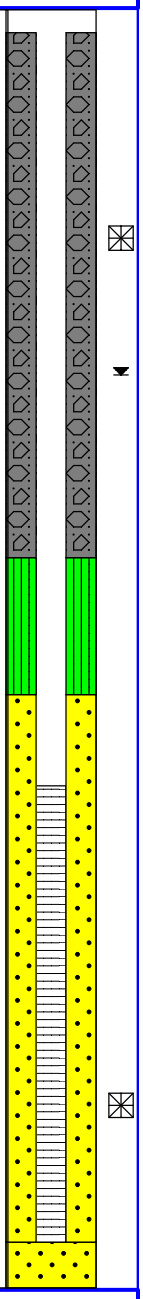
ID NO. **MW-22**

Groundwater and Environmental Services, Inc.

PROJECT:	**General Chemical Corporation**	SURFACE ELEV.:	**NSVD**	TOTAL DEPTH:	**28' bgs**
ADDRESS:	**133-138 Leland St., Framingham, MA**	WATER DEPTH	**~8' bgs**	CASING EL.:	**NSVD**
JOB NO.	**1603978**	BOREHOLE DIA.:	**8"**	WELL DIA.:	**2"**

Logged By:	**Mary Cathey**	Drilling Method:	**Vac Truck/Air Knife/Truck Mounted Drive and Wash**
Dates Drilled:	**7/25/2011 & 7/28/2011**	Sampling Method:	**Hand Auger/2' Split Spoon**
Drilling Company:	**Drilex Environmental**	Soil Class. System:	**Unified Soil Classification System (USCS)**
Drill Rig Type:	**Truck Mounted Drive and Wash**	Field Screening:	**PID 11.7 eV (ppmv)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec-overy	SAMPLE LITHOLOGY	Stratigraphy	COMPLETION DETAILS
0	0-4"	NA	NA	NA	ASPHALT	**ASPHALT**	Completed with 2' x 2' concrete pad and steel roadbox
	4"-2'	2.8	NA	NA	SAND: Light brown fine to medium sand with little gravel	**SAND**	
	2-4'	216	NA	NA	SILT: Light brown to light grey silt (85%) with gravel	**SILT**	
	4-6'	972	NA	NA	SILT: Moist, light grey silt (85%), fine to medium sand (10%) and Gravel (5%) with cobbles		2" PVC casing 0.5 to 17' bgs
5	6-8'	88.9	NA	NA	SILT: Silt (90%), light brown coarse sand (10%), saturated		
	8-10'	30.9	3/5/6/5	18 of 24"	SANDY SILT: Light brown to olive grey silt (60%) and fine to medium sand (40%)	**SANDY SILT**	Portland grout 0.5 to 12' bgs
10	10-12'	96.1	4/5/5/5	17 of 24"	SANDY SILT: Similar As Above (SAA)		
	12-14'	285	4/3/3/5	20 of 24"	SILTY SAND: Light brown to olive grey medium to coarse sand (60%) and silt (40%)	**SILTY SAND**	Bentonite seal 12 to 15' bgs
15	14-16'	352	3/4/3/5	14 of 24"	SANDY SILT: Top 6": SAA. Bottom 8": silt (100%)	**SANDY SILT**	
	16-18'	326	4/3/2/5	18 of 24"	SANDY SILT: Top 12": SAA. Bottom 6": poorly graded medium to coarse sand with gravel (80%) and silt (20%)		
	18-20'	334	6/3/4/5	11 of 24"	SILT: Olive grey to light brown silt (100%)	**SILT**	Silica sand pack 15 to 27' bgs
20	20-22'	455	4/6/7/5	21 of 24"	SILTY SAND: Top3": SAA. Bottom 18": well graded, olive grey to light brown, fine sand	**SILTY SAND**	2" PVC well screen 17 to 27' bgs
	22-24'	174	3/5/7/9	22 of 24"	SILTY SAND: Top 8": silt (100%). Bottom 14": poorly graded, fine to coarse sand with gravel		
25	24-26'	>2,000	2/4/8/9	13 of 24"	SAND: Top 7": poorly graded, fine to coarse sand. Bottom 6": reddish/orange fine sand, stained	**SAND**	Well completed at 27' bgs
	26-28'	183	5/5/6/5	17 of 24"	SANDY SILT: Top 5": SAA. Bottom 12": light brown to olive grey silt (100%)	**SANDY SILT**	Boring terminated at 28' bgs



Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

NSVD= Not Surveyed, NA= Not Applicable, ppmv= parts per million by volume, "= inch, '= foot, bgs= below ground surface, NR= No Recovery, NS= Not Screened, NE= Not Encountered

Symbol Key:

Apparent Water Level

Lab Sample Location

BORING LOG

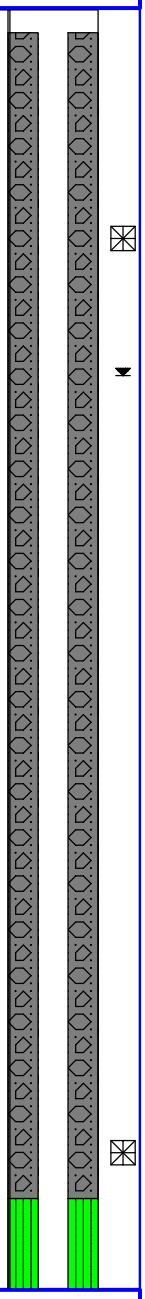
ID NO. **MW-23**

Groundwater and Environmental Services, Inc.

PROJECT:	**General Chemical Corporation**	SURFACE ELEV.:	**NSVD**	TOTAL DEPTH:	**42' bgs**
ADDRESS:	**133-138 Leland St., Framingham, MA**	WATER DEPTH	**~8' bgs**	CASING EL.:	**NSVD**
JOB NO.	**1603978**	BOREHOLE DIA.:	**8"**	WELL DIA.:	**2"**

Logged By:	**Mary Cathey**	Drilling Method:	**Vac Truck/Air Knife/Truck Mounted Drive and Wash**
Dates Drilled:	**7/25/2011 & 7/27/2011**	Sampling Method:	**Hand Auger/2' Split Spoon**
Drilling Company:	**Drilex Environmental**	Soil Class. System:	**Unified Soil Classification System (USCS)**
Drill Rig Type:	**Truck Mounted Drive and Wash**	Field Screening:	**PID 11.7 eV (ppmv)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec-overy	SAMPLE LITHOLOGY	Stratigraphy	COMPLETION DETAILS
0	0-4"	NA	NA	NA	TOPSOIL	**TOPSOIL**	Completed with 2' x 2' concrete pad and steel roadbox
	4"-2'	159	NA	NA	SAND: light brown fine sand with gravel	**SAND**	
	2-4'	1,069	NA	NA	SAND: Tan, very fine sand and silt with little gravel		
	4-6'	1,160	NA	NA	SANDY SILT: moist, fine to medium sand (20%) with gravel, cobbles (4-5"), silt (70%)	**SANDY SILT**	
5	6-8'	159	NA	NA	SAND: Fine to medium sand with gravel, saturated	**SAND**	
	8-10'	>2,000	5/6/6/6	13 of 24"	SILT: light brown to olive grey silt (100%)	**SILT**	Portland grout 0.5 to 26' bgs
10	10-12'	>2,000	4/5/6/7	20 of 24"	SILT: Top 2": light brown to olive grey silt (100%). 3" of medium to coarse sand (80%), silt (20%). Bottom 15": silt (100%)		
	12-14'	>2,000	6/8/7/8	22 of 24"	SILT: Top 8": light brown to olive grey fine grained sand. 4" of fine sand (40%) and coarse sand (60%). Bottom 10": silt (100%)		
	14-16'	>2,000	5/6/4/4	16 of 24'	SANDY SILT: Silt (70%) and fine to coarse sand (30%), light brown to olive grey	**SANDY SILT**	2" PVC casing 0.5 to 16' bgs
15	16-18'	>2,000	5/4/5/5	24 of 24"	SANDY SILT: Top 14": light brown to olive grey silt (70%) and fine to coarse sand (30%). Bottom 10": silt (100%)		
	18-20'	293	3/3/4/4	13 of 24"	SILT: light brown to olive grey silt (100%)	**SILT**	
20	20-22'	213	5/4/5/6	22 of 24"	SILT: Similar As Above (SAA)		
	22-24'	416	6/5/7/8	24 of 24"	SANDY SILT: Top 16": SAA. Bottom 8": fine sand (100%)	**SANDY SILT**	
	24-26'	>2,000	5/5/5/6	14 of 24"	SANDY SILT: Top 3": SAA. Bottom 11": silt (100%), light brown to olive grey		
25	26-28'	1,813	5/6/6/7	22 of 24"	SILT: SAA	**SILT**	Bentonite seal 26 to 29' bgs



Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

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Symbol Key:

Apparent Water Level

Lab Sample Location

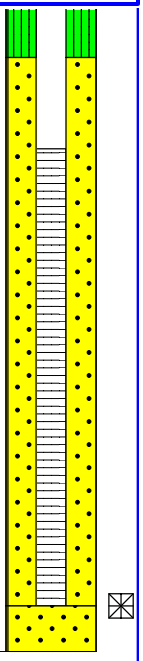
BORING LOG

ID NO. **MW-23**

Groundwater and Environmental Services, Inc.

PROJECT:	**General Chemical Corporation**	SURFACE ELEV.:	**NSVD**	TOTAL DEPTH:	**42' bgs**
ADDRESS:	**133-138 Leland St., Framingham, MA**	WATER DEPTH	**~8' bgs**	CASING EL.:	**NSVD**
JOB NO.	**1603978**	BOREHOLE DIA.:	**8"**	WELL DIA.:	**2"**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec-overy	SAMPLE LITHOLOGY	Stratigraphy	COMPLETION DETAILS
	28-30'	849	3/4/4/5	13 of 24"	SILT: SAA		
30	30-32'	161	5/6/6/7	21 of 24"	SILT: SAA		Silica sand pack 29 to 41' bgs
	32-34'	230	6/4/5/5	22 of 24"	SILT: SAA		
	34-36'	11.4	4/4/3/5	14 of 24"	SILT: SAA, light brown		2" PVC well screen 31 to 41' bgs
35	36-38'	10.5	4/4/5/5	17 of 24"	SILT: SAA		Well completed at 41' bgs
	38-40'	6.9	2/2/4/5	12 of 24"	SILTY CLAY: Top 9": tan silty clay. Bottom 3": reddish brown fine sand (red stained liquid)	**SILTY CLAY**	
40	40-42'	1,963	8/12/9/10	24 of 24"	CLAY AND SAND: Top 10": SAA (red stained liquid). Bottom 14": tan clay	**CLAY AND SAND**	Boring terminated at 42' bgs



Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

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Symbol Key:

Apparent Water Level

Lab Sample Location

Appendix F

Soil Sampling Analytical Laboratory Reports (2011 Subsurface Investigation)

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

August 19, 2011 3:46:48PM

Client: GES Westford (10650)
364 Littleton Road, Suite 4
Westford, MA 01886
Attn: Stefan Sokol

Work Order: NUG4220
Project Name: General Chemical
Project Nbr: Framingham, MA
P/O Nbr: 1603978
Date Received: 07/29/11

SAMPLE IDENTIFICATION	LAB NUMBER	COLLECTION DATE AND TIME
MW-15 (24-26')	NUG4220-01	07/26/11 13:40
Trip Blank	NUG4220-02	07/26/11 08:00

An executed copy of the chain of custody, the project quality control data, and the sample receipt form are also included as an addendum to this report. If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-800-765-0980. These results relate only to the items tested, and this report may not be reproduced except in full and with the permission of the Laboratory. Any opinions, if expressed, are outside the scope of the Laboratory's accredidation.

This material is intended only for the use of the individual(s) or entity to whom it is addressed, and may contain information that is privileged and confidential. If you are not the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this material is strictly prohibited. If you have received this material in error, please notify us immediately at 615-726-0177.

Certification Number: M-TN032

EPH/VPH Qualifications

*C11-C22 Aromatic hydrocarbons exclude concentration of PAH's.

*HydroCarbon Range data exclude area counts of any surrogate(s) and/or internal standards eluting in that range.
*VPH C5-C8 Aliphatic Hydrocarbons exclude the concentration of Target Analytes eluting in that range.
*Adjusted C5-C8 Aliphatic Hydrocarbons range excluded the concentrations of MTBE, Benzene and Toluene.
*VPH C9-C12 Aliphatic Hydrocarbons exclude target analytes eluting in that range AND concentration of C9-C10 Aromatic Hydrocarbons.
*Adjusted C9-C12 Aliphatic Hydrocarbon range excludes the concentration of Ethylbenzene, m-, p-, and o- Xylene and the C9-C10 Aromatic Hydrocarbon values.

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4220
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

Additional Laboratory Comments:
All samples were received in good condition, properly preserved, and properly labeled. All analyses were completed within holding times.

All no responses from the attached "MCP Response Action Analytical Report Certification Form" are addressed below.

A. The VPH soil sample ratio of sample to methanol was outside the required +/- 25% for sample MW-15 (24-26').

G. The EPH reporting limits for the PAHs were above the MADEP CAM limits. There were no other reporting limits specified to meet.

The volatile reporting limit for 1,4-Dioxane was above the MADEP CAM limits. There were no other reporting limits specified to meet.

The semi-volatile reporting limits for azobenzene, aniline, 3,3-dichlorobenzidine, 2,4-dinitrophenol, 4-nitrophenol, Pentachlorophenol, and 2,4,5-trichlorophenol were above the MADEP CAM limits. There were no other reporting limits specified to meet.

H. The EPH surrogate recovery for 2-Fluorobiphenyl in the blank spike duplicate in batch 11H0317 was outside QC limits. The recoveries for the target analytes were within QC limits; therefore the data was accepted without further analysis.

The EPH blank spike duplicate (LCSD) recoveries for 2-Methylnaphthalene and Naphthalene were outside QC Limits. The recoveries were within QC range in the blank spike (LCS).

The EPH blank spike duplicate (LCSD) RPD for 2-Methylnaphthalene, Acenaphthene, Anthracene and Napthalene in batch 11H0317 were outside QC limits. All of the recoveries were within QC range in the blank spike (LCS).

The Volatile method blank for batch 11H0292 was positive above the reporting limits for Acetone, 2-Butanone, and Tetrahydrofuran. The associated samples were non-detect at the reporting limits; therefore the data was accepted without further analysis.

The volatile blank spike and/or blank spike duplicate (LCS/LCSD) recoveries for Acetone, 2,2-Dichloropropane and 1,4-Dioxane in batch 11H0292 were outside QC limits. Less than 10% of the analytes were outside criteria and the recoveries were within greater than 10%; therefore the data was accepted without further analysis.

The volatile blank spike duplicate (LCSD) RPD for 1,4-Dioxane and Isopropylbenzene in batch 11H0292 were outside QC limits.

A sample was not submitted for MS/MSD for the metals analysis.

I. The full MCP Metals CAM analyte list was not reported. Only those analytes requested on the chain of custody by the client were reported.

The Chain(s) of Custody, 2 pages, are included and are an integral part of this report.

These results relate only to the items tested. This report shall not be reproduced except in full and with permission of the laboratory.

All solids results are reported in wet weight unless specifically stated.
Estimated uncertainty is available upon request.
This report has been electronically signed.
Report Approved By:

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650) 364 Littleton Road, Suite 4 Westford, MA 01886	Work Order:	NUG4220
		Project Name:	General Chemical
		Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

Jennifer Huckaba

Jennifer Huckaba

Senior Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4220
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

Sample Cooler Information

Lab ID	Cooler ID	Temp	Seals	Containers Intact	Preservation Confirmed	On Ice
	5994	0.C	Yes	Yes	No	Yes

MassDEP Analytical Protocol Certification Form

Laboratory Name: TestAmerica Analytical Testing Corporation — Project #: Framingham, MA

Project Location: General Chemical — RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):
NUG4220

Matrices: Groundwater/Surface Water (Soil/Sediment) Drinking Water Air Other:

CAM Protocol (check all that apply below):

8260 VOC CAM II A X	7470/7471 Hg CAM III B	MassDEP VPH CAM IV A X	8081 Pesticides CAM V B	7196 Hex Cr CAM VI B	MassDEP APH CAM IX A
8270 SVOC CAM II B X	7010 Metals CAM III C	MassDEP EPH CAM IV B X	8151 Herbicides CAM V C	8330 Explosives CAM VIII A	TO-15 VOC CAM IX B
6010 Metals CAM III A X	6020 Metals CAM III D	8082 PCB CAM V A	9014 Total Cyanide/PAC CAM VI A	6860 Perchlorate CAM VIII B	

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	Yes (No)
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	(Yes) No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	(Yes) No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	(Yes) No
E	VPH, EPH, APH, and TO-15 only: a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	(Yes) No Yes No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	(Yes) No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	Yes (No[1])

***Data User Note:** Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.*

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	Yes (No[1])
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	Yes (No[1])

[1]*All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Jennifer Huckaba — **Position:** Sr Proj Mgr.

Printed Name: Jennifer Huckaba — **Date:** 8-19-11

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4220
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4220-01 (MW-15 (24-26') - Soil) Sampled: 07/26/11 13:40										
General Chemistry Parameters										
% Dry Solids	**81.8**	%		0.500	1	08/09/11 11:43	08/10/11 10:59	RRS	SW-846	11H2020
Total Organic Carbon	ND	mg/kg dry		1000	1	08/09/11 09:34	08/15/11 09:38	SHJ	SW846 9060M	11H2048

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	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4220-01 (MW-15 (24-26') - Soil) - cont. Sampled: 07/26/11 13:40										
MADEP VPH										
Received on MeOH	Yes									
MeOH Covers Soil	Yes									
Methyl tert-Butyl Ether	ND	mg/kg dry		0.0979	50	07/26/11 13:40	08/03/11 14:33	KAR2	MADEP VPH	11H0638
Benzene	ND	mg/kg dry		0.0979	50	07/26/11 13:40	08/03/11 14:33	KAR2	MADEP VPH	11H0638
Toluene	ND	mg/kg dry		0.294	50	07/26/11 13:40	08/03/11 14:33	KAR2	MADEP VPH	11H0638
Ethylbenzene	ND	mg/kg dry		0.0979	50	07/26/11 13:40	08/03/11 14:33	KAR2	MADEP VPH	11H0638
m,p-Xylene	ND	mg/kg dry		0.391	50	07/26/11 13:40	08/03/11 14:33	KAR2	MADEP VPH	11H0638
o-Xylene	ND	mg/kg dry		0.196	50	07/26/11 13:40	08/03/11 14:33	KAR2	MADEP VPH	11H0638
Naphthalene	ND	mg/kg dry		0.489	50	07/26/11 13:40	08/03/11 14:33	KAR2	MADEP VPH	11H0638
C5 - C8 Aliphatic Hydrocarbons, Unadjuste	ND	mg/kg dry		9.79	50	07/26/11 13:40	08/03/11 14:33	KAR2	MADEP VPH	11H0638
C9 - C12 Aliphatic Hydrocarbons, Unadjust	ND	mg/kg dry		9.79	50	07/26/11 13:40	08/03/11 14:33	KAR2	MADEP VPH	11H0638
C5 - C8 Aliphatic Hydrocarbons	ND	mg/kg dry		9.79	50	07/26/11 13:40	08/03/11 14:33	KAR2	MADEP VPH	11H0638
C9 - C12 Aliphatic Hydrocarbons	ND	mg/kg dry		9.79	50	07/26/11 13:40	08/03/11 14:33	KAR2	MADEP VPH	11H0638
C9 - C10 Aromatic Hydrocarbons	ND	mg/kg dry		9.79	50	07/26/11 13:40	08/03/11 14:33	KAR2	MADEP VPH	11H0638
Surr: 2,5-Dibromotoluene (FID) (70-130%)	*104 %*						08/03/11 14:33	KAR2	MADEP VPH	11H0638
Surr: 2,5-Dibromotoluene (PID) (70-130%)	*98 %*						08/03/11 14:33	KAR2	MADEP VPH	11H0638

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Client	GES Westford (10650)	Work Order:	NUG4220
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4220-01 (MW-15 (24-26') - Soil) - cont. Sampled: 07/26/11 13:40										
MADEP EPH										
C9 - C18 Aliphatic Hydrocarbons	ND	mg/kg dry		11.6	1	08/03/11 07:00	08/05/11 08:23	jlf	MADEP EPH	11H0317
C19 - C36 Aliphatic Hydrocarbons	ND	mg/kg dry		11.6	1	08/03/11 07:00	08/05/11 08:23	jlf	MADEP EPH	11H0317
C11 - C22 Aromatic Hydrocarbons	ND	mg/kg dry		11.6	1	08/03/11 07:00	08/05/11 08:23	jlf	MADEP EPH	11H0317
C11 - C22 Aromatic Hydrocarbons, Unadjus	ND	mg/kg dry		11.6	1	08/03/11 07:00	08/05/11 08:53	jlf	MADEP EPH	11H0317
2-Methylnaphthalene	ND	mg/kg dry	L2	0.694	1	08/03/11 07:00	08/05/11 08:53	jlf	MADEP EPH	11H0317
Acenaphthene	ND	mg/kg dry		1.16	1	08/03/11 07:00	08/05/11 08:53	jlf	MADEP EPH	11H0317
Acenaphthylene	ND	mg/kg dry		1.16	1	08/03/11 07:00	08/05/11 08:53	jlf	MADEP EPH	11H0317
Anthracene	ND	mg/kg dry		1.16	1	08/03/11 07:00	08/05/11 08:53	jlf	MADEP EPH	11H0317
Benzo (a) anthracene	ND	mg/kg dry		0.694	1	08/03/11 07:00	08/05/11 08:53	jlf	MADEP EPH	11H0317
Benzo (a) pyrene	ND	mg/kg dry		0.694	1	08/03/11 07:00	08/05/11 08:53	jlf	MADEP EPH	11H0317
Benzo (b) fluoranthene	ND	mg/kg dry		0.694	1	08/03/11 07:00	08/05/11 08:53	jlf	MADEP EPH	11H0317
Benzo (g,h,i) perylene	ND	mg/kg dry		1.16	1	08/03/11 07:00	08/05/11 08:53	jlf	MADEP EPH	11H0317
Benzo (k) fluoranthene	ND	mg/kg dry		1.16	1	08/03/11 07:00	08/05/11 08:53	jlf	MADEP EPH	11H0317
Chrysene	ND	mg/kg dry		1.16	1	08/03/11 07:00	08/05/11 08:53	jlf	MADEP EPH	11H0317
Dibenz (a,h) anthracene	ND	mg/kg dry		0.694	1	08/03/11 07:00	08/05/11 08:53	jlf	MADEP EPH	11H0317
Fluoranthene	ND	mg/kg dry		1.16	1	08/03/11 07:00	08/05/11 08:53	jlf	MADEP EPH	11H0317
Fluorene	ND	mg/kg dry		1.16	1	08/03/11 07:00	08/05/11 08:53	jlf	MADEP EPH	11H0317
Indeno (1,2,3-cd) pyrene	ND	mg/kg dry		0.694	1	08/03/11 07:00	08/05/11 08:53	jlf	MADEP EPH	11H0317
Naphthalene	ND	mg/kg dry	L2	1.16	1	08/03/11 07:00	08/05/11 08:53	jlf	MADEP EPH	11H0317
Phenanthrene	ND	mg/kg dry		1.16	1	08/03/11 07:00	08/05/11 08:53	jlf	MADEP EPH	11H0317
Pyrene	ND	mg/kg dry		1.16	1	08/03/11 07:00	08/05/11 08:53	jlf	MADEP EPH	11H0317
Surr: 1-Chlorooctadecane (40-140%)	*93 %*						08/05/11 08:23	jlf	MADEP EPH	11H0317
Surr: o-Terphenyl (40-140%)	*86 %*						08/05/11 08:53	jlf	MADEP EPH	11H0317
Surr: 2-Fluorobiphenyl (40-140%)	*99 %*						08/05/11 08:53	jlf	MADEP EPH	11H0317
Surr: 2-Bromonaphthalene (40-140%)	*74 %*						08/05/11 08:53	jlf	MADEP EPH	11H0317

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Client	GES Westford (10650)	Work Order:	NUG4220
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Sample ID: NUG4220-01 (MW-15 (24-26') - Soil) - cont. Sampled: 07/26/11 13:40

Volatile Organic - MCP CAM Method 8260

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acetone	ND	mg/kg dry	L	2.29	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Tert-Amyl Methyl Ether	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Benzene	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Bromobenzene	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Bromochloromethane	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Bromodichloromethane	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Bromoform	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Bromomethane	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
2-Butanone	ND	mg/kg dry		2.29	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
tert-Butylbenzene	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
n-Butylbenzene	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
sec-Butylbenzene	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Carbon disulfide	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Carbon Tetrachloride	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Chlorobenzene	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Chlorodibromomethane	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Chloroethane	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Chloroform	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Chloromethane	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
2-Chlorotoluene	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
4-Chlorotoluene	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
1,2-Dibromo-3-chloropropane	ND	mg/kg dry		0.229	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
1,2-Dibromoethane (EDB)	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Dibromomethane	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
1,2-Dichlorobenzene	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
1,3-Dichlorobenzene	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
1,4-Dichlorobenzene	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Dichlorodifluoromethane	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
1,2-Dichloroethane	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
1,1-Dichloroethane	**0.140**	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
1,1-Dichloroethene	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
trans-1,2-Dichloroethene	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
cis-1,2-Dichloroethene	**3.93**	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
1,3-Dichloropropane	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
2,2-Dichloropropane	ND	mg/kg dry	L	0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
1,2-Dichloropropane	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
trans-1,3-Dichloropropene	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
1,1-Dichloropropene	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
cis-1,3-Dichloropropene	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Diethyl ether	ND	mg/kg dry		0.229	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292

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Client	GES Westford (10650)	Work Order:	NUG4220
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Sample ID: NUG4220-01 (MW-15 (24-26') - Soil) - cont. Sampled: 07/26/11 13:40

Volatile Organic - MCP CAM Method 8260 - cont.

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
1,4-Dioxane	ND	mg/kg dry	L2	22.9	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Ethylbenzene	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Ethyl tert-Butyl Ether	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Hexachlorobutadiene	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
2-Hexanone	ND	mg/kg dry		2.29	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Isopropylbenzene	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Diisopropyl Ether	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
p-Isopropyltoluene	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Methyl tert-Butyl Ether	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Methylene Chloride	ND	mg/kg dry		0.229	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
4-Methyl-2-pentanone	ND	mg/kg dry		2.29	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Naphthalene	ND	mg/kg dry		0.229	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
n-Propylbenzene	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Styrene	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
1,1,2,2-Tetrachloroethane	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
1,1,1,2-Tetrachloroethane	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Tetrachloroethene	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Tetrahydrofuran	ND	mg/kg dry		0.229	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Toluene	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.229	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
1,2,3-Trichlorobenzene	ND	mg/kg dry		0.229	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
1,1,1-Trichloroethane	**1.32**	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
1,1,2-Trichloroethane	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Trichloroethene	**0.138**	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Trichlorofluoromethane	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
1,2,3-Trichloropropane	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
1,3,5-Trimethylbenzene	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
1,2,4-Trimethylbenzene	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Vinyl chloride	ND	mg/kg dry		0.115	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Xylenes, total	ND	mg/kg dry		0.344	50	07/26/11 13:40	08/07/11 18:25	EML	SW846 8260B	11H0292
Surr: 1,2-Dichloroethane-d4 (70-130%)	*100 %*						08/07/11 18:25	EML	SW846 8260B	11H0292
Surr: Dibromofluoromethane (70-130%)	*100 %*						08/07/11 18:25	EML	SW846 8260B	11H0292
Surr: Toluene-d8 (70-130%)	*93 %*						08/07/11 18:25	EML	SW846 8260B	11H0292
Surr: 4-Bromofluorobenzene (70-130%)	*104 %*						08/07/11 18:25	EML	SW846 8260B	11H0292

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THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4220
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4220-01 (MW-15 (24-26') - Soil) - cont. Sampled: 07/26/11 13:40										
Total Metals by EPA 6010C										
Iron	**6630**	mg/kg		9.88	1	08/04/11 07:11	08/06/11 03:03	LTB	SW846 6010C	11H0287
Manganese	**51.5**	mg/kg		0.988	1	08/04/11 07:11	08/06/11 03:03	LTB	SW846 6010C	11H0287

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Client	GES Westford (10650)	Work Order:	NUG4220
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Sample ID: NUG4220-01 (MW-15 (24-26') - Soil) - cont. Sampled: 07/26/11 13:40

Semivolatile Organic Compounds by EPA Method 8270D

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acenaphthene	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Acenaphthylene	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Azobenzene	ND	mg/kg dry		2.03	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Aniline	ND	mg/kg dry		0.812	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Anthracene	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Benzo (a) anthracene	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Benzo (a) pyrene	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Benzo (b) fluoranthene	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Benzo (g,h,i) perylene	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Benzo (k) fluoranthene	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Bis(2-chloroethoxy)methane	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Bis(2-chloroethyl)ether	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Bis(2-chloroisopropyl)ether	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Bis(2-ethylhexyl)phthalate	**0.412**	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
4-Bromophenyl phenyl ether	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Butyl benzyl phthalate	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
4-Chloroaniline	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
2-Chloronaphthalene	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
2-Chlorophenol	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
4-Chlorophenyl phenyl ether	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Chrysene	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Dibenz (a,h) anthracene	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Dibenzofuran	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Di-n-butyl phthalate	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
3,3-Dichlorobenzidine	ND	mg/kg dry		0.812	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
1,2-Dichlorobenzene	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
1,3-Dichlorobenzene	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
1,4-Dichlorobenzene	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
2,4-Dichlorophenol	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Diethyl phthalate	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
2,4-Dimethylphenol	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Dimethyl phthalate	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
2,4-Dinitrophenol	ND	mg/kg dry		1.01	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
2,4-Dinitrotoluene	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
2,6-Dinitrotoluene	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Di-n-octyl phthalate	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Fluoranthene	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Fluorene	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Hexachlorobenzene	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Hexachlorobutadiene	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4220
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4220-01 (MW-15 (24-26') - Soil) - cont. Sampled: 07/26/11 13:40										
Semivolatile Organic Compounds by EPA Method 8270D - cont.										
Hexachloroethane	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Indeno (1,2,3-cd) pyrene	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Isophorone	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
2-Methylnaphthalene	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
2-Methylphenol	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
3/4-Methylphenol	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Naphthalene	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Nitrobenzene	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
2-Nitrophenol	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
4-Nitrophenol	ND	mg/kg dry		1.01	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Pentachlorophenol	ND	mg/kg dry		1.01	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Phenanthrene	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Phenol	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Pyrene	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
2,4,5-Trichlorophenol	ND	mg/kg dry		1.01	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
2,4,6-Trichlorophenol	ND	mg/kg dry		0.405	1	08/02/11 09:01	08/07/11 18:26	KJP	SW846 8270D	11H0318
Surr: 2-Fluorophenol (30-130%)	*74 %*						08/07/11 18:26	KJP	SW846 8270D	11H0318
Surr: Phenol-d5 (30-130%)	*70 %*						08/07/11 18:26	KJP	SW846 8270D	11H0318
Surr: 2-Fluorobiphenyl (30-130%)	*75 %*						08/07/11 18:26	KJP	SW846 8270D	11H0318
Surr: Nitrobenzene-d5 (30-130%)	*67 %*						08/07/11 18:26	KJP	SW846 8270D	11H0318
Surr: Terphenyl-d14 (30-130%)	*92 %*						08/07/11 18:26	KJP	SW846 8270D	11H0318
Surr: 2,4,6-Tribromophenol (30-130%)	*76 %*						08/07/11 18:26	KJP	SW846 8270D	11H0318

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4220
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4220-02 (Trip Blank - Soil) Sampled: 07/26/11 08:00										
Volatile Organic - MCP CAM Method 8260										
Acetone	ND	mg/kg wet	L	1.00	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Tert-Amyl Methyl Ether	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Benzene	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Bromobenzene	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Bromochloromethane	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Bromodichloromethane	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Bromoform	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Bromomethane	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
2-Butanone	ND	mg/kg wet		1.00	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
tert-Butylbenzene	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
n-Butylbenzene	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
sec-Butylbenzene	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Carbon disulfide	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Carbon Tetrachloride	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Chlorobenzene	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Chlorodibromomethane	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Chloroethane	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Chloroform	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Chloromethane	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
2-Chlorotoluene	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
4-Chlorotoluene	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
1,2-Dibromo-3-chloropropane	ND	mg/kg wet		0.100	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
1,2-Dibromoethane (EDB)	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Dibromomethane	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
1,2-Dichlorobenzene	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
1,3-Dichlorobenzene	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
1,4-Dichlorobenzene	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Dichlorodifluoromethane	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
1,2-Dichloroethane	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
1,1-Dichloroethane	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
1,1-Dichloroethene	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
trans-1,2-Dichloroethene	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
cis-1,2-Dichloroethene	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
1,3-Dichloropropane	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
2,2-Dichloropropane	ND	mg/kg wet	L	0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
1,2-Dichloropropane	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
trans-1,3-Dichloropropene	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
1,1-Dichloropropene	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
cis-1,3-Dichloropropene	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Diethyl ether	ND	mg/kg wet		0.100	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292

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THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4220
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4220-02 (Trip Blank - Soil) - cont. Sampled: 07/26/11 08:00										
Volatile Organic - MCP CAM Method 8260 - cont.										
1,4-Dioxane	ND	mg/kg wet	L2	10.0	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Ethylbenzene	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Ethyl tert-Butyl Ether	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Hexachlorobutadiene	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
2-Hexanone	ND	mg/kg wet		1.00	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Isopropylbenzene	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Diisopropyl Ether	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
p-Isopropyltoluene	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Methyl tert-Butyl Ether	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Methylene Chloride	ND	mg/kg wet		0.100	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
4-Methyl-2-pentanone	ND	mg/kg wet		1.00	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Naphthalene	ND	mg/kg wet		0.100	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
n-Propylbenzene	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Styrene	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
1,1,2,2-Tetrachloroethane	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
1,1,1,2-Tetrachloroethane	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Tetrachloroethene	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Tetrahydrofuran	ND	mg/kg wet		0.100	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Toluene	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
1,2,4-Trichlorobenzene	ND	mg/kg wet		0.100	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
1,2,3-Trichlorobenzene	ND	mg/kg wet		0.100	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
1,1,1-Trichloroethane	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
1,1,2-Trichloroethane	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Trichloroethene	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Trichlorofluoromethane	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
1,2,3-Trichloropropane	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
1,3,5-Trimethylbenzene	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
1,2,4-Trimethylbenzene	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Vinyl chloride	ND	mg/kg wet		0.0500	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Xylenes, total	ND	mg/kg wet		0.150	50	07/26/11 08:00	08/07/11 14:10	EML	SW846 8260B	11H0292
Surr: 1,2-Dichloroethane-d4 (70-130%)	*99 %*						08/07/11 14:10	EML	SW846 8260B	11H0292
Surr: Dibromofluoromethane (70-130%)	*98 %*						08/07/11 14:10	EML	SW846 8260B	11H0292
Surr: Toluene-d8 (70-130%)	*95 %*						08/07/11 14:10	EML	SW846 8260B	11H0292
Surr: 4-Bromofluorobenzene (70-130%)	*102 %*						08/07/11 14:10	EML	SW846 8260B	11H0292

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4220
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

SAMPLE EXTRACTION DATA

Parameter	Batch	Lab Number	Wt/Vol Extracted	Extract Vol	Date	Analyst	Extraction Method
MADEP EPH							
MADEP EPH	11H0317	NUG4220-01	10.58	1.00	08/03/11 07:00	JJR	MADEP soil
MADEP VPH							
MADEP VPH	11H0335	NUG4220-01	10.58	15.00	07/26/11 13:40	KAR2	MADEP
MADEP VPH	11H0638	NUG4220-01RE1	10.58	15.00	07/26/11 13:40	KAR2	MADEP
Semivolatile Organic Compounds by EPA Method 8270D							
SW846 8270D	11H0318	NUG4220-01	15.07	1.00	08/02/11 09:01	JJR	EPA 3541
Total Metals by EPA 6010C							
SW846 6010C	11H0287	NUG4220-01	0.51	100.00	08/04/11 07:11	RSO	EPA 3051A/6010
SW846 6010C	11H0287	NUG4220-01	0.51	100.00	08/04/11 07:11	RSO	EPA 3051A/6010
Volatile Organic - MCP CAM Method 8260							
SW846 8260B	11H0292	NUG4220-01	5.33	10.00	07/26/11 13:40	AAN	EPA 5035
SW846 8260B	11H2363	NUG4220-01RE1	5.33	10.00	07/26/11 13:40	AAN	EPA 5035
SW846 8260B	11H0292	NUG4220-02	10.00	10.00	07/26/11 08:00	AAN	EPA 5035

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Client	GES Westford (10650)	Work Order:	NUG4220
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
Blank

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
General Chemistry Parameters						
11H2048-BLK1						
Total Organic Carbon	784		mg/kg wet	11H2048	11H2048-BLK1	08/15/11 09:38
MADEP VPH						
11H0638-BLK1						
Methyl tert-Butyl Ether	<0.0350		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
Benzene	<0.0200		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
Toluene	<0.0250		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
Ethylbenzene	<0.0250		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
m,p-Xylene	<0.0650		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
o-Xylene	<0.0300		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
Naphthalene	0.200		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
C5 - C8 Aliphatic Hydrocarbons, Unadjustec	<2.50		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
C9 - C12 Aliphatic Hydrocarbons, Unadjuste	<2.50		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
C5 - C8 Aliphatic Hydrocarbons	<2.50		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
C9 - C12 Aliphatic Hydrocarbons	<2.50		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
C9 - C10 Aromatic Hydrocarbons	<2.50		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
Surrogate: 2,5-Dibromotoluene (FID)	99%			11H0638	11H0638-BLK1	08/03/11 12:26
Surrogate: 2,5-Dibromotoluene (PID)	95%			11H0638	11H0638-BLK1	08/03/11 12:26
MADEP EPH						
11H0317-BLK1						
C9 - C18 Aliphatic Hydrocarbons	<1.90		mg/kg wet	11H0317	11H0317-BLK1	08/04/11 14:38
C19 - C36 Aliphatic Hydrocarbons	<1.90		mg/kg wet	11H0317	11H0317-BLK1	08/04/11 14:38
C11 - C22 Aromatic Hydrocarbons	<1.40		mg/kg wet	11H0317	11H0317-BLK1	08/04/11 14:38
C11 - C22 Aromatic Hydrocarbons, Unadjus	<1.40		mg/kg wet	11H0317	11H0317-BLK1	08/04/11 15:09
Surrogate: 1-Chlorooctadecane	74%			11H0317	11H0317-BLK1	08/04/11 14:38
Surrogate: o-Terphenyl	71%			11H0317	11H0317-BLK1	08/04/11 15:09
Surrogate: 2-Fluorobiphenyl	105%			11H0317	11H0317-BLK1	08/04/11 15:09
Surrogate: 2-Bromonaphthalene	106%			11H0317	11H0317-BLK1	08/04/11 15:09
11H0317-BLK2						
2-Methylnaphthalene	<0.0210	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Acenaphthene	<0.0140	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Acenaphthylene	<0.0200	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Anthracene	<0.00900	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Benzo (a) anthracene	<0.0110	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Benzo (a) pyrene	<0.00800	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Benzo (b) fluoranthene	<0.0380	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Benzo (g,h,i) perylene	<0.00900	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Benzo (k) fluoranthene	<0.0370	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Chrysene	<0.0310	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4220
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
MADEP EPH						
11H0317-BLK2						
Dibenz (a,h) anthracene	<0.0150	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Fluoranthene	<0.0110	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Fluorene	<0.0200	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Indeno (1,2,3-cd) pyrene	<0.0310	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Naphthalene	<0.0140	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Phenanthrene	<0.0100	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Pyrene	<0.0230	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Volatile Organic - MCP CAM Method 8260						
11H0292-BLK1						
Acetone	1.23		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Tert-Amyl Methyl Ether	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Benzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromobenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromochloromethane	<0.0120		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromodichloromethane	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromoform	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromomethane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
2-Butanone	2.92		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
tert-Butylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
n-Butylbenzene	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
sec-Butylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Carbon disulfide	<0.00650		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Carbon Tetrachloride	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Chlorobenzene	<0.00950		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Chlorodibromomethane	<0.0105		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Chloroethane	<0.0105		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Chloroform	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Chloromethane	<0.0150		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
2-Chlorotoluene	<0.00700		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
4-Chlorotoluene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dibromo-3-chloropropane	<0.0135		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dibromoethane (EDB)	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Dibromomethane	<0.00800		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dichlorobenzene	<0.00650		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,3-Dichlorobenzene	<0.00700		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,4-Dichlorobenzene	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Dichlorodifluoromethane	<0.00700		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dichloroethane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1-Dichloroethane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1-Dichloroethene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4220
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11H0292-BLK1						
trans-1,2-Dichloroethene	<0.00800		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
cis-1,2-Dichloroethene	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,3-Dichloropropane	<0.00550		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
2,2-Dichloropropane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dichloropropane	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
trans-1,3-Dichloropropene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1-Dichloropropene	<0.00550		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
cis-1,3-Dichloropropene	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Diethyl ether	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,4-Dioxane	<0.900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Ethylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Ethyl tert-Butyl Ether	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Hexachlorobutadiene	<0.0130		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
2-Hexanone	<0.0355		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Isopropylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Diisopropyl Ether	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
p-Isopropyltoluene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Methyl tert-Butyl Ether	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Methylene Chloride	<0.0835		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
4-Methyl-2-pentanone	<0.165		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Naphthalene	<0.0850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
n-Propylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Styrene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,2,2-Tetrachloroethane	<0.00700		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,1,2-Tetrachloroethane	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Tetrachloroethene	<0.00950		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Tetrahydrofuran	0.201		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Toluene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2,4-Trichlorobenzene	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2,3-Trichlorobenzene	0.0125		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,1-Trichloroethane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,2-Trichloroethane	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Trichloroethene	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Trichlorofluoromethane	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2,3-Trichloropropane	<0.0135		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,3,5-Trimethylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2,4-Trimethylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Vinyl chloride	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Xylenes, total	<0.0195		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,2-Trifluorotrichloroethane	<0.0380		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Surrogate: 1,2-Dichloroethane-d4	101%			11H0292	11H0292-BLK1	08/07/11 11:50

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Client	GES Westford (10650)	Work Order:	NUG4220
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11H0292-BLK1						
Surrogate: Dibromofluoromethane	97%			11H0292	11H0292-BLK1	08/07/11 11:50
Surrogate: Toluene-d8	89%			11H0292	11H0292-BLK1	08/07/11 11:50
Surrogate: 4-Bromofluorobenzene	101%			11H0292	11H0292-BLK1	08/07/11 11:50
Total Metals by EPA 6010C						
11H0287-BLK1						
Iron	5.07		mg/kg	11H0287	11H0287-BLK1	08/06/11 02:22
Manganese	<0.201		mg/kg	11H0287	11H0287-BLK1	08/06/11 02:22
Semivolatile Organic Compounds by EPA Method 8270D						
11H0318-BLK1						
Acenaphthene	<0.0140		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Acenaphthylene	<0.0200		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Azobenzene	<0.173		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Aniline	<0.122		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Anthracene	<0.00900		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Benzo (a) anthracene	<0.0110		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Benzo (a) pyrene	<0.00800		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Benzo (b) fluoranthene	<0.0380		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Benzo (g,h,i) perylene	<0.00900		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Benzo (k) fluoranthene	<0.0370		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Bis(2-chloroethoxy)methane	<0.128		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Bis(2-chloroethyl)ether	<0.151		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Bis(2-chloroisopropyl)ether	<0.158		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Bis(2-ethylhexyl)phthalate	<0.126		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
4-Bromophenyl phenyl ether	<0.150		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Butyl benzyl phthalate	<0.125		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
4-Chloroaniline	<0.103		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2-Chloronaphthalene	<0.150		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2-Chlorophenol	<0.149		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
4-Chlorophenyl phenyl ether	<0.148		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Chrysene	<0.0310		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Dibenz (a,h) anthracene	<0.0150		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Dibenzofuran	<0.0140		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Di-n-butyl phthalate	<0.141		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
3,3-Dichlorobenzidine	<0.0480		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
1,2-Dichlorobenzene	<0.154		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
1,3-Dichlorobenzene	<0.143		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
1,4-Dichlorobenzene	<0.147		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2,4-Dichlorophenol	<0.131		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Diethyl phthalate	<0.148		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4220
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270D						
11H0318-BLK1						
2,4-Dimethylphenol	<0.137		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Dimethyl phthalate	<0.157		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2,4-Dinitrophenol	<0.0990		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2,4-Dinitrotoluene	<0.140		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2,6-Dinitrotoluene	<0.150		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Di-n-octyl phthalate	<0.135		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Fluoranthene	<0.0110		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Fluorene	<0.0200		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Hexachlorobenzene	<0.153		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Hexachlorobutadiene	<0.174		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Hexachloroethane	<0.150		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Indeno (1,2,3-cd) pyrene	<0.0310		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Isophorone	<0.135		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2-Methylnaphthalene	<0.0210		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2-Methylphenol	<0.189		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
3/4-Methylphenol	<0.166		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Naphthalene	<0.0140		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Nitrobenzene	<0.159		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2-Nitrophenol	<0.196		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
4-Nitrophenol	<0.153		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Pentachlorophenol	<0.123		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Phenanthrene	<0.0100		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Phenol	<0.131		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Pyrene	<0.0230		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
1,2,4-Trichlorobenzene	<0.144		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2,4,5-Trichlorophenol	<0.148		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2,4,6-Trichlorophenol	<0.149		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Surrogate: 2-Fluorophenol	83%			11H0318	11H0318-BLK1	08/07/11 15:02
Surrogate: Phenol-d5	81%			11H0318	11H0318-BLK1	08/07/11 15:02
Surrogate: 2-Fluorobiphenyl	78%			11H0318	11H0318-BLK1	08/07/11 15:02
Surrogate: Nitrobenzene-d5	76%			11H0318	11H0318-BLK1	08/07/11 15:02
Surrogate: Terphenyl-d14	97%			11H0318	11H0318-BLK1	08/07/11 15:02
Surrogate: 2,4,6-Tribromophenol	81%			11H0318	11H0318-BLK1	08/07/11 15:02

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4220
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
Duplicate

Analyte	Orig. Val.	Duplicate	Q	Units	RPD	Limit	Batch	Sample Duplicated	% Rec.	Analyzed Date/Time
General Chemistry Parameters										
11H2048-DUP1										
Total Organic Carbon	948	761		mg/kg dry	22	35	11H2048	NUG4220-01		08/15/11 09:38

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4220
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
General Chemistry Parameters								
11H2048-BS1								
Total Organic Carbon	29900	31700		mg/kg wet	106%	80 - 120	11H2048	08/15/11 09:38
MADEP VPH								
11H0638-BS1								
Methyl tert-Butyl Ether	0.100	0.0911		mg/kg wet	91%	70 - 130	11H0638	08/03/11 10:45
Benzene	0.100	0.0973		mg/kg wet	97%	70 - 130	11H0638	08/03/11 10:45
Toluene	0.100	0.0949		mg/kg wet	95%	70 - 130	11H0638	08/03/11 10:45
Ethylbenzene	0.100	0.0971		mg/kg wet	97%	70 - 130	11H0638	08/03/11 10:45
m,p-Xylene	0.200	0.195		mg/kg wet	98%	70 - 130	11H0638	08/03/11 10:45
o-Xylene	0.100	0.0962		mg/kg wet	96%	70 - 130	11H0638	08/03/11 10:45
Naphthalene	0.100	0.0912		mg/kg wet	91%	70 - 130	11H0638	08/03/11 10:45
C5 - C8 Aliphatic Hydrocarbons, Unadjusted	0.300	0.307		mg/kg wet	102%	70 - 130	11H0638	08/03/11 10:45
C9 - C12 Aliphatic Hydrocarbons, Unadjusted	0.200	0.214		mg/kg wet	107%	70 - 130	11H0638	08/03/11 10:45
C9 - C10 Aromatic Hydrocarbons	0.100	0.0983		mg/kg wet	98%	70 - 130	11H0638	08/03/11 10:45
Surrogate: 2,5-Dibromotoluene (FID)	40.0	38.8			97%	70 - 130	11H0638	08/03/11 10:45
Surrogate: 2,5-Dibromotoluene (PID)	40.0	37.6			94%	70 - 130	11H0638	08/03/11 10:45
MADEP EPH								
11H0317-BS1								
C9 - C18 Aliphatic Hydrocarbons	15.0	10.8		mg/kg wet	72%	40 - 140	11H0317	08/04/11 15:40
C19 - C36 Aliphatic Hydrocarbons	20.0	14.9		mg/kg wet	74%	40 - 140	11H0317	08/04/11 15:40
C11 - C22 Aromatic Hydrocarbons, Unadjustec	42.5	34.4		mg/kg wet	81%	40 - 140	11H0317	08/04/11 16:10
Surrogate: 1-Chlorooctadecane	4.00	3.16			79%	40 - 140	11H0317	08/04/11 15:40
Surrogate: o-Terphenyl	4.00	3.46			86%	40 - 140	11H0317	08/04/11 16:10
Surrogate: 2-Fluorobiphenyl	4.00	4.22			105%	40 - 140	11H0317	08/04/11 16:10
Surrogate: 2-Bromonaphthalene	4.00	4.12			103%	40 - 140	11H0317	08/04/11 16:10
11H0317-BS2								
2-Methylnaphthalene	2.50	1.83	T14	mg/kg wet	73%	40 - 140	11H0317	08/05/11 16:36
Acenaphthene	2.50	1.79	T14	mg/kg wet	72%	40 - 140	11H0317	08/05/11 16:36
Acenaphthylene	2.50	1.99	T14	mg/kg wet	80%	40 - 140	11H0317	08/05/11 16:36
Anthracene	2.50	2.18	T14	mg/kg wet	87%	40 - 140	11H0317	08/05/11 16:36
Benzo (a) anthracene	2.50	2.21	T14	mg/kg wet	88%	40 - 140	11H0317	08/05/11 16:36
Benzo (a) pyrene	2.50	2.27	T14	mg/kg wet	91%	40 - 140	11H0317	08/05/11 16:36
Benzo (b) fluoranthene	2.50	2.31	T14	mg/kg wet	92%	40 - 140	11H0317	08/05/11 16:36
Benzo (g,h,i) perylene	2.50	2.16	T14	mg/kg wet	86%	40 - 140	11H0317	08/05/11 16:36
Benzo (k) fluoranthene	2.50	1.93	T14	mg/kg wet	77%	40 - 140	11H0317	08/05/11 16:36
Chrysene	2.50	2.03	T14	mg/kg wet	81%	40 - 140	11H0317	08/05/11 16:36
Dibenz (a,h) anthracene	2.50	2.18	T14	mg/kg wet	87%	40 - 140	11H0317	08/05/11 16:36
Fluoranthene	2.50	2.15	T14	mg/kg wet	86%	40 - 140	11H0317	08/05/11 16:36
Fluorene	2.50	1.97	T14	mg/kg wet	79%	40 - 140	11H0317	08/05/11 16:36

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Client	GES Westford (10650)	Work Order:	NUG4220
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
MADEP EPH								
11H0317-BS2								
Indeno (1,2,3-cd) pyrene	2.50	2.19	T14	mg/kg wet	88%	40 - 140	11H0317	08/05/11 16:36
Naphthalene	2.50	1.80	T14	mg/kg wet	72%	40 - 140	11H0317	08/05/11 16:36
Phenanthrene	2.50	2.14	T14	mg/kg wet	85%	40 - 140	11H0317	08/05/11 16:36
Pyrene	2.50	2.23	T14	mg/kg wet	89%	40 - 140	11H0317	08/05/11 16:36
Volatile Organic - MCP CAM Method 8260								
11H0292-BS1								
Acetone	250	327	L, B	ug/kg	131%	70 - 130	11H0292	08/07/11 09:02
Tert-Amyl Methyl Ether	50.0	48.9		ug/kg	98%	70 - 130	11H0292	08/07/11 09:02
Benzene	50.0	54.6		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
Bromobenzene	50.0	50.6		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02
Bromochloromethane	50.0	52.9		ug/kg	106%	70 - 130	11H0292	08/07/11 09:02
Bromodichloromethane	50.0	53.5		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Bromoform	50.0	40.4		ug/kg	81%	70 - 130	11H0292	08/07/11 09:02
Bromomethane	50.0	56.4		ug/kg	113%	70 - 130	11H0292	08/07/11 09:02
2-Butanone	250	266	B	ug/kg	106%	70 - 130	11H0292	08/07/11 09:02
tert-Butylbenzene	50.0	55.4		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
n-Butylbenzene	50.0	48.9		ug/kg	98%	70 - 130	11H0292	08/07/11 09:02
sec-Butylbenzene	50.0	55.8		ug/kg	112%	70 - 130	11H0292	08/07/11 09:02
Carbon disulfide	50.0	53.6		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Carbon Tetrachloride	50.0	58.7		ug/kg	117%	70 - 130	11H0292	08/07/11 09:02
Chlorobenzene	50.0	53.3		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Chlorodibromomethane	50.0	50.4		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02
Chloroethane	50.0	52.4		ug/kg	105%	70 - 130	11H0292	08/07/11 09:02
Chloroform	50.0	53.9		ug/kg	108%	70 - 130	11H0292	08/07/11 09:02
Chloromethane	50.0	54.5		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
2-Chlorotoluene	50.0	53.5		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
4-Chlorotoluene	50.0	56.1		ug/kg	112%	70 - 130	11H0292	08/07/11 09:02
1,2-Dibromo-3-chloropropane	50.0	44.2		ug/kg	88%	70 - 130	11H0292	08/07/11 09:02
1,2-Dibromoethane (EDB)	50.0	54.3		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
Dibromomethane	50.0	50.0		ug/kg	100%	70 - 130	11H0292	08/07/11 09:02
1,2-Dichlorobenzene	50.0	54.2		ug/kg	108%	70 - 130	11H0292	08/07/11 09:02
1,3-Dichlorobenzene	50.0	55.4		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
1,4-Dichlorobenzene	50.0	53.7		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Dichlorodifluoromethane	50.0	61.7		ug/kg	123%	70 - 130	11H0292	08/07/11 09:02
1,2-Dichloroethane	50.0	52.2		ug/kg	104%	70 - 130	11H0292	08/07/11 09:02
1,1-Dichloroethane	50.0	52.9		ug/kg	106%	70 - 130	11H0292	08/07/11 09:02
1,1-Dichloroethene	50.0	53.3		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
trans-1,2-Dichloroethene	50.0	54.2		ug/kg	108%	70 - 130	11H0292	08/07/11 09:02
cis-1,2-Dichloroethene	50.0	55.5		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
1,3-Dichloropropane	50.0	53.0		ug/kg	106%	70 - 130	11H0292	08/07/11 09:02

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4220
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11H0292-BS1								
2,2-Dichloropropane	50.0	66.4	L	ug/kg	133%	70 - 130	11H0292	08/07/11 09:02
1,2-Dichloropropane	50.0	50.4		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02
trans-1,3-Dichloropropene	50.0	50.3		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02
1,1-Dichloropropene	50.0	55.3		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
cis-1,3-Dichloropropene	50.0	60.1		ug/kg	120%	70 - 130	11H0292	08/07/11 09:02
Diethyl ether	50.0	51.1		ug/kg	102%	70 - 130	11H0292	08/07/11 09:02
1,4-Dioxane	5000	3910		ug/kg	78%	70 - 130	11H0292	08/07/11 09:02
Ethylbenzene	50.0	55.4		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
Ethyl tert-Butyl Ether	50.0	48.0		ug/kg	96%	70 - 130	11H0292	08/07/11 09:02
Hexachlorobutadiene	50.0	60.6		ug/kg	121%	70 - 130	11H0292	08/07/11 09:02
2-Hexanone	250	284		ug/kg	114%	70 - 130	11H0292	08/07/11 09:02
Isopropylbenzene	50.0	42.0		ug/kg	84%	70 - 130	11H0292	08/07/11 09:02
Diisopropyl Ether	50.0	50.9		ug/kg	102%	70 - 130	11H0292	08/07/11 09:02
p-Isopropyltoluene	50.0	55.0		ug/kg	110%	70 - 130	11H0292	08/07/11 09:02
Methyl tert-Butyl Ether	50.0	50.4		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02
Methylene Chloride	50.0	54.0		ug/kg	108%	70 - 130	11H0292	08/07/11 09:02
4-Methyl-2-pentanone	250	232		ug/kg	93%	70 - 130	11H0292	08/07/11 09:02
Naphthalene	50.0	45.8		ug/kg	92%	70 - 130	11H0292	08/07/11 09:02
n-Propylbenzene	50.0	54.4		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
Styrene	50.0	48.4		ug/kg	97%	70 - 130	11H0292	08/07/11 09:02
1,1,2,2-Tetrachloroethane	50.0	47.2		ug/kg	94%	70 - 130	11H0292	08/07/11 09:02
1,1,1,2-Tetrachloroethane	50.0	56.4		ug/kg	113%	70 - 130	11H0292	08/07/11 09:02
Tetrachloroethene	50.0	56.3		ug/kg	113%	70 - 130	11H0292	08/07/11 09:02
Tetrahydrofuran	500	471	B	ug/kg	94%	70 - 130	11H0292	08/07/11 09:02
Toluene	50.0	51.8		ug/kg	104%	70 - 130	11H0292	08/07/11 09:02
1,2,4-Trichlorobenzene	50.0	54.7		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
1,2,3-Trichlorobenzene	50.0	47.1		ug/kg	94%	70 - 130	11H0292	08/07/11 09:02
1,1,1-Trichloroethane	50.0	56.8		ug/kg	114%	70 - 130	11H0292	08/07/11 09:02
1,1,2-Trichloroethane	50.0	53.7		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Trichloroethene	50.0	53.4		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Trichlorofluoromethane	50.0	54.7		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
1,2,3-Trichloropropane	50.0	47.8		ug/kg	96%	70 - 130	11H0292	08/07/11 09:02
1,3,5-Trimethylbenzene	50.0	56.2		ug/kg	112%	70 - 130	11H0292	08/07/11 09:02
1,2,4-Trimethylbenzene	50.0	55.9		ug/kg	112%	70 - 130	11H0292	08/07/11 09:02
Vinyl chloride	50.0	58.7		ug/kg	117%	70 - 130	11H0292	08/07/11 09:02
Xylenes, total	150	157		ug/kg	105%	70 - 130	11H0292	08/07/11 09:02
1,1,2-Trifluorotrichloroethane	50.0	57.4		ug/kg	115%	61 - 134	11H0292	08/07/11 09:02
Surrogate: 1,2-Dichloroethane-d4	25.0	24.6			98%	70 - 130	11H0292	08/07/11 09:02
Surrogate: Dibromofluoromethane	25.0	25.5			102%	70 - 130	11H0292	08/07/11 09:02
Surrogate: Toluene-d8	25.0	24.1			96%	70 - 130	11H0292	08/07/11 09:02
Surrogate: 4-Bromofluorobenzene	25.0	24.8			99%	70 - 130	11H0292	08/07/11 09:02

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4220
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
Total Metals by EPA 6010C								
11H0287-BS1								
Iron	395	426		mg/kg	108%	80 - 120	11H0287	08/06/11 02:25
Manganese	198	203		mg/kg	103%	80 - 120	11H0287	08/06/11 02:25
Semivolatile Organic Compounds by EPA Method 8270D								
11H0318-BS1								
Acenaphthene	3.33	3.04		mg/kg wet	91%	40 - 140	11H0318	08/07/11 10:43
Acenaphthylene	3.33	2.95		mg/kg wet	88%	40 - 140	11H0318	08/07/11 10:43
Azobenzene	3.33	2.98		mg/kg wet	89%	40 - 140	11H0318	08/07/11 10:43
Aniline	3.33	4.63		mg/kg wet	139%	40 - 140	11H0318	08/07/11 10:43
Anthracene	3.33	3.17		mg/kg wet	95%	40 - 140	11H0318	08/07/11 10:43
Benzo (a) anthracene	3.33	3.14		mg/kg wet	94%	40 - 140	11H0318	08/07/11 10:43
Benzo (a) pyrene	3.33	3.32		mg/kg wet	100%	40 - 140	11H0318	08/07/11 10:43
Benzo (b) fluoranthene	3.33	3.20		mg/kg wet	96%	40 - 140	11H0318	08/07/11 10:43
Benzo (g,h,i) perylene	3.33	3.29		mg/kg wet	99%	40 - 140	11H0318	08/07/11 10:43
Benzo (k) fluoranthene	3.33	3.00		mg/kg wet	90%	40 - 140	11H0318	08/07/11 10:43
Bis(2-chloroethoxy)methane	3.33	2.87		mg/kg wet	86%	40 - 140	11H0318	08/07/11 10:43
Bis(2-chloroethyl)ether	3.33	2.84		mg/kg wet	85%	40 - 140	11H0318	08/07/11 10:43
Bis(2-chloroisopropyl)ether	3.33	2.87		mg/kg wet	86%	40 - 140	11H0318	08/07/11 10:43
Bis(2-ethylhexyl)phthalate	3.33	3.22		mg/kg wet	96%	40 - 140	11H0318	08/07/11 10:43
4-Bromophenyl phenyl ether	3.33	3.02		mg/kg wet	91%	40 - 140	11H0318	08/07/11 10:43
Butyl benzyl phthalate	3.33	3.24		mg/kg wet	97%	40 - 140	11H0318	08/07/11 10:43
4-Chloroaniline	3.33	3.24		mg/kg wet	97%	40 - 140	11H0318	08/07/11 10:43
2-Chloronaphthalene	3.33	2.63		mg/kg wet	79%	40 - 140	11H0318	08/07/11 10:43
2-Chlorophenol	3.33	3.15		mg/kg wet	95%	30 - 130	11H0318	08/07/11 10:43
4-Chlorophenyl phenyl ether	3.33	2.98		mg/kg wet	89%	40 - 140	11H0318	08/07/11 10:43
Chrysene	3.33	3.00		mg/kg wet	90%	40 - 140	11H0318	08/07/11 10:43
Dibenz (a,h) anthracene	3.33	3.48		mg/kg wet	104%	40 - 140	11H0318	08/07/11 10:43
Dibenzofuran	3.33	3.11		mg/kg wet	93%	40 - 140	11H0318	08/07/11 10:43
Di-n-butyl phthalate	3.33	3.09		mg/kg wet	93%	40 - 140	11H0318	08/07/11 10:43
3,3-Dichlorobenzidine	3.33	3.13		mg/kg wet	94%	40 - 140	11H0318	08/07/11 10:43
1,2-Dichlorobenzene	3.33	2.66		mg/kg wet	80%	40 - 140	11H0318	08/07/11 10:43
1,3-Dichlorobenzene	3.33	2.54		mg/kg wet	76%	40 - 140	11H0318	08/07/11 10:43
1,4-Dichlorobenzene	3.33	2.47		mg/kg wet	74%	40 - 140	11H0318	08/07/11 10:43
2,4-Dichlorophenol	3.33	2.84		mg/kg wet	85%	30 - 130	11H0318	08/07/11 10:43
Diethyl phthalate	3.33	2.95		mg/kg wet	88%	40 - 140	11H0318	08/07/11 10:43
2,4-Dimethylphenol	3.33	3.11		mg/kg wet	93%	30 - 130	11H0318	08/07/11 10:43
Dimethyl phthalate	3.33	2.92		mg/kg wet	87%	40 - 140	11H0318	08/07/11 10:43
2,4-Dinitrophenol	3.33	2.20		mg/kg wet	66%	30 - 130	11H0318	08/07/11 10:43
2,4-Dinitrotoluene	3.33	2.81		mg/kg wet	84%	40 - 140	11H0318	08/07/11 10:43
2,6-Dinitrotoluene	3.33	2.64		mg/kg wet	79%	40 - 140	11H0318	08/07/11 10:43

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4220
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270D								
11H0318-BS1								
Di-n-octyl phthalate	3.33	3.27		mg/kg wet	98%	40 - 140	11H0318	08/07/11 10:43
Fluoranthene	3.33	3.20		mg/kg wet	96%	40 - 140	11H0318	08/07/11 10:43
Fluorene	3.33	3.31		mg/kg wet	99%	40 - 140	11H0318	08/07/11 10:43
Hexachlorobenzene	3.33	2.96		mg/kg wet	89%	40 - 140	11H0318	08/07/11 10:43
Hexachlorobutadiene	3.33	3.03		mg/kg wet	91%	40 - 140	11H0318	08/07/11 10:43
Hexachloroethane	3.33	2.62		mg/kg wet	79%	40 - 140	11H0318	08/07/11 10:43
Indeno (1,2,3-cd) pyrene	3.33	3.40		mg/kg wet	102%	40 - 140	11H0318	08/07/11 10:43
Isophorone	3.33	2.52		mg/kg wet	76%	40 - 140	11H0318	08/07/11 10:43
2-Methylnaphthalene	3.33	2.91		mg/kg wet	87%	40 - 140	11H0318	08/07/11 10:43
2-Methylphenol	3.33	2.88		mg/kg wet	86%	30 - 130	11H0318	08/07/11 10:43
3/4-Methylphenol	3.33	2.78		mg/kg wet	83%	30 - 130	11H0318	08/07/11 10:43
Naphthalene	3.33	3.23		mg/kg wet	97%	40 - 140	11H0318	08/07/11 10:43
Nitrobenzene	3.33	2.29		mg/kg wet	69%	40 - 140	11H0318	08/07/11 10:43
2-Nitrophenol	3.33	2.87		mg/kg wet	86%	30 - 130	11H0318	08/07/11 10:43
4-Nitrophenol	3.33	2.90		mg/kg wet	87%	30 - 130	11H0318	08/07/11 10:43
Pentachlorophenol	3.33	3.51		mg/kg wet	105%	30 - 130	11H0318	08/07/11 10:43
Phenanthrene	3.33	3.10		mg/kg wet	93%	40 - 140	11H0318	08/07/11 10:43
Phenol	3.33	2.92		mg/kg wet	88%	30 - 130	11H0318	08/07/11 10:43
Pyrene	3.33	3.04		mg/kg wet	91%	40 - 140	11H0318	08/07/11 10:43
1,2,4-Trichlorobenzene	3.33	2.43		mg/kg wet	73%	40 - 140	11H0318	08/07/11 10:43
2,4,5-Trichlorophenol	3.33	2.66		mg/kg wet	80%	30 - 130	11H0318	08/07/11 10:43
2,4,6-Trichlorophenol	3.33	3.21		mg/kg wet	96%	30 - 130	11H0318	08/07/11 10:43
Surrogate: 2-Fluorophenol	3.33	2.82			85%	30 - 130	11H0318	08/07/11 10:43
Surrogate: Phenol-d5	3.33	2.58			78%	30 - 130	11H0318	08/07/11 10:43
Surrogate: 2-Fluorobiphenyl	3.33	2.57			77%	30 - 130	11H0318	08/07/11 10:43
Surrogate: Nitrobenzene-d5	3.33	2.36			71%	30 - 130	11H0318	08/07/11 10:43
Surrogate: Terphenyl-d14	3.33	3.05			92%	30 - 130	11H0318	08/07/11 10:43
Surrogate: 2,4,6-Tribromophenol	3.33	2.62			79%	30 - 130	11H0318	08/07/11 10:43

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Client	GES Westford (10650)	Work Order:	NUG4220
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS Dup

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
MADEP VPH												
11H0638-BSD1												
Methyl tert-Butyl Ether		0.0948		mg/kg wet	0.100	95%	70 - 130	4	25	11H0638		08/03/11 11:15
Benzene		0.0964		mg/kg wet	0.100	96%	70 - 130	0.9	25	11H0638		08/03/11 11:15
Toluene		0.0939		mg/kg wet	0.100	94%	70 - 130	1	25	11H0638		08/03/11 11:15
Ethylbenzene		0.0964		mg/kg wet	0.100	96%	70 - 130	0.7	25	11H0638		08/03/11 11:15
m,p-Xylene		0.194		mg/kg wet	0.200	97%	70 - 130	0.5	25	11H0638		08/03/11 11:15
o-Xylene		0.0958		mg/kg wet	0.100	96%	70 - 130	0.4	25	11H0638		08/03/11 11:15
Naphthalene		0.0956		mg/kg wet	0.100	96%	70 - 130	5	25	11H0638		08/03/11 11:15
C5 - C8 Aliphatic Hydrocarbons, Unadjusted		0.299		mg/kg wet	0.300	100%	70 - 130	2	25	11H0638		08/03/11 11:15
C9 - C12 Aliphatic Hydrocarbons, Unadjusted		0.214		mg/kg wet	0.200	107%	70 - 130	0.009	25	11H0638		08/03/11 11:15
C9 - C10 Aromatic Hydrocarbons		0.0976		mg/kg wet	0.100	98%	70 - 130	0.7	25	11H0638		08/03/11 11:15
Surrogate: 2,5-Dibromotoluene (FID)		38.2		ug/L	40.0	96%	70 - 130			11H0638		08/03/11 11:15
Surrogate: 2,5-Dibromotoluene (PID)		37.9		ug/L	40.0	95%	70 - 130			11H0638		08/03/11 11:15
MADEP EPH												
11H0317-BSD1												
C9 - C18 Aliphatic Hydrocarbons		11.9		mg/kg wet	15.0	79%	40 - 140	9	25	11H0317		08/04/11 16:41
C19 - C36 Aliphatic Hydrocarbons		16.6		mg/kg wet	20.0	83%	40 - 140	11	25	11H0317		08/04/11 16:41
C11 - C22 Aromatic Hydrocarbons, Unadjuste		28.9		mg/kg wet	42.5	68%	40 - 140	17	25	11H0317		08/04/11 17:12
Surrogate: 1-Chlorooctadecane		3.41		mg/kg wet	4.00	85%	40 - 140			11H0317		08/04/11 16:41
Surrogate: o-Terphenyl		3.30		mg/kg wet	4.00	82%	40 - 140			11H0317		08/04/11 17:12
Surrogate: 2-Fluorobiphenyl		1.52	Z6	mg/kg wet	4.00	38%	40 - 140			11H0317		08/04/11 17:12
Surrogate: 2-Bromonaphthalene		2.74		mg/kg wet	4.00	69%	40 - 140			11H0317		08/04/11 17:12
11H0317-BSD2												
2-Methylnaphthalene		0.336	L2, R2,	mg/kg wet	2.50	13%	40 - 140	138	25	11H0317		08/05/11 17:03
Acenaphthene		1.16	R, T14	mg/kg wet	2.50	46%	40 - 140	43	25	11H0317		08/05/11 17:03
Acenaphthylene		1.07	R, T14	mg/kg wet	2.50	43%	40 - 140	60	25	11H0317		08/05/11 17:03
Anthracene		2.13	T14	mg/kg wet	2.50	85%	40 - 140	2	25	11H0317		08/05/11 17:03
Benzo (a) anthracene		2.04	T14	mg/kg wet	2.50	82%	40 - 140	8	25	11H0317		08/05/11 17:03
Benzo (a) pyrene		2.18	T14	mg/kg wet	2.50	87%	40 - 140	4	25	11H0317		08/05/11 17:03
Benzo (b) fluoranthene		2.20	T14	mg/kg wet	2.50	88%	40 - 140	5	25	11H0317		08/05/11 17:03
Benzo (g,h,i) perylene		2.06	T14	mg/kg wet	2.50	82%	40 - 140	5	25	11H0317		08/05/11 17:03
Benzo (k) fluoranthene		1.86	T14	mg/kg wet	2.50	74%	40 - 140	4	25	11H0317		08/05/11 17:03
Chrysene		2.00	T14	mg/kg wet	2.50	80%	40 - 140	2	25	11H0317		08/05/11 17:03
Dibenz (a,h) anthracene		2.12	T14	mg/kg wet	2.50	85%	40 - 140	3	25	11H0317		08/05/11 17:03
Fluoranthene		2.21	T14	mg/kg wet	2.50	88%	40 - 140	3	25	11H0317		08/05/11 17:03
Fluorene		1.68	T14	mg/kg wet	2.50	67%	40 - 140	16	25	11H0317		08/05/11 17:03
Indeno (1,2,3-cd) pyrene		2.09	T14	mg/kg wet	2.50	84%	40 - 140	4	25	11H0317		08/05/11 17:03
Naphthalene		ND	L2, T14	mg/kg wet	2.50	0%	40 - 140		25	11H0317		08/05/11 17:03
Phenanthrene		2.04	T14	mg/kg wet	2.50	81%	40 - 140	5	25	11H0317		08/05/11 17:03
Pyrene		2.11	T14	mg/kg wet	2.50	84%	40 - 140	5	25	11H0317		08/05/11 17:03

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Client	GES Westford (10650)	Work Order:	NUG4220
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
MADEP EPH												
Volatile Organic - MCP CAM Method 8260												
11H0292-BSD1												
Acetone		306	B	ug/kg	250	122%	70 - 130	7	25	11H0292		08/07/11 09:30
Tert-Amyl Methyl Ether		47.9		ug/kg	50.0	96%	70 - 130	2	25	11H0292		08/07/11 09:30
Benzene		53.0		ug/kg	50.0	106%	70 - 130	3	25	11H0292		08/07/11 09:30
Bromobenzene		50.9		ug/kg	50.0	102%	70 - 130	0.7	25	11H0292		08/07/11 09:30
Bromochloromethane		53.0		ug/kg	50.0	106%	70 - 130	0.1	25	11H0292		08/07/11 09:30
Bromodichloromethane		51.9		ug/kg	50.0	104%	70 - 130	3	25	11H0292		08/07/11 09:30
Bromoform		46.8		ug/kg	50.0	94%	70 - 130	15	25	11H0292		08/07/11 09:30
Bromomethane		54.5		ug/kg	50.0	109%	70 - 130	3	25	11H0292		08/07/11 09:30
2-Butanone		265	B	ug/kg	250	106%	70 - 130	0.2	25	11H0292		08/07/11 09:30
tert-Butylbenzene		54.2		ug/kg	50.0	108%	70 - 130	2	25	11H0292		08/07/11 09:30
n-Butylbenzene		48.6		ug/kg	50.0	97%	70 - 130	0.7	25	11H0292		08/07/11 09:30
sec-Butylbenzene		55.2		ug/kg	50.0	110%	70 - 130	1	25	11H0292		08/07/11 09:30
Carbon disulfide		51.6		ug/kg	50.0	103%	70 - 130	4	25	11H0292		08/07/11 09:30
Carbon Tetrachloride		56.3		ug/kg	50.0	113%	70 - 130	4	25	11H0292		08/07/11 09:30
Chlorobenzene		52.6		ug/kg	50.0	105%	70 - 130	1	25	11H0292		08/07/11 09:30
Chlorodibromomethane		49.7		ug/kg	50.0	99%	70 - 130	1	25	11H0292		08/07/11 09:30
Chloroethane		50.4		ug/kg	50.0	101%	70 - 130	4	25	11H0292		08/07/11 09:30
Chloroform		53.7		ug/kg	50.0	107%	70 - 130	0.5	25	11H0292		08/07/11 09:30
Chloromethane		52.8		ug/kg	50.0	106%	70 - 130	3	25	11H0292		08/07/11 09:30
2-Chlorotoluene		52.5		ug/kg	50.0	105%	70 - 130	2	25	11H0292		08/07/11 09:30
4-Chlorotoluene		54.7		ug/kg	50.0	109%	70 - 130	3	25	11H0292		08/07/11 09:30
1,2-Dibromo-3-chloropropane		41.6		ug/kg	50.0	83%	70 - 130	6	25	11H0292		08/07/11 09:30
1,2-Dibromoethane (EDB)		54.2		ug/kg	50.0	108%	70 - 130	0.2	25	11H0292		08/07/11 09:30
Dibromomethane		49.8		ug/kg	50.0	100%	70 - 130	0.5	25	11H0292		08/07/11 09:30
1,2-Dichlorobenzene		52.8		ug/kg	50.0	106%	70 - 130	3	25	11H0292		08/07/11 09:30
1,3-Dichlorobenzene		54.4		ug/kg	50.0	109%	70 - 130	2	25	11H0292		08/07/11 09:30
1,4-Dichlorobenzene		52.8		ug/kg	50.0	106%	70 - 130	2	25	11H0292		08/07/11 09:30
Dichlorodifluoromethane		63.4		ug/kg	50.0	127%	70 - 130	3	25	11H0292		08/07/11 09:30
1,2-Dichloroethane		50.7		ug/kg	50.0	101%	70 - 130	3	25	11H0292		08/07/11 09:30
1,1-Dichloroethane		52.8		ug/kg	50.0	106%	70 - 130	0.2	25	11H0292		08/07/11 09:30
1,1-Dichloroethene		52.0		ug/kg	50.0	104%	70 - 130	2	25	11H0292		08/07/11 09:30
trans-1,2-Dichloroethene		52.2		ug/kg	50.0	104%	70 - 130	4	25	11H0292		08/07/11 09:30
cis-1,2-Dichloroethene		53.7		ug/kg	50.0	107%	70 - 130	3	25	11H0292		08/07/11 09:30
1,3-Dichloropropane		51.6		ug/kg	50.0	103%	70 - 130	3	25	11H0292		08/07/11 09:30
2,2-Dichloropropane		63.8		ug/kg	50.0	128%	70 - 130	4	25	11H0292		08/07/11 09:30
1,2-Dichloropropane		50.0		ug/kg	50.0	100%	70 - 130	0.8	25	11H0292		08/07/11 09:30
trans-1,3-Dichloropropene		49.3		ug/kg	50.0	99%	70 - 130	2	25	11H0292		08/07/11 09:30
1,1-Dichloropropene		53.1		ug/kg	50.0	106%	70 - 130	4	25	11H0292		08/07/11 09:30
cis-1,3-Dichloropropene		58.3		ug/kg	50.0	117%	70 - 130	3	25	11H0292		08/07/11 09:30

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Client	GES Westford (10650)	Work Order:	NUG4220
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11H0292-BSD1												
Diethyl ether		50.4		ug/kg	50.0	101%	70 - 130	1	25	11H0292		08/07/11 09:30
1,4-Dioxane		2960	L2, R2	ug/kg	5000	59%	70 - 130	28	25	11H0292		08/07/11 09:30
Ethylbenzene		54.9		ug/kg	50.0	110%	70 - 130	0.9	25	11H0292		08/07/11 09:30
Ethyl tert-Butyl Ether		46.7		ug/kg	50.0	93%	70 - 130	3	25	11H0292		08/07/11 09:30
Hexachlorobutadiene		54.6		ug/kg	50.0	109%	70 - 130	11	25	11H0292		08/07/11 09:30
2-Hexanone		286		ug/kg	250	114%	70 - 130	0.5	25	11H0292		08/07/11 09:30
Isopropylbenzene		59.6	R2	ug/kg	50.0	119%	70 - 130	35	25	11H0292		08/07/11 09:30
Diisopropyl Ether		50.4		ug/kg	50.0	101%	70 - 130	1	25	11H0292		08/07/11 09:30
p-Isopropyltoluene		55.1		ug/kg	50.0	110%	70 - 130	0.1	25	11H0292		08/07/11 09:30
Methyl tert-Butyl Ether		49.2		ug/kg	50.0	98%	70 - 130	2	25	11H0292		08/07/11 09:30
Methylene Chloride		53.0		ug/kg	50.0	106%	70 - 130	2	25	11H0292		08/07/11 09:30
4-Methyl-2-pentanone		225		ug/kg	250	90%	70 - 130	3	25	11H0292		08/07/11 09:30
Naphthalene		44.2		ug/kg	50.0	88%	70 - 130	4	25	11H0292		08/07/11 09:30
n-Propylbenzene		54.8		ug/kg	50.0	110%	70 - 130	0.8	25	11H0292		08/07/11 09:30
Styrene		55.4		ug/kg	50.0	111%	70 - 130	13	25	11H0292		08/07/11 09:30
1,1,2,2-Tetrachloroethane		49.0		ug/kg	50.0	98%	70 - 130	4	25	11H0292		08/07/11 09:30
1,1,1,2-Tetrachloroethane		56.8		ug/kg	50.0	114%	70 - 130	0.7	25	11H0292		08/07/11 09:30
Tetrachloroethene		54.9		ug/kg	50.0	110%	70 - 130	3	25	11H0292		08/07/11 09:30
Tetrahydrofuran		453	B	ug/kg	500	91%	70 - 130	4	25	11H0292		08/07/11 09:30
Toluene		51.6		ug/kg	50.0	103%	70 - 130	0.4	25	11H0292		08/07/11 09:30
1,2,4-Trichlorobenzene		51.4		ug/kg	50.0	103%	70 - 130	6	25	11H0292		08/07/11 09:30
1,2,3-Trichlorobenzene		44.4		ug/kg	50.0	89%	70 - 130	6	25	11H0292		08/07/11 09:30
1,1,1-Trichloroethane		55.5		ug/kg	50.0	111%	70 - 130	2	25	11H0292		08/07/11 09:30
1,1,2-Trichloroethane		52.2		ug/kg	50.0	104%	70 - 130	3	25	11H0292		08/07/11 09:30
Trichloroethene		52.2		ug/kg	50.0	104%	70 - 130	2	25	11H0292		08/07/11 09:30
Trichlorofluoromethane		52.3		ug/kg	50.0	105%	70 - 130	4	25	11H0292		08/07/11 09:30
1,2,3-Trichloropropane		48.2		ug/kg	50.0	96%	70 - 130	0.8	25	11H0292		08/07/11 09:30
1,3,5-Trimethylbenzene		54.9		ug/kg	50.0	110%	70 - 130	2	25	11H0292		08/07/11 09:30
1,2,4-Trimethylbenzene		55.2		ug/kg	50.0	110%	70 - 130	1	25	11H0292		08/07/11 09:30
Vinyl chloride		56.1		ug/kg	50.0	112%	70 - 130	4	25	11H0292		08/07/11 09:30
Xylenes, total		165		ug/kg	150	110%	70 - 130	5	25	11H0292		08/07/11 09:30
1,1,2-Trifluorotrichloroethane		56.1		ug/kg	50.0	112%	61 - 134	2	46	11H0292		08/07/11 09:30
Surrogate: 1,2-Dichloroethane-d4		24.6		ug/kg	25.0	98%	70 - 130			11H0292		08/07/11 09:30
Surrogate: Dibromofluoromethane		24.7		ug/kg	25.0	99%	70 - 130			11H0292		08/07/11 09:30
Surrogate: Toluene-d8		24.0		ug/kg	25.0	96%	70 - 130			11H0292		08/07/11 09:30
Surrogate: 4-Bromofluorobenzene		24.9		ug/kg	25.0	100%	70 - 130			11H0292		08/07/11 09:30
Total Metals by EPA 6010C												
11H0287-BSD1												
Iron		403		mg/kg	385	104%	80 - 120	6	20	11H0287		08/06/11 02:28
Manganese		194		mg/kg	193	101%	80 - 120	5	20	11H0287		08/06/11 02:28

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4220
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Total Metals by EPA 6010C												
Semivolatile Organic Compounds by EPA Method 8270D												
11H0318-BSD1												
Acenaphthene		2.87		mg/kg wet	3.33	86%	40 - 140	6	30	11H0318		08/07/11 11:01
Acenaphthylene		2.76		mg/kg wet	3.33	83%	40 - 140	6	30	11H0318		08/07/11 11:01
Azobenzene		2.87		mg/kg wet	3.33	86%	40 - 140	4	30	11H0318		08/07/11 11:01
Aniline		4.48		mg/kg wet	3.33	134%	40 - 140	3	30	11H0318		08/07/11 11:01
Anthracene		3.17		mg/kg wet	3.33	95%	40 - 140	0.04	30	11H0318		08/07/11 11:01
Benzo (a) anthracene		3.00		mg/kg wet	3.33	90%	40 - 140	5	30	11H0318		08/07/11 11:01
Benzo (a) pyrene		3.07		mg/kg wet	3.33	92%	40 - 140	8	30	11H0318		08/07/11 11:01
Benzo (b) fluoranthene		3.24		mg/kg wet	3.33	97%	40 - 140	1	30	11H0318		08/07/11 11:01
Benzo (g,h,i) perylene		3.04		mg/kg wet	3.33	91%	40 - 140	8	30	11H0318		08/07/11 11:01
Benzo (k) fluoranthene		2.52		mg/kg wet	3.33	76%	40 - 140	17	30	11H0318		08/07/11 11:01
Bis(2-chloroethoxy)methane		2.75		mg/kg wet	3.33	83%	40 - 140	4	30	11H0318		08/07/11 11:01
Bis(2-chloroethyl)ether		2.72		mg/kg wet	3.33	82%	40 - 140	4	30	11H0318		08/07/11 11:01
Bis(2-chloroisopropyl)ether		2.79		mg/kg wet	3.33	84%	40 - 140	3	30	11H0318		08/07/11 11:01
Bis(2-ethylhexyl)phthalate		3.05		mg/kg wet	3.33	91%	40 - 140	5	30	11H0318		08/07/11 11:01
4-Bromophenyl phenyl ether		2.95		mg/kg wet	3.33	88%	40 - 140	3	30	11H0318		08/07/11 11:01
Butyl benzyl phthalate		3.17		mg/kg wet	3.33	95%	40 - 140	2	30	11H0318		08/07/11 11:01
4-Chloroaniline		3.19		mg/kg wet	3.33	96%	40 - 140	2	30	11H0318		08/07/11 11:01
2-Chloronaphthalene		2.45		mg/kg wet	3.33	73%	40 - 140	7	30	11H0318		08/07/11 11:01
2-Chlorophenol		3.17		mg/kg wet	3.33	95%	30 - 130	0.4	30	11H0318		08/07/11 11:01
4-Chlorophenyl phenyl ether		2.83		mg/kg wet	3.33	85%	40 - 140	5	30	11H0318		08/07/11 11:01
Chrysene		2.84		mg/kg wet	3.33	85%	40 - 140	5	30	11H0318		08/07/11 11:01
Dibenz (a,h) anthracene		3.16		mg/kg wet	3.33	95%	40 - 140	9	30	11H0318		08/07/11 11:01
Dibenzofuran		2.94		mg/kg wet	3.33	88%	40 - 140	6	30	11H0318		08/07/11 11:01
Di-n-butyl phthalate		3.04		mg/kg wet	3.33	91%	40 - 140	2	30	11H0318		08/07/11 11:01
3,3-Dichlorobenzidine		2.87		mg/kg wet	3.33	86%	40 - 140	9	30	11H0318		08/07/11 11:01
1,2-Dichlorobenzene		2.51		mg/kg wet	3.33	75%	40 - 140	6	30	11H0318		08/07/11 11:01
1,3-Dichlorobenzene		2.53		mg/kg wet	3.33	76%	40 - 140	0.5	30	11H0318		08/07/11 11:01
1,4-Dichlorobenzene		2.39		mg/kg wet	3.33	72%	40 - 140	3	30	11H0318		08/07/11 11:01
2,4-Dichlorophenol		2.75		mg/kg wet	3.33	82%	30 - 130	3	30	11H0318		08/07/11 11:01
Diethyl phthalate		2.75		mg/kg wet	3.33	82%	40 - 140	7	30	11H0318		08/07/11 11:01
2,4-Dimethylphenol		3.02		mg/kg wet	3.33	91%	30 - 130	3	30	11H0318		08/07/11 11:01
Dimethyl phthalate		2.82		mg/kg wet	3.33	85%	40 - 140	3	30	11H0318		08/07/11 11:01
2,4-Dinitrophenol		2.30		mg/kg wet	3.33	69%	30 - 130	5	30	11H0318		08/07/11 11:01
2,4-Dinitrotoluene		2.64		mg/kg wet	3.33	79%	40 - 140	6	30	11H0318		08/07/11 11:01
2,6-Dinitrotoluene		2.51		mg/kg wet	3.33	75%	40 - 140	5	30	11H0318		08/07/11 11:01
Di-n-octyl phthalate		3.04		mg/kg wet	3.33	91%	40 - 140	7	30	11H0318		08/07/11 11:01
Fluoranthene		3.15		mg/kg wet	3.33	95%	40 - 140	1	30	11H0318		08/07/11 11:01
Fluorene		3.02		mg/kg wet	3.33	91%	40 - 140	9	30	11H0318		08/07/11 11:01
Hexachlorobenzene		2.76		mg/kg wet	3.33	83%	40 - 140	7	30	11H0318		08/07/11 11:01

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THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4220
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA

LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270D												
11H0318-BSD1												
Hexachlorobutadiene		2.79		mg/kg wet	3.33	84%	40 - 140	8	30	11H0318		08/07/11 11:01
Hexachloroethane		2.71		mg/kg wet	3.33	81%	40 - 140	3	30	11H0318		08/07/11 11:01
Indeno (1,2,3-cd) pyrene		3.09		mg/kg wet	3.33	93%	40 - 140	9	30	11H0318		08/07/11 11:01
Isophorone		2.40		mg/kg wet	3.33	72%	40 - 140	5	30	11H0318		08/07/11 11:01
2-Methylnaphthalene		2.83		mg/kg wet	3.33	85%	40 - 140	3	30	11H0318		08/07/11 11:01
2-Methylphenol		2.67		mg/kg wet	3.33	80%	30 - 130	7	30	11H0318		08/07/11 11:01
3/4-Methylphenol		2.65		mg/kg wet	3.33	80%	30 - 130	5	30	11H0318		08/07/11 11:01
Naphthalene		3.16		mg/kg wet	3.33	95%	40 - 140	2	30	11H0318		08/07/11 11:01
Nitrobenzene		2.21		mg/kg wet	3.33	66%	40 - 140	4	30	11H0318		08/07/11 11:01
2-Nitrophenol		2.86		mg/kg wet	3.33	86%	30 - 130	0.5	30	11H0318		08/07/11 11:01
4-Nitrophenol		2.59		mg/kg wet	3.33	78%	30 - 130	11	30	11H0318		08/07/11 11:01
Pentachlorophenol		3.24		mg/kg wet	3.33	97%	30 - 130	8	30	11H0318		08/07/11 11:01
Phenanthrene		2.98		mg/kg wet	3.33	89%	40 - 140	4	30	11H0318		08/07/11 11:01
Phenol		2.90		mg/kg wet	3.33	87%	30 - 130	0.7	30	11H0318		08/07/11 11:01
Pyrene		2.90		mg/kg wet	3.33	87%	40 - 140	5	30	11H0318		08/07/11 11:01
1,2,4-Trichlorobenzene		2.33		mg/kg wet	3.33	70%	40 - 140	4	30	11H0318		08/07/11 11:01
2,4,5-Trichlorophenol		2.40		mg/kg wet	3.33	72%	30 - 130	10	30	11H0318		08/07/11 11:01
2,4,6-Trichlorophenol		2.86		mg/kg wet	3.33	86%	30 - 130	11	30	11H0318		08/07/11 11:01
Surrogate: 2-Fluorophenol		2.71		mg/kg wet	3.33	81%	30 - 130			11H0318		08/07/11 11:01
Surrogate: Phenol-d5		2.56		mg/kg wet	3.33	77%	30 - 130			11H0318		08/07/11 11:01
Surrogate: 2-Fluorobiphenyl		2.36		mg/kg wet	3.33	71%	30 - 130			11H0318		08/07/11 11:01
Surrogate: Nitrobenzene-d5		2.25		mg/kg wet	3.33	68%	30 - 130			11H0318		08/07/11 11:01
Surrogate: Terphenyl-d14		2.96		mg/kg wet	3.33	89%	30 - 130			11H0318		08/07/11 11:01
Surrogate: 2,4,6-Tribromophenol		2.42		mg/kg wet	3.33	73%	30 - 130			11H0318		08/07/11 11:01

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THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4220
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

DATA QUALIFIERS AND DEFINITIONS

B	Analyte was detected in the associated Method Blank.
L	Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was above the acceptance limits. Analyte not detected, data not impacted.
L2	Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was below acceptance limits.
R	The RPD exceeded the method control limit. The individual analyte QA/QC recoveries, however, were within acceptance limits.
R2	The RPD exceeded the acceptance limit.
T14	The PAH compounds were analyzed and reported by method 8270.
YES	Yes
Z6	Surrogate recovery was below acceptance limits.
ND	Not detected at the reporting limit (or method detection limit if shown)

METHOD MODIFICATION NOTES

TOC in soil 9060 M - M = Modified for soil analysis

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Nashville, TN

COOLER RE(

NUG4220

Cooler Received/Opened On_07/29/11 @ 08:40

1. Tracking #_____5994_____(last 4 digits, FedEx)

Courier: ___FED-EX IR-GUN-97310166

2. Temperature of rep. sample or temp blank when opened: 0.0 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1-FLOAT

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) _____

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) RC

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) _____

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) _____

I certify that I attached a label with the unique LIMS number to each container (intial) _____

21. Were there Non-Conformance issues at login? YES...NO Was a PIPE generated? YES...NO...#_____

BIS = Broken in shipment

Cooler Receipt Form.doc

LF-1

End of Form

Revised 9/6/07

NUG4220
08/12/11 23 59

General Chemical

TestAmerica INCORPORATED

Nashville Division
2960 Foster Creighton
Nashville, TN 37204

Phone: 615-726-0177
Toll Free: 800-765-0980
Fax: 615-726-3404

Consultant Name: GES
Address: 364 Littleton Road
City/State/Zip: Westford, MA 01886
[redacted] Project Mgr: Stefan Sokol
Consultant Project Mgr:
Consultant Telephone Number: 800-221-6119 Fax No.: 978-392-8583
Sampler Name: (Print) Mary Cutkey
Sampler Signature: Mary Cutkey

TA Account #:
Invoice To:
Report To: Stefan Sokol SSokol@gesolline.com
PO #:
PROJECT #: 1603978
Facility ID # General Chemical
Site Address 133 Leland St
City, State, Zip Framingham, MA
Regulatory District (CA)

Sample ID or Field ID	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative: Methanol	Sodium Bisulfate	HCl (Blue Label)	NaOH (Orange Label)	H_2SO_4 Plastic (Yellow Label)	H_2SO_4 Glass(Yellow Label)	HNO_3 (Red Label)	None (Black Label)	Matrix: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify)	Analyze For: VOCs	VPH	SVOCs	EPH	TOC	total Fe & Mn	% Acids					RUSH TAT (Pre-Schedule) *	TAT request (in Bus. Days)	Fax Results (yes or no)	Due Date of Report
MW-15 [24-26']	7/26/11	1340	5				4							1					X		X	X	X	X	X	X	X	NUG4220-01							
trip blank	7/26/11	0800	1				1													X	X										02				

Comments/Special Instructions:

Laboratory Comments:
Temperature Upon Receipt:
Sample Containers Intact? Y N
VOCs Free of Headspace? Y N
QC Deliverables (please circle one)
Level 2 Level 3 Level 4 Other

Relinquished by:	Date	Time	Received by:	Date	Time
Mary Cutkey	7/27/11	1700	GES Stacey	7/27/11	1700
Stefan Sokol	7/28/11	1400	Received by TestAmerica:	7-28-11	14:00
				7-29-11 @ 0840	

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

August 19, 2011 3:57:55PM

Client: GES Westford (10650)
364 Littleton Road, Suite 4
Westford, MA 01886
Attn: Stefan Sokol

Work Order: NUG4216
Project Name: General Chemical
Project Nbr: Framingham, MA
P/O Nbr: 1603978
Date Received: 07/29/11

SAMPLE IDENTIFICATION	LAB NUMBER	COLLECTION DATE AND TIME
SB11-01 (24-26')	NUG4216-01	07/25/11 10:30
SB11-01 (40-42')	NUG4216-02	07/25/11 13:00
TripBlk	NUG4216-03	07/27/11 08:00

An executed copy of the chain of custody, the project quality control data, and the sample receipt form are also included as an addendum to this report. If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-800-765-0980. These results relate only to the items tested, and this report may not be reproduced except in full and with the permission of the Laboratory. Any opinions, if expressed, are outside the scope of the Laboratory's accredidation.

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Certification Number: M-TN032

EPH/VPH Qualifications

*C11-C22 Aromatic hydrocarbons exclude concentration of PAH's.

*HydroCarbon Range data exclude area counts of any surrogate(s) and/or internal standards eluting in that range.
*VPH C5-C8 Aliphatic Hydrocarbons exclude the concentration of Target Analytes eluting in that range.
*Adjusted C5-C8 Aliphatic Hydrocarbons range excluded the concentrations of MTBE, Benzene and Toluene.
*VPH C9-C12 Aliphatic Hydrocarbons exclude target analytes eluting in that range AND concentration of C9-C10 Aromatic Hydrocarbons.
*Adjusted C9-C12 Aliphatic Hydrocarbon range excludes the concentration of Ethylbenzene, m-, p-, and o- Xylene and the C9-C10 Aromatic Hydrocarbon values.

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

Additional Laboratory Comments:
All samples were received in good condition, properly preserved, and properly labeled. All analyses were completed within holding times.

All no responses from the attached "MCP Response Action Analytical Report Certification Form" are addressed below.

G. The EPH reporting limits for the PAHs were above the MADEP CAM limits. There were no other reporting limits specified to meet.

The volatile reporting limit for 1,4-Dioxane was above the MADEP CAM limits. There were no other reporting limits specified to meet.

The semi-volatile reporting limits for azobenzene, aniline, 3,3-dichlorobenzidine, 2,4-dinitrophenol, 4-nitrophenol, Pentachlorophenol and 2,4,5-trichlorophenol were above the MADEP CAM limits. There were no other reporting limits specified to meet.

H. The EPH surrogate recovery for 2-Fluorobiphenyl in the blank spike duplicate in batch 11H0317 was outside QC limits. The recoveries for the target analytes were within QC limits; therefore the data was accepted without further analysis.

The EPH blank spike duplicate (LCSD) recoveries for 2-Methylnaphthalene and Naphthalene were outside QC Limits. The recoveries were within QC range in the blank spike (LCS).

The EPH blank spike duplicate (LCSD) RPD for 2-Methylnaphthalene, Acenaphthene, Anthracene and Napthalene in batch 11H0317 were outside QC limits. All of the recoveries were within QC range in the blank spike (LCS).

The Volatile method blank for batch 11H0292 was positive above the reporting limits for Acetone, 2-Butanone, and Tetrahydrofuran. The associated samples were non-detect at the reporting limits; therefore the data was accepted without further analysis.

The volatile blank spike and/or blank spike duplicate (LCS/LCSD) recoveries for Acetone, 2,2-Dichloropropane and 1,4-Dioxane in batch 11H0292 and Acetone, 2,2-Dichloropropane and Isopropylbenzene in batch 11H2363 were outside QC limits. Batch 11H2363 was a batch used for dilutions and none of the listed compounds were reported from this batch in this work order. Also, less than 10% of the analytes were outside criteria and the recoveries were within greater than 10%; therefore the data was accepted without further analysis.

The volatile blank spike duplicate (LCSD) RPD for 1,4-Dioxane and Isopropylbenzene in batch 11H0292 were outside QC limits.

A sample was not submitted for MS/MSD for the metals analysis.

I. The full MCP Metals CAM analyte list was not reported. Only those analytes requested on the chain of custody by the client were reported.

The Chain(s) of Custody, 2 pages, are included and are an integral part of this report.

These results relate only to the items tested. This report shall not be reproduced except in full and with permission of the laboratory.

All solids results are reported in wet weight unless specifically stated.
Estimated uncertainty is available upon request.
This report has been electronically signed.
Report Approved By:

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650) 364 Littleton Road, Suite 4 Westford, MA 01886	Work Order: Project Name: Project Number:	NUG4216 General Chemical Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

Jennifer Huckaba

Jennifer Huckaba

Senior Project Manager

TestAmerica
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Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

Sample Cooler Information

Lab ID	Cooler ID	Temp	Seals	Containers Intact	Preservation Confirmed	On Ice
	5994	0.C	Yes	Yes	No	Yes

MassDEP Analytical Protocol Certification Form

Laboratory Name: TestAmerica Analytical Testing Corporation | Project #: Framingham, MA

Project Location: General Chemical | RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):
NUG4216

Matrices: Groundwater/Surface Water (Soil/Sediment) Drinking Water Air Other:

CAM Protocol (check all that apply below):

8260 VOC CAM II A X	7470/7471 Hg CAM III B	MassDEP VPH CAM IV A X	8081 Pesticides CAM V B	7196 Hex Cr CAM VI B	MassDEP APH CAM IX A
8270 SVOC CAM II B X	7010 Metals CAM III C	MassDEP EPH CAM IV B X	8151 Herbicides CAM V C	8330 Explosives CAM VIII A	TO-15 VOC CAM IX B
6010 Metals CAM III A X	6020 Metals CAM III D	8082 PCB CAM V A	9014 Total Cyanide/PAC CAM VI A	6860 Perchlorate CAM VIII B	

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	(Yes) No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	(Yes) No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	(Yes) No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	(Yes) No
E	VPH, EPH, APH, and TO-15 only: a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	(Yes) No Yes No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	(Yes) No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	Yes (No[1])

***Data User Note:** Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.*

H	Were all QC performance standards specified in the CAM protocol(s) achieved?	Yes (No[1])
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	Yes (No[1])

[1]*All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Jennifer Huckaba **Position:** Sr Proj Mgr.

Printed Name: Jennifer Huckaba **Date:** 8-19-11

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Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4216-01 (SB11-01 (24-26') - Soil) Sampled: 07/25/11 10:30										
General Chemistry Parameters										
% Dry Solids	**81.5**	%		0.500	1	08/09/11 11:43	08/10/11 10:59	RRS	SW-846	11H2020
Total Organic Carbon	ND	mg/kg dry		1000	1	08/09/11 09:34	08/15/11 09:38	SHJ	SW846 9060M	11H2048

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	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4216-01 (SB11-01 (24-26') - Soil) - cont. Sampled: 07/25/11 10:30										
MADEP VPH										
Received on MeOH	Yes									
MeOH Covers Soil	Yes									
Methyl tert-Butyl Ether	ND	mg/kg dry		0.0826	50	07/25/11 10:30	08/02/11 17:59	KAR2	MADEP VPH	11H0335
Benzene	ND	mg/kg dry		0.0826	50	07/25/11 10:30	08/02/11 17:59	KAR2	MADEP VPH	11H0335
Toluene	**0.544**	mg/kg dry		0.248	50	07/25/11 10:30	08/02/11 17:59	KAR2	MADEP VPH	11H0335
Ethylbenzene	**1.29**	mg/kg dry		0.0826	50	07/25/11 10:30	08/02/11 17:59	KAR2	MADEP VPH	11H0335
m,p-Xylene	**2.59**	mg/kg dry		0.330	50	07/25/11 10:30	08/02/11 17:59	KAR2	MADEP VPH	11H0335
o-Xylene	**1.00**	mg/kg dry		0.165	50	07/25/11 10:30	08/02/11 17:59	KAR2	MADEP VPH	11H0335
Naphthalene	**6.71**	mg/kg dry		0.413	50	07/25/11 10:30	08/02/11 17:59	KAR2	MADEP VPH	11H0335
C5 - C8 Aliphatic Hydrocarbons, Unadjuste	**300**	mg/kg dry		41.3	250	07/25/11 10:30	08/03/11 17:36	KAR2	MADEP VPH	11H0638
C9 - C12 Aliphatic Hydrocarbons, Unadjust	**259**	mg/kg dry		41.3	250	07/25/11 10:30	08/03/11 17:36	KAR2	MADEP VPH	11H0638
C5 - C8 Aliphatic Hydrocarbons	**299**	mg/kg dry		41.3	250	07/25/11 10:30	08/03/11 17:36	KAR2	MADEP VPH	11H0638
C9 - C12 Aliphatic Hydrocarbons	**125**	mg/kg dry		41.3	250	07/25/11 10:30	08/03/11 17:36	KAR2	MADEP VPH	11H0638
C9 - C10 Aromatic Hydrocarbons	**129**	mg/kg dry		41.3	250	07/25/11 10:30	08/03/11 17:36	KAR2	MADEP VPH	11H0638
Surr: 2,5-Dibromotoluene (FID) (70-130%)	*99 %*						08/03/11 17:36	KAR2	MADEP VPH	11H0638
Surr: 2,5-Dibromotoluene (PID) (70-130%)	*123 %*						08/02/11 17:59	KAR2	MADEP VPH	11H0335
Surr: 2,5-Dibromotoluene (PID) (70-130%)	*110 %*						08/03/11 17:36	KAR2	MADEP VPH	11H0638

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Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4216-01 (SB11-01 (24-26') - Soil) - cont. Sampled: 07/25/11 10:30										
MADEP EPH										
C9 - C18 Aliphatic Hydrocarbons	**126**	mg/kg dry		11.5	1	08/03/11 07:00	08/05/11 06:23	jlf	MADEP EPH	11H0317
C19 - C36 Aliphatic Hydrocarbons	**18.3**	mg/kg dry		11.5	1	08/03/11 07:00	08/05/11 06:23	jlf	MADEP EPH	11H0317
C11 - C22 Aromatic Hydrocarbons	**45.3**	mg/kg dry		11.5	1	08/03/11 07:00	08/05/11 06:23	jlf	MADEP EPH	11H0317
C11 - C22 Aromatic Hydrocarbons, Unadjus	**46.1**	mg/kg dry		11.5	1	08/03/11 07:00	08/05/11 06:53	jlf	MADEP EPH	11H0317
2-Methylnaphthalene	**0.755**	mg/kg dry	T14, L2	0.687	1	08/03/11 07:00	08/05/11 20:05	jls	MADEP EPH	11H0317
Acenaphthene	ND	mg/kg dry	T14	1.15	1	08/03/11 07:00	08/05/11 20:05	jls	MADEP EPH	11H0317
Acenaphthylene	ND	mg/kg dry	T14	1.15	1	08/03/11 07:00	08/05/11 20:05	jls	MADEP EPH	11H0317
Anthracene	ND	mg/kg dry	T14	1.15	1	08/03/11 07:00	08/05/11 20:05	jls	MADEP EPH	11H0317
Benzo (a) anthracene	ND	mg/kg dry	T14	0.687	1	08/03/11 07:00	08/05/11 20:05	jls	MADEP EPH	11H0317
Benzo (a) pyrene	ND	mg/kg dry	T14	0.687	1	08/03/11 07:00	08/05/11 20:05	jls	MADEP EPH	11H0317
Benzo (b) fluoranthene	ND	mg/kg dry	T14	0.687	1	08/03/11 07:00	08/05/11 20:05	jls	MADEP EPH	11H0317
Benzo (g,h,i) perylene	ND	mg/kg dry	T14	1.15	1	08/03/11 07:00	08/05/11 20:05	jls	MADEP EPH	11H0317
Benzo (k) fluoranthene	ND	mg/kg dry	T14	1.15	1	08/03/11 07:00	08/05/11 20:05	jls	MADEP EPH	11H0317
Chrysene	ND	mg/kg dry	T14	1.15	1	08/03/11 07:00	08/05/11 20:05	jls	MADEP EPH	11H0317
Dibenz (a,h) anthracene	ND	mg/kg dry	T14	0.687	1	08/03/11 07:00	08/05/11 20:05	jls	MADEP EPH	11H0317
Fluoranthene	ND	mg/kg dry	T14	1.15	1	08/03/11 07:00	08/05/11 20:05	jls	MADEP EPH	11H0317
Fluorene	ND	mg/kg dry	T14	1.15	1	08/03/11 07:00	08/05/11 20:05	jls	MADEP EPH	11H0317
Indeno (1,2,3-cd) pyrene	ND	mg/kg dry	T14	0.687	1	08/03/11 07:00	08/05/11 20:05	jls	MADEP EPH	11H0317
Naphthalene	ND	mg/kg dry	L2, T14	1.15	1	08/03/11 07:00	08/05/11 20:05	jls	MADEP EPH	11H0317
Phenanthrene	ND	mg/kg dry	T14	1.15	1	08/03/11 07:00	08/05/11 20:05	jls	MADEP EPH	11H0317
Pyrene	ND	mg/kg dry	T14	1.15	1	08/03/11 07:00	08/05/11 20:05	jls	MADEP EPH	11H0317
Surr: 1-Chlorooctadecane (40-140%)	*88 %*						08/05/11 06:23	jlf	MADEP EPH	11H0317
Surr: o-Terphenyl (40-140%)	*85 %*						08/05/11 06:53	jlf	MADEP EPH	11H0317
Surr: 2-Fluorobiphenyl (40-140%)	*103 %*						08/05/11 06:53	jlf	MADEP EPH	11H0317
Surr: 2-Bromonaphthalene (40-140%)	*83 %*						08/05/11 06:53	jlf	MADEP EPH	11H0317

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Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4216-01 (SB11-01 (24-26') - Soil) - cont. Sampled: 07/25/11 10:30										
Volatile Organic - MCP CAM Method 8260										
Acetone	ND	mg/kg dry	L	1.93	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Tert-Amyl Methyl Ether	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Benzene	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Bromobenzene	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Bromochloromethane	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Bromodichloromethane	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Bromoform	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Bromomethane	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
2-Butanone	ND	mg/kg dry		1.93	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
tert-Butylbenzene	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
n-Butylbenzene	**0.635**	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
sec-Butylbenzene	**0.198**	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Carbon disulfide	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Carbon Tetrachloride	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Chlorobenzene	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Chlorodibromomethane	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Chloroethane	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Chloroform	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Chloromethane	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
2-Chlorotoluene	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
4-Chlorotoluene	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
1,2-Dibromo-3-chloropropane	ND	mg/kg dry		0.193	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
1,2-Dibromoethane (EDB)	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Dibromomethane	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
1,2-Dichlorobenzene	**0.104**	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
1,3-Dichlorobenzene	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
1,4-Dichlorobenzene	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Dichlorodifluoromethane	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
1,2-Dichloroethane	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
1,1-Dichloroethane	**0.855**	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
1,1-Dichloroethene	**1.06**	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
trans-1,2-Dichloroethene	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
cis-1,2-Dichloroethene	**15.7**	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
1,3-Dichloropropane	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
2,2-Dichloropropane	ND	mg/kg dry	L	0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
1,2-Dichloropropane	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
trans-1,3-Dichloropropene	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
1,1-Dichloropropene	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
cis-1,3-Dichloropropene	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Diethyl ether	ND	mg/kg dry		0.193	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292

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Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Sample ID: NUG4216-01 (SB11-01 (24-26') - Soil) - cont. Sampled: 07/25/11 10:30

Volatile Organic - MCP CAM Method 8260 - cont.

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
1,4-Dioxane	ND	mg/kg dry	L2	19.3	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Ethylbenzene	**0.584**	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Ethyl tert-Butyl Ether	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Hexachlorobutadiene	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
2-Hexanone	ND	mg/kg dry		1.93	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Isopropylbenzene	**0.194**	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Diisopropyl Ether	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
p-Isopropyltoluene	**0.325**	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Methyl tert-Butyl Ether	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Methylene Chloride	**0.549**	mg/kg dry		0.193	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
4-Methyl-2-pentanone	ND	mg/kg dry		1.93	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Naphthalene	**2.01**	mg/kg dry		0.193	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
n-Propylbenzene	**0.329**	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Styrene	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
1,1,2,2-Tetrachloroethane	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
1,1,1,2-Tetrachloroethane	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Tetrachloroethene	**328**	mg/kg dry		9.66	5000	07/25/11 10:30	08/08/11 21:24	EML	SW846 8260B	11H2363
Tetrahydrofuran	ND	mg/kg dry		0.193	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Toluene	**0.403**	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.193	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
1,2,3-Trichlorobenzene	ND	mg/kg dry		0.193	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
1,1,1-Trichloroethane	**82.4**	mg/kg dry		0.966	500	07/25/11 10:30	08/08/11 21:52	EML	SW846 8260B	11H2363
1,1,2-Trichloroethane	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Trichloroethene	**2.90**	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Trichlorofluoromethane	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
1,2,3-Trichloropropane	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
1,3,5-Trimethylbenzene	**1.32**	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
1,2,4-Trimethylbenzene	**3.66**	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Vinyl chloride	ND	mg/kg dry		0.0966	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Xylenes, total	**2.86**	mg/kg dry		0.290	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
1,1,2-Trifluorotrichloroethane	**13.0**	mg/kg dry		0.193	50	07/25/11 10:30	08/07/11 18:54	EML	SW846 8260B	11H0292
Surr: 1,2-Dichloroethane-d4 (70-130%)	*100 %*						08/07/11 18:54	EML	SW846 8260B	11H0292
Surr: 1,2-Dichloroethane-d4 (70-130%)	*90 %*						08/08/11 21:52	EML	SW846 8260B	11H2363
Surr: 1,2-Dichloroethane-d4 (70-130%)	*90 %*						08/08/11 21:24	EML	SW846 8260B	11H2363
Surr: Dibromofluoromethane (70-130%)	*100 %*						08/07/11 18:54	EML	SW846 8260B	11H0292
Surr: Dibromofluoromethane (70-130%)	*94 %*						08/08/11 21:52	EML	SW846 8260B	11H2363
Surr: Dibromofluoromethane (70-130%)	*94 %*						08/08/11 21:24	EML	SW846 8260B	11H2363
Surr: Toluene-d8 (70-130%)	*92 %*						08/07/11 18:54	EML	SW846 8260B	11H0292
Surr: Toluene-d8 (70-130%)	*87 %*						08/08/11 21:52	EML	SW846 8260B	11H2363
Surr: Toluene-d8 (70-130%)	*89 %*						08/08/11 21:24	EML	SW846 8260B	11H2363

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THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4216-01 (SB11-01 (24-26') - Soil) - cont. Sampled: 07/25/11 10:30										
Volatile Organic - MCP CAM Method 8260 - cont.										
Surr: 4-Bromofluorobenzene (70-130%)	*107 %*						08/07/11 18:54	EML	SW846 8260B	11H0292
Surr: 4-Bromofluorobenzene (70-130%)	*96 %*						08/08/11 21:52	EML	SW846 8260B	11H2363
Surr: 4-Bromofluorobenzene (70-130%)	*96 %*						08/08/11 21:24	EML	SW846 8260B	11H2363

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Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4216-01 (SB11-01 (24-26') - Soil) - cont. Sampled: 07/25/11 10:30										
Total Metals by EPA 6010C										
Iron	**6750**	mg/kg		9.67	1	08/04/11 07:11	08/06/11 02:47	LTB	SW846 6010C	11H0287
Manganese	**59.4**	mg/kg		0.967	1	08/04/11 07:11	08/06/11 02:47	LTB	SW846 6010C	11H0287

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Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Sample ID: NUG4216-01 (SB11-01 (24-26') - Soil) - cont. Sampled: 07/25/11 10:30

Semivolatile Organic Compounds by EPA Method 8270D

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acenaphthene	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Acenaphthylene	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Azobenzene	ND	mg/kg dry		1.93	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Aniline	ND	mg/kg dry		0.771	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Anthracene	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Benzo (a) anthracene	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Benzo (a) pyrene	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Benzo (b) fluoranthene	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Benzo (g,h,i) perylene	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Benzo (k) fluoranthene	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Bis(2-chloroethoxy)methane	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Bis(2-chloroethyl)ether	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Bis(2-chloroisopropyl)ether	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Bis(2-ethylhexyl)phthalate	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
4-Bromophenyl phenyl ether	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Butyl benzyl phthalate	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
4-Chloroaniline	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
2-Chloronaphthalene	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
2-Chlorophenol	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
4-Chlorophenyl phenyl ether	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Chrysene	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Dibenz (a,h) anthracene	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Dibenzofuran	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Di-n-butyl phthalate	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
3,3-Dichlorobenzidine	ND	mg/kg dry		0.771	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
1,2-Dichlorobenzene	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
1,3-Dichlorobenzene	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
1,4-Dichlorobenzene	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
2,4-Dichlorophenol	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Diethyl phthalate	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
2,4-Dimethylphenol	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Dimethyl phthalate	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
2,4-Dinitrophenol	ND	mg/kg dry		0.963	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
2,4-Dinitrotoluene	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
2,6-Dinitrotoluene	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Di-n-octyl phthalate	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Fluoranthene	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Fluorene	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Hexachlorobenzene	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Hexachlorobutadiene	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4216-01 (SB11-01 (24-26') - Soil) - cont. Sampled: 07/25/11 10:30										
Semivolatile Organic Compounds by EPA Method 8270D - cont.										
Hexachloroethane	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Indeno (1,2,3-cd) pyrene	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Isophorone	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
2-Methylnaphthalene	**1.12**	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
2-Methylphenol	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
3/4-Methylphenol	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Naphthalene	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Nitrobenzene	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
2-Nitrophenol	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
4-Nitrophenol	ND	mg/kg dry		0.963	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Pentachlorophenol	ND	mg/kg dry		0.963	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Phenanthrene	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Phenol	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Pyrene	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
2,4,5-Trichlorophenol	ND	mg/kg dry		0.963	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
2,4,6-Trichlorophenol	ND	mg/kg dry		0.385	1	08/02/11 09:01	08/07/11 17:49	KJP	SW846 8270D	11H0318
Surr: 2-Fluorophenol (30-130%)	*79 %*						08/07/11 17:49	KJP	SW846 8270D	11H0318
Surr: Phenol-d5 (30-130%)	*81 %*						08/07/11 17:49	KJP	SW846 8270D	11H0318
Surr: 2-Fluorobiphenyl (30-130%)	*76 %*						08/07/11 17:49	KJP	SW846 8270D	11H0318
Surr: Nitrobenzene-d5 (30-130%)	*73 %*						08/07/11 17:49	KJP	SW846 8270D	11H0318
Surr: Terphenyl-d14 (30-130%)	*98 %*						08/07/11 17:49	KJP	SW846 8270D	11H0318
Surr: 2,4,6-Tribromophenol (30-130%)	*81 %*						08/07/11 17:49	KJP	SW846 8270D	11H0318

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Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4216-02 (SB11-01 (40-42') - Soil) Sampled: 07/25/11 13:00										
General Chemistry Parameters										
% Dry Solids	**77.0**	%		0.500	1	08/09/11 11:43	08/10/11 10:59	RRS	SW-846	11H2020
Total Organic Carbon	**1130**	mg/kg dry		1000	1	08/09/11 09:34	08/15/11 09:38	SHJ	SW846 9060M	11H2048

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Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4216-02 (SB11-01 (40-42') - Soil) - cont. Sampled: 07/25/11 13:00										
MADEP VPH										
Received on MeOH	Yes									
MeOH Covers Soil	Yes									
Methyl tert-Butyl Ether	ND	mg/kg dry		0.0993	50	07/25/11 13:00	08/03/11 14:03	KAR2	MADEP VPH	11H0638
Benzene	ND	mg/kg dry		0.0993	50	07/25/11 13:00	08/03/11 14:03	KAR2	MADEP VPH	11H0638
Toluene	**0.317**	mg/kg dry		0.298	50	07/25/11 13:00	08/03/11 14:03	KAR2	MADEP VPH	11H0638
Ethylbenzene	**0.293**	mg/kg dry		0.0993	50	07/25/11 13:00	08/03/11 14:03	KAR2	MADEP VPH	11H0638
m,p-Xylene	**0.481**	mg/kg dry		0.397	50	07/25/11 13:00	08/03/11 14:03	KAR2	MADEP VPH	11H0638
o-Xylene	ND	mg/kg dry		0.199	50	07/25/11 13:00	08/03/11 14:03	KAR2	MADEP VPH	11H0638
Naphthalene	**2.02**	mg/kg dry		0.496	50	07/25/11 13:00	08/03/11 14:03	KAR2	MADEP VPH	11H0638
C5 - C8 Aliphatic Hydrocarbons, Unadjuste	**113**	mg/kg dry		9.93	50	07/25/11 13:00	08/03/11 14:03	KAR2	MADEP VPH	11H0638
C9 - C12 Aliphatic Hydrocarbons, Unadjust	**67.6**	mg/kg dry		9.93	50	07/25/11 13:00	08/03/11 14:03	KAR2	MADEP VPH	11H0638
C5 - C8 Aliphatic Hydrocarbons	**113**	mg/kg dry		9.93	50	07/25/11 13:00	08/03/11 14:03	KAR2	MADEP VPH	11H0638
C9 - C12 Aliphatic Hydrocarbons	**35.5**	mg/kg dry		9.93	50	07/25/11 13:00	08/03/11 14:03	KAR2	MADEP VPH	11H0638
C9 - C10 Aromatic Hydrocarbons	**31.3**	mg/kg dry		9.93	50	07/25/11 13:00	08/03/11 14:03	KAR2	MADEP VPH	11H0638
Surr: 2,5-Dibromotoluene (FID) (70-130%)	*99 %*						08/03/11 14:03	KAR2	MADEP VPH	11H0638
Surr: 2,5-Dibromotoluene (PID) (70-130%)	*116 %*						08/03/11 14:03	KAR2	MADEP VPH	11H0638

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Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4216-02 (SB11-01 (40-42') - Soil) - cont. Sampled: 07/25/11 13:00										
MADEP EPH										
C9 - C18 Aliphatic Hydrocarbons	**271**	mg/kg dry		24.1	2	08/03/11 07:00	08/05/11 19:42	gmh	MADEP EPH	11H0317
C19 - C36 Aliphatic Hydrocarbons	**36.6**	mg/kg dry		12.1	1	08/03/11 07:00	08/05/11 07:23	jlf	MADEP EPH	11H0317
C11 - C22 Aromatic Hydrocarbons	**100**	mg/kg dry		12.1	1	08/03/11 07:00	08/05/11 07:23	jlf	MADEP EPH	11H0317
C11 - C22 Aromatic Hydrocarbons, Unadjus	**101**	mg/kg dry		12.1	1	08/03/11 07:00	08/05/11 07:53	jlf	MADEP EPH	11H0317
2-Methylnaphthalene	**0.941**	mg/kg dry	L2, T14	0.724	1	08/03/11 07:00	08/05/11 20:30	jls	MADEP EPH	11H0317
Acenaphthene	ND	mg/kg dry	T14	1.21	1	08/03/11 07:00	08/05/11 20:30	jls	MADEP EPH	11H0317
Acenaphthylene	ND	mg/kg dry	T14	1.21	1	08/03/11 07:00	08/05/11 20:30	jls	MADEP EPH	11H0317
Anthracene	ND	mg/kg dry	T14	1.21	1	08/03/11 07:00	08/05/11 20:30	jls	MADEP EPH	11H0317
Benzo (a) anthracene	ND	mg/kg dry	T14	0.724	1	08/03/11 07:00	08/05/11 20:30	jls	MADEP EPH	11H0317
Benzo (a) pyrene	ND	mg/kg dry	T14	0.724	1	08/03/11 07:00	08/05/11 20:30	jls	MADEP EPH	11H0317
Benzo (b) fluoranthene	ND	mg/kg dry	T14	0.724	1	08/03/11 07:00	08/05/11 20:30	jls	MADEP EPH	11H0317
Benzo (g,h,i) perylene	ND	mg/kg dry	T14	1.21	1	08/03/11 07:00	08/05/11 20:30	jls	MADEP EPH	11H0317
Benzo (k) fluoranthene	ND	mg/kg dry	T14	1.21	1	08/03/11 07:00	08/05/11 20:30	jls	MADEP EPH	11H0317
Chrysene	ND	mg/kg dry	T14	1.21	1	08/03/11 07:00	08/05/11 20:30	jls	MADEP EPH	11H0317
Dibenz (a,h) anthracene	ND	mg/kg dry	T14	0.724	1	08/03/11 07:00	08/05/11 20:30	jls	MADEP EPH	11H0317
Fluoranthene	ND	mg/kg dry	T14	1.21	1	08/03/11 07:00	08/05/11 20:30	jls	MADEP EPH	11H0317
Fluorene	ND	mg/kg dry	T14	1.21	1	08/03/11 07:00	08/05/11 20:30	jls	MADEP EPH	11H0317
Indeno (1,2,3-cd) pyrene	ND	mg/kg dry	T14	0.724	1	08/03/11 07:00	08/05/11 20:30	jls	MADEP EPH	11H0317
Naphthalene	ND	mg/kg dry	L2, T14	1.21	1	08/03/11 07:00	08/05/11 20:30	jls	MADEP EPH	11H0317
Phenanthrene	ND	mg/kg dry	T14	1.21	1	08/03/11 07:00	08/05/11 20:30	jls	MADEP EPH	11H0317
Pyrene	ND	mg/kg dry	T14	1.21	1	08/03/11 07:00	08/05/11 20:30	jls	MADEP EPH	11H0317
Surr: 1-Chlorooctadecane (40-140%)	*85 %*						08/05/11 07:23	jlf	MADEP EPH	11H0317
Surr: o-Terphenyl (40-140%)	*85 %*						08/05/11 07:53	jlf	MADEP EPH	11H0317
Surr: 2-Fluorobiphenyl (40-140%)	*101 %*						08/05/11 07:53	jlf	MADEP EPH	11H0317
Surr: 2-Bromonaphthalene (40-140%)	*91 %*						08/05/11 07:53	jlf	MADEP EPH	11H0317

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Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Sample ID: NUG4216-02 (SB11-01 (40-42') - Soil) - cont. Sampled: 07/25/11 13:00

Volatile Organic - MCP CAM Method 8260

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acetone	ND	mg/kg dry	L	2.49	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Tert-Amyl Methyl Ether	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Benzene	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Bromobenzene	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Bromochloromethane	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Bromodichloromethane	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Bromoform	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Bromomethane	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
2-Butanone	ND	mg/kg dry		2.49	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
tert-Butylbenzene	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
n-Butylbenzene	**0.250**	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
sec-Butylbenzene	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Carbon disulfide	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Carbon Tetrachloride	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Chlorobenzene	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Chlorodibromomethane	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Chloroethane	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Chloroform	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Chloromethane	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
2-Chlorotoluene	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
4-Chlorotoluene	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
1,2-Dibromo-3-chloropropane	ND	mg/kg dry		0.249	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
1,2-Dibromoethane (EDB)	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Dibromomethane	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
1,2-Dichlorobenzene	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
1,3-Dichlorobenzene	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
1,4-Dichlorobenzene	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Dichlorodifluoromethane	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
1,2-Dichloroethane	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
1,1-Dichloroethane	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
1,1-Dichloroethene	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
trans-1,2-Dichloroethene	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
cis-1,2-Dichloroethene	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
1,3-Dichloropropane	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
2,2-Dichloropropane	ND	mg/kg dry	L	0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
1,2-Dichloropropane	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
trans-1,3-Dichloropropene	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
1,1-Dichloropropene	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
cis-1,3-Dichloropropene	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Diethyl ether	ND	mg/kg dry		0.249	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292

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Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Sample ID: NUG4216-02 (SB11-01 (40-42') - Soil) - cont. Sampled: 07/25/11 13:00

Volatile Organic - MCP CAM Method 8260 - cont.

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
1,4-Dioxane	ND	mg/kg dry	L2	24.9	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Ethylbenzene	**0.138**	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Ethyl tert-Butyl Ether	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Hexachlorobutadiene	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
2-Hexanone	ND	mg/kg dry		2.49	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Isopropylbenzene	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Diisopropyl Ether	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
p-Isopropyltoluene	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Methyl tert-Butyl Ether	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Methylene Chloride	ND	mg/kg dry		0.249	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
4-Methyl-2-pentanone	ND	mg/kg dry		2.49	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Naphthalene	**0.405**	mg/kg dry		0.249	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
n-Propylbenzene	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Styrene	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
1,1,2,2-Tetrachloroethane	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
1,1,1,2-Tetrachloroethane	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Tetrachloroethene	**296**	mg/kg dry		2.49	1000	07/25/11 13:00	08/08/11 20:56	EML	SW846 8260B	11H2363
Tetrahydrofuran	ND	mg/kg dry		0.249	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Toluene	**0.272**	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.249	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
1,2,3-Trichlorobenzene	ND	mg/kg dry		0.249	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
1,1,1-Trichloroethane	**18.1**	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
1,1,2-Trichloroethane	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Trichloroethene	**7.94**	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Trichlorofluoromethane	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
1,2,3-Trichloropropane	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
1,3,5-Trimethylbenzene	**0.308**	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
1,2,4-Trimethylbenzene	**0.834**	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Vinyl chloride	ND	mg/kg dry		0.125	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Xylenes, total	**0.683**	mg/kg dry		0.374	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
1,1,2-Trifluorotrichloroethane	**16.6**	mg/kg dry		0.249	50	07/25/11 13:00	08/07/11 19:22	EML	SW846 8260B	11H0292
Surr: 1,2-Dichloroethane-d4 (70-130%)	*107 %*						08/07/11 19:22	EML	SW846 8260B	11H0292
Surr: 1,2-Dichloroethane-d4 (70-130%)	*90 %*						08/08/11 20:56	EML	SW846 8260B	11H2363
Surr: Dibromofluoromethane (70-130%)	*96 %*						08/07/11 19:22	EML	SW846 8260B	11H0292
Surr: Dibromofluoromethane (70-130%)	*93 %*						08/08/11 20:56	EML	SW846 8260B	11H2363
Surr: Toluene-d8 (70-130%)	*92 %*						08/07/11 19:22	EML	SW846 8260B	11H0292
Surr: Toluene-d8 (70-130%)	*88 %*						08/08/11 20:56	EML	SW846 8260B	11H2363
Surr: 4-Bromofluorobenzene (70-130%)	*104 %*						08/07/11 19:22	EML	SW846 8260B	11H0292
Surr: 4-Bromofluorobenzene (70-130%)	*94 %*						08/08/11 20:56	EML	SW846 8260B	11H2363

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Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4216-02 (SB11-01 (40-42') - Soil) - cont. Sampled: 07/25/11 13:00										
Total Metals by EPA 6010C										
Iron	**16500**	mg/kg		9.88	1	08/04/11 07:11	08/06/11 03:00	LTB	SW846 6010C	11H0287
Manganese	**177**	mg/kg		0.988	1	08/04/11 07:11	08/06/11 03:00	LTB	SW846 6010C	11H0287

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Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Sample ID: NUG4216-02 (SB11-01 (40-42') - Soil) - cont. Sampled: 07/25/11 13:00

Semivolatile Organic Compounds by EPA Method 8270D

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acenaphthene	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Acenaphthylene	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Azobenzene	ND	mg/kg dry		2.06	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Aniline	ND	mg/kg dry		0.822	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Anthracene	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Benzo (a) anthracene	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Benzo (a) pyrene	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Benzo (b) fluoranthene	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Benzo (g,h,i) perylene	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Benzo (k) fluoranthene	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Bis(2-chloroethoxy)methane	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Bis(2-chloroethyl)ether	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Bis(2-chloroisopropyl)ether	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Bis(2-ethylhexyl)phthalate	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
4-Bromophenyl phenyl ether	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Butyl benzyl phthalate	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
4-Chloroaniline	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
2-Chloronaphthalene	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
2-Chlorophenol	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
4-Chlorophenyl phenyl ether	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Chrysene	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Dibenz (a,h) anthracene	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Dibenzofuran	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Di-n-butyl phthalate	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
3,3-Dichlorobenzidine	ND	mg/kg dry		0.822	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
1,2-Dichlorobenzene	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
1,3-Dichlorobenzene	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
1,4-Dichlorobenzene	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
2,4-Dichlorophenol	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Diethyl phthalate	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
2,4-Dimethylphenol	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Dimethyl phthalate	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
2,4-Dinitrophenol	ND	mg/kg dry		1.03	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
2,4-Dinitrotoluene	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
2,6-Dinitrotoluene	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Di-n-octyl phthalate	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Fluoranthene	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Fluorene	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Hexachlorobenzene	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Hexachlorobutadiene	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4216-02 (SB11-01 (40-42') - Soil) - cont. Sampled: 07/25/11 13:00										
Semivolatile Organic Compounds by EPA Method 8270D - cont.										
Hexachloroethane	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Indeno (1,2,3-cd) pyrene	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Isophorone	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
2-Methylnaphthalene	**0.978**	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
2-Methylphenol	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
3/4-Methylphenol	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Naphthalene	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Nitrobenzene	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
2-Nitrophenol	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
4-Nitrophenol	ND	mg/kg dry		1.03	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Pentachlorophenol	ND	mg/kg dry		1.03	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Phenanthrene	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Phenol	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Pyrene	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
2,4,5-Trichlorophenol	ND	mg/kg dry		1.03	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
2,4,6-Trichlorophenol	ND	mg/kg dry		0.410	1	08/02/11 09:01	08/07/11 18:07	KJP	SW846 8270D	11H0318
Surr: 2-Fluorophenol (30-130%)	*82 %*						08/07/11 18:07	KJP	SW846 8270D	11H0318
Surr: Phenol-d5 (30-130%)	*79 %*						08/07/11 18:07	KJP	SW846 8270D	11H0318
Surr: 2-Fluorobiphenyl (30-130%)	*81 %*						08/07/11 18:07	KJP	SW846 8270D	11H0318
Surr: Nitrobenzene-d5 (30-130%)	*75 %*						08/07/11 18:07	KJP	SW846 8270D	11H0318
Surr: Terphenyl-d14 (30-130%)	*101 %*						08/07/11 18:07	KJP	SW846 8270D	11H0318
Surr: 2,4,6-Tribromophenol (30-130%)	*81 %*						08/07/11 18:07	KJP	SW846 8270D	11H0318

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Sample ID: NUG4216-03 (TripBlk - Soil) Sampled: 07/27/11 08:00

Volatile Organic - MCP CAM Method 8260

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acetone	ND	mg/kg wet	L	1.00	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Tert-Amyl Methyl Ether	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Benzene	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Bromobenzene	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Bromochloromethane	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Bromodichloromethane	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Bromoform	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Bromomethane	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
2-Butanone	ND	mg/kg wet		1.00	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
tert-Butylbenzene	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
n-Butylbenzene	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
sec-Butylbenzene	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Carbon disulfide	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Carbon Tetrachloride	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Chlorobenzene	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Chlorodibromomethane	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Chloroethane	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Chloroform	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Chloromethane	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
2-Chlorotoluene	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
4-Chlorotoluene	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
1,2-Dibromo-3-chloropropane	ND	mg/kg wet		0.100	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
1,2-Dibromoethane (EDB)	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Dibromomethane	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
1,2-Dichlorobenzene	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
1,3-Dichlorobenzene	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
1,4-Dichlorobenzene	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Dichlorodifluoromethane	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
1,2-Dichloroethane	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
1,1-Dichloroethane	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
1,1-Dichloroethene	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
trans-1,2-Dichloroethene	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
cis-1,2-Dichloroethene	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
1,3-Dichloropropane	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
2,2-Dichloropropane	ND	mg/kg wet	L	0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
1,2-Dichloropropane	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
trans-1,3-Dichloropropene	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
1,1-Dichloropropene	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
cis-1,3-Dichloropropene	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Diethyl ether	ND	mg/kg wet		0.100	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292

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Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4216-03 (TripBlk - Soil) - cont. Sampled: 07/27/11 08:00										
Volatile Organic - MCP CAM Method 8260 - cont.										
1,4-Dioxane	ND	mg/kg wet	L2	10.0	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Ethylbenzene	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Ethyl tert-Butyl Ether	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Hexachlorobutadiene	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
2-Hexanone	ND	mg/kg wet		1.00	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Isopropylbenzene	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Diisopropyl Ether	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
p-Isopropyltoluene	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Methyl tert-Butyl Ether	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Methylene Chloride	ND	mg/kg wet		0.100	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
4-Methyl-2-pentanone	ND	mg/kg wet		1.00	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Naphthalene	ND	mg/kg wet		0.100	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
n-Propylbenzene	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Styrene	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
1,1,2,2-Tetrachloroethane	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
1,1,1,2-Tetrachloroethane	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Tetrachloroethene	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Tetrahydrofuran	ND	mg/kg wet		0.100	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Toluene	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
1,2,4-Trichlorobenzene	ND	mg/kg wet		0.100	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
1,2,3-Trichlorobenzene	ND	mg/kg wet		0.100	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
1,1,1-Trichloroethane	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
1,1,2-Trichloroethane	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Trichloroethene	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Trichlorofluoromethane	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
1,2,3-Trichloropropane	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
1,3,5-Trimethylbenzene	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
1,2,4-Trimethylbenzene	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Vinyl chloride	ND	mg/kg wet		0.0500	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Xylenes, total	ND	mg/kg wet		0.150	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
1,1,2-Trifluorotrichloroethane	ND	mg/kg wet		0.100	50	07/27/11 08:00	08/07/11 14:38	EML	SW846 8260B	11H0292
Surr: 1,2-Dichloroethane-d4 (70-130%)	*101 %*						08/07/11 14:38	EML	SW846 8260B	11H0292
Surr: Dibromofluoromethane (70-130%)	*93 %*						08/07/11 14:38	EML	SW846 8260B	11H0292
Surr: Toluene-d8 (70-130%)	*127 %*						08/07/11 14:38	EML	SW846 8260B	11H0292
Surr: 4-Bromofluorobenzene (70-130%)	*99 %*						08/07/11 14:38	EML	SW846 8260B	11H0292

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

SAMPLE EXTRACTION DATA

Parameter	Batch	Lab Number	Wt/Vol Extracted	Extract Vol	Date	Analyst	Extraction Method
MADEP EPH							
MADEP EPH	11H0317	NUG4216-01	10.71	1.00	08/03/11 07:00	JJR	MADEP soil
MADEP EPH	11H0317	NUG4216-01RE1	10.71	1.00	08/03/11 07:00	JJR	MADEP soil
MADEP EPH	11H0317	NUG4216-02	10.76	1.00	08/03/11 07:00	JJR	MADEP soil
MADEP EPH	11H0317	NUG4216-02RE1	10.76	1.00	08/03/11 07:00	JJR	MADEP soil
MADEP EPH	11H0317	NUG4216-02RE2	10.76	1.00	08/03/11 07:00	JJR	MADEP soil
MADEP VPH							
MADEP VPH	11H0335	NUG4216-01	12.91	15.00	07/25/11 10:30	KAR2	MADEP
MADEP VPH	11H0638	NUG4216-01RE1	12.91	15.00	07/25/11 10:30	KAR2	MADEP
MADEP VPH	11H0335	NUG4216-02	11.54	15.00	07/25/11 13:00	KAR2	MADEP
MADEP VPH	11H0638	NUG4216-02RE1	11.54	15.00	07/25/11 13:00	KAR2	MADEP
Semivolatile Organic Compounds by EPA Method 8270D							
SW846 8270D	11H0318	NUG4216-01	15.91	1.00	08/02/11 09:01	JJR	EPA 3541
SW846 8270D	11H0318	NUG4216-02	15.80	1.00	08/02/11 09:01	JJR	EPA 3541
Total Metals by EPA 6010C							
SW846 6010C	11H0287	NUG4216-01	0.52	100.00	08/04/11 07:11	RSO	EPA 3051A/6010
SW846 6010C	11H0287	NUG4216-01	0.52	100.00	08/04/11 07:11	RSO	EPA 3051A/6010
SW846 6010C	11H0287	NUG4216-02	0.51	100.00	08/04/11 07:11	RSO	EPA 3051A/6010
SW846 6010C	11H0287	NUG4216-02	0.51	100.00	08/04/11 07:11	RSO	EPA 3051A/6010
Volatile Organic - MCP CAM Method 8260							
SW846 8260B	11H0292	NUG4216-01	6.35	10.00	07/25/11 10:30	AAN	EPA 5035
SW846 8260B	11H2363	NUG4216-01RE1	6.35	10.00	07/25/11 10:30	AAN	EPA 5035
SW846 8260B	11H2363	NUG4216-01RE2	6.35	10.00	07/25/11 10:30	AAN	EPA 5035
SW846 8260B	11H0292	NUG4216-02	5.21	10.00	07/25/11 13:00	AAN	EPA 5035
SW846 8260B	11H2363	NUG4216-02RE1	5.21	10.00	07/25/11 13:00	AAN	EPA 5035
SW846 8260B	11H0292	NUG4216-03	10.00	10.00	07/27/11 08:00	AAN	EPA 5035

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
Blank

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
General Chemistry Parameters						
11H2048-BLK1						
Total Organic Carbon	784		mg/kg wet	11H2048	11H2048-BLK1	08/15/11 09:38
MADEP VPH						
11H0335-BLK1						
Methyl tert-Butyl Ether	<0.0350		mg/kg wet	11H0335	11H0335-BLK1	08/02/11 12:08
Benzene	<0.0200		mg/kg wet	11H0335	11H0335-BLK1	08/02/11 12:08
Toluene	<0.0250		mg/kg wet	11H0335	11H0335-BLK1	08/02/11 12:08
Ethylbenzene	<0.0250		mg/kg wet	11H0335	11H0335-BLK1	08/02/11 12:08
m,p-Xylene	<0.0650		mg/kg wet	11H0335	11H0335-BLK1	08/02/11 12:08
o-Xylene	<0.0300		mg/kg wet	11H0335	11H0335-BLK1	08/02/11 12:08
Naphthalene	0.0612		mg/kg wet	11H0335	11H0335-BLK1	08/02/11 12:08
C5 - C8 Aliphatic Hydrocarbons, Unadjustec	<2.50		mg/kg wet	11H0335	11H0335-BLK1	08/02/11 12:08
C9 - C12 Aliphatic Hydrocarbons, Unadjuste	<2.50		mg/kg wet	11H0335	11H0335-BLK1	08/02/11 12:08
C5 - C8 Aliphatic Hydrocarbons	<2.50		mg/kg wet	11H0335	11H0335-BLK1	08/02/11 12:08
C9 - C12 Aliphatic Hydrocarbons	<2.50		mg/kg wet	11H0335	11H0335-BLK1	08/02/11 12:08
C9 - C10 Aromatic Hydrocarbons	<2.50		mg/kg wet	11H0335	11H0335-BLK1	08/02/11 12:08
Surrogate: 2,5-Dibromotoluene (FID)	93%			11H0335	11H0335-BLK1	08/02/11 12:08
Surrogate: 2,5-Dibromotoluene (PID)	92%			11H0335	11H0335-BLK1	08/02/11 12:08
11H0638-BLK1						
Methyl tert-Butyl Ether	<0.0350		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
Benzene	<0.0200		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
Toluene	<0.0250		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
Ethylbenzene	<0.0250		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
m,p-Xylene	<0.0650		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
o-Xylene	<0.0300		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
Naphthalene	0.200		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
C5 - C8 Aliphatic Hydrocarbons, Unadjustec	<2.50		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
C9 - C12 Aliphatic Hydrocarbons, Unadjuste	<2.50		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
C5 - C8 Aliphatic Hydrocarbons	<2.50		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
C9 - C12 Aliphatic Hydrocarbons	<2.50		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
C9 - C10 Aromatic Hydrocarbons	<2.50		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
Surrogate: 2,5-Dibromotoluene (FID)	99%			11H0638	11H0638-BLK1	08/03/11 12:26
Surrogate: 2,5-Dibromotoluene (PID)	95%			11H0638	11H0638-BLK1	08/03/11 12:26
MADEP EPH						
11H0317-BLK1						
C9 - C18 Aliphatic Hydrocarbons	<1.90		mg/kg wet	11H0317	11H0317-BLK1	08/04/11 14:38
C19 - C36 Aliphatic Hydrocarbons	<1.90		mg/kg wet	11H0317	11H0317-BLK1	08/04/11 14:38
C11 - C22 Aromatic Hydrocarbons	<1.40		mg/kg wet	11H0317	11H0317-BLK1	08/04/11 14:38
C11 - C22 Aromatic Hydrocarbons, Unadjus	<1.40		mg/kg wet	11H0317	11H0317-BLK1	08/04/11 15:09

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
MADEP EPH						
11H0317-BLK1						
Surrogate: 1-Chlorooctadecane	74%			11H0317	11H0317-BLK1	08/04/11 14:38
Surrogate: o-Terphenyl	71%			11H0317	11H0317-BLK1	08/04/11 15:09
Surrogate: 2-Fluorobiphenyl	105%			11H0317	11H0317-BLK1	08/04/11 15:09
Surrogate: 2-Bromonaphthalene	106%			11H0317	11H0317-BLK1	08/04/11 15:09
11H0317-BLK2						
2-Methylnaphthalene	<0.0210	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Acenaphthene	<0.0140	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Acenaphthylene	<0.0200	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Anthracene	<0.00900	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Benzo (a) anthracene	<0.0110	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Benzo (a) pyrene	<0.00800	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Benzo (b) fluoranthene	<0.0380	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Benzo (g,h,i) perylene	<0.00900	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Benzo (k) fluoranthene	<0.0370	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Chrysene	<0.0310	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Dibenz (a,h) anthracene	<0.0150	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Fluoranthene	<0.0110	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Fluorene	<0.0200	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Indeno (1,2,3-cd) pyrene	<0.0310	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Naphthalene	<0.0140	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Phenanthrene	<0.0100	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Pyrene	<0.0230	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Volatile Organic - MCP CAM Method 8260						
11H0292-BLK1						
Acetone	1.23		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Tert-Amyl Methyl Ether	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Benzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromobenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromochloromethane	<0.0120		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromodichloromethane	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromoform	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromomethane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
2-Butanone	2.92		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
tert-Butylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
n-Butylbenzene	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
sec-Butylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Carbon disulfide	<0.00650		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Carbon Tetrachloride	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Chlorobenzene	<0.00950		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50

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Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11H0292-BLK1						
Chlorodibromomethane	<0.0105		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Chloroethane	<0.0105		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Chloroform	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Chloromethane	<0.0150		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
2-Chlorotoluene	<0.00700		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
4-Chlorotoluene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dibromo-3-chloropropane	<0.0135		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dibromoethane (EDB)	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Dibromomethane	<0.00800		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dichlorobenzene	<0.00650		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,3-Dichlorobenzene	<0.00700		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,4-Dichlorobenzene	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Dichlorodifluoromethane	<0.00700		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dichloroethane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1-Dichloroethane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1-Dichloroethene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
trans-1,2-Dichloroethene	<0.00800		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
cis-1,2-Dichloroethene	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,3-Dichloropropane	<0.00550		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
2,2-Dichloropropane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dichloropropane	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
trans-1,3-Dichloropropene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1-Dichloropropene	<0.00550		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
cis-1,3-Dichloropropene	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Diethyl ether	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,4-Dioxane	<0.900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Ethylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Ethyl tert-Butyl Ether	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Hexachlorobutadiene	<0.0130		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
2-Hexanone	<0.0355		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Isopropylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Diisopropyl Ether	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
p-Isopropyltoluene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Methyl tert-Butyl Ether	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Methylene Chloride	<0.0835		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
4-Methyl-2-pentanone	<0.165		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Naphthalene	<0.0850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
n-Propylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Styrene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,2,2-Tetrachloroethane	<0.00700		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,1,2-Tetrachloroethane	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50

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Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11H0292-BLK1						
Tetrachloroethene	<0.00950		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Tetrahydrofuran	0.201		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Toluene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2,4-Trichlorobenzene	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2,3-Trichlorobenzene	0.0125		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,1-Trichloroethane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,2-Trichloroethane	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Trichloroethene	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Trichlorofluoromethane	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2,3-Trichloropropane	<0.0135		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,3,5-Trimethylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2,4-Trimethylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Vinyl chloride	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Xylenes, total	<0.0195		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,2-Trifluorotrichloroethane	<0.0380		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Surrogate: 1,2-Dichloroethane-d4	101%			11H0292	11H0292-BLK1	08/07/11 11:50
Surrogate: Dibromofluoromethane	97%			11H0292	11H0292-BLK1	08/07/11 11:50
Surrogate: Toluene-d8	89%			11H0292	11H0292-BLK1	08/07/11 11:50
Surrogate: 4-Bromofluorobenzene	101%			11H0292	11H0292-BLK1	08/07/11 11:50
11H2363-BLK1						
Acetone	<0.250		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Tert-Amyl Methyl Ether	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Benzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Bromobenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Bromochloromethane	<0.0120		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Bromodichloromethane	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Bromoform	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Bromomethane	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
2-Butanone	0.306		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
tert-Butylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
n-Butylbenzene	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
sec-Butylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Carbon disulfide	<0.00650		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Carbon Tetrachloride	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Chlorobenzene	<0.00950		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Chlorodibromomethane	<0.0105		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Chloroethane	<0.0105		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Chloroform	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Chloromethane	<0.0150		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
2-Chlorotoluene	<0.00700		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14

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Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11H2363-BLK1						
4-Chlorotoluene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2-Dibromo-3-chloropropane	<0.0135		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2-Dibromoethane (EDB)	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Dibromomethane	<0.00800		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2-Dichlorobenzene	<0.00650		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,3-Dichlorobenzene	<0.00700		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,4-Dichlorobenzene	<0.00750		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Dichlorodifluoromethane	<0.00700		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2-Dichloroethane	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1-Dichloroethane	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1-Dichloroethene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
trans-1,2-Dichloroethene	<0.00800		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
cis-1,2-Dichloroethene	<0.00750		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,3-Dichloropropane	<0.00550		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
2,2-Dichloropropane	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2-Dichloropropane	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
trans-1,3-Dichloropropene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1-Dichloropropene	<0.00550		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
cis-1,3-Dichloropropene	<0.00750		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Diethyl ether	<0.00750		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,4-Dioxane	<0.900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Ethylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Ethyl tert-Butyl Ether	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Hexachlorobutadiene	<0.0130		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
2-Hexanone	<0.0355		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Isopropylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Diisopropyl Ether	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
p-Isopropyltoluene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Methyl tert-Butyl Ether	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Methylene Chloride	<0.0835		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
4-Methyl-2-pentanone	<0.165		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Naphthalene	<0.0850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
n-Propylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Styrene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1,2,2-Tetrachloroethane	<0.00700		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1,1,2-Tetrachloroethane	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Tetrachloroethene	<0.00950		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Tetrahydrofuran	<0.0730		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Toluene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2,4-Trichlorobenzene	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2,3-Trichlorobenzene	<0.0125		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11H2363-BLK1						
1,1,1-Trichloroethane	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1,2-Trichloroethane	<0.00750		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Trichloroethene	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Trichlorofluoromethane	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2,3-Trichloropropane	<0.0135		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,3,5-Trimethylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2,4-Trimethylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Vinyl chloride	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Xylenes, total	<0.0195		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Surrogate: 1,2-Dichloroethane-d4	94%			11H2363	11H2363-BLK1	08/08/11 16:14
Surrogate: Dibromofluoromethane	92%			11H2363	11H2363-BLK1	08/08/11 16:14
Surrogate: Toluene-d8	85%			11H2363	11H2363-BLK1	08/08/11 16:14
Surrogate: 4-Bromofluorobenzene	95%			11H2363	11H2363-BLK1	08/08/11 16:14
Total Metals by EPA 6010C						
11H0287-BLK1						
Iron	5.07		mg/kg	11H0287	11H0287-BLK1	08/06/11 02:22
Manganese	<0.201		mg/kg	11H0287	11H0287-BLK1	08/06/11 02:22
Semivolatile Organic Compounds by EPA Method 8270D						
11H0318-BLK1						
Acenaphthene	<0.0140		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Acenaphthylene	<0.0200		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Azobenzene	<0.173		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Aniline	<0.122		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Anthracene	<0.00900		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Benzo (a) anthracene	<0.0110		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Benzo (a) pyrene	<0.00800		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Benzo (b) fluoranthene	<0.0380		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Benzo (g,h,i) perylene	<0.00900		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Benzo (k) fluoranthene	<0.0370		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Bis(2-chloroethoxy)methane	<0.128		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Bis(2-chloroethyl)ether	<0.151		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Bis(2-chloroisopropyl)ether	<0.158		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Bis(2-ethylhexyl)phthalate	<0.126		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
4-Bromophenyl phenyl ether	<0.150		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Butyl benzyl phthalate	<0.125		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
4-Chloroaniline	<0.103		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2-Chloronaphthalene	<0.150		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2-Chlorophenol	<0.149		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
4-Chlorophenyl phenyl ether	<0.148		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270D						
11H0318-BLK1						
Chrysene	<0.0310		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Dibenz (a,h) anthracene	<0.0150		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Dibenzofuran	<0.0140		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Di-n-butyl phthalate	<0.141		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
3,3-Dichlorobenzidine	<0.0480		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
1,2-Dichlorobenzene	<0.154		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
1,3-Dichlorobenzene	<0.143		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
1,4-Dichlorobenzene	<0.147		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2,4-Dichlorophenol	<0.131		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Diethyl phthalate	<0.148		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2,4-Dimethylphenol	<0.137		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Dimethyl phthalate	<0.157		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2,4-Dinitrophenol	<0.0990		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2,4-Dinitrotoluene	<0.140		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2,6-Dinitrotoluene	<0.150		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Di-n-octyl phthalate	<0.135		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Fluoranthene	<0.0110		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Fluorene	<0.0200		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Hexachlorobenzene	<0.153		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Hexachlorobutadiene	<0.174		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Hexachloroethane	<0.150		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Indeno (1,2,3-cd) pyrene	<0.0310		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Isophorone	<0.135		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2-Methylnaphthalene	<0.0210		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2-Methylphenol	<0.189		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
3/4-Methylphenol	<0.166		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Naphthalene	<0.0140		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Nitrobenzene	<0.159		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2-Nitrophenol	<0.196		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
4-Nitrophenol	<0.153		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Pentachlorophenol	<0.123		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Phenanthrene	<0.0100		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Phenol	<0.131		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Pyrene	<0.0230		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
1,2,4-Trichlorobenzene	<0.144		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2,4,5-Trichlorophenol	<0.148		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2,4,6-Trichlorophenol	<0.149		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Surrogate: 2-Fluorophenol	83%			11H0318	11H0318-BLK1	08/07/11 15:02
Surrogate: Phenol-d5	81%			11H0318	11H0318-BLK1	08/07/11 15:02
Surrogate: 2-Fluorobiphenyl	78%			11H0318	11H0318-BLK1	08/07/11 15:02
Surrogate: Nitrobenzene-d5	76%			11H0318	11H0318-BLK1	08/07/11 15:02

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THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270D						
11H0318-BLK1						
Surrogate: Terphenyl-d14	97%			11H0318	11H0318-BLK1	08/07/11 15:02
Surrogate: 2,4,6-Tribromophenol	81%			11H0318	11H0318-BLK1	08/07/11 15:02

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Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
General Chemistry Parameters								
11H2048-BS1								
Total Organic Carbon	29900	31700		mg/kg wet	106%	80 - 120	11H2048	08/15/11 09:38
MADEP VPH								
11H0335-BS1								
Methyl tert-Butyl Ether	0.100	0.0966		mg/kg wet	97%	70 - 130	11H0335	08/02/11 10:22
Benzene	0.100	0.101		mg/kg wet	101%	70 - 130	11H0335	08/02/11 10:22
Toluene	0.100	0.0992		mg/kg wet	99%	70 - 130	11H0335	08/02/11 10:22
Ethylbenzene	0.100	0.102		mg/kg wet	102%	70 - 130	11H0335	08/02/11 10:22
m,p-Xylene	0.200	0.205		mg/kg wet	102%	70 - 130	11H0335	08/02/11 10:22
o-Xylene	0.100	0.101		mg/kg wet	101%	70 - 130	11H0335	08/02/11 10:22
Naphthalene	0.100	0.0963		mg/kg wet	96%	70 - 130	11H0335	08/02/11 10:22
C5 - C8 Aliphatic Hydrocarbons, Unadjusted	0.300	0.326		mg/kg wet	109%	70 - 130	11H0335	08/02/11 10:22
C9 - C12 Aliphatic Hydrocarbons, Unadjusted	0.200	0.207		mg/kg wet	103%	70 - 130	11H0335	08/02/11 10:22
C9 - C10 Aromatic Hydrocarbons	0.100	0.103		mg/kg wet	103%	70 - 130	11H0335	08/02/11 10:22
Surrogate: 2,5-Dibromotoluene (FID)	40.0	40.0			100%	70 - 130	11H0335	08/02/11 10:22
Surrogate: 2,5-Dibromotoluene (PID)	40.0	40.2			101%	70 - 130	11H0335	08/02/11 10:22
11H0638-BS1								
Methyl tert-Butyl Ether	0.100	0.0911		mg/kg wet	91%	70 - 130	11H0638	08/03/11 10:45
Benzene	0.100	0.0973		mg/kg wet	97%	70 - 130	11H0638	08/03/11 10:45
Toluene	0.100	0.0949		mg/kg wet	95%	70 - 130	11H0638	08/03/11 10:45
Ethylbenzene	0.100	0.0971		mg/kg wet	97%	70 - 130	11H0638	08/03/11 10:45
m,p-Xylene	0.200	0.195		mg/kg wet	98%	70 - 130	11H0638	08/03/11 10:45
o-Xylene	0.100	0.0962		mg/kg wet	96%	70 - 130	11H0638	08/03/11 10:45
Naphthalene	0.100	0.0912		mg/kg wet	91%	70 - 130	11H0638	08/03/11 10:45
C5 - C8 Aliphatic Hydrocarbons, Unadjusted	0.300	0.307		mg/kg wet	102%	70 - 130	11H0638	08/03/11 10:45
C9 - C12 Aliphatic Hydrocarbons, Unadjusted	0.200	0.214		mg/kg wet	107%	70 - 130	11H0638	08/03/11 10:45
C9 - C10 Aromatic Hydrocarbons	0.100	0.0983		mg/kg wet	98%	70 - 130	11H0638	08/03/11 10:45
Surrogate: 2,5-Dibromotoluene (FID)	40.0	38.8			97%	70 - 130	11H0638	08/03/11 10:45
Surrogate: 2,5-Dibromotoluene (PID)	40.0	37.6			94%	70 - 130	11H0638	08/03/11 10:45
MADEP EPH								
11H0317-BS1								
C9 - C18 Aliphatic Hydrocarbons	15.0	10.8		mg/kg wet	72%	40 - 140	11H0317	08/04/11 15:40
C19 - C36 Aliphatic Hydrocarbons	20.0	14.9		mg/kg wet	74%	40 - 140	11H0317	08/04/11 15:40
C11 - C22 Aromatic Hydrocarbons, Unadjustec	42.5	34.4		mg/kg wet	81%	40 - 140	11H0317	08/04/11 16:10
Surrogate: 1-Chlorooctadecane	4.00	3.16			79%	40 - 140	11H0317	08/04/11 15:40
Surrogate: o-Terphenyl	4.00	3.46			86%	40 - 140	11H0317	08/04/11 16:10
Surrogate: 2-Fluorobiphenyl	4.00	4.22			105%	40 - 140	11H0317	08/04/11 16:10
Surrogate: 2-Bromonaphthalene	4.00	4.12			103%	40 - 140	11H0317	08/04/11 16:10
11H0317-BS2								

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Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
MADEP EPH								
2-Methylnaphthalene	2.50	1.83	T14	mg/kg wet	73%	40 - 140	11H0317	08/05/11 16:36
Acenaphthene	2.50	1.79	T14	mg/kg wet	72%	40 - 140	11H0317	08/05/11 16:36
Acenaphthylene	2.50	1.99	T14	mg/kg wet	80%	40 - 140	11H0317	08/05/11 16:36
Anthracene	2.50	2.18	T14	mg/kg wet	87%	40 - 140	11H0317	08/05/11 16:36
Benzo (a) anthracene	2.50	2.21	T14	mg/kg wet	88%	40 - 140	11H0317	08/05/11 16:36
Benzo (a) pyrene	2.50	2.27	T14	mg/kg wet	91%	40 - 140	11H0317	08/05/11 16:36
Benzo (b) fluoranthene	2.50	2.31	T14	mg/kg wet	92%	40 - 140	11H0317	08/05/11 16:36
Benzo (g,h,i) perylene	2.50	2.16	T14	mg/kg wet	86%	40 - 140	11H0317	08/05/11 16:36
Benzo (k) fluoranthene	2.50	1.93	T14	mg/kg wet	77%	40 - 140	11H0317	08/05/11 16:36
Chrysene	2.50	2.03	T14	mg/kg wet	81%	40 - 140	11H0317	08/05/11 16:36
Dibenz (a,h) anthracene	2.50	2.18	T14	mg/kg wet	87%	40 - 140	11H0317	08/05/11 16:36
Fluoranthene	2.50	2.15	T14	mg/kg wet	86%	40 - 140	11H0317	08/05/11 16:36
Fluorene	2.50	1.97	T14	mg/kg wet	79%	40 - 140	11H0317	08/05/11 16:36
Indeno (1,2,3-cd) pyrene	2.50	2.19	T14	mg/kg wet	88%	40 - 140	11H0317	08/05/11 16:36
Naphthalene	2.50	1.80	T14	mg/kg wet	72%	40 - 140	11H0317	08/05/11 16:36
Phenanthrene	2.50	2.14	T14	mg/kg wet	85%	40 - 140	11H0317	08/05/11 16:36
Pyrene	2.50	2.23	T14	mg/kg wet	89%	40 - 140	11H0317	08/05/11 16:36
Volatile Organic - MCP CAM Method 8260								
11H0292-BS1								
Acetone	250	327	L, B	ug/kg	131%	70 - 130	11H0292	08/07/11 09:02
Tert-Amyl Methyl Ether	50.0	48.9		ug/kg	98%	70 - 130	11H0292	08/07/11 09:02
Benzene	50.0	54.6		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
Bromobenzene	50.0	50.6		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02
Bromochloromethane	50.0	52.9		ug/kg	106%	70 - 130	11H0292	08/07/11 09:02
Bromodichloromethane	50.0	53.5		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Bromoform	50.0	40.4		ug/kg	81%	70 - 130	11H0292	08/07/11 09:02
Bromomethane	50.0	56.4		ug/kg	113%	70 - 130	11H0292	08/07/11 09:02
2-Butanone	250	266	B	ug/kg	106%	70 - 130	11H0292	08/07/11 09:02
tert-Butylbenzene	50.0	55.4		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
n-Butylbenzene	50.0	48.9		ug/kg	98%	70 - 130	11H0292	08/07/11 09:02
sec-Butylbenzene	50.0	55.8		ug/kg	112%	70 - 130	11H0292	08/07/11 09:02
Carbon disulfide	50.0	53.6		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Carbon Tetrachloride	50.0	58.7		ug/kg	117%	70 - 130	11H0292	08/07/11 09:02
Chlorobenzene	50.0	53.3		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Chlorodibromomethane	50.0	50.4		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02
Chloroethane	50.0	52.4		ug/kg	105%	70 - 130	11H0292	08/07/11 09:02
Chloroform	50.0	53.9		ug/kg	108%	70 - 130	11H0292	08/07/11 09:02
Chloromethane	50.0	54.5		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
2-Chlorotoluene	50.0	53.5		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
4-Chlorotoluene	50.0	56.1		ug/kg	112%	70 - 130	11H0292	08/07/11 09:02
1,2-Dibromo-3-chloropropane	50.0	44.2		ug/kg	88%	70 - 130	11H0292	08/07/11 09:02

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11H0292-BS1								
1,2-Dibromoethane (EDB)	50.0	54.3		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
Dibromomethane	50.0	50.0		ug/kg	100%	70 - 130	11H0292	08/07/11 09:02
1,2-Dichlorobenzene	50.0	54.2		ug/kg	108%	70 - 130	11H0292	08/07/11 09:02
1,3-Dichlorobenzene	50.0	55.4		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
1,4-Dichlorobenzene	50.0	53.7		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Dichlorodifluoromethane	50.0	61.7		ug/kg	123%	70 - 130	11H0292	08/07/11 09:02
1,2-Dichloroethane	50.0	52.2		ug/kg	104%	70 - 130	11H0292	08/07/11 09:02
1,1-Dichloroethane	50.0	52.9		ug/kg	106%	70 - 130	11H0292	08/07/11 09:02
1,1-Dichloroethene	50.0	53.3		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
trans-1,2-Dichloroethene	50.0	54.2		ug/kg	108%	70 - 130	11H0292	08/07/11 09:02
cis-1,2-Dichloroethene	50.0	55.5		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
1,3-Dichloropropane	50.0	53.0		ug/kg	106%	70 - 130	11H0292	08/07/11 09:02
2,2-Dichloropropane	50.0	66.4	L	ug/kg	133%	70 - 130	11H0292	08/07/11 09:02
1,2-Dichloropropane	50.0	50.4		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02
trans-1,3-Dichloropropene	50.0	50.3		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02
1,1-Dichloropropene	50.0	55.3		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
cis-1,3-Dichloropropene	50.0	60.1		ug/kg	120%	70 - 130	11H0292	08/07/11 09:02
Diethyl ether	50.0	51.1		ug/kg	102%	70 - 130	11H0292	08/07/11 09:02
1,4-Dioxane	5000	3910		ug/kg	78%	70 - 130	11H0292	08/07/11 09:02
Ethylbenzene	50.0	55.4		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
Ethyl tert-Butyl Ether	50.0	48.0		ug/kg	96%	70 - 130	11H0292	08/07/11 09:02
Hexachlorobutadiene	50.0	60.6		ug/kg	121%	70 - 130	11H0292	08/07/11 09:02
2-Hexanone	250	284		ug/kg	114%	70 - 130	11H0292	08/07/11 09:02
Isopropylbenzene	50.0	42.0		ug/kg	84%	70 - 130	11H0292	08/07/11 09:02
Diisopropyl Ether	50.0	50.9		ug/kg	102%	70 - 130	11H0292	08/07/11 09:02
p-Isopropyltoluene	50.0	55.0		ug/kg	110%	70 - 130	11H0292	08/07/11 09:02
Methyl tert-Butyl Ether	50.0	50.4		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02
Methylene Chloride	50.0	54.0		ug/kg	108%	70 - 130	11H0292	08/07/11 09:02
4-Methyl-2-pentanone	250	232		ug/kg	93%	70 - 130	11H0292	08/07/11 09:02
Naphthalene	50.0	45.8		ug/kg	92%	70 - 130	11H0292	08/07/11 09:02
n-Propylbenzene	50.0	54.4		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
Styrene	50.0	48.4		ug/kg	97%	70 - 130	11H0292	08/07/11 09:02
1,1,2,2-Tetrachloroethane	50.0	47.2		ug/kg	94%	70 - 130	11H0292	08/07/11 09:02
1,1,1,2-Tetrachloroethane	50.0	56.4		ug/kg	113%	70 - 130	11H0292	08/07/11 09:02
Tetrachloroethene	50.0	56.3		ug/kg	113%	70 - 130	11H0292	08/07/11 09:02
Tetrahydrofuran	500	471	B	ug/kg	94%	70 - 130	11H0292	08/07/11 09:02
Toluene	50.0	51.8		ug/kg	104%	70 - 130	11H0292	08/07/11 09:02
1,2,4-Trichlorobenzene	50.0	54.7		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
1,2,3-Trichlorobenzene	50.0	47.1		ug/kg	94%	70 - 130	11H0292	08/07/11 09:02
1,1,1-Trichloroethane	50.0	56.8		ug/kg	114%	70 - 130	11H0292	08/07/11 09:02
1,1,2-Trichloroethane	50.0	53.7		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11H0292-BS1								
Trichloroethene	50.0	53.4		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Trichlorofluoromethane	50.0	54.7		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
1,2,3-Trichloropropane	50.0	47.8		ug/kg	96%	70 - 130	11H0292	08/07/11 09:02
1,3,5-Trimethylbenzene	50.0	56.2		ug/kg	112%	70 - 130	11H0292	08/07/11 09:02
1,2,4-Trimethylbenzene	50.0	55.9		ug/kg	112%	70 - 130	11H0292	08/07/11 09:02
Vinyl chloride	50.0	58.7		ug/kg	117%	70 - 130	11H0292	08/07/11 09:02
Xylenes, total	150	157		ug/kg	105%	70 - 130	11H0292	08/07/11 09:02
1,1,2-Trifluorotrichloroethane	50.0	57.4		ug/kg	115%	61 - 134	11H0292	08/07/11 09:02
Surrogate: 1,2-Dichloroethane-d4	25.0	24.6			98%	70 - 130	11H0292	08/07/11 09:02
Surrogate: Dibromofluoromethane	25.0	25.5			102%	70 - 130	11H0292	08/07/11 09:02
Surrogate: Toluene-d8	25.0	24.1			96%	70 - 130	11H0292	08/07/11 09:02
Surrogate: 4-Bromofluorobenzene	25.0	24.8			99%	70 - 130	11H0292	08/07/11 09:02
11H2363-BS1								
Acetone	250	337	L	ug/kg	135%	70 - 130	11H2363	08/08/11 13:52
Tert-Amyl Methyl Ether	50.0	59.5		ug/kg	119%	70 - 130	11H2363	08/08/11 13:52
Benzene	50.0	53.0		ug/kg	106%	70 - 130	11H2363	08/08/11 13:52
Bromobenzene	50.0	48.0		ug/kg	96%	70 - 130	11H2363	08/08/11 13:52
Bromochloromethane	50.0	51.7		ug/kg	103%	70 - 130	11H2363	08/08/11 13:52
Bromodichloromethane	50.0	51.7		ug/kg	103%	70 - 130	11H2363	08/08/11 13:52
Bromoform	50.0	51.8		ug/kg	104%	70 - 130	11H2363	08/08/11 13:52
Bromomethane	50.0	53.0		ug/kg	106%	70 - 130	11H2363	08/08/11 13:52
2-Butanone	250	287		ug/kg	115%	70 - 130	11H2363	08/08/11 13:52
tert-Butylbenzene	50.0	57.4		ug/kg	115%	70 - 130	11H2363	08/08/11 13:52
n-Butylbenzene	50.0	50.8		ug/kg	102%	70 - 130	11H2363	08/08/11 13:52
sec-Butylbenzene	50.0	58.0		ug/kg	116%	70 - 130	11H2363	08/08/11 13:52
Carbon disulfide	50.0	52.4		ug/kg	105%	70 - 130	11H2363	08/08/11 13:52
Carbon Tetrachloride	50.0	59.0		ug/kg	118%	70 - 130	11H2363	08/08/11 13:52
Chlorobenzene	50.0	53.5		ug/kg	107%	70 - 130	11H2363	08/08/11 13:52
Chlorodibromomethane	50.0	48.9		ug/kg	98%	70 - 130	11H2363	08/08/11 13:52
Chloroethane	50.0	48.7		ug/kg	97%	70 - 130	11H2363	08/08/11 13:52
Chloroform	50.0	52.8		ug/kg	106%	70 - 130	11H2363	08/08/11 13:52
Chloromethane	50.0	39.8		ug/kg	80%	70 - 130	11H2363	08/08/11 13:52
2-Chlorotoluene	50.0	51.5		ug/kg	103%	70 - 130	11H2363	08/08/11 13:52
4-Chlorotoluene	50.0	54.7		ug/kg	109%	70 - 130	11H2363	08/08/11 13:52
1,2-Dibromo-3-chloropropane	50.0	46.2		ug/kg	92%	70 - 130	11H2363	08/08/11 13:52
1,2-Dibromoethane (EDB)	50.0	50.6		ug/kg	101%	70 - 130	11H2363	08/08/11 13:52
Dibromomethane	50.0	47.7		ug/kg	95%	70 - 130	11H2363	08/08/11 13:52
1,2-Dichlorobenzene	50.0	56.3		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52
1,3-Dichlorobenzene	50.0	56.6		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52
1,4-Dichlorobenzene	50.0	56.2		ug/kg	112%	70 - 130	11H2363	08/08/11 13:52

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11H2363-BS1								
Dichlorodifluoromethane	50.0	49.8		ug/kg	100%	70 - 130	11H2363	08/08/11 13:52
1,2-Dichloroethane	50.0	48.1		ug/kg	96%	70 - 130	11H2363	08/08/11 13:52
1,1-Dichloroethane	50.0	51.5		ug/kg	103%	70 - 130	11H2363	08/08/11 13:52
1,1-Dichloroethene	50.0	52.5		ug/kg	105%	70 - 130	11H2363	08/08/11 13:52
trans-1,2-Dichloroethene	50.0	51.2		ug/kg	102%	70 - 130	11H2363	08/08/11 13:52
cis-1,2-Dichloroethene	50.0	51.8		ug/kg	104%	70 - 130	11H2363	08/08/11 13:52
1,3-Dichloropropane	50.0	47.2		ug/kg	94%	70 - 130	11H2363	08/08/11 13:52
2,2-Dichloropropane	50.0	68.3	L	ug/kg	137%	70 - 130	11H2363	08/08/11 13:52
1,2-Dichloropropane	50.0	47.1		ug/kg	94%	70 - 130	11H2363	08/08/11 13:52
trans-1,3-Dichloropropene	50.0	46.6		ug/kg	93%	70 - 130	11H2363	08/08/11 13:52
1,1-Dichloropropene	50.0	53.2		ug/kg	106%	70 - 130	11H2363	08/08/11 13:52
cis-1,3-Dichloropropene	50.0	60.3		ug/kg	121%	70 - 130	11H2363	08/08/11 13:52
Diethyl ether	50.0	49.4		ug/kg	99%	70 - 130	11H2363	08/08/11 13:52
1,4-Dioxane	5000	3490		ug/kg	70%	70 - 130	11H2363	08/08/11 13:52
Ethylbenzene	50.0	55.2		ug/kg	110%	70 - 130	11H2363	08/08/11 13:52
Ethyl tert-Butyl Ether	50.0	53.4		ug/kg	107%	70 - 130	11H2363	08/08/11 13:52
Hexachlorobutadiene	50.0	58.4		ug/kg	117%	70 - 130	11H2363	08/08/11 13:52
2-Hexanone	250	274		ug/kg	109%	70 - 130	11H2363	08/08/11 13:52
Isopropylbenzene	50.0	65.9	L1	ug/kg	132%	70 - 130	11H2363	08/08/11 13:52
Diisopropyl Ether	50.0	48.8		ug/kg	98%	70 - 130	11H2363	08/08/11 13:52
p-Isopropyltoluene	50.0	58.4		ug/kg	117%	70 - 130	11H2363	08/08/11 13:52
Methyl tert-Butyl Ether	50.0	56.1		ug/kg	112%	70 - 130	11H2363	08/08/11 13:52
Methylene Chloride	50.0	51.0		ug/kg	102%	70 - 130	11H2363	08/08/11 13:52
4-Methyl-2-pentanone	250	223		ug/kg	89%	70 - 130	11H2363	08/08/11 13:52
Naphthalene	50.0	50.5		ug/kg	101%	70 - 130	11H2363	08/08/11 13:52
n-Propylbenzene	50.0	54.2		ug/kg	108%	70 - 130	11H2363	08/08/11 13:52
Styrene	50.0	60.3		ug/kg	121%	70 - 130	11H2363	08/08/11 13:52
1,1,2,2-Tetrachloroethane	50.0	43.8		ug/kg	88%	70 - 130	11H2363	08/08/11 13:52
1,1,1,2-Tetrachloroethane	50.0	58.6		ug/kg	117%	70 - 130	11H2363	08/08/11 13:52
Tetrachloroethene	50.0	54.2		ug/kg	108%	70 - 130	11H2363	08/08/11 13:52
Tetrahydrofuran	500	458		ug/kg	92%	70 - 130	11H2363	08/08/11 13:52
Toluene	50.0	48.1		ug/kg	96%	70 - 130	11H2363	08/08/11 13:52
1,2,4-Trichlorobenzene	50.0	56.6		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52
1,2,3-Trichlorobenzene	50.0	51.1		ug/kg	102%	70 - 130	11H2363	08/08/11 13:52
1,1,1-Trichloroethane	50.0	58.0		ug/kg	116%	70 - 130	11H2363	08/08/11 13:52
1,1,2-Trichloroethane	50.0	49.8		ug/kg	100%	70 - 130	11H2363	08/08/11 13:52
Trichloroethene	50.0	53.6		ug/kg	107%	70 - 130	11H2363	08/08/11 13:52
Trichlorofluoromethane	50.0	49.2		ug/kg	98%	70 - 130	11H2363	08/08/11 13:52
1,2,3-Trichloropropane	50.0	47.1		ug/kg	94%	70 - 130	11H2363	08/08/11 13:52
1,3,5-Trimethylbenzene	50.0	56.6		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52
1,2,4-Trimethylbenzene	50.0	56.4		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11H2363-BS1								
Vinyl chloride	50.0	47.1		ug/kg	94%	70 - 130	11H2363	08/08/11 13:52
Xylenes, total	150	170		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52
Surrogate: 1,2-Dichloroethane-d4	25.0	22.5			90%	70 - 130	11H2363	08/08/11 13:52
Surrogate: Dibromofluoromethane	25.0	24.0			96%	70 - 130	11H2363	08/08/11 13:52
Surrogate: Toluene-d8	25.0	21.4			86%	70 - 130	11H2363	08/08/11 13:52
Surrogate: 4-Bromofluorobenzene	25.0	23.9			95%	70 - 130	11H2363	08/08/11 13:52
Total Metals by EPA 6010C								
11H0287-BS1								
Iron	395	426		mg/kg	108%	80 - 120	11H0287	08/06/11 02:25
Manganese	198	203		mg/kg	103%	80 - 120	11H0287	08/06/11 02:25
Semivolatile Organic Compounds by EPA Method 8270D								
11H0318-BS1								
Acenaphthene	3.33	3.04		mg/kg wet	91%	40 - 140	11H0318	08/07/11 10:43
Acenaphthylene	3.33	2.95		mg/kg wet	88%	40 - 140	11H0318	08/07/11 10:43
Azobenzene	3.33	2.98		mg/kg wet	89%	40 - 140	11H0318	08/07/11 10:43
Aniline	3.33	4.63		mg/kg wet	139%	40 - 140	11H0318	08/07/11 10:43
Anthracene	3.33	3.17		mg/kg wet	95%	40 - 140	11H0318	08/07/11 10:43
Benzo (a) anthracene	3.33	3.14		mg/kg wet	94%	40 - 140	11H0318	08/07/11 10:43
Benzo (a) pyrene	3.33	3.32		mg/kg wet	100%	40 - 140	11H0318	08/07/11 10:43
Benzo (b) fluoranthene	3.33	3.20		mg/kg wet	96%	40 - 140	11H0318	08/07/11 10:43
Benzo (g,h,i) perylene	3.33	3.29		mg/kg wet	99%	40 - 140	11H0318	08/07/11 10:43
Benzo (k) fluoranthene	3.33	3.00		mg/kg wet	90%	40 - 140	11H0318	08/07/11 10:43
Bis(2-chloroethoxy)methane	3.33	2.87		mg/kg wet	86%	40 - 140	11H0318	08/07/11 10:43
Bis(2-chloroethyl)ether	3.33	2.84		mg/kg wet	85%	40 - 140	11H0318	08/07/11 10:43
Bis(2-chloroisopropyl)ether	3.33	2.87		mg/kg wet	86%	40 - 140	11H0318	08/07/11 10:43
Bis(2-ethylhexyl)phthalate	3.33	3.22		mg/kg wet	96%	40 - 140	11H0318	08/07/11 10:43
4-Bromophenyl phenyl ether	3.33	3.02		mg/kg wet	91%	40 - 140	11H0318	08/07/11 10:43
Butyl benzyl phthalate	3.33	3.24		mg/kg wet	97%	40 - 140	11H0318	08/07/11 10:43
4-Chloroaniline	3.33	3.24		mg/kg wet	97%	40 - 140	11H0318	08/07/11 10:43
2-Chloronaphthalene	3.33	2.63		mg/kg wet	79%	40 - 140	11H0318	08/07/11 10:43
2-Chlorophenol	3.33	3.15		mg/kg wet	95%	30 - 130	11H0318	08/07/11 10:43
4-Chlorophenyl phenyl ether	3.33	2.98		mg/kg wet	89%	40 - 140	11H0318	08/07/11 10:43
Chrysene	3.33	3.00		mg/kg wet	90%	40 - 140	11H0318	08/07/11 10:43
Dibenz (a,h) anthracene	3.33	3.48		mg/kg wet	104%	40 - 140	11H0318	08/07/11 10:43
Dibenzofuran	3.33	3.11		mg/kg wet	93%	40 - 140	11H0318	08/07/11 10:43
Di-n-butyl phthalate	3.33	3.09		mg/kg wet	93%	40 - 140	11H0318	08/07/11 10:43
3,3-Dichlorobenzidine	3.33	3.13		mg/kg wet	94%	40 - 140	11H0318	08/07/11 10:43
1,2-Dichlorobenzene	3.33	2.66		mg/kg wet	80%	40 - 140	11H0318	08/07/11 10:43
1,3-Dichlorobenzene	3.33	2.54		mg/kg wet	76%	40 - 140	11H0318	08/07/11 10:43

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270D								
11H0318-BS1								
1,4-Dichlorobenzene	3.33	2.47		mg/kg wet	74%	40 - 140	11H0318	08/07/11 10:43
2,4-Dichlorophenol	3.33	2.84		mg/kg wet	85%	30 - 130	11H0318	08/07/11 10:43
Diethyl phthalate	3.33	2.95		mg/kg wet	88%	40 - 140	11H0318	08/07/11 10:43
2,4-Dimethylphenol	3.33	3.11		mg/kg wet	93%	30 - 130	11H0318	08/07/11 10:43
Dimethyl phthalate	3.33	2.92		mg/kg wet	87%	40 - 140	11H0318	08/07/11 10:43
2,4-Dinitrophenol	3.33	2.20		mg/kg wet	66%	30 - 130	11H0318	08/07/11 10:43
2,4-Dinitrotoluene	3.33	2.81		mg/kg wet	84%	40 - 140	11H0318	08/07/11 10:43
2,6-Dinitrotoluene	3.33	2.64		mg/kg wet	79%	40 - 140	11H0318	08/07/11 10:43
Di-n-octyl phthalate	3.33	3.27		mg/kg wet	98%	40 - 140	11H0318	08/07/11 10:43
Fluoranthene	3.33	3.20		mg/kg wet	96%	40 - 140	11H0318	08/07/11 10:43
Fluorene	3.33	3.31		mg/kg wet	99%	40 - 140	11H0318	08/07/11 10:43
Hexachlorobenzene	3.33	2.96		mg/kg wet	89%	40 - 140	11H0318	08/07/11 10:43
Hexachlorobutadiene	3.33	3.03		mg/kg wet	91%	40 - 140	11H0318	08/07/11 10:43
Hexachloroethane	3.33	2.62		mg/kg wet	79%	40 - 140	11H0318	08/07/11 10:43
Indeno (1,2,3-cd) pyrene	3.33	3.40		mg/kg wet	102%	40 - 140	11H0318	08/07/11 10:43
Isophorone	3.33	2.52		mg/kg wet	76%	40 - 140	11H0318	08/07/11 10:43
2-Methylnaphthalene	3.33	2.91		mg/kg wet	87%	40 - 140	11H0318	08/07/11 10:43
2-Methylphenol	3.33	2.88		mg/kg wet	86%	30 - 130	11H0318	08/07/11 10:43
3/4-Methylphenol	3.33	2.78		mg/kg wet	83%	30 - 130	11H0318	08/07/11 10:43
Naphthalene	3.33	3.23		mg/kg wet	97%	40 - 140	11H0318	08/07/11 10:43
Nitrobenzene	3.33	2.29		mg/kg wet	69%	40 - 140	11H0318	08/07/11 10:43
2-Nitrophenol	3.33	2.87		mg/kg wet	86%	30 - 130	11H0318	08/07/11 10:43
4-Nitrophenol	3.33	2.90		mg/kg wet	87%	30 - 130	11H0318	08/07/11 10:43
Pentachlorophenol	3.33	3.51		mg/kg wet	105%	30 - 130	11H0318	08/07/11 10:43
Phenanthrene	3.33	3.10		mg/kg wet	93%	40 - 140	11H0318	08/07/11 10:43
Phenol	3.33	2.92		mg/kg wet	88%	30 - 130	11H0318	08/07/11 10:43
Pyrene	3.33	3.04		mg/kg wet	91%	40 - 140	11H0318	08/07/11 10:43
1,2,4-Trichlorobenzene	3.33	2.43		mg/kg wet	73%	40 - 140	11H0318	08/07/11 10:43
2,4,5-Trichlorophenol	3.33	2.66		mg/kg wet	80%	30 - 130	11H0318	08/07/11 10:43
2,4,6-Trichlorophenol	3.33	3.21		mg/kg wet	96%	30 - 130	11H0318	08/07/11 10:43
Surrogate: 2-Fluorophenol	3.33	2.82			85%	30 - 130	11H0318	08/07/11 10:43
Surrogate: Phenol-d5	3.33	2.58			78%	30 - 130	11H0318	08/07/11 10:43
Surrogate: 2-Fluorobiphenyl	3.33	2.57			77%	30 - 130	11H0318	08/07/11 10:43
Surrogate: Nitrobenzene-d5	3.33	2.36			71%	30 - 130	11H0318	08/07/11 10:43
Surrogate: Terphenyl-d14	3.33	3.05			92%	30 - 130	11H0318	08/07/11 10:43
Surrogate: 2,4,6-Tribromophenol	3.33	2.62			79%	30 - 130	11H0318	08/07/11 10:43

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS Dup

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
MADEP VPH												
11H0335-BSD1												
Methyl tert-Butyl Ether		0.0973		mg/kg wet	0.100	97%	70 - 130	0.8	25	11H0335		08/02/11 10:52
Benzene		0.0988		mg/kg wet	0.100	99%	70 - 130	2	25	11H0335		08/02/11 10:52
Toluene		0.0966		mg/kg wet	0.100	97%	70 - 130	3	25	11H0335		08/02/11 10:52
Ethylbenzene		0.0991		mg/kg wet	0.100	99%	70 - 130	3	25	11H0335		08/02/11 10:52
m,p-Xylene		0.200		mg/kg wet	0.200	100%	70 - 130	2	25	11H0335		08/02/11 10:52
o-Xylene		0.0981		mg/kg wet	0.100	98%	70 - 130	3	25	11H0335		08/02/11 10:52
Naphthalene		0.0970		mg/kg wet	0.100	97%	70 - 130	0.7	25	11H0335		08/02/11 10:52
C5 - C8 Aliphatic Hydrocarbons, Unadjusted		0.316		mg/kg wet	0.300	105%	70 - 130	3	25	11H0335		08/02/11 10:52
C9 - C12 Aliphatic Hydrocarbons, Unadjusted		0.217		mg/kg wet	0.200	109%	70 - 130	5	25	11H0335		08/02/11 10:52
C9 - C10 Aromatic Hydrocarbons		0.101		mg/kg wet	0.100	101%	70 - 130	3	25	11H0335		08/02/11 10:52
Surrogate: 2,5-Dibromotoluene (FID)		39.1		ug/L	40.0	98%	70 - 130			11H0335		08/02/11 10:52
Surrogate: 2,5-Dibromotoluene (PID)		37.5		ug/L	40.0	94%	70 - 130			11H0335		08/02/11 10:52
11H0638-BSD1												
Methyl tert-Butyl Ether		0.0948		mg/kg wet	0.100	95%	70 - 130	4	25	11H0638		08/03/11 11:15
Benzene		0.0964		mg/kg wet	0.100	96%	70 - 130	0.9	25	11H0638		08/03/11 11:15
Toluene		0.0939		mg/kg wet	0.100	94%	70 - 130	1	25	11H0638		08/03/11 11:15
Ethylbenzene		0.0964		mg/kg wet	0.100	96%	70 - 130	0.7	25	11H0638		08/03/11 11:15
m,p-Xylene		0.194		mg/kg wet	0.200	97%	70 - 130	0.5	25	11H0638		08/03/11 11:15
o-Xylene		0.0958		mg/kg wet	0.100	96%	70 - 130	0.4	25	11H0638		08/03/11 11:15
Naphthalene		0.0956		mg/kg wet	0.100	96%	70 - 130	5	25	11H0638		08/03/11 11:15
C5 - C8 Aliphatic Hydrocarbons, Unadjusted		0.299		mg/kg wet	0.300	100%	70 - 130	2	25	11H0638		08/03/11 11:15
C9 - C12 Aliphatic Hydrocarbons, Unadjusted		0.214		mg/kg wet	0.200	107%	70 - 130	0.009	25	11H0638		08/03/11 11:15
C9 - C10 Aromatic Hydrocarbons		0.0976		mg/kg wet	0.100	98%	70 - 130	0.7	25	11H0638		08/03/11 11:15
Surrogate: 2,5-Dibromotoluene (FID)		38.2		ug/L	40.0	96%	70 - 130			11H0638		08/03/11 11:15
Surrogate: 2,5-Dibromotoluene (PID)		37.9		ug/L	40.0	95%	70 - 130			11H0638		08/03/11 11:15
MADEP EPH												
11H0317-BSD1												
C9 - C18 Aliphatic Hydrocarbons		11.9		mg/kg wet	15.0	79%	40 - 140	9	25	11H0317		08/04/11 16:41
C19 - C36 Aliphatic Hydrocarbons		16.6		mg/kg wet	20.0	83%	40 - 140	11	25	11H0317		08/04/11 16:41
C11 - C22 Aromatic Hydrocarbons, Unadjuste		28.9		mg/kg wet	42.5	68%	40 - 140	17	25	11H0317		08/04/11 17:12
Surrogate: 1-Chlorooctadecane		3.41		mg/kg wet	4.00	85%	40 - 140			11H0317		08/04/11 16:41
Surrogate: o-Terphenyl		3.30		mg/kg wet	4.00	82%	40 - 140			11H0317		08/04/11 17:12
Surrogate: 2-Fluorobiphenyl		1.52	Z6	mg/kg wet	4.00	38%	40 - 140			11H0317		08/04/11 17:12
Surrogate: 2-Bromonaphthalene		2.74		mg/kg wet	4.00	69%	40 - 140			11H0317		08/04/11 17:12
11H0317-BSD2												
2-Methylnaphthalene		0.336	L2, R2,	mg/kg wet	2.50	13%	40 - 140	138	25	11H0317		08/05/11 17:03
Acenaphthene		1.16	R, T14	mg/kg wet	2.50	46%	40 - 140	43	25	11H0317		08/05/11 17:03
Acenaphthylene		1.07	R, T14	mg/kg wet	2.50	43%	40 - 140	60	25	11H0317		08/05/11 17:03

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Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
MADEP EPH												
11H0317-BSD2												
Anthracene		2.13	T14	mg/kg wet	2.50	85%	40 - 140	2	25	11H0317		08/05/11 17:03
Benzo (a) anthracene		2.04	T14	mg/kg wet	2.50	82%	40 - 140	8	25	11H0317		08/05/11 17:03
Benzo (a) pyrene		2.18	T14	mg/kg wet	2.50	87%	40 - 140	4	25	11H0317		08/05/11 17:03
Benzo (b) fluoranthene		2.20	T14	mg/kg wet	2.50	88%	40 - 140	5	25	11H0317		08/05/11 17:03
Benzo (g,h,i) perylene		2.06	T14	mg/kg wet	2.50	82%	40 - 140	5	25	11H0317		08/05/11 17:03
Benzo (k) fluoranthene		1.86	T14	mg/kg wet	2.50	74%	40 - 140	4	25	11H0317		08/05/11 17:03
Chrysene		2.00	T14	mg/kg wet	2.50	80%	40 - 140	2	25	11H0317		08/05/11 17:03
Dibenz (a,h) anthracene		2.12	T14	mg/kg wet	2.50	85%	40 - 140	3	25	11H0317		08/05/11 17:03
Fluoranthene		2.21	T14	mg/kg wet	2.50	88%	40 - 140	3	25	11H0317		08/05/11 17:03
Fluorene		1.68	T14	mg/kg wet	2.50	67%	40 - 140	16	25	11H0317		08/05/11 17:03
Indeno (1,2,3-cd) pyrene		2.09	T14	mg/kg wet	2.50	84%	40 - 140	4	25	11H0317		08/05/11 17:03
Naphthalene		ND	L2, T14	mg/kg wet	2.50	0%	40 - 140		25	11H0317		08/05/11 17:03
Phenanthrene		2.04	T14	mg/kg wet	2.50	81%	40 - 140	5	25	11H0317		08/05/11 17:03
Pyrene		2.11	T14	mg/kg wet	2.50	84%	40 - 140	5	25	11H0317		08/05/11 17:03
Volatile Organic - MCP CAM Method 8260												
11H0292-BSD1												
Acetone		306	B	ug/kg	250	122%	70 - 130	7	25	11H0292		08/07/11 09:30
Tert-Amyl Methyl Ether		47.9		ug/kg	50.0	96%	70 - 130	2	25	11H0292		08/07/11 09:30
Benzene		53.0		ug/kg	50.0	106%	70 - 130	3	25	11H0292		08/07/11 09:30
Bromobenzene		50.9		ug/kg	50.0	102%	70 - 130	0.7	25	11H0292		08/07/11 09:30
Bromochloromethane		53.0		ug/kg	50.0	106%	70 - 130	0.1	25	11H0292		08/07/11 09:30
Bromodichloromethane		51.9		ug/kg	50.0	104%	70 - 130	3	25	11H0292		08/07/11 09:30
Bromoform		46.8		ug/kg	50.0	94%	70 - 130	15	25	11H0292		08/07/11 09:30
Bromomethane		54.5		ug/kg	50.0	109%	70 - 130	3	25	11H0292		08/07/11 09:30
2-Butanone		265	B	ug/kg	250	106%	70 - 130	0.2	25	11H0292		08/07/11 09:30
tert-Butylbenzene		54.2		ug/kg	50.0	108%	70 - 130	2	25	11H0292		08/07/11 09:30
n-Butylbenzene		48.6		ug/kg	50.0	97%	70 - 130	0.7	25	11H0292		08/07/11 09:30
sec-Butylbenzene		55.2		ug/kg	50.0	110%	70 - 130	1	25	11H0292		08/07/11 09:30
Carbon disulfide		51.6		ug/kg	50.0	103%	70 - 130	4	25	11H0292		08/07/11 09:30
Carbon Tetrachloride		56.3		ug/kg	50.0	113%	70 - 130	4	25	11H0292		08/07/11 09:30
Chlorobenzene		52.6		ug/kg	50.0	105%	70 - 130	1	25	11H0292		08/07/11 09:30
Chlorodibromomethane		49.7		ug/kg	50.0	99%	70 - 130	1	25	11H0292		08/07/11 09:30
Chloroethane		50.4		ug/kg	50.0	101%	70 - 130	4	25	11H0292		08/07/11 09:30
Chloroform		53.7		ug/kg	50.0	107%	70 - 130	0.5	25	11H0292		08/07/11 09:30
Chloromethane		52.8		ug/kg	50.0	106%	70 - 130	3	25	11H0292		08/07/11 09:30
2-Chlorotoluene		52.5		ug/kg	50.0	105%	70 - 130	2	25	11H0292		08/07/11 09:30
4-Chlorotoluene		54.7		ug/kg	50.0	109%	70 - 130	3	25	11H0292		08/07/11 09:30
1,2-Dibromo-3-chloropropane		41.6		ug/kg	50.0	83%	70 - 130	6	25	11H0292		08/07/11 09:30
1,2-Dibromoethane (EDB)		54.2		ug/kg	50.0	108%	70 - 130	0.2	25	11H0292		08/07/11 09:30
Dibromomethane		49.8		ug/kg	50.0	100%	70 - 130	0.5	25	11H0292		08/07/11 09:30

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Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11H0292-BSD1												
1,2-Dichlorobenzene		52.8		ug/kg	50.0	106%	70 - 130	3	25	11H0292		08/07/11 09:30
1,3-Dichlorobenzene		54.4		ug/kg	50.0	109%	70 - 130	2	25	11H0292		08/07/11 09:30
1,4-Dichlorobenzene		52.8		ug/kg	50.0	106%	70 - 130	2	25	11H0292		08/07/11 09:30
Dichlorodifluoromethane		63.4		ug/kg	50.0	127%	70 - 130	3	25	11H0292		08/07/11 09:30
1,2-Dichloroethane		50.7		ug/kg	50.0	101%	70 - 130	3	25	11H0292		08/07/11 09:30
1,1-Dichloroethane		52.8		ug/kg	50.0	106%	70 - 130	0.2	25	11H0292		08/07/11 09:30
1,1-Dichloroethene		52.0		ug/kg	50.0	104%	70 - 130	2	25	11H0292		08/07/11 09:30
trans-1,2-Dichloroethene		52.2		ug/kg	50.0	104%	70 - 130	4	25	11H0292		08/07/11 09:30
cis-1,2-Dichloroethene		53.7		ug/kg	50.0	107%	70 - 130	3	25	11H0292		08/07/11 09:30
1,3-Dichloropropane		51.6		ug/kg	50.0	103%	70 - 130	3	25	11H0292		08/07/11 09:30
2,2-Dichloropropane		63.8		ug/kg	50.0	128%	70 - 130	4	25	11H0292		08/07/11 09:30
1,2-Dichloropropane		50.0		ug/kg	50.0	100%	70 - 130	0.8	25	11H0292		08/07/11 09:30
trans-1,3-Dichloropropene		49.3		ug/kg	50.0	99%	70 - 130	2	25	11H0292		08/07/11 09:30
1,1-Dichloropropene		53.1		ug/kg	50.0	106%	70 - 130	4	25	11H0292		08/07/11 09:30
cis-1,3-Dichloropropene		58.3		ug/kg	50.0	117%	70 - 130	3	25	11H0292		08/07/11 09:30
Diethyl ether		50.4		ug/kg	50.0	101%	70 - 130	1	25	11H0292		08/07/11 09:30
1,4-Dioxane		2960	L2, R2	ug/kg	5000	59%	70 - 130	28	25	11H0292		08/07/11 09:30
Ethylbenzene		54.9		ug/kg	50.0	110%	70 - 130	0.9	25	11H0292		08/07/11 09:30
Ethyl tert-Butyl Ether		46.7		ug/kg	50.0	93%	70 - 130	3	25	11H0292		08/07/11 09:30
Hexachlorobutadiene		54.6		ug/kg	50.0	109%	70 - 130	11	25	11H0292		08/07/11 09:30
2-Hexanone		286		ug/kg	250	114%	70 - 130	0.5	25	11H0292		08/07/11 09:30
Isopropylbenzene		59.6	R2	ug/kg	50.0	119%	70 - 130	35	25	11H0292		08/07/11 09:30
Diisopropyl Ether		50.4		ug/kg	50.0	101%	70 - 130	1	25	11H0292		08/07/11 09:30
p-Isopropyltoluene		55.1		ug/kg	50.0	110%	70 - 130	0.1	25	11H0292		08/07/11 09:30
Methyl tert-Butyl Ether		49.2		ug/kg	50.0	98%	70 - 130	2	25	11H0292		08/07/11 09:30
Methylene Chloride		53.0		ug/kg	50.0	106%	70 - 130	2	25	11H0292		08/07/11 09:30
4-Methyl-2-pentanone		225		ug/kg	250	90%	70 - 130	3	25	11H0292		08/07/11 09:30
Naphthalene		44.2		ug/kg	50.0	88%	70 - 130	4	25	11H0292		08/07/11 09:30
n-Propylbenzene		54.8		ug/kg	50.0	110%	70 - 130	0.8	25	11H0292		08/07/11 09:30
Styrene		55.4		ug/kg	50.0	111%	70 - 130	13	25	11H0292		08/07/11 09:30
1,1,2,2-Tetrachloroethane		49.0		ug/kg	50.0	98%	70 - 130	4	25	11H0292		08/07/11 09:30
1,1,1,2-Tetrachloroethane		56.8		ug/kg	50.0	114%	70 - 130	0.7	25	11H0292		08/07/11 09:30
Tetrachloroethene		54.9		ug/kg	50.0	110%	70 - 130	3	25	11H0292		08/07/11 09:30
Tetrahydrofuran		453	B	ug/kg	500	91%	70 - 130	4	25	11H0292		08/07/11 09:30
Toluene		51.6		ug/kg	50.0	103%	70 - 130	0.4	25	11H0292		08/07/11 09:30
1,2,4-Trichlorobenzene		51.4		ug/kg	50.0	103%	70 - 130	6	25	11H0292		08/07/11 09:30
1,2,3-Trichlorobenzene		44.4		ug/kg	50.0	89%	70 - 130	6	25	11H0292		08/07/11 09:30
1,1,1-Trichloroethane		55.5		ug/kg	50.0	111%	70 - 130	2	25	11H0292		08/07/11 09:30
1,1,2-Trichloroethane		52.2		ug/kg	50.0	104%	70 - 130	3	25	11H0292		08/07/11 09:30
Trichloroethene		52.2		ug/kg	50.0	104%	70 - 130	2	25	11H0292		08/07/11 09:30
Trichlorofluoromethane		52.3		ug/kg	50.0	105%	70 - 130	4	25	11H0292		08/07/11 09:30

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11H0292-BSD1												
1,2,3-Trichloropropane		48.2		ug/kg	50.0	96%	70 - 130	0.8	25	11H0292		08/07/11 09:30
1,3,5-Trimethylbenzene		54.9		ug/kg	50.0	110%	70 - 130	2	25	11H0292		08/07/11 09:30
1,2,4-Trimethylbenzene		55.2		ug/kg	50.0	110%	70 - 130	1	25	11H0292		08/07/11 09:30
Vinyl chloride		56.1		ug/kg	50.0	112%	70 - 130	4	25	11H0292		08/07/11 09:30
Xylenes, total		165		ug/kg	150	110%	70 - 130	5	25	11H0292		08/07/11 09:30
1,1,2-Trifluorotrichloroethane		56.1		ug/kg	50.0	112%	61 - 134	2	46	11H0292		08/07/11 09:30
Surrogate: 1,2-Dichloroethane-d4		24.6		ug/kg	25.0	98%	70 - 130			11H0292		08/07/11 09:30
Surrogate: Dibromofluoromethane		24.7		ug/kg	25.0	99%	70 - 130			11H0292		08/07/11 09:30
Surrogate: Toluene-d8		24.0		ug/kg	25.0	96%	70 - 130			11H0292		08/07/11 09:30
Surrogate: 4-Bromofluorobenzene		24.9		ug/kg	25.0	100%	70 - 130			11H0292		08/07/11 09:30
11H2363-BSD1												
Acetone		343	L	ug/kg	250	137%	70 - 130	2	25	11H2363		08/08/11 14:21
Tert-Amyl Methyl Ether		58.0		ug/kg	50.0	116%	70 - 130	2	25	11H2363		08/08/11 14:21
Benzene		52.4		ug/kg	50.0	105%	70 - 130	1	25	11H2363		08/08/11 14:21
Bromobenzene		46.8		ug/kg	50.0	94%	70 - 130	2	25	11H2363		08/08/11 14:21
Bromochloromethane		51.4		ug/kg	50.0	103%	70 - 130	0.7	25	11H2363		08/08/11 14:21
Bromodichloromethane		50.9		ug/kg	50.0	102%	70 - 130	2	25	11H2363		08/08/11 14:21
Bromoform		51.6		ug/kg	50.0	103%	70 - 130	0.5	25	11H2363		08/08/11 14:21
Bromomethane		53.0		ug/kg	50.0	106%	70 - 130	0.02	25	11H2363		08/08/11 14:21
2-Butanone		286		ug/kg	250	114%	70 - 130	0.4	25	11H2363		08/08/11 14:21
tert-Butylbenzene		56.6		ug/kg	50.0	113%	70 - 130	1	25	11H2363		08/08/11 14:21
n-Butylbenzene		48.7		ug/kg	50.0	97%	70 - 130	4	25	11H2363		08/08/11 14:21
sec-Butylbenzene		57.1		ug/kg	50.0	114%	70 - 130	1	25	11H2363		08/08/11 14:21
Carbon disulfide		51.4		ug/kg	50.0	103%	70 - 130	2	25	11H2363		08/08/11 14:21
Carbon Tetrachloride		57.0		ug/kg	50.0	114%	70 - 130	3	25	11H2363		08/08/11 14:21
Chlorobenzene		53.2		ug/kg	50.0	106%	70 - 130	0.5	25	11H2363		08/08/11 14:21
Chlorodibromomethane		48.5		ug/kg	50.0	97%	70 - 130	0.8	25	11H2363		08/08/11 14:21
Chloroethane		47.2		ug/kg	50.0	94%	70 - 130	3	25	11H2363		08/08/11 14:21
Chloroform		51.9		ug/kg	50.0	104%	70 - 130	2	25	11H2363		08/08/11 14:21
Chloromethane		39.0		ug/kg	50.0	78%	70 - 130	2	25	11H2363		08/08/11 14:21
2-Chlorotoluene		50.6		ug/kg	50.0	101%	70 - 130	2	25	11H2363		08/08/11 14:21
4-Chlorotoluene		53.6		ug/kg	50.0	107%	70 - 130	2	25	11H2363		08/08/11 14:21
1,2-Dibromo-3-chloropropane		44.3		ug/kg	50.0	89%	70 - 130	4	25	11H2363		08/08/11 14:21
1,2-Dibromoethane (EDB)		50.9		ug/kg	50.0	102%	70 - 130	0.6	25	11H2363		08/08/11 14:21
Dibromomethane		46.3		ug/kg	50.0	93%	70 - 130	3	25	11H2363		08/08/11 14:21
1,2-Dichlorobenzene		54.4		ug/kg	50.0	109%	70 - 130	3	25	11H2363		08/08/11 14:21
1,3-Dichlorobenzene		55.4		ug/kg	50.0	111%	70 - 130	2	25	11H2363		08/08/11 14:21
1,4-Dichlorobenzene		54.3		ug/kg	50.0	109%	70 - 130	3	25	11H2363		08/08/11 14:21
Dichlorodifluoromethane		48.6		ug/kg	50.0	97%	70 - 130	2	25	11H2363		08/08/11 14:21
1,2-Dichloroethane		47.7		ug/kg	50.0	95%	70 - 130	0.9	25	11H2363		08/08/11 14:21

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11H2363-BSD1												
1,1-Dichloroethane		50.2		ug/kg	50.0	100%	70 - 130	3	25	11H2363		08/08/11 14:21
1,1-Dichloroethene		52.3		ug/kg	50.0	105%	70 - 130	0.4	25	11H2363		08/08/11 14:21
trans-1,2-Dichloroethene		50.2		ug/kg	50.0	100%	70 - 130	2	25	11H2363		08/08/11 14:21
cis-1,2-Dichloroethene		50.8		ug/kg	50.0	102%	70 - 130	2	25	11H2363		08/08/11 14:21
1,3-Dichloropropane		47.2		ug/kg	50.0	94%	70 - 130	0.2	25	11H2363		08/08/11 14:21
2,2-Dichloropropane		66.0	L	ug/kg	50.0	132%	70 - 130	3	25	11H2363		08/08/11 14:21
1,2-Dichloropropane		46.6		ug/kg	50.0	93%	70 - 130	1	25	11H2363		08/08/11 14:21
trans-1,3-Dichloropropene		46.1		ug/kg	50.0	92%	70 - 130	1	25	11H2363		08/08/11 14:21
1,1-Dichloropropene		51.8		ug/kg	50.0	104%	70 - 130	3	25	11H2363		08/08/11 14:21
cis-1,3-Dichloropropene		59.4		ug/kg	50.0	119%	70 - 130	1	25	11H2363		08/08/11 14:21
Diethyl ether		50.3		ug/kg	50.0	101%	70 - 130	2	25	11H2363		08/08/11 14:21
1,4-Dioxane		3760		ug/kg	5000	75%	70 - 130	7	25	11H2363		08/08/11 14:21
Ethylbenzene		54.9		ug/kg	50.0	110%	70 - 130	0.6	25	11H2363		08/08/11 14:21
Ethyl tert-Butyl Ether		52.7		ug/kg	50.0	105%	70 - 130	1	25	11H2363		08/08/11 14:21
Hexachlorobutadiene		57.5		ug/kg	50.0	115%	70 - 130	2	25	11H2363		08/08/11 14:21
2-Hexanone		277		ug/kg	250	111%	70 - 130	1	25	11H2363		08/08/11 14:21
Isopropylbenzene		65.8	L1	ug/kg	50.0	132%	70 - 130	0.2	25	11H2363		08/08/11 14:21
Diisopropyl Ether		48.2		ug/kg	50.0	96%	70 - 130	1	25	11H2363		08/08/11 14:21
p-Isopropyltoluene		57.8		ug/kg	50.0	116%	70 - 130	1	25	11H2363		08/08/11 14:21
Methyl tert-Butyl Ether		55.5		ug/kg	50.0	111%	70 - 130	1	25	11H2363		08/08/11 14:21
Methylene Chloride		50.6		ug/kg	50.0	101%	70 - 130	0.9	25	11H2363		08/08/11 14:21
4-Methyl-2-pentanone		201		ug/kg	250	80%	70 - 130	10	25	11H2363		08/08/11 14:21
Naphthalene		49.7		ug/kg	50.0	99%	70 - 130	2	25	11H2363		08/08/11 14:21
n-Propylbenzene		52.6		ug/kg	50.0	105%	70 - 130	3	25	11H2363		08/08/11 14:21
Styrene		60.2		ug/kg	50.0	120%	70 - 130	0.1	25	11H2363		08/08/11 14:21
1,1,2,2-Tetrachloroethane		43.7		ug/kg	50.0	87%	70 - 130	0.3	25	11H2363		08/08/11 14:21
1,1,1,2-Tetrachloroethane		57.5		ug/kg	50.0	115%	70 - 130	2	25	11H2363		08/08/11 14:21
Tetrachloroethene		53.8		ug/kg	50.0	108%	70 - 130	0.7	25	11H2363		08/08/11 14:21
Tetrahydrofuran		456		ug/kg	500	91%	70 - 130	0.5	25	11H2363		08/08/11 14:21
Toluene		47.5		ug/kg	50.0	95%	70 - 130	1	25	11H2363		08/08/11 14:21
1,2,4-Trichlorobenzene		55.4		ug/kg	50.0	111%	70 - 130	2	25	11H2363		08/08/11 14:21
1,2,3-Trichlorobenzene		49.2		ug/kg	50.0	98%	70 - 130	4	25	11H2363		08/08/11 14:21
1,1,1-Trichloroethane		56.8		ug/kg	50.0	114%	70 - 130	2	25	11H2363		08/08/11 14:21
1,1,2-Trichloroethane		49.3		ug/kg	50.0	99%	70 - 130	1	25	11H2363		08/08/11 14:21
Trichloroethene		52.2		ug/kg	50.0	104%	70 - 130	3	25	11H2363		08/08/11 14:21
Trichlorofluoromethane		48.9		ug/kg	50.0	98%	70 - 130	0.7	25	11H2363		08/08/11 14:21
1,2,3-Trichloropropane		46.2		ug/kg	50.0	92%	70 - 130	2	25	11H2363		08/08/11 14:21
1,3,5-Trimethylbenzene		55.2		ug/kg	50.0	110%	70 - 130	2	25	11H2363		08/08/11 14:21
1,2,4-Trimethylbenzene		54.7		ug/kg	50.0	109%	70 - 130	3	25	11H2363		08/08/11 14:21
Vinyl chloride		45.8		ug/kg	50.0	92%	70 - 130	3	25	11H2363		08/08/11 14:21
Xylenes, total		168		ug/kg	150	112%	70 - 130	0.7	25	11H2363		08/08/11 14:21

TestAmerica
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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11H2363-BSD1												
Surrogate: 1,2-Dichloroethane-d4		22.8		ug/kg	25.0	91%	70 - 130			11H2363		08/08/11 14:21
Surrogate: Dibromofluoromethane		23.6		ug/kg	25.0	95%	70 - 130			11H2363		08/08/11 14:21
Surrogate: Toluene-d8		21.4		ug/kg	25.0	86%	70 - 130			11H2363		08/08/11 14:21
Surrogate: 4-Bromofluorobenzene		23.6		ug/kg	25.0	94%	70 - 130			11H2363		08/08/11 14:21
Total Metals by EPA 6010C												
11H0287-BSD1												
Iron		403		mg/kg	385	104%	80 - 120	6	20	11H0287		08/06/11 02:28
Manganese		194		mg/kg	193	101%	80 - 120	5	20	11H0287		08/06/11 02:28
Semivolatile Organic Compounds by EPA Method 8270D												
11H0318-BSD1												
Acenaphthene		2.87		mg/kg wet	3.33	86%	40 - 140	6	30	11H0318		08/07/11 11:01
Acenaphthylene		2.76		mg/kg wet	3.33	83%	40 - 140	6	30	11H0318		08/07/11 11:01
Azobenzene		2.87		mg/kg wet	3.33	86%	40 - 140	4	30	11H0318		08/07/11 11:01
Aniline		4.48		mg/kg wet	3.33	134%	40 - 140	3	30	11H0318		08/07/11 11:01
Anthracene		3.17		mg/kg wet	3.33	95%	40 - 140	0.04	30	11H0318		08/07/11 11:01
Benzo (a) anthracene		3.00		mg/kg wet	3.33	90%	40 - 140	5	30	11H0318		08/07/11 11:01
Benzo (a) pyrene		3.07		mg/kg wet	3.33	92%	40 - 140	8	30	11H0318		08/07/11 11:01
Benzo (b) fluoranthene		3.24		mg/kg wet	3.33	97%	40 - 140	1	30	11H0318		08/07/11 11:01
Benzo (g,h,i) perylene		3.04		mg/kg wet	3.33	91%	40 - 140	8	30	11H0318		08/07/11 11:01
Benzo (k) fluoranthene		2.52		mg/kg wet	3.33	76%	40 - 140	17	30	11H0318		08/07/11 11:01
Bis(2-chloroethoxy)methane		2.75		mg/kg wet	3.33	83%	40 - 140	4	30	11H0318		08/07/11 11:01
Bis(2-chloroethyl)ether		2.72		mg/kg wet	3.33	82%	40 - 140	4	30	11H0318		08/07/11 11:01
Bis(2-chloroisopropyl)ether		2.79		mg/kg wet	3.33	84%	40 - 140	3	30	11H0318		08/07/11 11:01
Bis(2-ethylhexyl)phthalate		3.05		mg/kg wet	3.33	91%	40 - 140	5	30	11H0318		08/07/11 11:01
4-Bromophenyl phenyl ether		2.95		mg/kg wet	3.33	88%	40 - 140	3	30	11H0318		08/07/11 11:01
Butyl benzyl phthalate		3.17		mg/kg wet	3.33	95%	40 - 140	2	30	11H0318		08/07/11 11:01
4-Chloroaniline		3.19		mg/kg wet	3.33	96%	40 - 140	2	30	11H0318		08/07/11 11:01
2-Chloronaphthalene		2.45		mg/kg wet	3.33	73%	40 - 140	7	30	11H0318		08/07/11 11:01
2-Chlorophenol		3.17		mg/kg wet	3.33	95%	30 - 130	0.4	30	11H0318		08/07/11 11:01
4-Chlorophenyl phenyl ether		2.83		mg/kg wet	3.33	85%	40 - 140	5	30	11H0318		08/07/11 11:01
Chrysene		2.84		mg/kg wet	3.33	85%	40 - 140	5	30	11H0318		08/07/11 11:01
Dibenz (a,h) anthracene		3.16		mg/kg wet	3.33	95%	40 - 140	9	30	11H0318		08/07/11 11:01
Dibenzofuran		2.94		mg/kg wet	3.33	88%	40 - 140	6	30	11H0318		08/07/11 11:01
Di-n-butyl phthalate		3.04		mg/kg wet	3.33	91%	40 - 140	2	30	11H0318		08/07/11 11:01
3,3-Dichlorobenzidine		2.87		mg/kg wet	3.33	86%	40 - 140	9	30	11H0318		08/07/11 11:01
1,2-Dichlorobenzene		2.51		mg/kg wet	3.33	75%	40 - 140	6	30	11H0318		08/07/11 11:01
1,3-Dichlorobenzene		2.53		mg/kg wet	3.33	76%	40 - 140	0.5	30	11H0318		08/07/11 11:01
1,4-Dichlorobenzene		2.39		mg/kg wet	3.33	72%	40 - 140	3	30	11H0318		08/07/11 11:01
2,4-Dichlorophenol		2.75		mg/kg wet	3.33	82%	30 - 130	3	30	11H0318		08/07/11 11:01

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Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270D												
11H0318-BSD1												
Diethyl phthalate		2.75		mg/kg wet	3.33	82%	40 - 140	7	30	11H0318		08/07/11 11:01
2,4-Dimethylphenol		3.02		mg/kg wet	3.33	91%	30 - 130	3	30	11H0318		08/07/11 11:01
Dimethyl phthalate		2.82		mg/kg wet	3.33	85%	40 - 140	3	30	11H0318		08/07/11 11:01
2,4-Dinitrophenol		2.30		mg/kg wet	3.33	69%	30 - 130	5	30	11H0318		08/07/11 11:01
2,4-Dinitrotoluene		2.64		mg/kg wet	3.33	79%	40 - 140	6	30	11H0318		08/07/11 11:01
2,6-Dinitrotoluene		2.51		mg/kg wet	3.33	75%	40 - 140	5	30	11H0318		08/07/11 11:01
Di-n-octyl phthalate		3.04		mg/kg wet	3.33	91%	40 - 140	7	30	11H0318		08/07/11 11:01
Fluoranthene		3.15		mg/kg wet	3.33	95%	40 - 140	1	30	11H0318		08/07/11 11:01
Fluorene		3.02		mg/kg wet	3.33	91%	40 - 140	9	30	11H0318		08/07/11 11:01
Hexachlorobenzene		2.76		mg/kg wet	3.33	83%	40 - 140	7	30	11H0318		08/07/11 11:01
Hexachlorobutadiene		2.79		mg/kg wet	3.33	84%	40 - 140	8	30	11H0318		08/07/11 11:01
Hexachloroethane		2.71		mg/kg wet	3.33	81%	40 - 140	3	30	11H0318		08/07/11 11:01
Indeno (1,2,3-cd) pyrene		3.09		mg/kg wet	3.33	93%	40 - 140	9	30	11H0318		08/07/11 11:01
Isophorone		2.40		mg/kg wet	3.33	72%	40 - 140	5	30	11H0318		08/07/11 11:01
2-Methylnaphthalene		2.83		mg/kg wet	3.33	85%	40 - 140	3	30	11H0318		08/07/11 11:01
2-Methylphenol		2.67		mg/kg wet	3.33	80%	30 - 130	7	30	11H0318		08/07/11 11:01
3/4-Methylphenol		2.65		mg/kg wet	3.33	80%	30 - 130	5	30	11H0318		08/07/11 11:01
Naphthalene		3.16		mg/kg wet	3.33	95%	40 - 140	2	30	11H0318		08/07/11 11:01
Nitrobenzene		2.21		mg/kg wet	3.33	66%	40 - 140	4	30	11H0318		08/07/11 11:01
2-Nitrophenol		2.86		mg/kg wet	3.33	86%	30 - 130	0.5	30	11H0318		08/07/11 11:01
4-Nitrophenol		2.59		mg/kg wet	3.33	78%	30 - 130	11	30	11H0318		08/07/11 11:01
Pentachlorophenol		3.24		mg/kg wet	3.33	97%	30 - 130	8	30	11H0318		08/07/11 11:01
Phenanthrene		2.98		mg/kg wet	3.33	89%	40 - 140	4	30	11H0318		08/07/11 11:01
Phenol		2.90		mg/kg wet	3.33	87%	30 - 130	0.7	30	11H0318		08/07/11 11:01
Pyrene		2.90		mg/kg wet	3.33	87%	40 - 140	5	30	11H0318		08/07/11 11:01
1,2,4-Trichlorobenzene		2.33		mg/kg wet	3.33	70%	40 - 140	4	30	11H0318		08/07/11 11:01
2,4,5-Trichlorophenol		2.40		mg/kg wet	3.33	72%	30 - 130	10	30	11H0318		08/07/11 11:01
2,4,6-Trichlorophenol		2.86		mg/kg wet	3.33	86%	30 - 130	11	30	11H0318		08/07/11 11:01
Surrogate: 2-Fluorophenol		2.71		mg/kg wet	3.33	81%	30 - 130			11H0318		08/07/11 11:01
Surrogate: Phenol-d5		2.56		mg/kg wet	3.33	77%	30 - 130			11H0318		08/07/11 11:01
Surrogate: 2-Fluorobiphenyl		2.36		mg/kg wet	3.33	71%	30 - 130			11H0318		08/07/11 11:01
Surrogate: Nitrobenzene-d5		2.25		mg/kg wet	3.33	68%	30 - 130			11H0318		08/07/11 11:01
Surrogate: Terphenyl-d14		2.96		mg/kg wet	3.33	89%	30 - 130			11H0318		08/07/11 11:01
Surrogate: 2,4,6-Tribromophenol		2.42		mg/kg wet	3.33	73%	30 - 130			11H0318		08/07/11 11:01

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4216
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

DATA QUALIFIERS AND DEFINITIONS

B	Analyte was detected in the associated Method Blank.
L	Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was above the acceptance limits. Analyte not detected, data not impacted.
L1	Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was above acceptance limits.
L2	Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was below acceptance limits.
R	The RPD exceeded the method control limit. The individual analyte QA/QC recoveries, however, were within acceptance limits.
R2	The RPD exceeded the acceptance limit.
T14	The PAH compounds were analyzed and reported by method 8270.
YES	Yes
Z6	Surrogate recovery was below acceptance limits.
ND	Not detected at the reporting limit (or method detection limit if shown)

METHOD MODIFICATION NOTES

TOC in soil 9060 M - M = Modified for soil analysis

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Nashville, TN

COOLER RECE

NUG4216

Cooler Received/Opened On_07/29/11 @ 08:40

1. Tracking #_5994_(last 4 digits, F

Courier: ___FED-EX IR-GUN-97310166

2. Temperature of rep. sample or temp blank when opened: 4.0 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

   If yes, how many and where: 1-FRONT

5. Were the seals *intact*, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) _B_

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

   Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

   b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) _RC_

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

   b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

   16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) _EW_

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) _EW_

I certify that I attached a label with the unique LIMS number to each container (intial) _EW_

21. Were there Non-Conformance issues at login? YES...NO Was a PIPE generated? YES...NO...#_____

BIS = Broken in shipment

Cooler Receipt Form.doc

LF-1

End of Form

Revised 9/6/07

NUG4216
08/12/11 23 59

General Chemical

TestAmerica INCORPORATED

Nashville Division
2960 Foster Creighton
Nashville, TN 37204

Phone: 615-726-0177
Toll Free: 800-765-0980
Fax: 615-726-3404

Consultant Name: GES
Address: 364 Littleton Road
City/State/Zip: Westford, MA 01886
[redacted] Project Mgr: Stefan SOKOL
Consultant Project Mgr:
Consultant Telephone Number: 800-221-6119 Fax No.: 978-392-8583
Sampler Name: (Print)
Sampler Signature:

TA Account #:
Invoice To:
Report To: Stefan SOKOL SSOKOL@gesonline.com
PO #: 1603178
PROJECT #:
Facility ID # General Chemical
Site Address 133 Leland St
City, State, Zip Framingham, MA
Regulatory District (CA)

Sample ID or Field ID	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative: Methanol	Sodium Bisulfate	HCl (Blue Label)	NaOH (Orange Label)	H_2SO_4 Plastic (Yellow Label)	H_2SO_4 Glass (Yellow Label)	HNO_3 (Red Label)	None (Black Label)	Matrix: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify)	Analyze For: VOCs	VPH	SVOCs	EPH	TOC	total Fe & Mn	% solids					RUSH TAT (Pre-Schedule)*	TAT request (in Bus. Days)	Fax Results (yes or no)	Due Date of Report
SB11-01 (24-26')	7/27/11	1030	5	X			4							1					X		X	X	X	X	X	X	X		NUG4216	01				
SB11-01 (40-42')	7/27/11	1300	5	X			4							1					X		X	X	X	X	X	X	X			02				
TripBLK	7/27/11	0800	1				1													X	X									03				

Comments/Special Instructions:

Laboratory Comments:
Temperature Upon Receipt: 0.0c
Sample Containers Intact? Y N
VOCs Free of Headspace? Y N
QC Deliverables (please circle one)
Level 2 Level 3 Level 4 Other

Relinquished by:	Date	Time	Received by:	Date	Time
Alan Cirtley	7/27/11	1700	GES Stock	7/27/11	1700
[signature]	7/28/11	1400	Received by TestAmerica: [signature]	7.28.11	14:00

7.29.11 @ 0840

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

August 19, 2011 6:23:23PM

Client: GES Westford (10650)
364 Littleton Road, Suite 4
Westford, MA 01886
Attn: Stefan Sokol

Work Order: NUG4207
Project Name: General Chemical
Project Nbr: Framingham, MA
P/O Nbr: 1603978
Date Received: 07/29/11

SAMPLE IDENTIFICATION	LAB NUMBER	COLLECTION DATE AND TIME
MW-15 (8')	NUG4207-01	07/25/11 08:45
SB11-D1 (6')	NUG4207-02	07/25/11 10:45
MW-22 (6')	NUG4207-03	07/25/11 12:15
MW-17 (4')	NUG4207-04	07/25/11 13:50
MW-16 (6')	NUG4207-05	07/25/11 15:00
TripBlk	NUG4207-06	07/25/11 00:01

An executed copy of the chain of custody, the project quality control data, and the sample receipt form are also included as an addendum to this report. If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-800-765-0980. These results relate only to the items tested, and this report may not be reproduced except in full and with the permission of the Laboratory. Any opinions, if expressed, are outside the scope of the Laboratory's accredidation.

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Certification Number: M-TN032

EPH/VPH Qualifications

*C11-C22 Aromatic hydrocarbons exclude concentration of PAH's.

*HydroCarbon Range data exclude area counts of any surrogate(s) and/or internal standards eluting in that range.
*VPH C5-C8 Aliphatic Hydrocarbons exclude the concentration of Target Analytes eluting in that range.
*Adjusted C5-C8 Aliphatic Hydrocarbons range excluded the concentrations of MTBE, Benzene and Toluene.
*VPH C9-C12 Aliphatic Hydrocarbons exclude target analytes eluting in that range AND concentration of C9-C10 Aromatic Hydrocarbons.
*Adjusted C9-C12 Aliphatic Hydrocarbon range excludes the concentration of Ethylbenzene, m-, p-, and o- Xylene and the C9-C10 Aromatic Hydrocarbon values.

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

Additional Laboratory Comments:
All samples were received in good condition, properly preserved, and properly labeled. All analyses were completed within holding times.

All no responses from the attached "MCP Response Action Analytical Report Certification Form" are addressed below.

A. The VPH soil sample ratio of sample to methanol was outside the required +/- 25% for samples MW-15 (8') (NUG4207-01).

G. The EPH reporting limits for the PAHs were above the MADEP CAM limits. There were no other reporting limits specified to meet.

The volatile reporting limit for 1,4-Dioxane was above the MADEP CAM limits. There were no other reporting limits specified to meet.

The semi-volatile reporting limits for azobenzene, aniline, 3,3-dichlorobenzidine, 2,4-dinitrophenol, 4-nitrophenol, Pentachlorophenol and 2,4,5-trichlorophenol were above the MADEP CAM limits. There were no other reporting limits specified to meet.

H. The EPH surrogate recovery for 2-Fluorobiphenyl in the blank spike duplicate in batch 11H0317 was outside QC limits. The recoveries for the target analytes were within QC limits; therefore the data was accepted without further analysis.

The EPH blank spike duplicate (LCSD) recoveries for 2-Methylnaphthalene and Naphthalene were outside QC Limits. The recoveries were within QC range in the blank spike (LCS).

The EPH blank spike duplicate (LCSD) RPD for 2-Methylnaphthalene, Acenaphthene, Anthracene and Napthalene in batch 11H0317 were outside QC limits. All of the recoveries were within QC range in the blank spike (LCS).

The Volatile method blank for batch 11H0292 was positive above the reporting limits for Acetone, 2-Butanone, and Tetrahydrofuran. The associated samples were non-detect at the reporting limits; therefore the data was accepted without further analysis.

The volatile blank spike and/or blank spike duplicate (LCS/LCSD) recoveries for Acetone, 2,2-Dichloropropane and 1,4-Dioxane in batch 11H0292 and for Acetone, Chloromethane, Dichlorodifluromethane in batch 11H1969 and for Actone, 2,2-Dichloropropane and Isopropylbenzene in batch 11H2363 were outside QC limits. Batch 11H2363 was a batch used for dilutions and none of the listed compounds were reported from this batch in this work order. Also, less than 10% of the analytes were outside criteria and the recoveries were within greater than 10%; therefore the data was accepted without further analysis.

The Volatile blank spike duplicate (LCSD) RPDs for 1,4-Dioxane and Isopropylbenzene in batch 11H0292 were outside QC limits. The recoveries were within QC limits; therefore the data was accepted without further analysis.

The VPH FID, 8270 SVOC and the EPH 2-Fluorobiphenyl surrogate recoveries in sample MW-15 (8') (NUG4207-01) was outside QC limits due to sample matrix. The sample chromatograms are included with this report.

A sample was not submitted for MS/MSD for the metals analysis.

I. The full MCP Metals CAM analyte list was not reported. Only those analytes requested on the chain of custody by the client were reported.

The Chain(s) of Custody, 5 pages, are included and are an integral part of this report.

These results relate only to the items tested. This report shall not be reproduced except in full and with permission of the laboratory.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

All solids results are reported in wet weight unless specifically stated.
Estimated uncertainty is available upon request.
This report has been electronically signed.
Report Approved By:

Jennifer Huckaba

Senior Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

Sample Cooler Information

Lab ID	Cooler ID	Temp	Seals	Containers Intact	Preservation Confirmed	On Ice
	5994	0.C	Yes	Yes	No	Yes

MassDEP Analytical Protocol Certification Form

Laboratory Name: TestAmerica Analytical Testing Corporation | Project #: Framingham, MA

Project Location: General Chemical | RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):

NUG4207

Matrices: Groundwater/Surface Water (Soil/Sediment) Drinking Water Air Other:

CAM Protocol (check all that apply below):

8260 VOC CAM II A X	7470/7471 Hg CAM III B	MassDEP VPH CAM IV A X	8081 Pesticides CAM V B	7196 Hex Cr CAM VI B	MassDEP APH CAM IX A
8270 SVOC CAM II B X	7010 Metals CAM III C	MassDEP EPH CAM IV B X	8151 Herbicides CAM V C	8330 Explosives CAM VIII A	TO-15 VOC CAM IX B
6010 Metals CAM III A X	6020 Metals CAM III D	8082 PCB CAM V A	9014 Total Cyanide/PAC CAM VI A	6860 Perchlorate CAM VIII B	

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	Yes (No)
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	(Yes) No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	(Yes) No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	(Yes) No
E	VPH, EPH, APH, and TO-15 only: a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	(Yes) No Yes No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	(Yes) No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	Yes (No[1])

***Data User Note:** Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.*

H	Were all QC performance standards specified in the CAM protocol(s) achieved?	Yes (No[1])
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	Yes (No[1])

[1]*All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Jennifer Huckaba **Position:** Sr Proj Mgr.

Printed Name: Jennifer Huckaba **Date:** 8-19-11

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-01 (MW-15 (8') - Soil) Sampled: 07/25/11 08:45										
General Chemistry Parameters										
% Dry Solids	**83.0**	%		0.500	1	08/09/11 11:55	08/10/11 10:57	RRS	SW-846	11H2021
Total Organic Carbon	**1330**	mg/kg dry		1000	1	08/09/11 09:34	08/15/11 09:38	SHJ	SW846 9060M	11H2048

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	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-01 (MW-15 (8') - Soil) - cont. Sampled: 07/25/11 08:45										
MADEP VPH										
Received on MeOH	Yes									
MeOH Covers Soil	Yes									
Methyl tert-Butyl Ether	ND	mg/kg dry		0.0953	50	07/25/11 08:45	08/02/11 15:27	KAR2	MADEP VPH	11H0335
Benzene	ND	mg/kg dry		0.0953	50	07/25/11 08:45	08/02/11 15:27	KAR2	MADEP VPH	11H0335
Toluene	ND	mg/kg dry		0.286	50	07/25/11 08:45	08/02/11 15:27	KAR2	MADEP VPH	11H0335
Ethylbenzene	ND	mg/kg dry		0.0953	50	07/25/11 08:45	08/02/11 15:27	KAR2	MADEP VPH	11H0335
m,p-Xylene	**1.47**	mg/kg dry		0.381	50	07/25/11 08:45	08/02/11 15:27	KAR2	MADEP VPH	11H0335
o-Xylene	**5.87**	mg/kg dry		0.191	50	07/25/11 08:45	08/02/11 15:27	KAR2	MADEP VPH	11H0335
Naphthalene	ND	mg/kg dry		0.476	50	07/25/11 08:45	08/02/11 15:27	KAR2	MADEP VPH	11H0335
C5 - C8 Aliphatic Hydrocarbons, Unadjuste	**202**	mg/kg dry		95.3	500	07/25/11 08:45	08/04/11 17:36	KAR2	MADEP VPH	11H0945
C9 - C12 Aliphatic Hydrocarbons, Unadjust	**4740**	mg/kg dry		476	2500	07/25/11 08:45	08/03/11 15:04	KAR2	MADEP VPH	11H0638
C5 - C8 Aliphatic Hydrocarbons	**202**	mg/kg dry		95.3	500	07/25/11 08:45	08/04/11 17:36	KAR2	MADEP VPH	11H0945
C9 - C12 Aliphatic Hydrocarbons	**2080**	mg/kg dry		476	2500	07/25/11 08:45	08/03/11 15:04	KAR2	MADEP VPH	11H0638
C9 - C10 Aromatic Hydrocarbons	**2650**	mg/kg dry		476	2500	07/25/11 08:45	08/03/11 15:04	KAR2	MADEP VPH	11H0638
Surr: 2,5-Dibromotoluene (FID) (70-130%)	*113 %*						08/03/11 15:04	KAR2	MADEP VPH	11H0638
Surr: 2,5-Dibromotoluene (FID) (70-130%)	*99 %*						08/04/11 17:36	KAR2	MADEP VPH	11H0945
Surr: 2,5-Dibromotoluene (PID) (70-130%)	*52 %*		*ZX*				08/02/11 15:27	KAR2	MADEP VPH	11H0335
Surr: 2,5-Dibromotoluene (PID) (70-130%)	*96 %*						08/03/11 15:04	KAR2	MADEP VPH	11H0638

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-01 (MW-15 (8') - Soil) - cont. Sampled: 07/25/11 08:45										
MADEP EPH										
C9 - C18 Aliphatic Hydrocarbons	**3910**	mg/kg dry		575	50	08/03/11 07:00	08/05/11 14:39	gmh	MADEP EPH	11H0317
C19 - C36 Aliphatic Hydrocarbons	**20.7**	mg/kg dry		11.5	1	08/03/11 07:00	08/04/11 23:50	jlf	MADEP EPH	11H0317
C11 - C22 Aromatic Hydrocarbons	**564**	mg/kg dry		57.5	5	08/03/11 07:00	08/05/11 15:09	gmh	MADEP EPH	11H0317
C11 - C22 Aromatic Hydrocarbons, Unadjus	**568**	mg/kg dry		57.5	5	08/03/11 07:00	08/05/11 15:09	gmh	MADEP EPH	11H0317
2-Methylnaphthalene	**18.2**	mg/kg dry	T14, L2	1.38	2	08/03/11 07:00	08/05/11 18:47	jls	MADEP EPH	11H0317
Acenaphthene	ND	mg/kg dry	T14	2.30	2	08/03/11 07:00	08/05/11 18:47	jls	MADEP EPH	11H0317
Acenaphthylene	ND	mg/kg dry	T14	2.30	2	08/03/11 07:00	08/05/11 18:47	jls	MADEP EPH	11H0317
Anthracene	ND	mg/kg dry	T14	2.30	2	08/03/11 07:00	08/05/11 18:47	jls	MADEP EPH	11H0317
Benzo (a) anthracene	ND	mg/kg dry	T14	1.38	2	08/03/11 07:00	08/05/11 18:47	jls	MADEP EPH	11H0317
Benzo (a) pyrene	ND	mg/kg dry	T14	1.38	2	08/03/11 07:00	08/05/11 18:47	jls	MADEP EPH	11H0317
Benzo (b) fluoranthene	ND	mg/kg dry	T14	1.38	2	08/03/11 07:00	08/05/11 18:47	jls	MADEP EPH	11H0317
Benzo (g,h,i) perylene	ND	mg/kg dry	T14	2.30	2	08/03/11 07:00	08/05/11 18:47	jls	MADEP EPH	11H0317
Benzo (k) fluoranthene	ND	mg/kg dry	T14	2.30	2	08/03/11 07:00	08/05/11 18:47	jls	MADEP EPH	11H0317
Chrysene	ND	mg/kg dry	T14	2.30	2	08/03/11 07:00	08/05/11 18:47	jls	MADEP EPH	11H0317
Dibenz (a,h) anthracene	ND	mg/kg dry	T14	1.38	2	08/03/11 07:00	08/05/11 18:47	jls	MADEP EPH	11H0317
Fluoranthene	ND	mg/kg dry	T14	2.30	2	08/03/11 07:00	08/05/11 18:47	jls	MADEP EPH	11H0317
Fluorene	ND	mg/kg dry	T14	2.30	2	08/03/11 07:00	08/05/11 18:47	jls	MADEP EPH	11H0317
Indeno (1,2,3-cd) pyrene	ND	mg/kg dry	T14	1.38	2	08/03/11 07:00	08/05/11 18:47	jls	MADEP EPH	11H0317
Naphthalene	**4.14**	mg/kg dry	L2, T14	2.30	2	08/03/11 07:00	08/05/11 18:47	jls	MADEP EPH	11H0317
Phenanthrene	ND	mg/kg dry	T14	2.30	2	08/03/11 07:00	08/05/11 18:47	jls	MADEP EPH	11H0317
Pyrene	ND	mg/kg dry	T14	2.30	2	08/03/11 07:00	08/05/11 18:47	jls	MADEP EPH	11H0317
Surr: 1-Chlorooctadecane (40-140%)	*81 %*						08/04/11 23:50	jlf	MADEP EPH	11H0317
Surr: o-Terphenyl (40-140%)	*100 %*						08/05/11 15:09	gmh	MADEP EPH	11H0317
Surr: 2-Fluorobiphenyl (40-140%)	*147 %*		*ZX*				08/05/11 15:09	gmh	MADEP EPH	11H0317
Surr: 2-Bromonaphthalene (40-140%)	*72 %*						08/05/11 15:09	gmh	MADEP EPH	11H0317

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-01 (MW-15 (8') - Soil) - cont. Sampled: 07/25/11 08:45										
Volatile Organic - MCP CAM Method 8260										
Acetone	ND	mg/kg dry	L	6.93	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Tert-Amyl Methyl Ether	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Benzene	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Bromobenzene	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Bromochloromethane	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Bromodichloromethane	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Bromoform	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Bromomethane	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
2-Butanone	ND	mg/kg dry		6.93	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
tert-Butylbenzene	**0.867**	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
n-Butylbenzene	**26.2**	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
sec-Butylbenzene	**13.4**	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Carbon disulfide	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Carbon Tetrachloride	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Chlorobenzene	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Chlorodibromomethane	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Chloroethane	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Chloroform	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Chloromethane	ND	mg/kg dry	L2	0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
2-Chlorotoluene	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
4-Chlorotoluene	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
1,2-Dibromo-3-chloropropane	ND	mg/kg dry		0.693	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
1,2-Dibromoethane (EDB)	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Dibromomethane	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
1,2-Dichlorobenzene	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
1,3-Dichlorobenzene	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
1,4-Dichlorobenzene	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Dichlorodifluoromethane	ND	mg/kg dry	L2	0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
1,2-Dichloroethane	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
1,1-Dichloroethane	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
1,1-Dichloroethene	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
trans-1,2-Dichloroethene	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
cis-1,2-Dichloroethene	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
1,3-Dichloropropane	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
2,2-Dichloropropane	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
1,2-Dichloropropane	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
trans-1,3-Dichloropropene	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
1,1-Dichloropropene	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
cis-1,3-Dichloropropene	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Diethyl ether	ND	mg/kg dry		0.693	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969

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Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Sample ID: NUG4207-01 (MW-15 (8') - Soil) - cont. Sampled: 07/25/11 08:45

Volatile Organic - MCP CAM Method 8260 - cont.

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
1,4-Dioxane	ND	mg/kg dry		69.3	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Ethylbenzene	**0.572**	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Ethyl tert-Butyl Ether	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Hexachlorobutadiene	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
2-Hexanone	ND	mg/kg dry		6.93	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Isopropylbenzene	**2.56**	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Diisopropyl Ether	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
p-Isopropyltoluene	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Methyl tert-Butyl Ether	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Methylene Chloride	ND	mg/kg dry		0.693	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
4-Methyl-2-pentanone	ND	mg/kg dry		6.93	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Naphthalene	**12.0**	mg/kg dry		0.693	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
n-Propylbenzene	**5.39**	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Styrene	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
1,1,2,2-Tetrachloroethane	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
1,1,1,2-Tetrachloroethane	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Tetrachloroethene	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Tetrahydrofuran	ND	mg/kg dry		0.693	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Toluene	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.693	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
1,2,3-Trichlorobenzene	ND	mg/kg dry		0.693	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
1,1,1-Trichloroethane	**1.99**	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
1,1,2-Trichloroethane	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Trichloroethene	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Trichlorofluoromethane	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
1,2,3-Trichloropropane	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
1,3,5-Trimethylbenzene	**6.33**	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
1,2,4-Trimethylbenzene	**45.2**	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Vinyl chloride	ND	mg/kg dry		0.347	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Xylenes, total	ND	mg/kg dry		1.04	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
1,1,2-Trifluorotrichloroethane	**14.4**	mg/kg dry		0.693	200	07/25/11 08:45	08/08/11 21:30	CMM	SW846 8260B	11H1969
Surr: 1,2-Dichloroethane-d4 (70-130%)	*105 %*						08/08/11 21:30	CMM	SW846 8260B	11H1969
Surr: Dibromofluoromethane (70-130%)	*105 %*						08/08/11 21:30	CMM	SW846 8260B	11H1969
Surr: Toluene-d8 (70-130%)	*97 %*						08/08/11 21:30	CMM	SW846 8260B	11H1969
Surr: 4-Bromofluorobenzene (70-130%)	*104 %*						08/08/11 21:30	CMM	SW846 8260B	11H1969

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Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-01 (MW-15 (8') - Soil) - cont. Sampled: 07/25/11 08:45										
Total Metals by EPA 6010C										
Iron	**5910**	mg/kg		9.80	1	08/04/11 07:11	08/06/11 02:31	LTB	SW846 6010C	11H0287
Manganese	**56.6**	mg/kg		0.980	1	08/04/11 07:11	08/06/11 02:31	LTB	SW846 6010C	11H0287

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Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Sample ID: NUG4207-01 (MW-15 (8') - Soil) - cont. Sampled: 07/25/11 08:45

Semivolatile Organic Compounds by EPA Method 8270D

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acenaphthene	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Acenaphthylene	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Azobenzene	ND	mg/kg dry		9.93	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Aniline	ND	mg/kg dry		3.97	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Anthracene	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Benzo (a) anthracene	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Benzo (a) pyrene	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Benzo (b) fluoranthene	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Benzo (g,h,i) perylene	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Benzo (k) fluoranthene	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Bis(2-chloroethoxy)methane	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Bis(2-chloroethyl)ether	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Bis(2-chloroisopropyl)ether	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Bis(2-ethylhexyl)phthalate	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
4-Bromophenyl phenyl ether	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Butyl benzyl phthalate	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
4-Chloroaniline	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
2-Chloronaphthalene	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
2-Chlorophenol	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
4-Chlorophenyl phenyl ether	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Chrysene	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Dibenz (a,h) anthracene	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Dibenzofuran	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Di-n-butyl phthalate	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
3,3-Dichlorobenzidine	ND	mg/kg dry		3.97	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
1,2-Dichlorobenzene	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
1,3-Dichlorobenzene	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
1,4-Dichlorobenzene	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
2,4-Dichlorophenol	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Diethyl phthalate	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
2,4-Dimethylphenol	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Dimethyl phthalate	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
2,4-Dinitrophenol	ND	mg/kg dry		4.96	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
2,4-Dinitrotoluene	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
2,6-Dinitrotoluene	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Di-n-octyl phthalate	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Fluoranthene	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Fluorene	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Hexachlorobenzene	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Hexachlorobutadiene	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318

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Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-01 (MW-15 (8') - Soil) - cont. Sampled: 07/25/11 08:45										
Semivolatile Organic Compounds by EPA Method 8270D - cont.										
Hexachloroethane	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Indeno (1,2,3-cd) pyrene	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Isophorone	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
2-Methylnaphthalene	**19.6**	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
2-Methylphenol	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
3/4-Methylphenol	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Naphthalene	**5.27**	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Nitrobenzene	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
2-Nitrophenol	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
4-Nitrophenol	ND	mg/kg dry		4.96	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Pentachlorophenol	ND	mg/kg dry		4.96	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Phenanthrene	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Phenol	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Pyrene	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
1,2,4-Trichlorobenzene	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
2,4,5-Trichlorophenol	ND	mg/kg dry		4.96	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
2,4,6-Trichlorophenol	ND	mg/kg dry		1.98	5	08/02/11 09:01	08/08/11 17:17	KJP	SW846 8270D	11H0318
Surr: 2-Fluorophenol (30-130%)	*66 %*						08/08/11 17:17	KJP	SW846 8270D	11H0318
Surr: Phenol-d5 (30-130%)	*68 %*						08/08/11 17:17	KJP	SW846 8270D	11H0318
Surr: 2-Fluorobiphenyl (30-130%)	*77 %*						08/08/11 17:17	KJP	SW846 8270D	11H0318
Surr: Nitrobenzene-d5 (30-130%)	*150 %*		*ZX*				08/08/11 17:17	KJP	SW846 8270D	11H0318
Surr: Terphenyl-d14 (30-130%)	*89 %*						08/08/11 17:17	KJP	SW846 8270D	11H0318
Surr: 2,4,6-Tribromophenol (30-130%)	*74 %*						08/08/11 17:17	KJP	SW846 8270D	11H0318

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-02 (SB11-D1 (6') - Soil) Sampled: 07/25/11 10:45										
General Chemistry Parameters										
% Dry Solids	**90.7**	%		0.500	1	08/09/11 11:43	08/10/11 10:59	RRS	SW-846	11H2020
Total Organic Carbon	**3590**	mg/kg dry		1000	1	08/09/11 09:34	08/15/11 09:38	SHJ	SW846 9060M	11H2048

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-02 (SB11-D1 (6') - Soil) - cont. Sampled: 07/25/11 10:45										
MADEP VPH										
Received on MeOH	Yes									
MeOH Covers Soil	Yes									
Methyl tert-Butyl Ether	ND	mg/kg dry		0.0672	50	07/25/11 10:45	08/02/11 15:58	KAR2	MADEP VPH	11H0335
Benzene	ND	mg/kg dry		0.0672	50	07/25/11 10:45	08/02/11 15:58	KAR2	MADEP VPH	11H0335
Toluene	**2.96**	mg/kg dry		0.202	50	07/25/11 10:45	08/02/11 15:58	KAR2	MADEP VPH	11H0335
Ethylbenzene	**2.21**	mg/kg dry		0.0672	50	07/25/11 10:45	08/02/11 15:58	KAR2	MADEP VPH	11H0335
m,p-Xylene	**4.58**	mg/kg dry		0.269	50	07/25/11 10:45	08/02/11 15:58	KAR2	MADEP VPH	11H0335
o-Xylene	**1.66**	mg/kg dry		0.134	50	07/25/11 10:45	08/02/11 15:58	KAR2	MADEP VPH	11H0335
Naphthalene	**7.72**	mg/kg dry		0.336	50	07/25/11 10:45	08/02/11 15:58	KAR2	MADEP VPH	11H0335
C5 - C8 Aliphatic Hydrocarbons, Unadjuste	**176**	mg/kg dry		33.6	250	07/25/11 10:45	08/03/11 16:05	KAR2	MADEP VPH	11H0638
C9 - C12 Aliphatic Hydrocarbons, Unadjust	**326**	mg/kg dry		33.6	250	07/25/11 10:45	08/03/11 16:05	KAR2	MADEP VPH	11H0638
C5 - C8 Aliphatic Hydrocarbons	**173**	mg/kg dry		33.6	250	07/25/11 10:45	08/03/11 16:05	KAR2	MADEP VPH	11H0638
C9 - C12 Aliphatic Hydrocarbons	**147**	mg/kg dry		33.6	250	07/25/11 10:45	08/03/11 16:05	KAR2	MADEP VPH	11H0638
C9 - C10 Aromatic Hydrocarbons	**170**	mg/kg dry		33.6	250	07/25/11 10:45	08/03/11 16:05	KAR2	MADEP VPH	11H0638
Surr: 2,5-Dibromotoluene (FID) (70-130%)	*102 %*						08/03/11 16:05	KAR2	MADEP VPH	11H0638
Surr: 2,5-Dibromotoluene (PID) (70-130%)	*79 %*						08/02/11 15:58	KAR2	MADEP VPH	11H0335
Surr: 2,5-Dibromotoluene (PID) (70-130%)	*115 %*						08/03/11 16:05	KAR2	MADEP VPH	11H0638

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-02 (SB11-D1 (6') - Soil) - cont. Sampled: 07/25/11 10:45										
MADEP EPH										
C9 - C18 Aliphatic Hydrocarbons	**674**	mg/kg dry		108	10	08/03/11 07:00	08/05/11 15:39	gmh	MADEP EPH	11H0317
C19 - C36 Aliphatic Hydrocarbons	**474**	mg/kg dry		54.1	5	08/03/11 07:00	08/05/11 16:10	gmh	MADEP EPH	11H0317
C11 - C22 Aromatic Hydrocarbons	**143**	mg/kg dry		21.7	2	08/03/11 07:00	08/05/11 16:40	gmh	MADEP EPH	11H0317
C11 - C22 Aromatic Hydrocarbons, Unadjus	**143**	mg/kg dry		21.7	2	08/03/11 07:00	08/05/11 16:40	gmh	MADEP EPH	11H0317
2-Methylnaphthalene	ND	mg/kg dry	L2, T14	0.650	1	08/03/11 07:00	08/05/11 19:13	jls	MADEP EPH	11H0317
Acenaphthene	ND	mg/kg dry	T14	1.08	1	08/03/11 07:00	08/05/11 19:13	jls	MADEP EPH	11H0317
Acenaphthylene	ND	mg/kg dry	T14	1.08	1	08/03/11 07:00	08/05/11 19:13	jls	MADEP EPH	11H0317
Anthracene	ND	mg/kg dry	T14	1.08	1	08/03/11 07:00	08/05/11 19:13	jls	MADEP EPH	11H0317
Benzo (a) anthracene	ND	mg/kg dry	T14	0.650	1	08/03/11 07:00	08/05/11 19:13	jls	MADEP EPH	11H0317
Benzo (a) pyrene	ND	mg/kg dry	T14	0.650	1	08/03/11 07:00	08/05/11 19:13	jls	MADEP EPH	11H0317
Benzo (b) fluoranthene	ND	mg/kg dry	T14	0.650	1	08/03/11 07:00	08/05/11 19:13	jls	MADEP EPH	11H0317
Benzo (g,h,i) perylene	ND	mg/kg dry	T14	1.08	1	08/03/11 07:00	08/05/11 19:13	jls	MADEP EPH	11H0317
Benzo (k) fluoranthene	ND	mg/kg dry	T14	1.08	1	08/03/11 07:00	08/05/11 19:13	jls	MADEP EPH	11H0317
Chrysene	ND	mg/kg dry	T14	1.08	1	08/03/11 07:00	08/05/11 19:13	jls	MADEP EPH	11H0317
Dibenz (a,h) anthracene	ND	mg/kg dry	T14	0.650	1	08/03/11 07:00	08/05/11 19:13	jls	MADEP EPH	11H0317
Fluoranthene	ND	mg/kg dry	T14	1.08	1	08/03/11 07:00	08/05/11 19:13	jls	MADEP EPH	11H0317
Fluorene	ND	mg/kg dry	T14	1.08	1	08/03/11 07:00	08/05/11 19:13	jls	MADEP EPH	11H0317
Indeno (1,2,3-cd) pyrene	ND	mg/kg dry	T14	0.650	1	08/03/11 07:00	08/05/11 19:13	jls	MADEP EPH	11H0317
Naphthalene	ND	mg/kg dry	L2, T14	1.08	1	08/03/11 07:00	08/05/11 19:13	jls	MADEP EPH	11H0317
Phenanthrene	ND	mg/kg dry	T14	1.08	1	08/03/11 07:00	08/05/11 19:13	jls	MADEP EPH	11H0317
Pyrene	ND	mg/kg dry	T14	1.08	1	08/03/11 07:00	08/05/11 19:13	jls	MADEP EPH	11H0317
Surr: 1-Chlorooctadecane (40-140%)	*77 %*						08/05/11 16:10	gmh	MADEP EPH	11H0317
Surr: o-Terphenyl (40-140%)	*79 %*						08/05/11 16:40	gmh	MADEP EPH	11H0317
Surr: 2-Fluorobiphenyl (40-140%)	*99 %*						08/05/11 16:40	gmh	MADEP EPH	11H0317
Surr: 2-Bromonaphthalene (40-140%)	*55 %*						08/05/11 16:40	gmh	MADEP EPH	11H0317

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-02 (SB11-D1 (6') - Soil) - cont. Sampled: 07/25/11 10:45										
Volatile Organic - MCP CAM Method 8260										
Acetone	ND	mg/kg dry	L	1.67	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Tert-Amyl Methyl Ether	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Benzene	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Bromobenzene	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Bromochloromethane	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Bromodichloromethane	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Bromoform	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Bromomethane	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
2-Butanone	ND	mg/kg dry		1.67	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
tert-Butylbenzene	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
n-Butylbenzene	**0.430**	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
sec-Butylbenzene	**0.179**	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Carbon disulfide	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Carbon Tetrachloride	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Chlorobenzene	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Chlorodibromomethane	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Chloroethane	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Chloroform	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Chloromethane	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
2-Chlorotoluene	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
4-Chlorotoluene	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
1,2-Dibromo-3-chloropropane	ND	mg/kg dry		0.167	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
1,2-Dibromoethane (EDB)	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Dibromomethane	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
1,2-Dichlorobenzene	**0.773**	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
1,3-Dichlorobenzene	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
1,4-Dichlorobenzene	**0.166**	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Dichlorodifluoromethane	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
1,2-Dichloroethane	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
1,1-Dichloroethane	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
1,1-Dichloroethene	**0.154**	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
trans-1,2-Dichloroethene	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
cis-1,2-Dichloroethene	**1.98**	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
1,3-Dichloropropane	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
2,2-Dichloropropane	ND	mg/kg dry	L	0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
1,2-Dichloropropane	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
trans-1,3-Dichloropropene	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
1,1-Dichloropropene	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
cis-1,3-Dichloropropene	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Diethyl ether	ND	mg/kg dry		0.167	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-02 (SB11-D1 (6') - Soil) - cont. Sampled: 07/25/11 10:45										
Volatile Organic - MCP CAM Method 8260 - cont.										
1,4-Dioxane	ND	mg/kg dry	L2	16.7	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Ethylbenzene	**0.839**	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Ethyl tert-Butyl Ether	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Hexachlorobutadiene	**0.160**	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
2-Hexanone	ND	mg/kg dry		1.67	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Isopropylbenzene	**0.126**	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Diisopropyl Ether	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
p-Isopropyltoluene	**0.318**	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Methyl tert-Butyl Ether	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Methylene Chloride	ND	mg/kg dry		0.167	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
4-Methyl-2-pentanone	ND	mg/kg dry		1.67	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Naphthalene	**0.492**	mg/kg dry		0.167	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
n-Propylbenzene	**0.196**	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Styrene	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
1,1,2,2-Tetrachloroethane	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
1,1,1,2-Tetrachloroethane	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Tetrachloroethene	**87.5**	mg/kg dry		1.67	1000	07/25/11 10:45	08/08/11 16:42	EML	SW846 8260B	11H2363
Tetrahydrofuran	ND	mg/kg dry		0.167	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Toluene	**1.87**	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.167	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
1,2,3-Trichlorobenzene	ND	mg/kg dry		0.167	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
1,1,1-Trichloroethane	**44.1**	mg/kg dry		1.67	1000	07/25/11 10:45	08/08/11 16:42	EML	SW846 8260B	11H2363
1,1,2-Trichloroethane	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Trichloroethene	**24.1**	mg/kg dry		1.67	1000	07/25/11 10:45	08/08/11 16:42	EML	SW846 8260B	11H2363
Trichlorofluoromethane	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
1,2,3-Trichloropropane	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
1,3,5-Trimethylbenzene	**0.511**	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
1,2,4-Trimethylbenzene	**1.38**	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Vinyl chloride	ND	mg/kg dry		0.0836	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Xylenes, total	**3.95**	mg/kg dry		0.251	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
1,1,2-Trifluorotrichloroethane	**4.17**	mg/kg dry		0.167	50	07/25/11 10:45	08/07/11 15:06	EML	SW846 8260B	11H0292
Surr: 1,2-Dichloroethane-d4 (70-130%)	*97 %*						08/07/11 15:06	EML	SW846 8260B	11H0292
Surr: 1,2-Dichloroethane-d4 (70-130%)	*92 %*						08/08/11 16:42	EML	SW846 8260B	11H2363
Surr: Dibromofluoromethane (70-130%)	*93 %*						08/07/11 15:06	EML	SW846 8260B	11H0292
Surr: Dibromofluoromethane (70-130%)	*93 %*						08/08/11 16:42	EML	SW846 8260B	11H2363
Surr: Toluene-d8 (70-130%)	*92 %*						08/07/11 15:06	EML	SW846 8260B	11H0292
Surr: Toluene-d8 (70-130%)	*87 %*						08/08/11 16:42	EML	SW846 8260B	11H2363
Surr: 4-Bromofluorobenzene (70-130%)	*109 %*						08/07/11 15:06	EML	SW846 8260B	11H0292
Surr: 4-Bromofluorobenzene (70-130%)	*96 %*						08/08/11 16:42	EML	SW846 8260B	11H2363

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-02 (SB11-D1 (6') - Soil) - cont. Sampled: 07/25/11 10:45										
Total Metals by EPA 6010C										
Iron	**12000**	mg/kg		9.78	1	08/04/11 07:11	08/06/11 02:34	LTB	SW846 6010C	11H0287
Manganese	**129**	mg/kg		0.978	1	08/04/11 07:11	08/06/11 02:34	LTB	SW846 6010C	11H0287

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Sample ID: NUG4207-02 (SB11-D1 (6') - Soil) - cont. Sampled: 07/25/11 10:45

Semivolatile Organic Compounds by EPA Method 8270D

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acenaphthene	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Acenaphthylene	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Azobenzene	ND	mg/kg dry		1.81	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Aniline	ND	mg/kg dry		0.721	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Anthracene	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Benzo (a) anthracene	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Benzo (a) pyrene	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Benzo (b) fluoranthene	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Benzo (g,h,i) perylene	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Benzo (k) fluoranthene	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Bis(2-chloroethoxy)methane	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Bis(2-chloroethyl)ether	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Bis(2-chloroisopropyl)ether	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Bis(2-ethylhexyl)phthalate	**0.631**	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
4-Bromophenyl phenyl ether	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Butyl benzyl phthalate	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
4-Chloroaniline	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
2-Chloronaphthalene	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
2-Chlorophenol	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
4-Chlorophenyl phenyl ether	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Chrysene	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Dibenz (a,h) anthracene	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Dibenzofuran	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Di-n-butyl phthalate	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
3,3-Dichlorobenzidine	ND	mg/kg dry		0.721	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
1,2-Dichlorobenzene	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
1,3-Dichlorobenzene	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
1,4-Dichlorobenzene	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
2,4-Dichlorophenol	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Diethyl phthalate	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
2,4-Dimethylphenol	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Dimethyl phthalate	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
2,4-Dinitrophenol	ND	mg/kg dry		0.901	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
2,4-Dinitrotoluene	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
2,6-Dinitrotoluene	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Di-n-octyl phthalate	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Fluoranthene	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Fluorene	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Hexachlorobenzene	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Hexachlorobutadiene	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-02 (SB11-D1 (6') - Soil) - cont. Sampled: 07/25/11 10:45										
Semivolatile Organic Compounds by EPA Method 8270D - cont.										
Hexachloroethane	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Indeno (1,2,3-cd) pyrene	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Isophorone	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
2-Methylnaphthalene	**0.543**	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
2-Methylphenol	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
3/4-Methylphenol	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Naphthalene	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Nitrobenzene	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
2-Nitrophenol	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
4-Nitrophenol	ND	mg/kg dry		0.901	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Pentachlorophenol	ND	mg/kg dry		0.901	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Phenanthrene	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Phenol	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Pyrene	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
2,4,5-Trichlorophenol	ND	mg/kg dry		0.901	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
2,4,6-Trichlorophenol	ND	mg/kg dry		0.360	1	08/02/11 09:01	08/07/11 16:34	KJP	SW846 8270D	11H0318
Surr: 2-Fluorophenol (30-130%)	*74 %*						08/07/11 16:34	KJP	SW846 8270D	11H0318
Surr: Phenol-d5 (30-130%)	*75 %*						08/07/11 16:34	KJP	SW846 8270D	11H0318
Surr: 2-Fluorobiphenyl (30-130%)	*74 %*						08/07/11 16:34	KJP	SW846 8270D	11H0318
Surr: Nitrobenzene-d5 (30-130%)	*68 %*						08/07/11 16:34	KJP	SW846 8270D	11H0318
Surr: Terphenyl-d14 (30-130%)	*94 %*						08/07/11 16:34	KJP	SW846 8270D	11H0318
Surr: 2,4,6-Tribromophenol (30-130%)	*73 %*						08/07/11 16:34	KJP	SW846 8270D	11H0318

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THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-03 (MW-22 (6') - Soil) Sampled: 07/25/11 12:15										
General Chemistry Parameters										
% Dry Solids	**83.9**	%		0.500	1	08/09/11 11:43	08/10/11 10:59	RRS	SW-846	11H2020
Total Organic Carbon	**19400**	mg/kg dry		1000	1	08/09/11 09:34	08/15/11 09:38	SHJ	SW846 9060M	11H2048

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-03 (MW-22 (6') - Soil) - cont. Sampled: 07/25/11 12:15										
MADEP VPH										
Received on MeOH	Yes									
MeOH Covers Soil	Yes									
Methyl tert-Butyl Ether	ND	mg/kg dry		0.0809	50	07/25/11 12:15	08/02/11 16:28	KAR2	MADEP VPH	11H0335
Benzene	ND	mg/kg dry		0.0809	50	07/25/11 12:15	08/02/11 16:28	KAR2	MADEP VPH	11H0335
Toluene	ND	mg/kg dry		0.243	50	07/25/11 12:15	08/02/11 16:28	KAR2	MADEP VPH	11H0335
Ethylbenzene	ND	mg/kg dry		0.0809	50	07/25/11 12:15	08/02/11 16:28	KAR2	MADEP VPH	11H0335
m,p-Xylene	ND	mg/kg dry		0.324	50	07/25/11 12:15	08/02/11 16:28	KAR2	MADEP VPH	11H0335
o-Xylene	ND	mg/kg dry		0.162	50	07/25/11 12:15	08/02/11 16:28	KAR2	MADEP VPH	11H0335
Naphthalene	ND	mg/kg dry		0.405	50	07/25/11 12:15	08/02/11 16:28	KAR2	MADEP VPH	11H0335
C5 - C8 Aliphatic Hydrocarbons, Unadjuste	**8.38**	mg/kg dry		8.09	50	07/25/11 12:15	08/02/11 16:28	KAR2	MADEP VPH	11H0335
C9 - C12 Aliphatic Hydrocarbons, Unadjust	**286**	mg/kg dry		40.5	250	07/25/11 12:15	08/03/11 16:35	KAR2	MADEP VPH	11H0638
C5 - C8 Aliphatic Hydrocarbons	**8.39**	mg/kg dry		8.09	50	07/25/11 12:15	08/02/11 16:28	KAR2	MADEP VPH	11H0335
C9 - C12 Aliphatic Hydrocarbons	**123**	mg/kg dry		40.5	250	07/25/11 12:15	08/03/11 16:35	KAR2	MADEP VPH	11H0638
C9 - C10 Aromatic Hydrocarbons	**163**	mg/kg dry		40.5	250	07/25/11 12:15	08/03/11 16:35	KAR2	MADEP VPH	11H0638
Surr: 2,5-Dibromotoluene (FID) (70-130%)	*104 %*						08/02/11 16:28	KAR2	MADEP VPH	11H0335
Surr: 2,5-Dibromotoluene (FID) (70-130%)	*109 %*						08/03/11 16:35	KAR2	MADEP VPH	11H0638
Surr: 2,5-Dibromotoluene (PID) (70-130%)	*82 %*						08/02/11 16:28	KAR2	MADEP VPH	11H0335
Surr: 2,5-Dibromotoluene (PID) (70-130%)	*121 %*						08/03/11 16:35	KAR2	MADEP VPH	11H0638

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Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-03 (MW-22 (6') - Soil) - cont. Sampled: 07/25/11 12:15										
MADEP EPH										
C9 - C18 Aliphatic Hydrocarbons	**887**	mg/kg dry		117	10	08/03/11 07:00	08/05/11 17:11	gmh	MADEP EPH	11H0317
C19 - C36 Aliphatic Hydrocarbons	**826**	mg/kg dry		58.4	5	08/03/11 07:00	08/05/11 17:41	gmh	MADEP EPH	11H0317
C11 - C22 Aromatic Hydrocarbons	**246**	mg/kg dry		23.4	2	08/03/11 07:00	08/05/11 18:11	gmh	MADEP EPH	11H0317
C11 - C22 Aromatic Hydrocarbons, Unadjus	**246**	mg/kg dry		23.4	2	08/03/11 07:00	08/05/11 18:11	gmh	MADEP EPH	11H0317
2-Methylnaphthalene	ND	mg/kg dry	L2, T14	0.701	1	08/03/11 07:00	08/07/11 12:06	jls	MADEP EPH	11H0317
Acenaphthene	ND	mg/kg dry	T14	1.17	1	08/03/11 07:00	08/07/11 12:06	jls	MADEP EPH	11H0317
Acenaphthylene	ND	mg/kg dry	T14	1.17	1	08/03/11 07:00	08/07/11 12:06	jls	MADEP EPH	11H0317
Anthracene	ND	mg/kg dry	T14	1.17	1	08/03/11 07:00	08/07/11 12:06	jls	MADEP EPH	11H0317
Benzo (a) anthracene	ND	mg/kg dry	T14	0.701	1	08/03/11 07:00	08/07/11 12:06	jls	MADEP EPH	11H0317
Benzo (a) pyrene	ND	mg/kg dry	T14	0.701	1	08/03/11 07:00	08/07/11 12:06	jls	MADEP EPH	11H0317
Benzo (b) fluoranthene	ND	mg/kg dry	T14	0.701	1	08/03/11 07:00	08/07/11 12:06	jls	MADEP EPH	11H0317
Benzo (g,h,i) perylene	ND	mg/kg dry	T14	1.17	1	08/03/11 07:00	08/07/11 12:06	jls	MADEP EPH	11H0317
Benzo (k) fluoranthene	ND	mg/kg dry	T14	1.17	1	08/03/11 07:00	08/07/11 12:06	jls	MADEP EPH	11H0317
Chrysene	ND	mg/kg dry	T14	1.17	1	08/03/11 07:00	08/07/11 12:06	jls	MADEP EPH	11H0317
Dibenz (a,h) anthracene	ND	mg/kg dry	T14	0.701	1	08/03/11 07:00	08/07/11 12:06	jls	MADEP EPH	11H0317
Fluoranthene	ND	mg/kg dry	T14	1.17	1	08/03/11 07:00	08/07/11 12:06	jls	MADEP EPH	11H0317
Fluorene	ND	mg/kg dry	T14	1.17	1	08/03/11 07:00	08/07/11 12:06	jls	MADEP EPH	11H0317
Indeno (1,2,3-cd) pyrene	ND	mg/kg dry	T14	0.701	1	08/03/11 07:00	08/07/11 12:06	jls	MADEP EPH	11H0317
Naphthalene	ND	mg/kg dry	L2, T14	1.17	1	08/03/11 07:00	08/07/11 12:06	jls	MADEP EPH	11H0317
Phenanthrene	ND	mg/kg dry	T14	1.17	1	08/03/11 07:00	08/07/11 12:06	jls	MADEP EPH	11H0317
Pyrene	ND	mg/kg dry	T14	1.17	1	08/03/11 07:00	08/07/11 12:06	jls	MADEP EPH	11H0317
Surr: 1-Chlorooctadecane (40-140%)	*88 %*						08/05/11 17:41	gmh	MADEP EPH	11H0317
Surr: o-Terphenyl (40-140%)	*81 %*						08/05/11 18:11	gmh	MADEP EPH	11H0317
Surr: 2-Fluorobiphenyl (40-140%)	*97 %*						08/05/11 18:11	gmh	MADEP EPH	11H0317
Surr: 2-Bromonaphthalene (40-140%)	*82 %*						08/05/11 18:11	gmh	MADEP EPH	11H0317

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Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Sample ID: NUG4207-03 (MW-22 (6') - Soil) - cont. Sampled: 07/25/11 12:15

Volatile Organic - MCP CAM Method 8260

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acetone	ND	mg/kg dry	L	1.37	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Tert-Amyl Methyl Ether	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Benzene	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Bromobenzene	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Bromochloromethane	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Bromodichloromethane	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Bromoform	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Bromomethane	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
2-Butanone	ND	mg/kg dry		1.37	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
tert-Butylbenzene	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
n-Butylbenzene	**0.0847**	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
sec-Butylbenzene	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Carbon disulfide	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Carbon Tetrachloride	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Chlorobenzene	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Chlorodibromomethane	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Chloroethane	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Chloroform	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Chloromethane	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
2-Chlorotoluene	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
4-Chlorotoluene	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
1,2-Dibromo-3-chloropropane	ND	mg/kg dry		0.137	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
1,2-Dibromoethane (EDB)	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Dibromomethane	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
1,2-Dichlorobenzene	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
1,3-Dichlorobenzene	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
1,4-Dichlorobenzene	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Dichlorodifluoromethane	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
1,2-Dichloroethane	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
1,1-Dichloroethane	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
1,1-Dichloroethene	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
trans-1,2-Dichloroethene	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
cis-1,2-Dichloroethene	**0.295**	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
1,3-Dichloropropane	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
2,2-Dichloropropane	ND	mg/kg dry	L	0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
1,2-Dichloropropane	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
trans-1,3-Dichloropropene	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
1,1-Dichloropropene	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
cis-1,3-Dichloropropene	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Diethyl ether	ND	mg/kg dry		0.137	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292

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Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-03 (MW-22 (6') - Soil) - cont. Sampled: 07/25/11 12:15										
Volatile Organic - MCP CAM Method 8260 - cont.										
1,4-Dioxane	ND	mg/kg dry	L2	13.7	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Ethylbenzene	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Ethyl tert-Butyl Ether	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Hexachlorobutadiene	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
2-Hexanone	ND	mg/kg dry		1.37	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Isopropylbenzene	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Diisopropyl Ether	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
p-Isopropyltoluene	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Methyl tert-Butyl Ether	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Methylene Chloride	ND	mg/kg dry		0.137	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
4-Methyl-2-pentanone	ND	mg/kg dry		1.37	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Naphthalene	ND	mg/kg dry		0.137	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
n-Propylbenzene	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Styrene	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
1,1,2,2-Tetrachloroethane	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
1,1,1,2-Tetrachloroethane	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Tetrachloroethene	**0.294**	mg/kg dry		0.0683	50	07/25/11 12:15	08/08/11 18:07	EML	SW846 8260B	11H2363
Tetrahydrofuran	ND	mg/kg dry		0.137	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Toluene	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.137	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
1,2,3-Trichlorobenzene	ND	mg/kg dry		0.137	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
1,1,1-Trichloroethane	**0.118**	mg/kg dry		0.0683	50	07/25/11 12:15	08/08/11 18:07	EML	SW846 8260B	11H2363
1,1,2-Trichloroethane	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Trichloroethene	**0.0751**	mg/kg dry		0.0683	50	07/25/11 12:15	08/08/11 18:07	EML	SW846 8260B	11H2363
Trichlorofluoromethane	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
1,2,3-Trichloropropane	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
1,3,5-Trimethylbenzene	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
1,2,4-Trimethylbenzene	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Vinyl chloride	ND	mg/kg dry		0.0683	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Xylenes, total	ND	mg/kg dry		0.205	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
1,1,2-Trifluorotrichloroethane	ND	mg/kg dry		0.137	50	07/25/11 12:15	08/07/11 15:35	EML	SW846 8260B	11H0292
Surr: 1,2-Dichloroethane-d4 (70-130%)	*105 %*						08/07/11 15:35	EML	SW846 8260B	11H0292
Surr: 1,2-Dichloroethane-d4 (70-130%)	*92 %*						08/08/11 18:07	EML	SW846 8260B	11H2363
Surr: Dibromofluoromethane (70-130%)	*94 %*						08/07/11 15:35	EML	SW846 8260B	11H0292
Surr: Dibromofluoromethane (70-130%)	*91 %*						08/08/11 18:07	EML	SW846 8260B	11H2363
Surr: Toluene-d8 (70-130%)	*94 %*						08/07/11 15:35	EML	SW846 8260B	11H0292
Surr: Toluene-d8 (70-130%)	*86 %*						08/08/11 18:07	EML	SW846 8260B	11H2363
Surr: 4-Bromofluorobenzene (70-130%)	*108 %*						08/07/11 15:35	EML	SW846 8260B	11H0292
Surr: 4-Bromofluorobenzene (70-130%)	*95 %*						08/08/11 18:07	EML	SW846 8260B	11H2363

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Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-03 (MW-22 (6') - Soil) - cont. Sampled: 07/25/11 12:15										
Total Metals by EPA 6010C										
Iron	**15500**	mg/kg		9.88	1	08/04/11 07:11	08/06/11 02:38	LTB	SW846 6010C	11H0287
Manganese	**128**	mg/kg		0.988	1	08/04/11 07:11	08/06/11 02:38	LTB	SW846 6010C	11H0287

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Sample ID: NUG4207-03 (MW-22 (6') - Soil) - cont. Sampled: 07/25/11 12:15

Semivolatile Organic Compounds by EPA Method 8270D

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acenaphthene	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Acenaphthylene	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Azobenzene	ND	mg/kg dry		1.92	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Aniline	ND	mg/kg dry		0.765	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Anthracene	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Benzo (a) anthracene	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Benzo (a) pyrene	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Benzo (b) fluoranthene	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Benzo (g,h,i) perylene	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Benzo (k) fluoranthene	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Bis(2-chloroethoxy)methane	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Bis(2-chloroethyl)ether	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Bis(2-chloroisopropyl)ether	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Bis(2-ethylhexyl)phthalate	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
4-Bromophenyl phenyl ether	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Butyl benzyl phthalate	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
4-Chloroaniline	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
2-Chloronaphthalene	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
2-Chlorophenol	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
4-Chlorophenyl phenyl ether	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Chrysene	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Dibenz (a,h) anthracene	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Dibenzofuran	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Di-n-butyl phthalate	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
3,3-Dichlorobenzidine	ND	mg/kg dry		0.765	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
1,2-Dichlorobenzene	**0.414**	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
1,3-Dichlorobenzene	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
1,4-Dichlorobenzene	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
2,4-Dichlorophenol	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Diethyl phthalate	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
2,4-Dimethylphenol	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Dimethyl phthalate	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
2,4-Dinitrophenol	ND	mg/kg dry		0.956	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
2,4-Dinitrotoluene	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
2,6-Dinitrotoluene	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Di-n-octyl phthalate	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Fluoranthene	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Fluorene	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Hexachlorobenzene	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Hexachlorobutadiene	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318

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Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-03 (MW-22 (6') - Soil) - cont. Sampled: 07/25/11 12:15										
Semivolatile Organic Compounds by EPA Method 8270D - cont.										
Hexachloroethane	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Indeno (1,2,3-cd) pyrene	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Isophorone	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
2-Methylnaphthalene	**0.557**	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
2-Methylphenol	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
3/4-Methylphenol	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Naphthalene	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Nitrobenzene	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
2-Nitrophenol	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
4-Nitrophenol	ND	mg/kg dry		0.956	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Pentachlorophenol	ND	mg/kg dry		0.956	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Phenanthrene	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Phenol	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Pyrene	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
2,4,5-Trichlorophenol	ND	mg/kg dry		0.956	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
2,4,6-Trichlorophenol	ND	mg/kg dry		0.382	1	08/02/11 09:01	08/07/11 16:53	KJP	SW846 8270D	11H0318
Surr: 2-Fluorophenol (30-130%)	*75 %*						08/07/11 16:53	KJP	SW846 8270D	11H0318
Surr: Phenol-d5 (30-130%)	*69 %*						08/07/11 16:53	KJP	SW846 8270D	11H0318
Surr: 2-Fluorobiphenyl (30-130%)	*76 %*						08/07/11 16:53	KJP	SW846 8270D	11H0318
Surr: Nitrobenzene-d5 (30-130%)	*73 %*						08/07/11 16:53	KJP	SW846 8270D	11H0318
Surr: Terphenyl-d14 (30-130%)	*91 %*						08/07/11 16:53	KJP	SW846 8270D	11H0318
Surr: 2,4,6-Tribromophenol (30-130%)	*77 %*						08/07/11 16:53	KJP	SW846 8270D	11H0318

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-04 (MW-17 (4') - Soil) Sampled: 07/25/11 13:50										
General Chemistry Parameters										
% Dry Solids	**84.5**	%		0.500	1	08/09/11 11:43	08/10/11 10:59	RRS	SW-846	11H2020
Total Organic Carbon	**1560**	mg/kg dry		1000	1	08/09/11 09:34	08/15/11 09:38	SHJ	SW846 9060M	11H2048

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Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-04 (MW-17 (4') - Soil) - cont. Sampled: 07/25/11 13:50										
MADEP VPH										
Received on MeOH	Yes									
MeOH Covers Soil	Yes									
Methyl tert-Butyl Ether	ND	mg/kg dry		0.0814	50	07/25/11 13:50	08/02/11 16:58	KAR2	MADEP VPH	11H0335
Benzene	ND	mg/kg dry		0.0814	50	07/25/11 13:50	08/02/11 16:58	KAR2	MADEP VPH	11H0335
Toluene	**0.930**	mg/kg dry		0.244	50	07/25/11 13:50	08/02/11 16:58	KAR2	MADEP VPH	11H0335
Ethylbenzene	**4.64**	mg/kg dry		0.0814	50	07/25/11 13:50	08/02/11 16:58	KAR2	MADEP VPH	11H0335
m,p-Xylene	**13.7**	mg/kg dry		0.326	50	07/25/11 13:50	08/02/11 16:58	KAR2	MADEP VPH	11H0335
o-Xylene	**2.49**	mg/kg dry		0.163	50	07/25/11 13:50	08/02/11 16:58	KAR2	MADEP VPH	11H0335
Naphthalene	**7.73**	mg/kg dry		0.407	50	07/25/11 13:50	08/02/11 16:58	KAR2	MADEP VPH	11H0335
C5 - C8 Aliphatic Hydrocarbons, Unadjuste	**93.6**	mg/kg dry		8.14	50	07/25/11 13:50	08/02/11 16:58	KAR2	MADEP VPH	11H0335
C9 - C12 Aliphatic Hydrocarbons, Unadjust	**393**	mg/kg dry		40.7	250	07/25/11 13:50	08/03/11 17:06	KAR2	MADEP VPH	11H0638
C5 - C8 Aliphatic Hydrocarbons	**92.6**	mg/kg dry		8.14	50	07/25/11 13:50	08/02/11 16:58	KAR2	MADEP VPH	11H0335
C9 - C12 Aliphatic Hydrocarbons	**175**	mg/kg dry		40.7	250	07/25/11 13:50	08/03/11 17:06	KAR2	MADEP VPH	11H0638
C9 - C10 Aromatic Hydrocarbons	**197**	mg/kg dry		40.7	250	07/25/11 13:50	08/03/11 17:06	KAR2	MADEP VPH	11H0638
Surr: 2,5-Dibromotoluene (FID) (70-130%)	*113 %*						08/02/11 16:58	KAR2	MADEP VPH	11H0335
Surr: 2,5-Dibromotoluene (FID) (70-130%)	*108 %*						08/03/11 17:06	KAR2	MADEP VPH	11H0638
Surr: 2,5-Dibromotoluene (PID) (70-130%)	*80 %*						08/02/11 16:58	KAR2	MADEP VPH	11H0335
Surr: 2,5-Dibromotoluene (PID) (70-130%)	*120 %*						08/03/11 17:06	KAR2	MADEP VPH	11H0638

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Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-04 (MW-17 (4') - Soil) - cont. Sampled: 07/25/11 13:50										
MADEP EPH										
C9 - C18 Aliphatic Hydrocarbons	**157**	mg/kg dry		23.2	2	08/03/11 07:00	08/05/11 18:42	gmh	MADEP EPH	11H0317
C19 - C36 Aliphatic Hydrocarbons	**22.8**	mg/kg dry		11.6	1	08/03/11 07:00	08/05/11 04:22	jlf	MADEP EPH	11H0317
C11 - C22 Aromatic Hydrocarbons	**27.4**	mg/kg dry		11.6	1	08/03/11 07:00	08/05/11 04:22	jlf	MADEP EPH	11H0317
C11 - C22 Aromatic Hydrocarbons, Unadjus	**27.4**	mg/kg dry		11.6	1	08/03/11 07:00	08/05/11 04:52	jlf	MADEP EPH	11H0317
2-Methylnaphthalene	ND	mg/kg dry	L2	0.695	1	08/03/11 07:00	08/05/11 04:52	jlf	MADEP EPH	11H0317
Acenaphthene	ND	mg/kg dry		1.16	1	08/03/11 07:00	08/05/11 04:52	jlf	MADEP EPH	11H0317
Acenaphthylene	ND	mg/kg dry		1.16	1	08/03/11 07:00	08/05/11 04:52	jlf	MADEP EPH	11H0317
Anthracene	ND	mg/kg dry		1.16	1	08/03/11 07:00	08/05/11 04:52	jlf	MADEP EPH	11H0317
Benzo (a) anthracene	ND	mg/kg dry		0.695	1	08/03/11 07:00	08/05/11 04:52	jlf	MADEP EPH	11H0317
Benzo (a) pyrene	ND	mg/kg dry		0.695	1	08/03/11 07:00	08/05/11 04:52	jlf	MADEP EPH	11H0317
Benzo (b) fluoranthene	ND	mg/kg dry		0.695	1	08/03/11 07:00	08/05/11 04:52	jlf	MADEP EPH	11H0317
Benzo (g,h,i) perylene	ND	mg/kg dry		1.16	1	08/03/11 07:00	08/05/11 04:52	jlf	MADEP EPH	11H0317
Benzo (k) fluoranthene	ND	mg/kg dry		1.16	1	08/03/11 07:00	08/05/11 04:52	jlf	MADEP EPH	11H0317
Chrysene	ND	mg/kg dry		1.16	1	08/03/11 07:00	08/05/11 04:52	jlf	MADEP EPH	11H0317
Dibenz (a,h) anthracene	ND	mg/kg dry		0.695	1	08/03/11 07:00	08/05/11 04:52	jlf	MADEP EPH	11H0317
Fluoranthene	ND	mg/kg dry		1.16	1	08/03/11 07:00	08/05/11 04:52	jlf	MADEP EPH	11H0317
Fluorene	ND	mg/kg dry		1.16	1	08/03/11 07:00	08/05/11 04:52	jlf	MADEP EPH	11H0317
Indeno (1,2,3-cd) pyrene	ND	mg/kg dry		0.695	1	08/03/11 07:00	08/05/11 04:52	jlf	MADEP EPH	11H0317
Naphthalene	ND	mg/kg dry	L2	1.16	1	08/03/11 07:00	08/05/11 04:52	jlf	MADEP EPH	11H0317
Phenanthrene	ND	mg/kg dry		1.16	1	08/03/11 07:00	08/05/11 04:52	jlf	MADEP EPH	11H0317
Pyrene	ND	mg/kg dry		1.16	1	08/03/11 07:00	08/05/11 04:52	jlf	MADEP EPH	11H0317
Surr: 1-Chlorooctadecane (40-140%)	*87 %*						08/05/11 04:22	jlf	MADEP EPH	11H0317
Surr: o-Terphenyl (40-140%)	*87 %*						08/05/11 04:52	jlf	MADEP EPH	11H0317
Surr: 2-Fluorobiphenyl (40-140%)	*103 %*						08/05/11 04:52	jlf	MADEP EPH	11H0317
Surr: 2-Bromonaphthalene (40-140%)	*97 %*						08/05/11 04:52	jlf	MADEP EPH	11H0317

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Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Sample ID: NUG4207-04 (MW-17 (4') - Soil) - cont. Sampled: 07/25/11 13:50

Volatile Organic - MCP CAM Method 8260

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acetone	ND	mg/kg dry	L	1.86	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Tert-Amyl Methyl Ether	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Benzene	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Bromobenzene	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Bromochloromethane	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Bromodichloromethane	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Bromoform	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Bromomethane	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
2-Butanone	ND	mg/kg dry		1.86	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
tert-Butylbenzene	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
n-Butylbenzene	**0.679**	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
sec-Butylbenzene	**0.230**	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Carbon disulfide	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Carbon Tetrachloride	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Chlorobenzene	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Chlorodibromomethane	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Chloroethane	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Chloroform	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Chloromethane	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
2-Chlorotoluene	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
4-Chlorotoluene	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
1,2-Dibromo-3-chloropropane	ND	mg/kg dry		0.186	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
1,2-Dibromoethane (EDB)	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Dibromomethane	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
1,2-Dichlorobenzene	**3.36**	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
1,3-Dichlorobenzene	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
1,4-Dichlorobenzene	**0.849**	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Dichlorodifluoromethane	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
1,2-Dichloroethane	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
1,1-Dichloroethane	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
1,1-Dichloroethene	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
trans-1,2-Dichloroethene	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
cis-1,2-Dichloroethene	**0.500**	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
1,3-Dichloropropane	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
2,2-Dichloropropane	ND	mg/kg dry	L	0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
1,2-Dichloropropane	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
trans-1,3-Dichloropropene	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
1,1-Dichloropropene	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
cis-1,3-Dichloropropene	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Diethyl ether	ND	mg/kg dry		0.186	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292

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Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-04 (MW-17 (4') - Soil) - cont. Sampled: 07/25/11 13:50										
Volatile Organic - MCP CAM Method 8260 - cont.										
1,4-Dioxane	ND	mg/kg dry	L2	18.6	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Ethylbenzene	**3.48**	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Ethyl tert-Butyl Ether	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Hexachlorobutadiene	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
2-Hexanone	ND	mg/kg dry		1.86	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Isopropylbenzene	**0.124**	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Diisopropyl Ether	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
p-Isopropyltoluene	**0.542**	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Methyl tert-Butyl Ether	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Methylene Chloride	ND	mg/kg dry		0.186	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
4-Methyl-2-pentanone	ND	mg/kg dry		1.86	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Naphthalene	**0.527**	mg/kg dry		0.186	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
n-Propylbenzene	**0.243**	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Styrene	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
1,1,2,2-Tetrachloroethane	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
1,1,1,2-Tetrachloroethane	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Tetrachloroethene	**12.3**	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Tetrahydrofuran	ND	mg/kg dry		0.186	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Toluene	**0.934**	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.186	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
1,2,3-Trichlorobenzene	ND	mg/kg dry		0.186	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
1,1,1-Trichloroethane	**25.9**	mg/kg dry		0.929	500	07/25/11 13:50	08/08/11 17:10	EML	SW846 8260B	11H2363
1,1,2-Trichloroethane	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Trichloroethene	**0.190**	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Trichlorofluoromethane	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
1,2,3-Trichloropropane	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
1,3,5-Trimethylbenzene	**0.652**	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
1,2,4-Trimethylbenzene	**1.33**	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Vinyl chloride	ND	mg/kg dry		0.0929	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Xylenes, total	**17.1**	mg/kg dry		0.279	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
1,1,2-Trifluorotrichloroethane	**8.43**	mg/kg dry		0.186	50	07/25/11 13:50	08/07/11 16:03	EML	SW846 8260B	11H0292
Surr: 1,2-Dichloroethane-d4 (70-130%)	*99 %*						08/07/11 16:03	EML	SW846 8260B	11H0292
Surr: 1,2-Dichloroethane-d4 (70-130%)	*91 %*						08/08/11 17:10	EML	SW846 8260B	11H2363
Surr: Dibromofluoromethane (70-130%)	*95 %*						08/07/11 16:03	EML	SW846 8260B	11H0292
Surr: Dibromofluoromethane (70-130%)	*93 %*						08/08/11 17:10	EML	SW846 8260B	11H2363
Surr: Toluene-d8 (70-130%)	*98 %*						08/07/11 16:03	EML	SW846 8260B	11H0292
Surr: Toluene-d8 (70-130%)	*86 %*						08/08/11 17:10	EML	SW846 8260B	11H2363
Surr: 4-Bromofluorobenzene (70-130%)	*102 %*						08/07/11 16:03	EML	SW846 8260B	11H0292
Surr: 4-Bromofluorobenzene (70-130%)	*98 %*						08/08/11 17:10	EML	SW846 8260B	11H2363

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-04 (MW-17 (4') - Soil) - cont. Sampled: 07/25/11 13:50										
Total Metals by EPA 6010C										
Iron	**5950**	mg/kg		10.0	1	08/04/11 07:11	08/06/11 02:41	LTB	SW846 6010C	11H0287
Manganese	**54.5**	mg/kg		1.00	1	08/04/11 07:11	08/06/11 02:41	LTB	SW846 6010C	11H0287

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Sample ID: NUG4207-04 (MW-17 (4') - Soil) - cont. Sampled: 07/25/11 13:50

Semivolatile Organic Compounds by EPA Method 8270D

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acenaphthene	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Acenaphthylene	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Azobenzene	ND	mg/kg dry		1.94	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Aniline	ND	mg/kg dry		0.774	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Anthracene	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Benzo (a) anthracene	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Benzo (a) pyrene	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Benzo (b) fluoranthene	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Benzo (g,h,i) perylene	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Benzo (k) fluoranthene	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Bis(2-chloroethoxy)methane	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Bis(2-chloroethyl)ether	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Bis(2-chloroisopropyl)ether	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Bis(2-ethylhexyl)phthalate	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
4-Bromophenyl phenyl ether	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Butyl benzyl phthalate	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
4-Chloroaniline	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
2-Chloronaphthalene	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
2-Chlorophenol	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
4-Chlorophenyl phenyl ether	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Chrysene	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Dibenz (a,h) anthracene	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Dibenzofuran	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Di-n-butyl phthalate	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
3,3-Dichlorobenzidine	ND	mg/kg dry		0.774	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
1,2-Dichlorobenzene	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
1,3-Dichlorobenzene	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
1,4-Dichlorobenzene	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
2,4-Dichlorophenol	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Diethyl phthalate	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
2,4-Dimethylphenol	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Dimethyl phthalate	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
2,4-Dinitrophenol	ND	mg/kg dry		0.966	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
2,4-Dinitrotoluene	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
2,6-Dinitrotoluene	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Di-n-octyl phthalate	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Fluoranthene	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Fluorene	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Hexachlorobenzene	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Hexachlorobutadiene	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-04 (MW-17 (4') - Soil) - cont. Sampled: 07/25/11 13:50										
Semivolatile Organic Compounds by EPA Method 8270D - cont.										
Hexachloroethane	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Indeno (1,2,3-cd) pyrene	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Isophorone	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
2-Methylnaphthalene	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
2-Methylphenol	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
3/4-Methylphenol	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Naphthalene	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Nitrobenzene	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
2-Nitrophenol	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
4-Nitrophenol	ND	mg/kg dry		0.966	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Pentachlorophenol	ND	mg/kg dry		0.966	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Phenanthrene	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Phenol	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Pyrene	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
2,4,5-Trichlorophenol	ND	mg/kg dry		0.966	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
2,4,6-Trichlorophenol	ND	mg/kg dry		0.386	1	08/02/11 09:01	08/07/11 17:12	KJP	SW846 8270D	11H0318
Surr: 2-Fluorophenol (30-130%)	*75 %*						08/07/11 17:12	KJP	SW846 8270D	11H0318
Surr: Phenol-d5 (30-130%)	*74 %*						08/07/11 17:12	KJP	SW846 8270D	11H0318
Surr: 2-Fluorobiphenyl (30-130%)	*76 %*						08/07/11 17:12	KJP	SW846 8270D	11H0318
Surr: Nitrobenzene-d5 (30-130%)	*69 %*						08/07/11 17:12	KJP	SW846 8270D	11H0318
Surr: Terphenyl-d14 (30-130%)	*95 %*						08/07/11 17:12	KJP	SW846 8270D	11H0318
Surr: 2,4,6-Tribromophenol (30-130%)	*73 %*						08/07/11 17:12	KJP	SW846 8270D	11H0318

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THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-05 (MW-16 (6') - Soil) Sampled: 07/25/11 15:00										
General Chemistry Parameters										
% Dry Solids	**87.2**	%		0.500	1	08/09/11 11:43	08/10/11 10:59	RRS	SW-846	11H2020
Total Organic Carbon	**12200**	mg/kg dry		1000	1	08/09/11 09:34	08/15/11 09:38	SHJ	SW846 9060M	11H2048

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Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-05 (MW-16 (6') - Soil) - cont. Sampled: 07/25/11 15:00										
MADEP VPH										
Received on MeOH	Yes									
MeOH Covers Soil	Yes									
Methyl tert-Butyl Ether	ND	mg/kg dry		0.0744	50	07/25/11 15:00	08/03/11 13:32	KAR2	MADEP VPH	11H0638
Benzene	ND	mg/kg dry		0.0744	50	07/25/11 15:00	08/03/11 13:32	KAR2	MADEP VPH	11H0638
Toluene	**0.392**	mg/kg dry		0.223	50	07/25/11 15:00	08/03/11 13:32	KAR2	MADEP VPH	11H0638
Ethylbenzene	ND	mg/kg dry		0.0744	50	07/25/11 15:00	08/03/11 13:32	KAR2	MADEP VPH	11H0638
m,p-Xylene	ND	mg/kg dry		0.297	50	07/25/11 15:00	08/03/11 13:32	KAR2	MADEP VPH	11H0638
o-Xylene	ND	mg/kg dry		0.149	50	07/25/11 15:00	08/03/11 13:32	KAR2	MADEP VPH	11H0638
Naphthalene	ND	mg/kg dry		0.372	50	07/25/11 15:00	08/03/11 13:32	KAR2	MADEP VPH	11H0638
C5 - C8 Aliphatic Hydrocarbons, Unadjuste	**69.6**	mg/kg dry		7.44	50	07/25/11 15:00	08/03/11 13:32	KAR2	MADEP VPH	11H0638
C9 - C12 Aliphatic Hydrocarbons, Unadjust	**8.28**	mg/kg dry		7.44	50	07/25/11 15:00	08/03/11 13:32	KAR2	MADEP VPH	11H0638
C5 - C8 Aliphatic Hydrocarbons	**69.2**	mg/kg dry		7.44	50	07/25/11 15:00	08/03/11 13:32	KAR2	MADEP VPH	11H0638
C9 - C12 Aliphatic Hydrocarbons	**8.28**	mg/kg dry		7.44	50	07/25/11 15:00	08/03/11 13:32	KAR2	MADEP VPH	11H0638
C9 - C10 Aromatic Hydrocarbons	ND	mg/kg dry		3.72	50	07/25/11 15:00	08/03/11 13:32	KAR2	MADEP VPH	11H0638
Surr: 2,5-Dibromotoluene (FID) (70-130%)	*110 %*						08/03/11 13:32	KAR2	MADEP VPH	11H0638
Surr: 2,5-Dibromotoluene (PID) (70-130%)	*103 %*						08/03/11 13:32	KAR2	MADEP VPH	11H0638

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-05 (MW-16 (6') - Soil) - cont. Sampled: 07/25/11 15:00										
MADEP EPH										
C9 - C18 Aliphatic Hydrocarbons	**24.3**	mg/kg dry		10.7	1	08/03/11 07:00	08/05/11 05:22	jlf	MADEP EPH	11H0317
C19 - C36 Aliphatic Hydrocarbons	**116**	mg/kg dry		21.4	2	08/03/11 07:00	08/05/11 19:12	gmh	MADEP EPH	11H0317
C11 - C22 Aromatic Hydrocarbons	ND	mg/kg dry		10.7	1	08/03/11 07:00	08/05/11 05:22	jlf	MADEP EPH	11H0317
C11 - C22 Aromatic Hydrocarbons, Unadjus	ND	mg/kg dry		10.7	1	08/03/11 07:00	08/05/11 05:53	jlf	MADEP EPH	11H0317
2-Methylnaphthalene	ND	mg/kg dry	L2	0.642	1	08/03/11 07:00	08/05/11 05:53	jlf	MADEP EPH	11H0317
Acenaphthene	ND	mg/kg dry		1.07	1	08/03/11 07:00	08/05/11 05:53	jlf	MADEP EPH	11H0317
Acenaphthylene	ND	mg/kg dry		1.07	1	08/03/11 07:00	08/05/11 05:53	jlf	MADEP EPH	11H0317
Anthracene	ND	mg/kg dry		1.07	1	08/03/11 07:00	08/05/11 05:53	jlf	MADEP EPH	11H0317
Benzo (a) anthracene	ND	mg/kg dry		0.642	1	08/03/11 07:00	08/05/11 05:53	jlf	MADEP EPH	11H0317
Benzo (a) pyrene	ND	mg/kg dry		0.642	1	08/03/11 07:00	08/05/11 05:53	jlf	MADEP EPH	11H0317
Benzo (b) fluoranthene	ND	mg/kg dry		0.642	1	08/03/11 07:00	08/05/11 05:53	jlf	MADEP EPH	11H0317
Benzo (g,h,i) perylene	ND	mg/kg dry		1.07	1	08/03/11 07:00	08/05/11 05:53	jlf	MADEP EPH	11H0317
Benzo (k) fluoranthene	ND	mg/kg dry		1.07	1	08/03/11 07:00	08/05/11 05:53	jlf	MADEP EPH	11H0317
Chrysene	ND	mg/kg dry		1.07	1	08/03/11 07:00	08/05/11 05:53	jlf	MADEP EPH	11H0317
Dibenz (a,h) anthracene	ND	mg/kg dry		0.642	1	08/03/11 07:00	08/05/11 05:53	jlf	MADEP EPH	11H0317
Fluoranthene	ND	mg/kg dry		1.07	1	08/03/11 07:00	08/05/11 05:53	jlf	MADEP EPH	11H0317
Fluorene	ND	mg/kg dry		1.07	1	08/03/11 07:00	08/05/11 05:53	jlf	MADEP EPH	11H0317
Indeno (1,2,3-cd) pyrene	ND	mg/kg dry		0.642	1	08/03/11 07:00	08/05/11 05:53	jlf	MADEP EPH	11H0317
Naphthalene	ND	mg/kg dry	L2	1.07	1	08/03/11 07:00	08/05/11 05:53	jlf	MADEP EPH	11H0317
Phenanthrene	ND	mg/kg dry		1.07	1	08/03/11 07:00	08/05/11 05:53	jlf	MADEP EPH	11H0317
Pyrene	ND	mg/kg dry		1.07	1	08/03/11 07:00	08/05/11 05:53	jlf	MADEP EPH	11H0317
Surr: 1-Chlorooctadecane (40-140%)	*85 %*						08/05/11 05:22	jlf	MADEP EPH	11H0317
Surr: o-Terphenyl (40-140%)	*84 %*						08/05/11 05:53	jlf	MADEP EPH	11H0317
Surr: 2-Fluorobiphenyl (40-140%)	*99 %*						08/05/11 05:53	jlf	MADEP EPH	11H0317
Surr: 2-Bromonaphthalene (40-140%)	*85 %*						08/05/11 05:53	jlf	MADEP EPH	11H0317

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Sample ID: NUG4207-05 (MW-16 (6') - Soil) - cont. Sampled: 07/25/11 15:00

Volatile Organic - MCP CAM Method 8260

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acetone	ND	mg/kg dry	L	2.00	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Tert-Amyl Methyl Ether	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Benzene	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Bromobenzene	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Bromochloromethane	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Bromodichloromethane	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Bromoform	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Bromomethane	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
2-Butanone	ND	mg/kg dry		2.00	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
tert-Butylbenzene	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
n-Butylbenzene	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
sec-Butylbenzene	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Carbon disulfide	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Carbon Tetrachloride	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Chlorobenzene	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Chlorodibromomethane	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Chloroethane	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Chloroform	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Chloromethane	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
2-Chlorotoluene	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
4-Chlorotoluene	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
1,2-Dibromo-3-chloropropane	ND	mg/kg dry		0.200	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
1,2-Dibromoethane (EDB)	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Dibromomethane	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
1,2-Dichlorobenzene	**0.152**	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
1,3-Dichlorobenzene	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
1,4-Dichlorobenzene	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Dichlorodifluoromethane	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
1,2-Dichloroethane	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
1,1-Dichloroethane	**10.0**	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
1,1-Dichloroethene	**0.254**	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
trans-1,2-Dichloroethene	**0.126**	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
cis-1,2-Dichloroethene	**130**	mg/kg dry		4.01	2000	07/25/11 15:00	08/08/11 17:39	EML	SW846 8260B	11H2363
1,3-Dichloropropane	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
2,2-Dichloropropane	ND	mg/kg dry	L	0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
1,2-Dichloropropane	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
trans-1,3-Dichloropropene	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
1,1-Dichloropropene	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
cis-1,3-Dichloropropene	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Diethyl ether	ND	mg/kg dry		0.200	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292

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Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-05 (MW-16 (6') - Soil) - cont. Sampled: 07/25/11 15:00										
Volatile Organic - MCP CAM Method 8260 - cont.										
1,4-Dioxane	ND	mg/kg dry	L2	20.0	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Ethylbenzene	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Ethyl tert-Butyl Ether	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Hexachlorobutadiene	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
2-Hexanone	ND	mg/kg dry		2.00	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Isopropylbenzene	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Diisopropyl Ether	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
p-Isopropyltoluene	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Methyl tert-Butyl Ether	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Methylene Chloride	**0.253**	mg/kg dry		0.200	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
4-Methyl-2-pentanone	ND	mg/kg dry		2.00	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Naphthalene	ND	mg/kg dry		0.200	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
n-Propylbenzene	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Styrene	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
1,1,2,2-Tetrachloroethane	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
1,1,1,2-Tetrachloroethane	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Tetrachloroethene	**21.3**	mg/kg dry		4.01	2000	07/25/11 15:00	08/08/11 17:39	EML	SW846 8260B	11H2363
Tetrahydrofuran	ND	mg/kg dry		0.200	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Toluene	**0.388**	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.200	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
1,2,3-Trichlorobenzene	ND	mg/kg dry		0.200	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
1,1,1-Trichloroethane	**6.82**	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
1,1,2-Trichloroethane	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Trichloroethene	**5.97**	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Trichlorofluoromethane	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
1,2,3-Trichloropropane	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
1,3,5-Trimethylbenzene	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
1,2,4-Trimethylbenzene	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Vinyl chloride	ND	mg/kg dry		0.100	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Xylenes, total	ND	mg/kg dry		0.301	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
1,1,2-Trifluorotrichloroethane	**5.98**	mg/kg dry		0.200	50	07/25/11 15:00	08/07/11 16:32	EML	SW846 8260B	11H0292
Surr: 1,2-Dichloroethane-d4 (70-130%)	*104 %*						08/07/11 16:32	EML	SW846 8260B	11H0292
Surr: 1,2-Dichloroethane-d4 (70-130%)	*93 %*						08/08/11 17:39	EML	SW846 8260B	11H2363
Surr: Dibromofluoromethane (70-130%)	*96 %*						08/07/11 16:32	EML	SW846 8260B	11H0292
Surr: Dibromofluoromethane (70-130%)	*93 %*						08/08/11 17:39	EML	SW846 8260B	11H2363
Surr: Toluene-d8 (70-130%)	*93 %*						08/07/11 16:32	EML	SW846 8260B	11H0292
Surr: Toluene-d8 (70-130%)	*87 %*						08/08/11 17:39	EML	SW846 8260B	11H2363
Surr: 4-Bromofluorobenzene (70-130%)	*101 %*						08/07/11 16:32	EML	SW846 8260B	11H0292
Surr: 4-Bromofluorobenzene (70-130%)	*96 %*						08/08/11 17:39	EML	SW846 8260B	11H2363

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Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-05 (MW-16 (6') - Soil) - cont. Sampled: 07/25/11 15:00										
Total Metals by EPA 6010C										
Iron	**17400**	mg/kg		9.71	1	08/04/11 07:11	08/06/11 02:44	LTB	SW846 6010C	11H0287
Manganese	**160**	mg/kg		0.971	1	08/04/11 07:11	08/06/11 02:44	LTB	SW846 6010C	11H0287

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Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Sample ID: NUG4207-05 (MW-16 (6') - Soil) - cont. Sampled: 07/25/11 15:00

Semivolatile Organic Compounds by EPA Method 8270D

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acenaphthene	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Acenaphthylene	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Azobenzene	ND	mg/kg dry		1.88	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Aniline	ND	mg/kg dry		0.750	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Anthracene	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Benzo (a) anthracene	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Benzo (a) pyrene	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Benzo (b) fluoranthene	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Benzo (g,h,i) perylene	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Benzo (k) fluoranthene	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Bis(2-chloroethoxy)methane	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Bis(2-chloroethyl)ether	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Bis(2-chloroisopropyl)ether	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Bis(2-ethylhexyl)phthalate	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
4-Bromophenyl phenyl ether	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Butyl benzyl phthalate	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
4-Chloroaniline	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
2-Chloronaphthalene	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
2-Chlorophenol	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
4-Chlorophenyl phenyl ether	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Chrysene	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Dibenz (a,h) anthracene	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Dibenzofuran	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Di-n-butyl phthalate	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
3,3-Dichlorobenzidine	ND	mg/kg dry		0.750	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
1,2-Dichlorobenzene	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
1,3-Dichlorobenzene	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
1,4-Dichlorobenzene	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
2,4-Dichlorophenol	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Diethyl phthalate	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
2,4-Dimethylphenol	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Dimethyl phthalate	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
2,4-Dinitrophenol	ND	mg/kg dry		0.936	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
2,4-Dinitrotoluene	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
2,6-Dinitrotoluene	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Di-n-octyl phthalate	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Fluoranthene	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Fluorene	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Hexachlorobenzene	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Hexachlorobutadiene	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318

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Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-05 (MW-16 (6') - Soil) - cont. Sampled: 07/25/11 15:00										
Semivolatile Organic Compounds by EPA Method 8270D - cont.										
Hexachloroethane	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Indeno (1,2,3-cd) pyrene	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Isophorone	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
2-Methylnaphthalene	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
2-Methylphenol	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
3/4-Methylphenol	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Naphthalene	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Nitrobenzene	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
2-Nitrophenol	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
4-Nitrophenol	ND	mg/kg dry		0.936	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Pentachlorophenol	ND	mg/kg dry		0.936	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Phenanthrene	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Phenol	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Pyrene	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
2,4,5-Trichlorophenol	ND	mg/kg dry		0.936	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
2,4,6-Trichlorophenol	ND	mg/kg dry		0.374	1	08/02/11 09:01	08/07/11 17:30	KJP	SW846 8270D	11H0318
Surr: 2-Fluorophenol (30-130%)	*62 %*						08/07/11 17:30	KJP	SW846 8270D	11H0318
Surr: Phenol-d5 (30-130%)	*68 %*						08/07/11 17:30	KJP	SW846 8270D	11H0318
Surr: 2-Fluorobiphenyl (30-130%)	*70 %*						08/07/11 17:30	KJP	SW846 8270D	11H0318
Surr: Nitrobenzene-d5 (30-130%)	*60 %*						08/07/11 17:30	KJP	SW846 8270D	11H0318
Surr: Terphenyl-d14 (30-130%)	*88 %*						08/07/11 17:30	KJP	SW846 8270D	11H0318
Surr: 2,4,6-Tribromophenol (30-130%)	*68 %*						08/07/11 17:30	KJP	SW846 8270D	11H0318

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-06 (TripBlk - Soil) Sampled: 07/25/11 00:01										
Volatile Organic - MCP CAM Method 8260										
Acetone	ND	mg/kg wet	L	1.00	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Tert-Amyl Methyl Ether	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Benzene	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Bromobenzene	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Bromochloromethane	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Bromodichloromethane	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Bromoform	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Bromomethane	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
2-Butanone	ND	mg/kg wet		1.00	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
tert-Butylbenzene	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
n-Butylbenzene	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
sec-Butylbenzene	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Carbon disulfide	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Carbon Tetrachloride	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Chlorobenzene	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Chlorodibromomethane	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Chloroethane	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Chloroform	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Chloromethane	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
2-Chlorotoluene	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
4-Chlorotoluene	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
1,2-Dibromo-3-chloropropane	ND	mg/kg wet		0.100	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
1,2-Dibromoethane (EDB)	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Dibromomethane	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
1,2-Dichlorobenzene	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
1,3-Dichlorobenzene	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
1,4-Dichlorobenzene	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Dichlorodifluoromethane	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
1,2-Dichloroethane	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
1,1-Dichloroethane	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
1,1-Dichloroethene	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
trans-1,2-Dichloroethene	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
cis-1,2-Dichloroethene	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
1,3-Dichloropropane	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
2,2-Dichloropropane	ND	mg/kg wet	L	0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
1,2-Dichloropropane	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
trans-1,3-Dichloropropene	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
1,1-Dichloropropene	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
cis-1,3-Dichloropropene	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Diethyl ether	ND	mg/kg wet		0.100	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292

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Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUG4207-06 (TripBlk - Soil) - cont. Sampled: 07/25/11 00:01										
Volatile Organic - MCP CAM Method 8260 - cont.										
1,4-Dioxane	ND	mg/kg wet	L2	10.0	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Ethylbenzene	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Ethyl tert-Butyl Ether	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Hexachlorobutadiene	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
2-Hexanone	ND	mg/kg wet		1.00	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Isopropylbenzene	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Diisopropyl Ether	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
p-Isopropyltoluene	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Methyl tert-Butyl Ether	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Methylene Chloride	ND	mg/kg wet		0.100	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
4-Methyl-2-pentanone	ND	mg/kg wet		1.00	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Naphthalene	ND	mg/kg wet		0.100	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
n-Propylbenzene	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Styrene	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
1,1,2,2-Tetrachloroethane	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
1,1,1,2-Tetrachloroethane	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Tetrachloroethene	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Tetrahydrofuran	ND	mg/kg wet		0.100	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Toluene	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
1,2,4-Trichlorobenzene	ND	mg/kg wet		0.100	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
1,2,3-Trichlorobenzene	ND	mg/kg wet		0.100	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
1,1,1-Trichloroethane	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
1,1,2-Trichloroethane	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Trichloroethene	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Trichlorofluoromethane	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
1,2,3-Trichloropropane	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
1,3,5-Trimethylbenzene	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
1,2,4-Trimethylbenzene	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Vinyl chloride	ND	mg/kg wet		0.0500	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Xylenes, total	ND	mg/kg wet		0.150	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
1,1,2-Trifluorotrichloroethane	ND	mg/kg wet		0.100	50	07/25/11 00:01	08/07/11 12:18	EML	SW846 8260B	11H0292
Surr: 1,2-Dichloroethane-d4 (70-130%)	*99 %*						08/07/11 12:18	EML	SW846 8260B	11H0292
Surr: Dibromofluoromethane (70-130%)	*97 %*						08/07/11 12:18	EML	SW846 8260B	11H0292
Surr: Toluene-d8 (70-130%)	*98 %*						08/07/11 12:18	EML	SW846 8260B	11H0292
Surr: 4-Bromofluorobenzene (70-130%)	*103 %*						08/07/11 12:18	EML	SW846 8260B	11H0292

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

SAMPLE EXTRACTION DATA

Parameter	Batch	Lab Number	Wt/Vol Extracted	Extract Vol	Date	Analyst	Extraction Method
MADEP EPH							
MADEP EPH	11H0317	NUG4207-01	10.47	1.00	08/03/11 07:00	JJR	MADEP soil
MADEP EPH	11H0317	NUG4207-01RE1	10.47	1.00	08/03/11 07:00	JJR	MADEP soil
MADEP EPH	11H0317	NUG4207-01RE2	10.47	1.00	08/03/11 07:00	JJR	MADEP soil
MADEP EPH	11H0317	NUG4207-02	10.18	1.00	08/03/11 07:00	JJR	MADEP soil
MADEP EPH	11H0317	NUG4207-02RE1	10.18	1.00	08/03/11 07:00	JJR	MADEP soil
MADEP EPH	11H0317	NUG4207-02RE2	10.18	1.00	08/03/11 07:00	JJR	MADEP soil
MADEP EPH	11H0317	NUG4207-02RE3	10.18	1.00	08/03/11 07:00	JJR	MADEP soil
MADEP EPH	11H0317	NUG4207-03	10.20	1.00	08/03/11 07:00	JJR	MADEP soil
MADEP EPH	11H0317	NUG4207-03RE1	10.20	1.00	08/03/11 07:00	JJR	MADEP soil
MADEP EPH	11H0317	NUG4207-03RE2	10.20	1.00	08/03/11 07:00	JJR	MADEP soil
MADEP EPH	11H0317	NUG4207-03RE3	10.20	1.00	08/03/11 07:00	JJR	MADEP soil
MADEP EPH	11H0317	NUG4207-04	10.22	1.00	08/03/11 07:00	JJR	MADEP soil
MADEP EPH	11H0317	NUG4207-04RE1	10.22	1.00	08/03/11 07:00	JJR	MADEP soil
MADEP EPH	11H0317	NUG4207-05	10.71	1.00	08/03/11 07:00	JJR	MADEP soil
MADEP EPH	11H0317	NUG4207-05RE1	10.71	1.00	08/03/11 07:00	JJR	MADEP soil
MADEP VPH							
MADEP VPH	11H0335	NUG4207-01	10.63	15.00	07/25/11 08:45	KAR2	MADEP
MADEP VPH	11H0638	NUG4207-01RE1	10.63	15.00	07/25/11 08:45	KAR2	MADEP
MADEP VPH	11H0945	NUG4207-01RE2	10.63	15.00	07/25/11 08:45	KAR2	MADEP
MADEP VPH	11H0945	NUG4207-01RE3	10.63	15.00	07/25/11 08:45	KAR2	MADEP
MADEP VPH	11H0335	NUG4207-02	13.30	15.00	07/25/11 10:45	KAR2	MADEP
MADEP VPH	11H0638	NUG4207-02RE1	13.30	15.00	07/25/11 10:45	KAR2	MADEP
MADEP VPH	11H0638	NUG4207-02RE2	13.30	15.00	07/25/11 10:45	KAR2	MADEP
MADEP VPH	11H0335	NUG4207-03	8.36	10.00	07/25/11 12:15	KAR2	MADEP
MADEP VPH	11H0638	NUG4207-03RE1	8.36	10.00	07/25/11 12:15	KAR2	MADEP
MADEP VPH	11H0335	NUG4207-04	12.28	15.00	07/25/11 13:50	KAR2	MADEP
MADEP VPH	11H0638	NUG4207-04RE1	12.28	15.00	07/25/11 13:50	KAR2	MADEP
MADEP VPH	11H0335	NUG4207-05	12.83	15.00	07/25/11 15:00	KAR2	MADEP
MADEP VPH	11H0638	NUG4207-05RE1	12.83	15.00	07/25/11 15:00	KAR2	MADEP
Semivolatile Organic Compounds by EPA Method 8270D							
SW846 8270D	11H0318	NUG4207-01	15.19	1.00	08/02/11 09:01	JJR	EPA 3541
SW846 8270D	11H0318	NUG4207-01RE1	15.19	1.00	08/02/11 09:01	JJR	EPA 3541
SW846 8270D	11H0318	NUG4207-02	15.29	1.00	08/02/11 09:01	JJR	EPA 3541
SW846 8270D	11H0318	NUG4207-03	15.59	1.00	08/02/11 09:01	JJR	EPA 3541
SW846 8270D	11H0318	NUG4207-04	15.30	1.00	08/02/11 09:01	JJR	EPA 3541
SW846 8270D	11H0318	NUG4207-05	15.30	1.00	08/02/11 09:01	JJR	EPA 3541
Total Metals by EPA 6010C							
SW846 6010C	11H0287	NUG4207-01	0.51	100.00	08/04/11 07:11	RSO	EPA 3051A/6010
SW846 6010C	11H0287	NUG4207-01	0.51	100.00	08/04/11 07:11	RSO	EPA 3051A/6010
SW846 6010C	11H0287	NUG4207-02	0.51	100.00	08/04/11 07:11	RSO	EPA 3051A/6010
SW846 6010C	11H0287	NUG4207-02	0.51	100.00	08/04/11 07:11	RSO	EPA 3051A/6010
SW846 6010C	11H0287	NUG4207-03	0.51	100.00	08/04/11 07:11	RSO	EPA 3051A/6010
SW846 6010C	11H0287	NUG4207-03	0.51	100.00	08/04/11 07:11	RSO	EPA 3051A/6010
SW846 6010C	11H0287	NUG4207-04	0.50	100.00	08/04/11 07:11	RSO	EPA 3051A/6010

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

SAMPLE EXTRACTION DATA

Parameter	Batch	Lab Number	Wt/Vol Extracted	Extract Vol	Date	Analyst	Extraction Method
SW846 6010C	11H0287	NUG4207-04	0.50	100.00	08/04/11 07:11	RSO	EPA 3051A/6010
SW846 6010C	11H0287	NUG4207-05	0.52	100.00	08/04/11 07:11	RSO	EPA 3051A/6010
SW846 6010C	11H0287	NUG4207-05	0.52	100.00	08/04/11 07:11	RSO	EPA 3051A/6010
Volatile Organic - MCP CAM Method 8260							
SW846 8260B	11H0292	NUG4207-01	6.95	10.00	07/25/11 08:45	AAN	EPA 5035
SW846 8260B	11H1969	NUG4207-01RE1	6.95	10.00	07/25/11 08:45	AAN	EPA 5035
SW846 8260B	11H0292	NUG4207-02	6.59	10.00	07/25/11 10:45	AAN	EPA 5035
SW846 8260B	11H2363	NUG4207-02RE1	6.59	10.00	07/25/11 10:45	AAN	EPA 5035
SW846 8260B	11H0292	NUG4207-03	8.73	10.00	07/25/11 12:15	AAN	EPA 5035
SW846 8260B	11H2363	NUG4207-03RE1	8.73	10.00	07/25/11 12:15	AAN	EPA 5035
SW846 8260B	11H0292	NUG4207-04	6.37	10.00	07/25/11 13:50	AAN	EPA 5035
SW846 8260B	11H2363	NUG4207-04RE1	6.37	10.00	07/25/11 13:50	AAN	EPA 5035
SW846 8260B	11H0292	NUG4207-05	5.72	10.00	07/25/11 15:00	AAN	EPA 5035
SW846 8260B	11H2363	NUG4207-05RE1	5.72	10.00	07/25/11 15:00	AAN	EPA 5035
SW846 8260B	11H0292	NUG4207-06	10.00	10.00	07/25/11 00:01	AAN	EPA 5035

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
Blank

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
General Chemistry Parameters						
11H2048-BLK1						
Total Organic Carbon	784		mg/kg wet	11H2048	11H2048-BLK1	08/15/11 09:38
MADEP VPH						
11H0335-BLK1						
Methyl tert-Butyl Ether	<0.0350		mg/kg wet	11H0335	11H0335-BLK1	08/02/11 12:08
Benzene	<0.0200		mg/kg wet	11H0335	11H0335-BLK1	08/02/11 12:08
Toluene	<0.0250		mg/kg wet	11H0335	11H0335-BLK1	08/02/11 12:08
Ethylbenzene	<0.0250		mg/kg wet	11H0335	11H0335-BLK1	08/02/11 12:08
m,p-Xylene	<0.0650		mg/kg wet	11H0335	11H0335-BLK1	08/02/11 12:08
o-Xylene	<0.0300		mg/kg wet	11H0335	11H0335-BLK1	08/02/11 12:08
Naphthalene	0.0612		mg/kg wet	11H0335	11H0335-BLK1	08/02/11 12:08
C5 - C8 Aliphatic Hydrocarbons, Unadjustec	<2.50		mg/kg wet	11H0335	11H0335-BLK1	08/02/11 12:08
C9 - C12 Aliphatic Hydrocarbons, Unadjuste	<2.50		mg/kg wet	11H0335	11H0335-BLK1	08/02/11 12:08
C5 - C8 Aliphatic Hydrocarbons	<2.50		mg/kg wet	11H0335	11H0335-BLK1	08/02/11 12:08
C9 - C12 Aliphatic Hydrocarbons	<2.50		mg/kg wet	11H0335	11H0335-BLK1	08/02/11 12:08
C9 - C10 Aromatic Hydrocarbons	<2.50		mg/kg wet	11H0335	11H0335-BLK1	08/02/11 12:08
Surrogate: 2,5-Dibromotoluene (FID)	93%			11H0335	11H0335-BLK1	08/02/11 12:08
Surrogate: 2,5-Dibromotoluene (PID)	92%			11H0335	11H0335-BLK1	08/02/11 12:08
11H0638-BLK1						
Methyl tert-Butyl Ether	<0.0350		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
Benzene	<0.0200		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
Toluene	<0.0250		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
Ethylbenzene	<0.0250		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
m,p-Xylene	<0.0650		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
o-Xylene	<0.0300		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
Naphthalene	0.200		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
C5 - C8 Aliphatic Hydrocarbons, Unadjustec	<2.50		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
C9 - C12 Aliphatic Hydrocarbons, Unadjuste	<2.50		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
C5 - C8 Aliphatic Hydrocarbons	<2.50		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
C9 - C12 Aliphatic Hydrocarbons	<2.50		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
C9 - C10 Aromatic Hydrocarbons	<2.50		mg/kg wet	11H0638	11H0638-BLK1	08/03/11 12:26
Surrogate: 2,5-Dibromotoluene (FID)	99%			11H0638	11H0638-BLK1	08/03/11 12:26
Surrogate: 2,5-Dibromotoluene (PID)	95%			11H0638	11H0638-BLK1	08/03/11 12:26
11H0945-BLK1						
Methyl tert-Butyl Ether	<0.0350		mg/kg wet	11H0945	11H0945-BLK1	08/04/11 14:40
Benzene	<0.0200		mg/kg wet	11H0945	11H0945-BLK1	08/04/11 14:40
Toluene	<0.0250		mg/kg wet	11H0945	11H0945-BLK1	08/04/11 14:40
Ethylbenzene	<0.0250		mg/kg wet	11H0945	11H0945-BLK1	08/04/11 14:40
m,p-Xylene	<0.0650		mg/kg wet	11H0945	11H0945-BLK1	08/04/11 14:40
o-Xylene	<0.0300		mg/kg wet	11H0945	11H0945-BLK1	08/04/11 14:40

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Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
MADEP VPH						
11H0945-BLK1						
Naphthalene	0.212		mg/kg wet	11H0945	11H0945-BLK1	08/04/11 14:40
C5 - C8 Aliphatic Hydrocarbons, Unadjustec	<2.50		mg/kg wet	11H0945	11H0945-BLK1	08/04/11 14:40
C9 - C12 Aliphatic Hydrocarbons, Unadjuste	<2.50		mg/kg wet	11H0945	11H0945-BLK1	08/04/11 14:40
C5 - C8 Aliphatic Hydrocarbons	<2.50		mg/kg wet	11H0945	11H0945-BLK1	08/04/11 14:40
C9 - C12 Aliphatic Hydrocarbons	<2.50		mg/kg wet	11H0945	11H0945-BLK1	08/04/11 14:40
C9 - C10 Aromatic Hydrocarbons	<2.50		mg/kg wet	11H0945	11H0945-BLK1	08/04/11 14:40
Surrogate: 2,5-Dibromotoluene (FID)	100%			11H0945	11H0945-BLK1	08/04/11 14:40
Surrogate: 2,5-Dibromotoluene (PID)	103%			11H0945	11H0945-BLK1	08/04/11 14:40
MADEP EPH						
11H0317-BLK1						
C9 - C18 Aliphatic Hydrocarbons	<1.90		mg/kg wet	11H0317	11H0317-BLK1	08/04/11 14:38
C19 - C36 Aliphatic Hydrocarbons	<1.90		mg/kg wet	11H0317	11H0317-BLK1	08/04/11 14:38
C11 - C22 Aromatic Hydrocarbons	<1.40		mg/kg wet	11H0317	11H0317-BLK1	08/04/11 14:38
C11 - C22 Aromatic Hydrocarbons, Unadjus	<1.40		mg/kg wet	11H0317	11H0317-BLK1	08/04/11 15:09
Surrogate: 1-Chlorooctadecane	74%			11H0317	11H0317-BLK1	08/04/11 14:38
Surrogate: o-Terphenyl	71%			11H0317	11H0317-BLK1	08/04/11 15:09
Surrogate: 2-Fluorobiphenyl	105%			11H0317	11H0317-BLK1	08/04/11 15:09
Surrogate: 2-Bromonaphthalene	106%			11H0317	11H0317-BLK1	08/04/11 15:09
11H0317-BLK2						
2-Methylnaphthalene	<0.0210	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Acenaphthene	<0.0140	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Acenaphthylene	<0.0200	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Anthracene	<0.00900	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Benzo (a) anthracene	<0.0110	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Benzo (a) pyrene	<0.00800	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Benzo (b) fluoranthene	<0.0380	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Benzo (g,h,i) perylene	<0.00900	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Benzo (k) fluoranthene	<0.0370	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Chrysene	<0.0310	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Dibenz (a,h) anthracene	<0.0150	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Fluoranthene	<0.0110	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Fluorene	<0.0200	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Indeno (1,2,3-cd) pyrene	<0.0310	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Naphthalene	<0.0140	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Phenanthrene	<0.0100	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10
Pyrene	<0.0230	T14	mg/kg wet	11H0317	11H0317-BLK2	08/05/11 16:10

Volatile Organic - MCP CAM Method 8260

11H0292-BLK1

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Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11H0292-BLK1						
Acetone	1.23		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Tert-Amyl Methyl Ether	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Benzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromobenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromochloromethane	<0.0120		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromodichloromethane	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromoform	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromomethane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
2-Butanone	2.92		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
tert-Butylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
n-Butylbenzene	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
sec-Butylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Carbon disulfide	<0.00650		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Carbon Tetrachloride	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Chlorobenzene	<0.00950		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Chlorodibromomethane	<0.0105		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Chloroethane	<0.0105		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Chloroform	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Chloromethane	<0.0150		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
2-Chlorotoluene	<0.00700		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
4-Chlorotoluene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dibromo-3-chloropropane	<0.0135		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dibromoethane (EDB)	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Dibromomethane	<0.00800		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dichlorobenzene	<0.00650		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,3-Dichlorobenzene	<0.00700		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,4-Dichlorobenzene	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Dichlorodifluoromethane	<0.00700		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dichloroethane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1-Dichloroethane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1-Dichloroethene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
trans-1,2-Dichloroethene	<0.00800		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
cis-1,2-Dichloroethene	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,3-Dichloropropane	<0.00550		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
2,2-Dichloropropane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dichloropropane	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
trans-1,3-Dichloropropene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1-Dichloropropene	<0.00550		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
cis-1,3-Dichloropropene	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Diethyl ether	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,4-Dioxane	<0.900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50

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Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11H0292-BLK1						
Ethylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Ethyl tert-Butyl Ether	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Hexachlorobutadiene	<0.0130		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
2-Hexanone	<0.0355		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Isopropylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Diisopropyl Ether	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
p-Isopropyltoluene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Methyl tert-Butyl Ether	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Methylene Chloride	<0.0835		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
4-Methyl-2-pentanone	<0.165		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Naphthalene	<0.0850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
n-Propylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Styrene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,2,2-Tetrachloroethane	<0.00700		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,1,2-Tetrachloroethane	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Tetrachloroethene	<0.00950		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Tetrahydrofuran	0.201		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Toluene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2,4-Trichlorobenzene	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2,3-Trichlorobenzene	0.0125		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,1-Trichloroethane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,2-Trichloroethane	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Trichloroethene	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Trichlorofluoromethane	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2,3-Trichloropropane	<0.0135		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,3,5-Trimethylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2,4-Trimethylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Vinyl chloride	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Xylenes, total	<0.0195		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,2-Trifluorotrichloroethane	<0.0380		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Surrogate: 1,2-Dichloroethane-d4	101%			11H0292	11H0292-BLK1	08/07/11 11:50
Surrogate: Dibromofluoromethane	97%			11H0292	11H0292-BLK1	08/07/11 11:50
Surrogate: Toluene-d8	89%			11H0292	11H0292-BLK1	08/07/11 11:50
Surrogate: 4-Bromofluorobenzene	101%			11H0292	11H0292-BLK1	08/07/11 11:50
11H1969-BLK1						
Acetone	<0.250		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Tert-Amyl Methyl Ether	<0.00850		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Benzene	<0.00850		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Bromobenzene	<0.00850		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Bromochloromethane	<0.0120		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02

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Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11H1969-BLK1						
Bromodichloromethane	<0.00900		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Bromoform	<0.00900		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Bromomethane	<0.00850		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
2-Butanone	<0.0850		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
tert-Butylbenzene	<0.00850		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
n-Butylbenzene	<0.00900		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
sec-Butylbenzene	<0.00850		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Carbon disulfide	<0.00650		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Carbon Tetrachloride	<0.00850		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Chlorobenzene	<0.00950		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Chlorodibromomethane	<0.0105		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Chloroethane	<0.0105		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Chloroform	<0.00850		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Chloromethane	<0.0150		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
2-Chlorotoluene	<0.00700		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
4-Chlorotoluene	<0.00850		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
1,2-Dibromo-3-chloropropane	<0.0135		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
1,2-Dibromoethane (EDB)	<0.00900		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Dibromomethane	<0.00800		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
1,2-Dichlorobenzene	<0.00650		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
1,3-Dichlorobenzene	<0.00700		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
1,4-Dichlorobenzene	<0.00750		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Dichlorodifluoromethane	<0.00700		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
1,2-Dichloroethane	<0.00850		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
1,1-Dichloroethane	<0.00850		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
1,1-Dichloroethene	<0.00850		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
trans-1,2-Dichloroethene	<0.00800		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
cis-1,2-Dichloroethene	<0.00750		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
1,3-Dichloropropane	<0.00550		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
2,2-Dichloropropane	<0.00850		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
1,2-Dichloropropane	<0.00900		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
trans-1,3-Dichloropropene	<0.00850		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
1,1-Dichloropropene	<0.00550		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
cis-1,3-Dichloropropene	<0.00750		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Diethyl ether	<0.00750		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
1,4-Dioxane	<0.900		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Ethylbenzene	<0.00850		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Ethyl tert-Butyl Ether	<0.00850		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Hexachlorobutadiene	<0.0130		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
2-Hexanone	<0.0355		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Isopropylbenzene	<0.00850		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02

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Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11H1969-BLK1						
Diisopropyl Ether	<0.00850		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
p-Isopropyltoluene	<0.00850		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Methyl tert-Butyl Ether	<0.00850		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Methylene Chloride	<0.0835		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
4-Methyl-2-pentanone	<0.165		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Naphthalene	<0.0850		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
n-Propylbenzene	<0.00850		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Styrene	<0.00850		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
1,1,2,2-Tetrachloroethane	<0.00700		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
1,1,1,2-Tetrachloroethane	<0.00900		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Tetrachloroethene	<0.00950		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Tetrahydrofuran	<0.0730		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Toluene	<0.00850		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
1,2,4-Trichlorobenzene	<0.00900		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
1,2,3-Trichlorobenzene	<0.0125		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
1,1,1-Trichloroethane	<0.00850		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
1,1,2-Trichloroethane	<0.00750		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Trichloroethene	<0.00900		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Trichlorofluoromethane	<0.00900		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
1,2,3-Trichloropropane	<0.0135		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
1,3,5-Trimethylbenzene	<0.00850		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
1,2,4-Trimethylbenzene	<0.00850		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Vinyl chloride	<0.00850		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Xylenes, total	<0.0195		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
1,1,2-Trifluorotrichloroethane	<0.0380		mg/kg wet	11H1969	11H1969-BLK1	08/08/11 21:02
Surrogate: 1,2-Dichloroethane-d4	105%			11H1969	11H1969-BLK1	08/08/11 21:02
Surrogate: Dibromofluoromethane	105%			11H1969	11H1969-BLK1	08/08/11 21:02
Surrogate: Toluene-d8	95%			11H1969	11H1969-BLK1	08/08/11 21:02
Surrogate: 4-Bromofluorobenzene	92%			11H1969	11H1969-BLK1	08/08/11 21:02
11H2363-BLK1						
Acetone	<0.250		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Tert-Amyl Methyl Ether	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Benzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Bromobenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Bromochloromethane	<0.0120		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Bromodichloromethane	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Bromoform	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Bromomethane	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
2-Butanone	0.306		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
tert-Butylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14

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Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11H2363-BLK1						
n-Butylbenzene	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
sec-Butylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Carbon disulfide	<0.00650		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Carbon Tetrachloride	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Chlorobenzene	<0.00950		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Chlorodibromomethane	<0.0105		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Chloroethane	<0.0105		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Chloroform	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Chloromethane	<0.0150		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
2-Chlorotoluene	<0.00700		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
4-Chlorotoluene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2-Dibromo-3-chloropropane	<0.0135		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2-Dibromoethane (EDB)	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Dibromomethane	<0.00800		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2-Dichlorobenzene	<0.00650		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,3-Dichlorobenzene	<0.00700		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,4-Dichlorobenzene	<0.00750		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Dichlorodifluoromethane	<0.00700		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2-Dichloroethane	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1-Dichloroethane	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1-Dichloroethene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
trans-1,2-Dichloroethene	<0.00800		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
cis-1,2-Dichloroethene	<0.00750		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,3-Dichloropropane	<0.00550		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
2,2-Dichloropropane	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2-Dichloropropane	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
trans-1,3-Dichloropropene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1-Dichloropropene	<0.00550		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
cis-1,3-Dichloropropene	<0.00750		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Diethyl ether	<0.00750		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,4-Dioxane	<0.900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Ethylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Ethyl tert-Butyl Ether	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Hexachlorobutadiene	<0.0130		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
2-Hexanone	<0.0355		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Isopropylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Diisopropyl Ether	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
p-Isopropyltoluene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Methyl tert-Butyl Ether	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Methylene Chloride	<0.0835		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
4-Methyl-2-pentanone	<0.165		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14

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Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11H2363-BLK1						
Naphthalene	<0.0850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
n-Propylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Styrene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1,2,2-Tetrachloroethane	<0.00700		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1,1,2-Tetrachloroethane	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Tetrachloroethene	<0.00950		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Tetrahydrofuran	<0.0730		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Toluene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2,4-Trichlorobenzene	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2,3-Trichlorobenzene	<0.0125		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1,1-Trichloroethane	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1,2-Trichloroethane	<0.00750		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Trichloroethene	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Trichlorofluoromethane	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2,3-Trichloropropane	<0.0135		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,3,5-Trimethylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2,4-Trimethylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Vinyl chloride	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Xylenes, total	<0.0195		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Surrogate: 1,2-Dichloroethane-d4	94%			11H2363	11H2363-BLK1	08/08/11 16:14
Surrogate: Dibromofluoromethane	92%			11H2363	11H2363-BLK1	08/08/11 16:14
Surrogate: Toluene-d8	85%			11H2363	11H2363-BLK1	08/08/11 16:14
Surrogate: 4-Bromofluorobenzene	95%			11H2363	11H2363-BLK1	08/08/11 16:14
Total Metals by EPA 6010C						
11H0287-BLK1						
Iron	5.07		mg/kg	11H0287	11H0287-BLK1	08/06/11 02:22
Manganese	<0.201		mg/kg	11H0287	11H0287-BLK1	08/06/11 02:22
Semivolatile Organic Compounds by EPA Method 8270D						
11H0318-BLK1						
Acenaphthene	<0.0140		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Acenaphthylene	<0.0200		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Azobenzene	<0.173		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Aniline	<0.122		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Anthracene	<0.00900		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Benzo (a) anthracene	<0.0110		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Benzo (a) pyrene	<0.00800		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Benzo (b) fluoranthene	<0.0380		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Benzo (g,h,i) perylene	<0.00900		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Benzo (k) fluoranthene	<0.0370		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02

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Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270D						
11H0318-BLK1						
Bis(2-chloroethoxy)methane	<0.128		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Bis(2-chloroethyl)ether	<0.151		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Bis(2-chloroisopropyl)ether	<0.158		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Bis(2-ethylhexyl)phthalate	<0.126		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
4-Bromophenyl phenyl ether	<0.150		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Butyl benzyl phthalate	<0.125		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
4-Chloroaniline	<0.103		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2-Chloronaphthalene	<0.150		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2-Chlorophenol	<0.149		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
4-Chlorophenyl phenyl ether	<0.148		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Chrysene	<0.0310		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Dibenz (a,h) anthracene	<0.0150		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Dibenzofuran	<0.0140		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Di-n-butyl phthalate	<0.141		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
3,3-Dichlorobenzidine	<0.0480		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
1,2-Dichlorobenzene	<0.154		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
1,3-Dichlorobenzene	<0.143		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
1,4-Dichlorobenzene	<0.147		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2,4-Dichlorophenol	<0.131		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Diethyl phthalate	<0.148		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2,4-Dimethylphenol	<0.137		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Dimethyl phthalate	<0.157		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2,4-Dinitrophenol	<0.0990		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2,4-Dinitrotoluene	<0.140		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2,6-Dinitrotoluene	<0.150		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Di-n-octyl phthalate	<0.135		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Fluoranthene	<0.0110		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Fluorene	<0.0200		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Hexachlorobenzene	<0.153		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Hexachlorobutadiene	<0.174		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Hexachloroethane	<0.150		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Indeno (1,2,3-cd) pyrene	<0.0310		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Isophorone	<0.135		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2-Methylnaphthalene	<0.0210		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2-Methylphenol	<0.189		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
3/4-Methylphenol	<0.166		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Naphthalene	<0.0140		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Nitrobenzene	<0.159		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2-Nitrophenol	<0.196		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
4-Nitrophenol	<0.153		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Pentachlorophenol	<0.123		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270D						
11H0318-BLK1						
Phenanthrene	<0.0100		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Phenol	<0.131		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Pyrene	<0.0230		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
1,2,4-Trichlorobenzene	<0.144		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2,4,5-Trichlorophenol	<0.148		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
2,4,6-Trichlorophenol	<0.149		mg/kg wet	11H0318	11H0318-BLK1	08/07/11 15:02
Surrogate: 2-Fluorophenol	83%			11H0318	11H0318-BLK1	08/07/11 15:02
Surrogate: Phenol-d5	81%			11H0318	11H0318-BLK1	08/07/11 15:02
Surrogate: 2-Fluorobiphenyl	78%			11H0318	11H0318-BLK1	08/07/11 15:02
Surrogate: Nitrobenzene-d5	76%			11H0318	11H0318-BLK1	08/07/11 15:02
Surrogate: Terphenyl-d14	97%			11H0318	11H0318-BLK1	08/07/11 15:02
Surrogate: 2,4,6-Tribromophenol	81%			11H0318	11H0318-BLK1	08/07/11 15:02

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
Duplicate

Analyte	Orig. Val.	Duplicate	Q	Units	RPD	Limit	Batch	Sample Duplicated	% Rec.	Analyzed Date/Time
General Chemistry Parameters										
11H2020-DUP1										
% Dry Solids	90.7	91.5		%	0.9	20	11H2020	NUG4207-02		08/10/11 10:59
11H2021-DUP1										
% Dry Solids	83.0	82.3		%	0.9	20	11H2021	NUG4207-01		08/10/11 10:57

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
General Chemistry Parameters								
11H2048-BS1								
Total Organic Carbon	29900	31700		mg/kg wet	106%	80 - 120	11H2048	08/15/11 09:38
MADEP VPH								
11H0335-BS1								
Methyl tert-Butyl Ether	0.100	0.0966		mg/kg wet	97%	70 - 130	11H0335	08/02/11 10:22
Benzene	0.100	0.101		mg/kg wet	101%	70 - 130	11H0335	08/02/11 10:22
Toluene	0.100	0.0992		mg/kg wet	99%	70 - 130	11H0335	08/02/11 10:22
Ethylbenzene	0.100	0.102		mg/kg wet	102%	70 - 130	11H0335	08/02/11 10:22
m,p-Xylene	0.200	0.205		mg/kg wet	102%	70 - 130	11H0335	08/02/11 10:22
o-Xylene	0.100	0.101		mg/kg wet	101%	70 - 130	11H0335	08/02/11 10:22
Naphthalene	0.100	0.0963		mg/kg wet	96%	70 - 130	11H0335	08/02/11 10:22
C5 - C8 Aliphatic Hydrocarbons, Unadjusted	0.300	0.326		mg/kg wet	109%	70 - 130	11H0335	08/02/11 10:22
C9 - C12 Aliphatic Hydrocarbons, Unadjusted	0.200	0.207		mg/kg wet	103%	70 - 130	11H0335	08/02/11 10:22
C9 - C10 Aromatic Hydrocarbons	0.100	0.103		mg/kg wet	103%	70 - 130	11H0335	08/02/11 10:22
Surrogate: 2,5-Dibromotoluene (FID)	40.0	40.0			100%	70 - 130	11H0335	08/02/11 10:22
Surrogate: 2,5-Dibromotoluene (PID)	40.0	40.2			101%	70 - 130	11H0335	08/02/11 10:22
11H0638-BS1								
Methyl tert-Butyl Ether	0.100	0.0911		mg/kg wet	91%	70 - 130	11H0638	08/03/11 10:45
Benzene	0.100	0.0973		mg/kg wet	97%	70 - 130	11H0638	08/03/11 10:45
Toluene	0.100	0.0949		mg/kg wet	95%	70 - 130	11H0638	08/03/11 10:45
Ethylbenzene	0.100	0.0971		mg/kg wet	97%	70 - 130	11H0638	08/03/11 10:45
m,p-Xylene	0.200	0.195		mg/kg wet	98%	70 - 130	11H0638	08/03/11 10:45
o-Xylene	0.100	0.0962		mg/kg wet	96%	70 - 130	11H0638	08/03/11 10:45
Naphthalene	0.100	0.0912		mg/kg wet	91%	70 - 130	11H0638	08/03/11 10:45
C5 - C8 Aliphatic Hydrocarbons, Unadjusted	0.300	0.307		mg/kg wet	102%	70 - 130	11H0638	08/03/11 10:45
C9 - C12 Aliphatic Hydrocarbons, Unadjusted	0.200	0.214		mg/kg wet	107%	70 - 130	11H0638	08/03/11 10:45
C9 - C10 Aromatic Hydrocarbons	0.100	0.0983		mg/kg wet	98%	70 - 130	11H0638	08/03/11 10:45
Surrogate: 2,5-Dibromotoluene (FID)	40.0	38.8			97%	70 - 130	11H0638	08/03/11 10:45
Surrogate: 2,5-Dibromotoluene (PID)	40.0	37.6			94%	70 - 130	11H0638	08/03/11 10:45
11H0945-BS1								
Methyl tert-Butyl Ether	0.100	0.0928		mg/kg wet	93%	70 - 130	11H0945	08/04/11 12:51
Benzene	0.100	0.0939		mg/kg wet	94%	70 - 130	11H0945	08/04/11 12:51
Toluene	0.100	0.0919		mg/kg wet	92%	70 - 130	11H0945	08/04/11 12:51
Ethylbenzene	0.100	0.0944		mg/kg wet	94%	70 - 130	11H0945	08/04/11 12:51
m,p-Xylene	0.200	0.190		mg/kg wet	95%	70 - 130	11H0945	08/04/11 12:51
o-Xylene	0.100	0.0935		mg/kg wet	94%	70 - 130	11H0945	08/04/11 12:51
Naphthalene	0.100	0.0962		mg/kg wet	96%	70 - 130	11H0945	08/04/11 12:51
C5 - C8 Aliphatic Hydrocarbons, Unadjusted	0.300	0.292		mg/kg wet	97%	70 - 130	11H0945	08/04/11 12:51
C9 - C12 Aliphatic Hydrocarbons, Unadjusted	0.200	0.205		mg/kg wet	102%	70 - 130	11H0945	08/04/11 12:51
C9 - C10 Aromatic Hydrocarbons	0.100	0.0962		mg/kg wet	96%	70 - 130	11H0945	08/04/11 12:51

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
MADEP VPH								
11H0945-BS1								
Surrogate: 2,5-Dibromotoluene (FID)	40.0	41.1			103%	70 - 130	11H0945	08/04/11 12:51
Surrogate: 2,5-Dibromotoluene (PID)	40.0	40.5			101%	70 - 130	11H0945	08/04/11 12:51
MADEP EPH								
11H0317-BS1								
C9 - C18 Aliphatic Hydrocarbons	15.0	10.8		mg/kg wet	72%	40 - 140	11H0317	08/04/11 15:40
C19 - C36 Aliphatic Hydrocarbons	20.0	14.9		mg/kg wet	74%	40 - 140	11H0317	08/04/11 15:40
C11 - C22 Aromatic Hydrocarbons, Unadjustec	42.5	34.4		mg/kg wet	81%	40 - 140	11H0317	08/04/11 16:10
Surrogate: 1-Chlorooctadecane	4.00	3.16			79%	40 - 140	11H0317	08/04/11 15:40
Surrogate: o-Terphenyl	4.00	3.46			86%	40 - 140	11H0317	08/04/11 16:10
Surrogate: 2-Fluorobiphenyl	4.00	4.22			105%	40 - 140	11H0317	08/04/11 16:10
Surrogate: 2-Bromonaphthalene	4.00	4.12			103%	40 - 140	11H0317	08/04/11 16:10
11H0317-BS2								
2-Methylnaphthalene	2.50	1.83	T14	mg/kg wet	73%	40 - 140	11H0317	08/05/11 16:36
Acenaphthene	2.50	1.79	T14	mg/kg wet	72%	40 - 140	11H0317	08/05/11 16:36
Acenaphthylene	2.50	1.99	T14	mg/kg wet	80%	40 - 140	11H0317	08/05/11 16:36
Anthracene	2.50	2.18	T14	mg/kg wet	87%	40 - 140	11H0317	08/05/11 16:36
Benzo (a) anthracene	2.50	2.21	T14	mg/kg wet	88%	40 - 140	11H0317	08/05/11 16:36
Benzo (a) pyrene	2.50	2.27	T14	mg/kg wet	91%	40 - 140	11H0317	08/05/11 16:36
Benzo (b) fluoranthene	2.50	2.31	T14	mg/kg wet	92%	40 - 140	11H0317	08/05/11 16:36
Benzo (g,h,i) perylene	2.50	2.16	T14	mg/kg wet	86%	40 - 140	11H0317	08/05/11 16:36
Benzo (k) fluoranthene	2.50	1.93	T14	mg/kg wet	77%	40 - 140	11H0317	08/05/11 16:36
Chrysene	2.50	2.03	T14	mg/kg wet	81%	40 - 140	11H0317	08/05/11 16:36
Dibenz (a,h) anthracene	2.50	2.18	T14	mg/kg wet	87%	40 - 140	11H0317	08/05/11 16:36
Fluoranthene	2.50	2.15	T14	mg/kg wet	86%	40 - 140	11H0317	08/05/11 16:36
Fluorene	2.50	1.97	T14	mg/kg wet	79%	40 - 140	11H0317	08/05/11 16:36
Indeno (1,2,3-cd) pyrene	2.50	2.19	T14	mg/kg wet	88%	40 - 140	11H0317	08/05/11 16:36
Naphthalene	2.50	1.80	T14	mg/kg wet	72%	40 - 140	11H0317	08/05/11 16:36
Phenanthrene	2.50	2.14	T14	mg/kg wet	85%	40 - 140	11H0317	08/05/11 16:36
Pyrene	2.50	2.23	T14	mg/kg wet	89%	40 - 140	11H0317	08/05/11 16:36
Volatile Organic - MCP CAM Method 8260								
11H0292-BS1								
Acetone	250	327	L, B	ug/kg	131%	70 - 130	11H0292	08/07/11 09:02
Tert-Amyl Methyl Ether	50.0	48.9		ug/kg	98%	70 - 130	11H0292	08/07/11 09:02
Benzene	50.0	54.6		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
Bromobenzene	50.0	50.6		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02
Bromochloromethane	50.0	52.9		ug/kg	106%	70 - 130	11H0292	08/07/11 09:02
Bromodichloromethane	50.0	53.5		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Bromoform	50.0	40.4		ug/kg	81%	70 - 130	11H0292	08/07/11 09:02

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11H0292-BS1								
Bromomethane	50.0	56.4		ug/kg	113%	70 - 130	11H0292	08/07/11 09:02
2-Butanone	250	266	B	ug/kg	106%	70 - 130	11H0292	08/07/11 09:02
tert-Butylbenzene	50.0	55.4		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
n-Butylbenzene	50.0	48.9		ug/kg	98%	70 - 130	11H0292	08/07/11 09:02
sec-Butylbenzene	50.0	55.8		ug/kg	112%	70 - 130	11H0292	08/07/11 09:02
Carbon disulfide	50.0	53.6		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Carbon Tetrachloride	50.0	58.7		ug/kg	117%	70 - 130	11H0292	08/07/11 09:02
Chlorobenzene	50.0	53.3		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Chlorodibromomethane	50.0	50.4		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02
Chloroethane	50.0	52.4		ug/kg	105%	70 - 130	11H0292	08/07/11 09:02
Chloroform	50.0	53.9		ug/kg	108%	70 - 130	11H0292	08/07/11 09:02
Chloromethane	50.0	54.5		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
2-Chlorotoluene	50.0	53.5		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
4-Chlorotoluene	50.0	56.1		ug/kg	112%	70 - 130	11H0292	08/07/11 09:02
1,2-Dibromo-3-chloropropane	50.0	44.2		ug/kg	88%	70 - 130	11H0292	08/07/11 09:02
1,2-Dibromoethane (EDB)	50.0	54.3		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
Dibromomethane	50.0	50.0		ug/kg	100%	70 - 130	11H0292	08/07/11 09:02
1,2-Dichlorobenzene	50.0	54.2		ug/kg	108%	70 - 130	11H0292	08/07/11 09:02
1,3-Dichlorobenzene	50.0	55.4		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
1,4-Dichlorobenzene	50.0	53.7		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Dichlorodifluoromethane	50.0	61.7		ug/kg	123%	70 - 130	11H0292	08/07/11 09:02
1,2-Dichloroethane	50.0	52.2		ug/kg	104%	70 - 130	11H0292	08/07/11 09:02
1,1-Dichloroethane	50.0	52.9		ug/kg	106%	70 - 130	11H0292	08/07/11 09:02
1,1-Dichloroethene	50.0	53.3		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
trans-1,2-Dichloroethene	50.0	54.2		ug/kg	108%	70 - 130	11H0292	08/07/11 09:02
cis-1,2-Dichloroethene	50.0	55.5		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
1,3-Dichloropropane	50.0	53.0		ug/kg	106%	70 - 130	11H0292	08/07/11 09:02
2,2-Dichloropropane	50.0	66.4	L	ug/kg	133%	70 - 130	11H0292	08/07/11 09:02
1,2-Dichloropropane	50.0	50.4		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02
trans-1,3-Dichloropropene	50.0	50.3		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02
1,1-Dichloropropene	50.0	55.3		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
cis-1,3-Dichloropropene	50.0	60.1		ug/kg	120%	70 - 130	11H0292	08/07/11 09:02
Diethyl ether	50.0	51.1		ug/kg	102%	70 - 130	11H0292	08/07/11 09:02
1,4-Dioxane	5000	3910		ug/kg	78%	70 - 130	11H0292	08/07/11 09:02
Ethylbenzene	50.0	55.4		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
Ethyl tert-Butyl Ether	50.0	48.0		ug/kg	96%	70 - 130	11H0292	08/07/11 09:02
Hexachlorobutadiene	50.0	60.6		ug/kg	121%	70 - 130	11H0292	08/07/11 09:02
2-Hexanone	250	284		ug/kg	114%	70 - 130	11H0292	08/07/11 09:02
Isopropylbenzene	50.0	42.0		ug/kg	84%	70 - 130	11H0292	08/07/11 09:02
Diisopropyl Ether	50.0	50.9		ug/kg	102%	70 - 130	11H0292	08/07/11 09:02
p-Isopropyltoluene	50.0	55.0		ug/kg	110%	70 - 130	11H0292	08/07/11 09:02

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11H0292-BS1								
Methyl tert-Butyl Ether	50.0	50.4		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02
Methylene Chloride	50.0	54.0		ug/kg	108%	70 - 130	11H0292	08/07/11 09:02
4-Methyl-2-pentanone	250	232		ug/kg	93%	70 - 130	11H0292	08/07/11 09:02
Naphthalene	50.0	45.8		ug/kg	92%	70 - 130	11H0292	08/07/11 09:02
n-Propylbenzene	50.0	54.4		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
Styrene	50.0	48.4		ug/kg	97%	70 - 130	11H0292	08/07/11 09:02
1,1,2,2-Tetrachloroethane	50.0	47.2		ug/kg	94%	70 - 130	11H0292	08/07/11 09:02
1,1,1,2-Tetrachloroethane	50.0	56.4		ug/kg	113%	70 - 130	11H0292	08/07/11 09:02
Tetrachloroethene	50.0	56.3		ug/kg	113%	70 - 130	11H0292	08/07/11 09:02
Tetrahydrofuran	500	471	B	ug/kg	94%	70 - 130	11H0292	08/07/11 09:02
Toluene	50.0	51.8		ug/kg	104%	70 - 130	11H0292	08/07/11 09:02
1,2,4-Trichlorobenzene	50.0	54.7		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
1,2,3-Trichlorobenzene	50.0	47.1		ug/kg	94%	70 - 130	11H0292	08/07/11 09:02
1,1,1-Trichloroethane	50.0	56.8		ug/kg	114%	70 - 130	11H0292	08/07/11 09:02
1,1,2-Trichloroethane	50.0	53.7		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Trichloroethene	50.0	53.4		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Trichlorofluoromethane	50.0	54.7		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
1,2,3-Trichloropropane	50.0	47.8		ug/kg	96%	70 - 130	11H0292	08/07/11 09:02
1,3,5-Trimethylbenzene	50.0	56.2		ug/kg	112%	70 - 130	11H0292	08/07/11 09:02
1,2,4-Trimethylbenzene	50.0	55.9		ug/kg	112%	70 - 130	11H0292	08/07/11 09:02
Vinyl chloride	50.0	58.7		ug/kg	117%	70 - 130	11H0292	08/07/11 09:02
Xylenes, total	150	157		ug/kg	105%	70 - 130	11H0292	08/07/11 09:02
1,1,2-Trifluorotrichloroethane	50.0	57.4		ug/kg	115%	61 - 134	11H0292	08/07/11 09:02
Surrogate: 1,2-Dichloroethane-d4	25.0	24.6			98%	70 - 130	11H0292	08/07/11 09:02
Surrogate: Dibromofluoromethane	25.0	25.5			102%	70 - 130	11H0292	08/07/11 09:02
Surrogate: Toluene-d8	25.0	24.1			96%	70 - 130	11H0292	08/07/11 09:02
Surrogate: 4-Bromofluorobenzene	25.0	24.8			99%	70 - 130	11H0292	08/07/11 09:02
11H1969-BS1								
Acetone	250	407	L	ug/kg	163%	70 - 130	11H1969	08/08/11 18:41
Tert-Amyl Methyl Ether	50.0	44.8		ug/kg	90%	70 - 130	11H1969	08/08/11 18:41
Benzene	50.0	48.3		ug/kg	97%	70 - 130	11H1969	08/08/11 18:41
Bromobenzene	50.0	44.0		ug/kg	88%	70 - 130	11H1969	08/08/11 18:41
Bromochloromethane	50.0	51.9		ug/kg	104%	70 - 130	11H1969	08/08/11 18:41
Bromodichloromethane	50.0	52.3		ug/kg	105%	70 - 130	11H1969	08/08/11 18:41
Bromoform	50.0	50.5		ug/kg	101%	70 - 130	11H1969	08/08/11 18:41
Bromomethane	50.0	44.7		ug/kg	89%	70 - 130	11H1969	08/08/11 18:41
2-Butanone	250	305		ug/kg	122%	70 - 130	11H1969	08/08/11 18:41
tert-Butylbenzene	50.0	48.0		ug/kg	96%	70 - 130	11H1969	08/08/11 18:41
n-Butylbenzene	50.0	50.4		ug/kg	101%	70 - 130	11H1969	08/08/11 18:41
sec-Butylbenzene	50.0	47.8		ug/kg	96%	70 - 130	11H1969	08/08/11 18:41

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11H1969-BS1								
Carbon disulfide	50.0	45.2		ug/kg	90%	70 - 130	11H1969	08/08/11 18:41
Carbon Tetrachloride	50.0	58.7		ug/kg	117%	70 - 130	11H1969	08/08/11 18:41
Chlorobenzene	50.0	49.3		ug/kg	99%	70 - 130	11H1969	08/08/11 18:41
Chlorodibromomethane	50.0	57.1		ug/kg	114%	70 - 130	11H1969	08/08/11 18:41
Chloroethane	50.0	44.3		ug/kg	89%	70 - 130	11H1969	08/08/11 18:41
Chloroform	50.0	52.0		ug/kg	104%	70 - 130	11H1969	08/08/11 18:41
Chloromethane	50.0	33.6	L2	ug/kg	67%	70 - 130	11H1969	08/08/11 18:41
2-Chlorotoluene	50.0	44.2		ug/kg	88%	70 - 130	11H1969	08/08/11 18:41
4-Chlorotoluene	50.0	46.8		ug/kg	94%	70 - 130	11H1969	08/08/11 18:41
1,2-Dibromo-3-chloropropane	50.0	51.6		ug/kg	103%	70 - 130	11H1969	08/08/11 18:41
1,2-Dibromoethane (EDB)	50.0	51.0		ug/kg	102%	70 - 130	11H1969	08/08/11 18:41
Dibromomethane	50.0	52.2		ug/kg	104%	70 - 130	11H1969	08/08/11 18:41
1,2-Dichlorobenzene	50.0	53.4		ug/kg	107%	70 - 130	11H1969	08/08/11 18:41
1,3-Dichlorobenzene	50.0	49.3		ug/kg	99%	70 - 130	11H1969	08/08/11 18:41
1,4-Dichlorobenzene	50.0	50.0		ug/kg	100%	70 - 130	11H1969	08/08/11 18:41
Dichlorodifluoromethane	50.0	31.2	L2	ug/kg	62%	70 - 130	11H1969	08/08/11 18:41
1,2-Dichloroethane	50.0	52.7		ug/kg	105%	70 - 130	11H1969	08/08/11 18:41
1,1-Dichloroethane	50.0	50.0		ug/kg	100%	70 - 130	11H1969	08/08/11 18:41
1,1-Dichloroethene	50.0	51.0		ug/kg	102%	70 - 130	11H1969	08/08/11 18:41
trans-1,2-Dichloroethene	50.0	50.4		ug/kg	101%	70 - 130	11H1969	08/08/11 18:41
cis-1,2-Dichloroethene	50.0	49.0		ug/kg	98%	70 - 130	11H1969	08/08/11 18:41
1,3-Dichloropropane	50.0	48.0		ug/kg	96%	70 - 130	11H1969	08/08/11 18:41
2,2-Dichloropropane	50.0	53.3		ug/kg	107%	70 - 130	11H1969	08/08/11 18:41
1,2-Dichloropropane	50.0	44.7		ug/kg	89%	70 - 130	11H1969	08/08/11 18:41
trans-1,3-Dichloropropene	50.0	50.9		ug/kg	102%	70 - 130	11H1969	08/08/11 18:41
1,1-Dichloropropene	50.0	50.6		ug/kg	101%	70 - 130	11H1969	08/08/11 18:41
cis-1,3-Dichloropropene	50.0	51.0		ug/kg	102%	70 - 130	11H1969	08/08/11 18:41
Diethyl ether	50.0	49.0		ug/kg	98%	70 - 130	11H1969	08/08/11 18:41
1,4-Dioxane	5000	6510		ug/kg	130%	70 - 130	11H1969	08/08/11 18:41
Ethylbenzene	50.0	47.8		ug/kg	96%	70 - 130	11H1969	08/08/11 18:41
Ethyl tert-Butyl Ether	50.0	43.7		ug/kg	87%	70 - 130	11H1969	08/08/11 18:41
Hexachlorobutadiene	50.0	50.4		ug/kg	101%	70 - 130	11H1969	08/08/11 18:41
2-Hexanone	250	281		ug/kg	112%	70 - 130	11H1969	08/08/11 18:41
Isopropylbenzene	50.0	53.9		ug/kg	108%	70 - 130	11H1969	08/08/11 18:41
Diisopropyl Ether	50.0	43.1		ug/kg	86%	70 - 130	11H1969	08/08/11 18:41
p-Isopropyltoluene	50.0	47.9		ug/kg	96%	70 - 130	11H1969	08/08/11 18:41
Methyl tert-Butyl Ether	50.0	48.2		ug/kg	96%	70 - 130	11H1969	08/08/11 18:41
Methylene Chloride	50.0	50.7		ug/kg	101%	70 - 130	11H1969	08/08/11 18:41
4-Methyl-2-pentanone	250	240		ug/kg	96%	70 - 130	11H1969	08/08/11 18:41
Naphthalene	50.0	49.8		ug/kg	100%	70 - 130	11H1969	08/08/11 18:41
n-Propylbenzene	50.0	45.3		ug/kg	91%	70 - 130	11H1969	08/08/11 18:41

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11H1969-BS1								
Styrene	50.0	49.8		ug/kg	100%	70 - 130	11H1969	08/08/11 18:41
1,1,2,2-Tetrachloroethane	50.0	46.4		ug/kg	93%	70 - 130	11H1969	08/08/11 18:41
1,1,1,2-Tetrachloroethane	50.0	53.7		ug/kg	107%	70 - 130	11H1969	08/08/11 18:41
Tetrachloroethene	50.0	53.1		ug/kg	106%	70 - 130	11H1969	08/08/11 18:41
Tetrahydrofuran	500	468		ug/kg	94%	70 - 130	11H1969	08/08/11 18:41
Toluene	50.0	47.2		ug/kg	94%	70 - 130	11H1969	08/08/11 18:41
1,2,4-Trichlorobenzene	50.0	52.6		ug/kg	105%	70 - 130	11H1969	08/08/11 18:41
1,2,3-Trichlorobenzene	50.0	53.3		ug/kg	107%	70 - 130	11H1969	08/08/11 18:41
1,1,1-Trichloroethane	50.0	54.9		ug/kg	110%	70 - 130	11H1969	08/08/11 18:41
1,1,2-Trichloroethane	50.0	50.3		ug/kg	101%	70 - 130	11H1969	08/08/11 18:41
Trichloroethene	50.0	53.2		ug/kg	106%	70 - 130	11H1969	08/08/11 18:41
Trichlorofluoromethane	50.0	49.7		ug/kg	99%	70 - 130	11H1969	08/08/11 18:41
1,2,3-Trichloropropane	50.0	48.2		ug/kg	96%	70 - 130	11H1969	08/08/11 18:41
1,3,5-Trimethylbenzene	50.0	46.7		ug/kg	93%	70 - 130	11H1969	08/08/11 18:41
1,2,4-Trimethylbenzene	50.0	45.6		ug/kg	91%	70 - 130	11H1969	08/08/11 18:41
Vinyl chloride	50.0	40.6		ug/kg	81%	70 - 130	11H1969	08/08/11 18:41
Xylenes, total	150	146		ug/kg	98%	70 - 130	11H1969	08/08/11 18:41
1,1,2-Trifluorotrichloroethane	50.0	53.4		ug/kg	107%	61 - 134	11H1969	08/08/11 18:41
Surrogate: 1,2-Dichloroethane-d4	25.0	25.9			104%	70 - 130	11H1969	08/08/11 18:41
Surrogate: Dibromofluoromethane	25.0	26.8			107%	70 - 130	11H1969	08/08/11 18:41
Surrogate: Toluene-d8	25.0	23.8			95%	70 - 130	11H1969	08/08/11 18:41
Surrogate: 4-Bromofluorobenzene	25.0	22.6			90%	70 - 130	11H1969	08/08/11 18:41
11H2363-BS1								
Acetone	250	337	L	ug/kg	135%	70 - 130	11H2363	08/08/11 13:52
Tert-Amyl Methyl Ether	50.0	59.5		ug/kg	119%	70 - 130	11H2363	08/08/11 13:52
Benzene	50.0	53.0		ug/kg	106%	70 - 130	11H2363	08/08/11 13:52
Bromobenzene	50.0	48.0		ug/kg	96%	70 - 130	11H2363	08/08/11 13:52
Bromochloromethane	50.0	51.7		ug/kg	103%	70 - 130	11H2363	08/08/11 13:52
Bromodichloromethane	50.0	51.7		ug/kg	103%	70 - 130	11H2363	08/08/11 13:52
Bromoform	50.0	51.8		ug/kg	104%	70 - 130	11H2363	08/08/11 13:52
Bromomethane	50.0	53.0		ug/kg	106%	70 - 130	11H2363	08/08/11 13:52
2-Butanone	250	287		ug/kg	115%	70 - 130	11H2363	08/08/11 13:52
tert-Butylbenzene	50.0	57.4		ug/kg	115%	70 - 130	11H2363	08/08/11 13:52
n-Butylbenzene	50.0	50.8		ug/kg	102%	70 - 130	11H2363	08/08/11 13:52
sec-Butylbenzene	50.0	58.0		ug/kg	116%	70 - 130	11H2363	08/08/11 13:52
Carbon disulfide	50.0	52.4		ug/kg	105%	70 - 130	11H2363	08/08/11 13:52
Carbon Tetrachloride	50.0	59.0		ug/kg	118%	70 - 130	11H2363	08/08/11 13:52
Chlorobenzene	50.0	53.5		ug/kg	107%	70 - 130	11H2363	08/08/11 13:52
Chlorodibromomethane	50.0	48.9		ug/kg	98%	70 - 130	11H2363	08/08/11 13:52
Chloroethane	50.0	48.7		ug/kg	97%	70 - 130	11H2363	08/08/11 13:52

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11H2363-BS1								
Chloroform	50.0	52.8		ug/kg	106%	70 - 130	11H2363	08/08/11 13:52
Chloromethane	50.0	39.8		ug/kg	80%	70 - 130	11H2363	08/08/11 13:52
2-Chlorotoluene	50.0	51.5		ug/kg	103%	70 - 130	11H2363	08/08/11 13:52
4-Chlorotoluene	50.0	54.7		ug/kg	109%	70 - 130	11H2363	08/08/11 13:52
1,2-Dibromo-3-chloropropane	50.0	46.2		ug/kg	92%	70 - 130	11H2363	08/08/11 13:52
1,2-Dibromoethane (EDB)	50.0	50.6		ug/kg	101%	70 - 130	11H2363	08/08/11 13:52
Dibromomethane	50.0	47.7		ug/kg	95%	70 - 130	11H2363	08/08/11 13:52
1,2-Dichlorobenzene	50.0	56.3		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52
1,3-Dichlorobenzene	50.0	56.6		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52
1,4-Dichlorobenzene	50.0	56.2		ug/kg	112%	70 - 130	11H2363	08/08/11 13:52
Dichlorodifluoromethane	50.0	49.8		ug/kg	100%	70 - 130	11H2363	08/08/11 13:52
1,2-Dichloroethane	50.0	48.1		ug/kg	96%	70 - 130	11H2363	08/08/11 13:52
1,1-Dichloroethane	50.0	51.5		ug/kg	103%	70 - 130	11H2363	08/08/11 13:52
1,1-Dichloroethene	50.0	52.5		ug/kg	105%	70 - 130	11H2363	08/08/11 13:52
trans-1,2-Dichloroethene	50.0	51.2		ug/kg	102%	70 - 130	11H2363	08/08/11 13:52
cis-1,2-Dichloroethene	50.0	51.8		ug/kg	104%	70 - 130	11H2363	08/08/11 13:52
1,3-Dichloropropane	50.0	47.2		ug/kg	94%	70 - 130	11H2363	08/08/11 13:52
2,2-Dichloropropane	50.0	68.3	L	ug/kg	137%	70 - 130	11H2363	08/08/11 13:52
1,2-Dichloropropane	50.0	47.1		ug/kg	94%	70 - 130	11H2363	08/08/11 13:52
trans-1,3-Dichloropropene	50.0	46.6		ug/kg	93%	70 - 130	11H2363	08/08/11 13:52
1,1-Dichloropropene	50.0	53.2		ug/kg	106%	70 - 130	11H2363	08/08/11 13:52
cis-1,3-Dichloropropene	50.0	60.3		ug/kg	121%	70 - 130	11H2363	08/08/11 13:52
Diethyl ether	50.0	49.4		ug/kg	99%	70 - 130	11H2363	08/08/11 13:52
1,4-Dioxane	5000	3490		ug/kg	70%	70 - 130	11H2363	08/08/11 13:52
Ethylbenzene	50.0	55.2		ug/kg	110%	70 - 130	11H2363	08/08/11 13:52
Ethyl tert-Butyl Ether	50.0	53.4		ug/kg	107%	70 - 130	11H2363	08/08/11 13:52
Hexachlorobutadiene	50.0	58.4		ug/kg	117%	70 - 130	11H2363	08/08/11 13:52
2-Hexanone	250	274		ug/kg	109%	70 - 130	11H2363	08/08/11 13:52
Isopropylbenzene	50.0	65.9	L1	ug/kg	132%	70 - 130	11H2363	08/08/11 13:52
Diisopropyl Ether	50.0	48.8		ug/kg	98%	70 - 130	11H2363	08/08/11 13:52
p-Isopropyltoluene	50.0	58.4		ug/kg	117%	70 - 130	11H2363	08/08/11 13:52
Methyl tert-Butyl Ether	50.0	56.1		ug/kg	112%	70 - 130	11H2363	08/08/11 13:52
Methylene Chloride	50.0	51.0		ug/kg	102%	70 - 130	11H2363	08/08/11 13:52
4-Methyl-2-pentanone	250	223		ug/kg	89%	70 - 130	11H2363	08/08/11 13:52
Naphthalene	50.0	50.5		ug/kg	101%	70 - 130	11H2363	08/08/11 13:52
n-Propylbenzene	50.0	54.2		ug/kg	108%	70 - 130	11H2363	08/08/11 13:52
Styrene	50.0	60.3		ug/kg	121%	70 - 130	11H2363	08/08/11 13:52
1,1,2,2-Tetrachloroethane	50.0	43.8		ug/kg	88%	70 - 130	11H2363	08/08/11 13:52
1,1,1,2-Tetrachloroethane	50.0	58.6		ug/kg	117%	70 - 130	11H2363	08/08/11 13:52
Tetrachloroethene	50.0	54.2		ug/kg	108%	70 - 130	11H2363	08/08/11 13:52
Tetrahydrofuran	500	458		ug/kg	92%	70 - 130	11H2363	08/08/11 13:52

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11H2363-BS1								
Toluene	50.0	48.1		ug/kg	96%	70 - 130	11H2363	08/08/11 13:52
1,2,4-Trichlorobenzene	50.0	56.6		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52
1,2,3-Trichlorobenzene	50.0	51.1		ug/kg	102%	70 - 130	11H2363	08/08/11 13:52
1,1,1-Trichloroethane	50.0	58.0		ug/kg	116%	70 - 130	11H2363	08/08/11 13:52
1,1,2-Trichloroethane	50.0	49.8		ug/kg	100%	70 - 130	11H2363	08/08/11 13:52
Trichloroethene	50.0	53.6		ug/kg	107%	70 - 130	11H2363	08/08/11 13:52
Trichlorofluoromethane	50.0	49.2		ug/kg	98%	70 - 130	11H2363	08/08/11 13:52
1,2,3-Trichloropropane	50.0	47.1		ug/kg	94%	70 - 130	11H2363	08/08/11 13:52
1,3,5-Trimethylbenzene	50.0	56.6		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52
1,2,4-Trimethylbenzene	50.0	56.4		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52
Vinyl chloride	50.0	47.1		ug/kg	94%	70 - 130	11H2363	08/08/11 13:52
Xylenes, total	150	170		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52
Surrogate: 1,2-Dichloroethane-d4	25.0	22.5			90%	70 - 130	11H2363	08/08/11 13:52
Surrogate: Dibromofluoromethane	25.0	24.0			96%	70 - 130	11H2363	08/08/11 13:52
Surrogate: Toluene-d8	25.0	21.4			86%	70 - 130	11H2363	08/08/11 13:52
Surrogate: 4-Bromofluorobenzene	25.0	23.9			95%	70 - 130	11H2363	08/08/11 13:52
Total Metals by EPA 6010C								
11H0287-BS1								
Iron	395	426		mg/kg	108%	80 - 120	11H0287	08/06/11 02:25
Manganese	198	203		mg/kg	103%	80 - 120	11H0287	08/06/11 02:25
Semivolatile Organic Compounds by EPA Method 8270D								
11H0318-BS1								
Acenaphthene	3.33	3.04		mg/kg wet	91%	40 - 140	11H0318	08/07/11 10:43
Acenaphthylene	3.33	2.95		mg/kg wet	88%	40 - 140	11H0318	08/07/11 10:43
Azobenzene	3.33	2.98		mg/kg wet	89%	40 - 140	11H0318	08/07/11 10:43
Aniline	3.33	4.63		mg/kg wet	139%	40 - 140	11H0318	08/07/11 10:43
Anthracene	3.33	3.17		mg/kg wet	95%	40 - 140	11H0318	08/07/11 10:43
Benzo (a) anthracene	3.33	3.14		mg/kg wet	94%	40 - 140	11H0318	08/07/11 10:43
Benzo (a) pyrene	3.33	3.32		mg/kg wet	100%	40 - 140	11H0318	08/07/11 10:43
Benzo (b) fluoranthene	3.33	3.20		mg/kg wet	96%	40 - 140	11H0318	08/07/11 10:43
Benzo (g,h,i) perylene	3.33	3.29		mg/kg wet	99%	40 - 140	11H0318	08/07/11 10:43
Benzo (k) fluoranthene	3.33	3.00		mg/kg wet	90%	40 - 140	11H0318	08/07/11 10:43
Bis(2-chloroethoxy)methane	3.33	2.87		mg/kg wet	86%	40 - 140	11H0318	08/07/11 10:43
Bis(2-chloroethyl)ether	3.33	2.84		mg/kg wet	85%	40 - 140	11H0318	08/07/11 10:43
Bis(2-chloroisopropyl)ether	3.33	2.87		mg/kg wet	86%	40 - 140	11H0318	08/07/11 10:43
Bis(2-ethylhexyl)phthalate	3.33	3.22		mg/kg wet	96%	40 - 140	11H0318	08/07/11 10:43
4-Bromophenyl phenyl ether	3.33	3.02		mg/kg wet	91%	40 - 140	11H0318	08/07/11 10:43
Butyl benzyl phthalate	3.33	3.24		mg/kg wet	97%	40 - 140	11H0318	08/07/11 10:43
4-Chloroaniline	3.33	3.24		mg/kg wet	97%	40 - 140	11H0318	08/07/11 10:43

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270D								
11H0318-BS1								
2-Chloronaphthalene	3.33	2.63		mg/kg wet	79%	40 - 140	11H0318	08/07/11 10:43
2-Chlorophenol	3.33	3.15		mg/kg wet	95%	30 - 130	11H0318	08/07/11 10:43
4-Chlorophenyl phenyl ether	3.33	2.98		mg/kg wet	89%	40 - 140	11H0318	08/07/11 10:43
Chrysene	3.33	3.00		mg/kg wet	90%	40 - 140	11H0318	08/07/11 10:43
Dibenz (a,h) anthracene	3.33	3.48		mg/kg wet	104%	40 - 140	11H0318	08/07/11 10:43
Dibenzofuran	3.33	3.11		mg/kg wet	93%	40 - 140	11H0318	08/07/11 10:43
Di-n-butyl phthalate	3.33	3.09		mg/kg wet	93%	40 - 140	11H0318	08/07/11 10:43
3,3-Dichlorobenzidine	3.33	3.13		mg/kg wet	94%	40 - 140	11H0318	08/07/11 10:43
1,2-Dichlorobenzene	3.33	2.66		mg/kg wet	80%	40 - 140	11H0318	08/07/11 10:43
1,3-Dichlorobenzene	3.33	2.54		mg/kg wet	76%	40 - 140	11H0318	08/07/11 10:43
1,4-Dichlorobenzene	3.33	2.47		mg/kg wet	74%	40 - 140	11H0318	08/07/11 10:43
2,4-Dichlorophenol	3.33	2.84		mg/kg wet	85%	30 - 130	11H0318	08/07/11 10:43
Diethyl phthalate	3.33	2.95		mg/kg wet	88%	40 - 140	11H0318	08/07/11 10:43
2,4-Dimethylphenol	3.33	3.11		mg/kg wet	93%	30 - 130	11H0318	08/07/11 10:43
Dimethyl phthalate	3.33	2.92		mg/kg wet	87%	40 - 140	11H0318	08/07/11 10:43
2,4-Dinitrophenol	3.33	2.20		mg/kg wet	66%	30 - 130	11H0318	08/07/11 10:43
2,4-Dinitrotoluene	3.33	2.81		mg/kg wet	84%	40 - 140	11H0318	08/07/11 10:43
2,6-Dinitrotoluene	3.33	2.64		mg/kg wet	79%	40 - 140	11H0318	08/07/11 10:43
Di-n-octyl phthalate	3.33	3.27		mg/kg wet	98%	40 - 140	11H0318	08/07/11 10:43
Fluoranthene	3.33	3.20		mg/kg wet	96%	40 - 140	11H0318	08/07/11 10:43
Fluorene	3.33	3.31		mg/kg wet	99%	40 - 140	11H0318	08/07/11 10:43
Hexachlorobenzene	3.33	2.96		mg/kg wet	89%	40 - 140	11H0318	08/07/11 10:43
Hexachlorobutadiene	3.33	3.03		mg/kg wet	91%	40 - 140	11H0318	08/07/11 10:43
Hexachloroethane	3.33	2.62		mg/kg wet	79%	40 - 140	11H0318	08/07/11 10:43
Indeno (1,2,3-cd) pyrene	3.33	3.40		mg/kg wet	102%	40 - 140	11H0318	08/07/11 10:43
Isophorone	3.33	2.52		mg/kg wet	76%	40 - 140	11H0318	08/07/11 10:43
2-Methylnaphthalene	3.33	2.91		mg/kg wet	87%	40 - 140	11H0318	08/07/11 10:43
2-Methylphenol	3.33	2.88		mg/kg wet	86%	30 - 130	11H0318	08/07/11 10:43
3/4-Methylphenol	3.33	2.78		mg/kg wet	83%	30 - 130	11H0318	08/07/11 10:43
Naphthalene	3.33	3.23		mg/kg wet	97%	40 - 140	11H0318	08/07/11 10:43
Nitrobenzene	3.33	2.29		mg/kg wet	69%	40 - 140	11H0318	08/07/11 10:43
2-Nitrophenol	3.33	2.87		mg/kg wet	86%	30 - 130	11H0318	08/07/11 10:43
4-Nitrophenol	3.33	2.90		mg/kg wet	87%	30 - 130	11H0318	08/07/11 10:43
Pentachlorophenol	3.33	3.51		mg/kg wet	105%	30 - 130	11H0318	08/07/11 10:43
Phenanthrene	3.33	3.10		mg/kg wet	93%	40 - 140	11H0318	08/07/11 10:43
Phenol	3.33	2.92		mg/kg wet	88%	30 - 130	11H0318	08/07/11 10:43
Pyrene	3.33	3.04		mg/kg wet	91%	40 - 140	11H0318	08/07/11 10:43
1,2,4-Trichlorobenzene	3.33	2.43		mg/kg wet	73%	40 - 140	11H0318	08/07/11 10:43
2,4,5-Trichlorophenol	3.33	2.66		mg/kg wet	80%	30 - 130	11H0318	08/07/11 10:43
2,4,6-Trichlorophenol	3.33	3.21		mg/kg wet	96%	30 - 130	11H0318	08/07/11 10:43
Surrogate: 2-Fluorophenol	3.33	2.82			85%	30 - 130	11H0318	08/07/11 10:43

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270D								
11H0318-BS1								
Surrogate: Phenol-d5	3.33	2.58			78%	30 - 130	11H0318	08/07/11 10:43
Surrogate: 2-Fluorobiphenyl	3.33	2.57			77%	30 - 130	11H0318	08/07/11 10:43
Surrogate: Nitrobenzene-d5	3.33	2.36			71%	30 - 130	11H0318	08/07/11 10:43
Surrogate: Terphenyl-d14	3.33	3.05			92%	30 - 130	11H0318	08/07/11 10:43
Surrogate: 2,4,6-Tribromophenol	3.33	2.62			79%	30 - 130	11H0318	08/07/11 10:43

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS Dup

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
MADEP VPH												
11H0335-BSD1												
Methyl tert-Butyl Ether		0.0973		mg/kg wet	0.100	97%	70 - 130	0.8	25	11H0335		08/02/11 10:52
Benzene		0.0988		mg/kg wet	0.100	99%	70 - 130	2	25	11H0335		08/02/11 10:52
Toluene		0.0966		mg/kg wet	0.100	97%	70 - 130	3	25	11H0335		08/02/11 10:52
Ethylbenzene		0.0991		mg/kg wet	0.100	99%	70 - 130	3	25	11H0335		08/02/11 10:52
m,p-Xylene		0.200		mg/kg wet	0.200	100%	70 - 130	2	25	11H0335		08/02/11 10:52
o-Xylene		0.0981		mg/kg wet	0.100	98%	70 - 130	3	25	11H0335		08/02/11 10:52
Naphthalene		0.0970		mg/kg wet	0.100	97%	70 - 130	0.7	25	11H0335		08/02/11 10:52
C5 - C8 Aliphatic Hydrocarbons, Unadjusted		0.316		mg/kg wet	0.300	105%	70 - 130	3	25	11H0335		08/02/11 10:52
C9 - C12 Aliphatic Hydrocarbons, Unadjusted		0.217		mg/kg wet	0.200	109%	70 - 130	5	25	11H0335		08/02/11 10:52
C9 - C10 Aromatic Hydrocarbons		0.101		mg/kg wet	0.100	101%	70 - 130	3	25	11H0335		08/02/11 10:52
Surrogate: 2,5-Dibromotoluene (FID)		39.1		ug/L	40.0	98%	70 - 130			11H0335		08/02/11 10:52
Surrogate: 2,5-Dibromotoluene (PID)		37.5		ug/L	40.0	94%	70 - 130			11H0335		08/02/11 10:52
11H0638-BSD1												
Methyl tert-Butyl Ether		0.0948		mg/kg wet	0.100	95%	70 - 130	4	25	11H0638		08/03/11 11:15
Benzene		0.0964		mg/kg wet	0.100	96%	70 - 130	0.9	25	11H0638		08/03/11 11:15
Toluene		0.0939		mg/kg wet	0.100	94%	70 - 130	1	25	11H0638		08/03/11 11:15
Ethylbenzene		0.0964		mg/kg wet	0.100	96%	70 - 130	0.7	25	11H0638		08/03/11 11:15
m,p-Xylene		0.194		mg/kg wet	0.200	97%	70 - 130	0.5	25	11H0638		08/03/11 11:15
o-Xylene		0.0958		mg/kg wet	0.100	96%	70 - 130	0.4	25	11H0638		08/03/11 11:15
Naphthalene		0.0956		mg/kg wet	0.100	96%	70 - 130	5	25	11H0638		08/03/11 11:15
C5 - C8 Aliphatic Hydrocarbons, Unadjusted		0.299		mg/kg wet	0.300	100%	70 - 130	2	25	11H0638		08/03/11 11:15
C9 - C12 Aliphatic Hydrocarbons, Unadjusted		0.214		mg/kg wet	0.200	107%	70 - 130	0.009	25	11H0638		08/03/11 11:15
C9 - C10 Aromatic Hydrocarbons		0.0976		mg/kg wet	0.100	98%	70 - 130	0.7	25	11H0638		08/03/11 11:15
Surrogate: 2,5-Dibromotoluene (FID)		38.2		ug/L	40.0	96%	70 - 130			11H0638		08/03/11 11:15
Surrogate: 2,5-Dibromotoluene (PID)		37.9		ug/L	40.0	95%	70 - 130			11H0638		08/03/11 11:15
11H0945-BSD1												
Methyl tert-Butyl Ether		0.0976		mg/kg wet	0.100	98%	70 - 130	5	25	11H0945		08/04/11 13:21
Benzene		0.0979		mg/kg wet	0.100	98%	70 - 130	4	25	11H0945		08/04/11 13:21
Toluene		0.0956		mg/kg wet	0.100	96%	70 - 130	4	25	11H0945		08/04/11 13:21
Ethylbenzene		0.0987		mg/kg wet	0.100	99%	70 - 130	4	25	11H0945		08/04/11 13:21
m,p-Xylene		0.199		mg/kg wet	0.200	99%	70 - 130	5	25	11H0945		08/04/11 13:21
o-Xylene		0.0979		mg/kg wet	0.100	98%	70 - 130	5	25	11H0945		08/04/11 13:21
Naphthalene		0.101		mg/kg wet	0.100	101%	70 - 130	5	25	11H0945		08/04/11 13:21
C5 - C8 Aliphatic Hydrocarbons, Unadjusted		0.305		mg/kg wet	0.300	102%	70 - 130	5	25	11H0945		08/04/11 13:21
C9 - C12 Aliphatic Hydrocarbons, Unadjusted		0.213		mg/kg wet	0.200	107%	70 - 130	4	25	11H0945		08/04/11 13:21
C9 - C10 Aromatic Hydrocarbons		0.100		mg/kg wet	0.100	100%	70 - 130	4	25	11H0945		08/04/11 13:21
Surrogate: 2,5-Dibromotoluene (FID)		40.3		ug/L	40.0	101%	70 - 130			11H0945		08/04/11 13:21
Surrogate: 2,5-Dibromotoluene (PID)		39.9		ug/L	40.0	100%	70 - 130			11H0945		08/04/11 13:21

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
MADEP EPH												
11H0317-BSD1												
C9 - C18 Aliphatic Hydrocarbons		11.9		mg/kg wet	15.0	79%	40 - 140	9	25	11H0317		08/04/11 16:41
C19 - C36 Aliphatic Hydrocarbons		16.6		mg/kg wet	20.0	83%	40 - 140	11	25	11H0317		08/04/11 16:41
C11 - C22 Aromatic Hydrocarbons, Unadjuste		28.9		mg/kg wet	42.5	68%	40 - 140	17	25	11H0317		08/04/11 17:12
Surrogate: 1-Chlorooctadecane		3.41		mg/kg wet	4.00	85%	40 - 140			11H0317		08/04/11 16:41
Surrogate: o-Terphenyl		3.30		mg/kg wet	4.00	82%	40 - 140			11H0317		08/04/11 17:12
Surrogate: 2-Fluorobiphenyl		1.52	Z6	mg/kg wet	4.00	38%	40 - 140			11H0317		08/04/11 17:12
Surrogate: 2-Bromonaphthalene		2.74		mg/kg wet	4.00	69%	40 - 140			11H0317		08/04/11 17:12
11H0317-BSD2												
2-Methylnaphthalene		0.336	L2, R2,	mg/kg wet	2.50	13%	40 - 140	138	25	11H0317		08/05/11 17:03
Acenaphthene		1.16	R, T14	mg/kg wet	2.50	46%	40 - 140	43	25	11H0317		08/05/11 17:03
Acenaphthylene		1.07	R, T14	mg/kg wet	2.50	43%	40 - 140	60	25	11H0317		08/05/11 17:03
Anthracene		2.13	T14	mg/kg wet	2.50	85%	40 - 140	2	25	11H0317		08/05/11 17:03
Benzo (a) anthracene		2.04	T14	mg/kg wet	2.50	82%	40 - 140	8	25	11H0317		08/05/11 17:03
Benzo (a) pyrene		2.18	T14	mg/kg wet	2.50	87%	40 - 140	4	25	11H0317		08/05/11 17:03
Benzo (b) fluoranthene		2.20	T14	mg/kg wet	2.50	88%	40 - 140	5	25	11H0317		08/05/11 17:03
Benzo (g,h,i) perylene		2.06	T14	mg/kg wet	2.50	82%	40 - 140	5	25	11H0317		08/05/11 17:03
Benzo (k) fluoranthene		1.86	T14	mg/kg wet	2.50	74%	40 - 140	4	25	11H0317		08/05/11 17:03
Chrysene		2.00	T14	mg/kg wet	2.50	80%	40 - 140	2	25	11H0317		08/05/11 17:03
Dibenz (a,h) anthracene		2.12	T14	mg/kg wet	2.50	85%	40 - 140	3	25	11H0317		08/05/11 17:03
Fluoranthene		2.21	T14	mg/kg wet	2.50	88%	40 - 140	3	25	11H0317		08/05/11 17:03
Fluorene		1.68	T14	mg/kg wet	2.50	67%	40 - 140	16	25	11H0317		08/05/11 17:03
Indeno (1,2,3-cd) pyrene		2.09	T14	mg/kg wet	2.50	84%	40 - 140	4	25	11H0317		08/05/11 17:03
Naphthalene		ND	L2, T14	mg/kg wet	2.50	0%	40 - 140		25	11H0317		08/05/11 17:03
Phenanthrene		2.04	T14	mg/kg wet	2.50	81%	40 - 140	5	25	11H0317		08/05/11 17:03
Pyrene		2.11	T14	mg/kg wet	2.50	84%	40 - 140	5	25	11H0317		08/05/11 17:03
Volatile Organic - MCP CAM Method 8260												
11H0292-BSD1												
Acetone		306	B	ug/kg	250	122%	70 - 130	7	25	11H0292		08/07/11 09:30
Tert-Amyl Methyl Ether		47.9		ug/kg	50.0	96%	70 - 130	2	25	11H0292		08/07/11 09:30
Benzene		53.0		ug/kg	50.0	106%	70 - 130	3	25	11H0292		08/07/11 09:30
Bromobenzene		50.9		ug/kg	50.0	102%	70 - 130	0.7	25	11H0292		08/07/11 09:30
Bromochloromethane		53.0		ug/kg	50.0	106%	70 - 130	0.1	25	11H0292		08/07/11 09:30
Bromodichloromethane		51.9		ug/kg	50.0	104%	70 - 130	3	25	11H0292		08/07/11 09:30
Bromoform		46.8		ug/kg	50.0	94%	70 - 130	15	25	11H0292		08/07/11 09:30
Bromomethane		54.5		ug/kg	50.0	109%	70 - 130	3	25	11H0292		08/07/11 09:30
2-Butanone		265	B	ug/kg	250	106%	70 - 130	0.2	25	11H0292		08/07/11 09:30
tert-Butylbenzene		54.2		ug/kg	50.0	108%	70 - 130	2	25	11H0292		08/07/11 09:30
n-Butylbenzene		48.6		ug/kg	50.0	97%	70 - 130	0.7	25	11H0292		08/07/11 09:30
sec-Butylbenzene		55.2		ug/kg	50.0	110%	70 - 130	1	25	11H0292		08/07/11 09:30

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Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA

LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11H0292-BSD1												
Carbon disulfide		51.6		ug/kg	50.0	103%	70 - 130	4	25	11H0292		08/07/11 09:30
Carbon Tetrachloride		56.3		ug/kg	50.0	113%	70 - 130	4	25	11H0292		08/07/11 09:30
Chlorobenzene		52.6		ug/kg	50.0	105%	70 - 130	1	25	11H0292		08/07/11 09:30
Chlorodibromomethane		49.7		ug/kg	50.0	99%	70 - 130	1	25	11H0292		08/07/11 09:30
Chloroethane		50.4		ug/kg	50.0	101%	70 - 130	4	25	11H0292		08/07/11 09:30
Chloroform		53.7		ug/kg	50.0	107%	70 - 130	0.5	25	11H0292		08/07/11 09:30
Chloromethane		52.8		ug/kg	50.0	106%	70 - 130	3	25	11H0292		08/07/11 09:30
2-Chlorotoluene		52.5		ug/kg	50.0	105%	70 - 130	2	25	11H0292		08/07/11 09:30
4-Chlorotoluene		54.7		ug/kg	50.0	109%	70 - 130	3	25	11H0292		08/07/11 09:30
1,2-Dibromo-3-chloropropane		41.6		ug/kg	50.0	83%	70 - 130	6	25	11H0292		08/07/11 09:30
1,2-Dibromoethane (EDB)		54.2		ug/kg	50.0	108%	70 - 130	0.2	25	11H0292		08/07/11 09:30
Dibromomethane		49.8		ug/kg	50.0	100%	70 - 130	0.5	25	11H0292		08/07/11 09:30
1,2-Dichlorobenzene		52.8		ug/kg	50.0	106%	70 - 130	3	25	11H0292		08/07/11 09:30
1,3-Dichlorobenzene		54.4		ug/kg	50.0	109%	70 - 130	2	25	11H0292		08/07/11 09:30
1,4-Dichlorobenzene		52.8		ug/kg	50.0	106%	70 - 130	2	25	11H0292		08/07/11 09:30
Dichlorodifluoromethane		63.4		ug/kg	50.0	127%	70 - 130	3	25	11H0292		08/07/11 09:30
1,2-Dichloroethane		50.7		ug/kg	50.0	101%	70 - 130	3	25	11H0292		08/07/11 09:30
1,1-Dichloroethane		52.8		ug/kg	50.0	106%	70 - 130	0.2	25	11H0292		08/07/11 09:30
1,1-Dichloroethene		52.0		ug/kg	50.0	104%	70 - 130	2	25	11H0292		08/07/11 09:30
trans-1,2-Dichloroethene		52.2		ug/kg	50.0	104%	70 - 130	4	25	11H0292		08/07/11 09:30
cis-1,2-Dichloroethene		53.7		ug/kg	50.0	107%	70 - 130	3	25	11H0292		08/07/11 09:30
1,3-Dichloropropane		51.6		ug/kg	50.0	103%	70 - 130	3	25	11H0292		08/07/11 09:30
2,2-Dichloropropane		63.8		ug/kg	50.0	128%	70 - 130	4	25	11H0292		08/07/11 09:30
1,2-Dichloropropane		50.0		ug/kg	50.0	100%	70 - 130	0.8	25	11H0292		08/07/11 09:30
trans-1,3-Dichloropropene		49.3		ug/kg	50.0	99%	70 - 130	2	25	11H0292		08/07/11 09:30
1,1-Dichloropropene		53.1		ug/kg	50.0	106%	70 - 130	4	25	11H0292		08/07/11 09:30
cis-1,3-Dichloropropene		58.3		ug/kg	50.0	117%	70 - 130	3	25	11H0292		08/07/11 09:30
Diethyl ether		50.4		ug/kg	50.0	101%	70 - 130	1	25	11H0292		08/07/11 09:30
1,4-Dioxane		2960	L2, R2	ug/kg	5000	59%	70 - 130	28	25	11H0292		08/07/11 09:30
Ethylbenzene		54.9		ug/kg	50.0	110%	70 - 130	0.9	25	11H0292		08/07/11 09:30
Ethyl tert-Butyl Ether		46.7		ug/kg	50.0	93%	70 - 130	3	25	11H0292		08/07/11 09:30
Hexachlorobutadiene		54.6		ug/kg	50.0	109%	70 - 130	11	25	11H0292		08/07/11 09:30
2-Hexanone		286		ug/kg	250	114%	70 - 130	0.5	25	11H0292		08/07/11 09:30
Isopropylbenzene		59.6	R2	ug/kg	50.0	119%	70 - 130	35	25	11H0292		08/07/11 09:30
Diisopropyl Ether		50.4		ug/kg	50.0	101%	70 - 130	1	25	11H0292		08/07/11 09:30
p-Isopropyltoluene		55.1		ug/kg	50.0	110%	70 - 130	0.1	25	11H0292		08/07/11 09:30
Methyl tert-Butyl Ether		49.2		ug/kg	50.0	98%	70 - 130	2	25	11H0292		08/07/11 09:30
Methylene Chloride		53.0		ug/kg	50.0	106%	70 - 130	2	25	11H0292		08/07/11 09:30
4-Methyl-2-pentanone		225		ug/kg	250	90%	70 - 130	3	25	11H0292		08/07/11 09:30
Naphthalene		44.2		ug/kg	50.0	88%	70 - 130	4	25	11H0292		08/07/11 09:30
n-Propylbenzene		54.8		ug/kg	50.0	110%	70 - 130	0.8	25	11H0292		08/07/11 09:30

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11H0292-BSD1												
Styrene		55.4		ug/kg	50.0	111%	70 - 130	13	25	11H0292		08/07/11 09:30
1,1,2,2-Tetrachloroethane		49.0		ug/kg	50.0	98%	70 - 130	4	25	11H0292		08/07/11 09:30
1,1,1,2-Tetrachloroethane		56.8		ug/kg	50.0	114%	70 - 130	0.7	25	11H0292		08/07/11 09:30
Tetrachloroethene		54.9		ug/kg	50.0	110%	70 - 130	3	25	11H0292		08/07/11 09:30
Tetrahydrofuran		453	B	ug/kg	500	91%	70 - 130	4	25	11H0292		08/07/11 09:30
Toluene		51.6		ug/kg	50.0	103%	70 - 130	0.4	25	11H0292		08/07/11 09:30
1,2,4-Trichlorobenzene		51.4		ug/kg	50.0	103%	70 - 130	6	25	11H0292		08/07/11 09:30
1,2,3-Trichlorobenzene		44.4		ug/kg	50.0	89%	70 - 130	6	25	11H0292		08/07/11 09:30
1,1,1-Trichloroethane		55.5		ug/kg	50.0	111%	70 - 130	2	25	11H0292		08/07/11 09:30
1,1,2-Trichloroethane		52.2		ug/kg	50.0	104%	70 - 130	3	25	11H0292		08/07/11 09:30
Trichloroethene		52.2		ug/kg	50.0	104%	70 - 130	2	25	11H0292		08/07/11 09:30
Trichlorofluoromethane		52.3		ug/kg	50.0	105%	70 - 130	4	25	11H0292		08/07/11 09:30
1,2,3-Trichloropropane		48.2		ug/kg	50.0	96%	70 - 130	0.8	25	11H0292		08/07/11 09:30
1,3,5-Trimethylbenzene		54.9		ug/kg	50.0	110%	70 - 130	2	25	11H0292		08/07/11 09:30
1,2,4-Trimethylbenzene		55.2		ug/kg	50.0	110%	70 - 130	1	25	11H0292		08/07/11 09:30
Vinyl chloride		56.1		ug/kg	50.0	112%	70 - 130	4	25	11H0292		08/07/11 09:30
Xylenes, total		165		ug/kg	150	110%	70 - 130	5	25	11H0292		08/07/11 09:30
1,1,2-Trifluorotrichloroethane		56.1		ug/kg	50.0	112%	61 - 134	2	46	11H0292		08/07/11 09:30
Surrogate: 1,2-Dichloroethane-d4		24.6		ug/kg	25.0	98%	70 - 130			11H0292		08/07/11 09:30
Surrogate: Dibromofluoromethane		24.7		ug/kg	25.0	99%	70 - 130			11H0292		08/07/11 09:30
Surrogate: Toluene-d8		24.0		ug/kg	25.0	96%	70 - 130			11H0292		08/07/11 09:30
Surrogate: 4-Bromofluorobenzene		24.9		ug/kg	25.0	100%	70 - 130			11H0292		08/07/11 09:30
11H1969-BSD1												
Acetone		394	L	ug/kg	250	157%	70 - 130	3	25	11H1969		08/08/11 19:09
Tert-Amyl Methyl Ether		44.0		ug/kg	50.0	88%	70 - 130	2	25	11H1969		08/08/11 19:09
Benzene		47.5		ug/kg	50.0	95%	70 - 130	2	25	11H1969		08/08/11 19:09
Bromobenzene		43.2		ug/kg	50.0	86%	70 - 130	2	25	11H1969		08/08/11 19:09
Bromochloromethane		51.8		ug/kg	50.0	104%	70 - 130	0.3	25	11H1969		08/08/11 19:09
Bromodichloromethane		51.6		ug/kg	50.0	103%	70 - 130	1	25	11H1969		08/08/11 19:09
Bromoform		50.2		ug/kg	50.0	100%	70 - 130	0.6	25	11H1969		08/08/11 19:09
Bromomethane		43.5		ug/kg	50.0	87%	70 - 130	3	25	11H1969		08/08/11 19:09
2-Butanone		305		ug/kg	250	122%	70 - 130	0.1	25	11H1969		08/08/11 19:09
tert-Butylbenzene		46.9		ug/kg	50.0	94%	70 - 130	2	25	11H1969		08/08/11 19:09
n-Butylbenzene		49.9		ug/kg	50.0	100%	70 - 130	1	25	11H1969		08/08/11 19:09
sec-Butylbenzene		47.0		ug/kg	50.0	94%	70 - 130	2	25	11H1969		08/08/11 19:09
Carbon disulfide		44.3		ug/kg	50.0	89%	70 - 130	2	25	11H1969		08/08/11 19:09
Carbon Tetrachloride		57.1		ug/kg	50.0	114%	70 - 130	3	25	11H1969		08/08/11 19:09
Chlorobenzene		48.4		ug/kg	50.0	97%	70 - 130	2	25	11H1969		08/08/11 19:09
Chlorodibromomethane		56.0		ug/kg	50.0	112%	70 - 130	2	25	11H1969		08/08/11 19:09
Chloroethane		42.7		ug/kg	50.0	85%	70 - 130	4	25	11H1969		08/08/11 19:09

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11H1969-BSD1												
Chloroform		50.7		ug/kg	50.0	101%	70 - 130	3	25	11H1969		08/08/11 19:09
Chloromethane		32.6	L2	ug/kg	50.0	65%	70 - 130	3	25	11H1969		08/08/11 19:09
2-Chlorotoluene		43.4		ug/kg	50.0	87%	70 - 130	2	25	11H1969		08/08/11 19:09
4-Chlorotoluene		45.8		ug/kg	50.0	92%	70 - 130	2	25	11H1969		08/08/11 19:09
1,2-Dibromo-3-chloropropane		49.8		ug/kg	50.0	100%	70 - 130	4	25	11H1969		08/08/11 19:09
1,2-Dibromoethane (EDB)		50.0		ug/kg	50.0	100%	70 - 130	2	25	11H1969		08/08/11 19:09
Dibromomethane		51.1		ug/kg	50.0	102%	70 - 130	2	25	11H1969		08/08/11 19:09
1,2-Dichlorobenzene		53.7		ug/kg	50.0	107%	70 - 130	0.7	25	11H1969		08/08/11 19:09
1,3-Dichlorobenzene		48.7		ug/kg	50.0	97%	70 - 130	1	25	11H1969		08/08/11 19:09
1,4-Dichlorobenzene		49.4		ug/kg	50.0	99%	70 - 130	1	25	11H1969		08/08/11 19:09
Dichlorodifluoromethane		30.8	L2	ug/kg	50.0	62%	70 - 130	1	25	11H1969		08/08/11 19:09
1,2-Dichloroethane		51.7		ug/kg	50.0	103%	70 - 130	2	25	11H1969		08/08/11 19:09
1,1-Dichloroethane		48.6		ug/kg	50.0	97%	70 - 130	3	25	11H1969		08/08/11 19:09
1,1-Dichloroethene		50.1		ug/kg	50.0	100%	70 - 130	2	25	11H1969		08/08/11 19:09
trans-1,2-Dichloroethene		49.6		ug/kg	50.0	99%	70 - 130	2	25	11H1969		08/08/11 19:09
cis-1,2-Dichloroethene		48.4		ug/kg	50.0	97%	70 - 130	1	25	11H1969		08/08/11 19:09
1,3-Dichloropropane		47.6		ug/kg	50.0	95%	70 - 130	0.9	25	11H1969		08/08/11 19:09
2,2-Dichloropropane		51.0		ug/kg	50.0	102%	70 - 130	4	25	11H1969		08/08/11 19:09
1,2-Dichloropropane		44.0		ug/kg	50.0	88%	70 - 130	1	25	11H1969		08/08/11 19:09
trans-1,3-Dichloropropene		50.2		ug/kg	50.0	100%	70 - 130	1	25	11H1969		08/08/11 19:09
1,1-Dichloropropene		49.7		ug/kg	50.0	99%	70 - 130	2	25	11H1969		08/08/11 19:09
cis-1,3-Dichloropropene		50.8		ug/kg	50.0	102%	70 - 130	0.4	25	11H1969		08/08/11 19:09
Diethyl ether		48.3		ug/kg	50.0	97%	70 - 130	1	25	11H1969		08/08/11 19:09
1,4-Dioxane		6420		ug/kg	5000	128%	70 - 130	1	25	11H1969		08/08/11 19:09
Ethylbenzene		46.7		ug/kg	50.0	93%	70 - 130	2	25	11H1969		08/08/11 19:09
Ethyl tert-Butyl Ether		42.8		ug/kg	50.0	86%	70 - 130	2	25	11H1969		08/08/11 19:09
Hexachlorobutadiene		49.8		ug/kg	50.0	100%	70 - 130	1	25	11H1969		08/08/11 19:09
2-Hexanone		277		ug/kg	250	111%	70 - 130	1	25	11H1969		08/08/11 19:09
Isopropylbenzene		53.2		ug/kg	50.0	106%	70 - 130	1	25	11H1969		08/08/11 19:09
Diisopropyl Ether		42.7		ug/kg	50.0	85%	70 - 130	1	25	11H1969		08/08/11 19:09
p-Isopropyltoluene		47.1		ug/kg	50.0	94%	70 - 130	2	25	11H1969		08/08/11 19:09
Methyl tert-Butyl Ether		47.3		ug/kg	50.0	95%	70 - 130	2	25	11H1969		08/08/11 19:09
Methylene Chloride		49.8		ug/kg	50.0	100%	70 - 130	2	25	11H1969		08/08/11 19:09
4-Methyl-2-pentanone		237		ug/kg	250	95%	70 - 130	1	25	11H1969		08/08/11 19:09
Naphthalene		49.8		ug/kg	50.0	100%	70 - 130	0.1	25	11H1969		08/08/11 19:09
n-Propylbenzene		44.6		ug/kg	50.0	89%	70 - 130	2	25	11H1969		08/08/11 19:09
Styrene		49.4		ug/kg	50.0	99%	70 - 130	0.8	25	11H1969		08/08/11 19:09
1,1,2,2-Tetrachloroethane		44.7		ug/kg	50.0	89%	70 - 130	4	25	11H1969		08/08/11 19:09
1,1,1,2-Tetrachloroethane		53.4		ug/kg	50.0	107%	70 - 130	0.6	25	11H1969		08/08/11 19:09
Tetrachloroethene		51.8		ug/kg	50.0	104%	70 - 130	2	25	11H1969		08/08/11 19:09
Tetrahydrofuran		464		ug/kg	500	93%	70 - 130	0.9	25	11H1969		08/08/11 19:09

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11H1969-BSD1												
Toluene		46.6		ug/kg	50.0	93%	70 - 130	1	25	11H1969		08/08/11 19:09
1,2,4-Trichlorobenzene		52.5		ug/kg	50.0	105%	70 - 130	0.2	25	11H1969		08/08/11 19:09
1,2,3-Trichlorobenzene		53.0		ug/kg	50.0	106%	70 - 130	0.6	25	11H1969		08/08/11 19:09
1,1,1-Trichloroethane		54.0		ug/kg	50.0	108%	70 - 130	2	25	11H1969		08/08/11 19:09
1,1,2-Trichloroethane		49.9		ug/kg	50.0	100%	70 - 130	0.8	25	11H1969		08/08/11 19:09
Trichloroethene		52.7		ug/kg	50.0	105%	70 - 130	0.9	25	11H1969		08/08/11 19:09
Trichlorofluoromethane		46.5		ug/kg	50.0	93%	70 - 130	7	25	11H1969		08/08/11 19:09
1,2,3-Trichloropropane		47.1		ug/kg	50.0	94%	70 - 130	2	25	11H1969		08/08/11 19:09
1,3,5-Trimethylbenzene		46.0		ug/kg	50.0	92%	70 - 130	1	25	11H1969		08/08/11 19:09
1,2,4-Trimethylbenzene		44.8		ug/kg	50.0	90%	70 - 130	2	25	11H1969		08/08/11 19:09
Vinyl chloride		39.7		ug/kg	50.0	79%	70 - 130	2	25	11H1969		08/08/11 19:09
Xylenes, total		144		ug/kg	150	96%	70 - 130	2	25	11H1969		08/08/11 19:09
1,1,2-Trifluorotrichloroethane		53.0		ug/kg	50.0	106%	61 - 134	0.8	46	11H1969		08/08/11 19:09
Surrogate: 1,2-Dichloroethane-d4		25.8		ug/kg	25.0	103%	70 - 130			11H1969		08/08/11 19:09
Surrogate: Dibromofluoromethane		26.9		ug/kg	25.0	108%	70 - 130			11H1969		08/08/11 19:09
Surrogate: Toluene-d8		24.0		ug/kg	25.0	96%	70 - 130			11H1969		08/08/11 19:09
Surrogate: 4-Bromofluorobenzene		22.5		ug/kg	25.0	90%	70 - 130			11H1969		08/08/11 19:09
11H2363-BSD1												
Acetone		343	L	ug/kg	250	137%	70 - 130	2	25	11H2363		08/08/11 14:21
Tert-Amyl Methyl Ether		58.0		ug/kg	50.0	116%	70 - 130	2	25	11H2363		08/08/11 14:21
Benzene		52.4		ug/kg	50.0	105%	70 - 130	1	25	11H2363		08/08/11 14:21
Bromobenzene		46.8		ug/kg	50.0	94%	70 - 130	2	25	11H2363		08/08/11 14:21
Bromochloromethane		51.4		ug/kg	50.0	103%	70 - 130	0.7	25	11H2363		08/08/11 14:21
Bromodichloromethane		50.9		ug/kg	50.0	102%	70 - 130	2	25	11H2363		08/08/11 14:21
Bromoform		51.6		ug/kg	50.0	103%	70 - 130	0.5	25	11H2363		08/08/11 14:21
Bromomethane		53.0		ug/kg	50.0	106%	70 - 130	0.02	25	11H2363		08/08/11 14:21
2-Butanone		286		ug/kg	250	114%	70 - 130	0.4	25	11H2363		08/08/11 14:21
tert-Butylbenzene		56.6		ug/kg	50.0	113%	70 - 130	1	25	11H2363		08/08/11 14:21
n-Butylbenzene		48.7		ug/kg	50.0	97%	70 - 130	4	25	11H2363		08/08/11 14:21
sec-Butylbenzene		57.1		ug/kg	50.0	114%	70 - 130	1	25	11H2363		08/08/11 14:21
Carbon disulfide		51.4		ug/kg	50.0	103%	70 - 130	2	25	11H2363		08/08/11 14:21
Carbon Tetrachloride		57.0		ug/kg	50.0	114%	70 - 130	3	25	11H2363		08/08/11 14:21
Chlorobenzene		53.2		ug/kg	50.0	106%	70 - 130	0.5	25	11H2363		08/08/11 14:21
Chlorodibromomethane		48.5		ug/kg	50.0	97%	70 - 130	0.8	25	11H2363		08/08/11 14:21
Chloroethane		47.2		ug/kg	50.0	94%	70 - 130	3	25	11H2363		08/08/11 14:21
Chloroform		51.9		ug/kg	50.0	104%	70 - 130	2	25	11H2363		08/08/11 14:21
Chloromethane		39.0		ug/kg	50.0	78%	70 - 130	2	25	11H2363		08/08/11 14:21
2-Chlorotoluene		50.6		ug/kg	50.0	101%	70 - 130	2	25	11H2363		08/08/11 14:21
4-Chlorotoluene		53.6		ug/kg	50.0	107%	70 - 130	2	25	11H2363		08/08/11 14:21
1,2-Dibromo-3-chloropropane		44.3		ug/kg	50.0	89%	70 - 130	4	25	11H2363		08/08/11 14:21

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11H2363-BSD1												
1,2-Dibromoethane (EDB)		50.9		ug/kg	50.0	102%	70 - 130	0.6	25	11H2363		08/08/11 14:21
Dibromomethane		46.3		ug/kg	50.0	93%	70 - 130	3	25	11H2363		08/08/11 14:21
1,2-Dichlorobenzene		54.4		ug/kg	50.0	109%	70 - 130	3	25	11H2363		08/08/11 14:21
1,3-Dichlorobenzene		55.4		ug/kg	50.0	111%	70 - 130	2	25	11H2363		08/08/11 14:21
1,4-Dichlorobenzene		54.3		ug/kg	50.0	109%	70 - 130	3	25	11H2363		08/08/11 14:21
Dichlorodifluoromethane		48.6		ug/kg	50.0	97%	70 - 130	2	25	11H2363		08/08/11 14:21
1,2-Dichloroethane		47.7		ug/kg	50.0	95%	70 - 130	0.9	25	11H2363		08/08/11 14:21
1,1-Dichloroethane		50.2		ug/kg	50.0	100%	70 - 130	3	25	11H2363		08/08/11 14:21
1,1-Dichloroethene		52.3		ug/kg	50.0	105%	70 - 130	0.4	25	11H2363		08/08/11 14:21
trans-1,2-Dichloroethene		50.2		ug/kg	50.0	100%	70 - 130	2	25	11H2363		08/08/11 14:21
cis-1,2-Dichloroethene		50.8		ug/kg	50.0	102%	70 - 130	2	25	11H2363		08/08/11 14:21
1,3-Dichloropropane		47.2		ug/kg	50.0	94%	70 - 130	0.2	25	11H2363		08/08/11 14:21
2,2-Dichloropropane		66.0	L	ug/kg	50.0	132%	70 - 130	3	25	11H2363		08/08/11 14:21
1,2-Dichloropropane		46.6		ug/kg	50.0	93%	70 - 130	1	25	11H2363		08/08/11 14:21
trans-1,3-Dichloropropene		46.1		ug/kg	50.0	92%	70 - 130	1	25	11H2363		08/08/11 14:21
1,1-Dichloropropene		51.8		ug/kg	50.0	104%	70 - 130	3	25	11H2363		08/08/11 14:21
cis-1,3-Dichloropropene		59.4		ug/kg	50.0	119%	70 - 130	1	25	11H2363		08/08/11 14:21
Diethyl ether		50.3		ug/kg	50.0	101%	70 - 130	2	25	11H2363		08/08/11 14:21
1,4-Dioxane		3760		ug/kg	5000	75%	70 - 130	7	25	11H2363		08/08/11 14:21
Ethylbenzene		54.9		ug/kg	50.0	110%	70 - 130	0.6	25	11H2363		08/08/11 14:21
Ethyl tert-Butyl Ether		52.7		ug/kg	50.0	105%	70 - 130	1	25	11H2363		08/08/11 14:21
Hexachlorobutadiene		57.5		ug/kg	50.0	115%	70 - 130	2	25	11H2363		08/08/11 14:21
2-Hexanone		277		ug/kg	250	111%	70 - 130	1	25	11H2363		08/08/11 14:21
Isopropylbenzene		65.8	L1	ug/kg	50.0	132%	70 - 130	0.2	25	11H2363		08/08/11 14:21
Diisopropyl Ether		48.2		ug/kg	50.0	96%	70 - 130	1	25	11H2363		08/08/11 14:21
p-Isopropyltoluene		57.8		ug/kg	50.0	116%	70 - 130	1	25	11H2363		08/08/11 14:21
Methyl tert-Butyl Ether		55.5		ug/kg	50.0	111%	70 - 130	1	25	11H2363		08/08/11 14:21
Methylene Chloride		50.6		ug/kg	50.0	101%	70 - 130	0.9	25	11H2363		08/08/11 14:21
4-Methyl-2-pentanone		201		ug/kg	250	80%	70 - 130	10	25	11H2363		08/08/11 14:21
Naphthalene		49.7		ug/kg	50.0	99%	70 - 130	2	25	11H2363		08/08/11 14:21
n-Propylbenzene		52.6		ug/kg	50.0	105%	70 - 130	3	25	11H2363		08/08/11 14:21
Styrene		60.2		ug/kg	50.0	120%	70 - 130	0.1	25	11H2363		08/08/11 14:21
1,1,2,2-Tetrachloroethane		43.7		ug/kg	50.0	87%	70 - 130	0.3	25	11H2363		08/08/11 14:21
1,1,1,2-Tetrachloroethane		57.5		ug/kg	50.0	115%	70 - 130	2	25	11H2363		08/08/11 14:21
Tetrachloroethene		53.8		ug/kg	50.0	108%	70 - 130	0.7	25	11H2363		08/08/11 14:21
Tetrahydrofuran		456		ug/kg	500	91%	70 - 130	0.5	25	11H2363		08/08/11 14:21
Toluene		47.5		ug/kg	50.0	95%	70 - 130	1	25	11H2363		08/08/11 14:21
1,2,4-Trichlorobenzene		55.4		ug/kg	50.0	111%	70 - 130	2	25	11H2363		08/08/11 14:21
1,2,3-Trichlorobenzene		49.2		ug/kg	50.0	98%	70 - 130	4	25	11H2363		08/08/11 14:21
1,1,1-Trichloroethane		56.8		ug/kg	50.0	114%	70 - 130	2	25	11H2363		08/08/11 14:21
1,1,2-Trichloroethane		49.3		ug/kg	50.0	99%	70 - 130	1	25	11H2363		08/08/11 14:21

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11H2363-BSD1												
Trichloroethene		52.2		ug/kg	50.0	104%	70 - 130	3	25	11H2363		08/08/11 14:21
Trichlorofluoromethane		48.9		ug/kg	50.0	98%	70 - 130	0.7	25	11H2363		08/08/11 14:21
1,2,3-Trichloropropane		46.2		ug/kg	50.0	92%	70 - 130	2	25	11H2363		08/08/11 14:21
1,3,5-Trimethylbenzene		55.2		ug/kg	50.0	110%	70 - 130	2	25	11H2363		08/08/11 14:21
1,2,4-Trimethylbenzene		54.7		ug/kg	50.0	109%	70 - 130	3	25	11H2363		08/08/11 14:21
Vinyl chloride		45.8		ug/kg	50.0	92%	70 - 130	3	25	11H2363		08/08/11 14:21
Xylenes, total		168		ug/kg	150	112%	70 - 130	0.7	25	11H2363		08/08/11 14:21
Surrogate: 1,2-Dichloroethane-d4		22.8		ug/kg	25.0	91%	70 - 130			11H2363		08/08/11 14:21
Surrogate: Dibromofluoromethane		23.6		ug/kg	25.0	95%	70 - 130			11H2363		08/08/11 14:21
Surrogate: Toluene-d8		21.4		ug/kg	25.0	86%	70 - 130			11H2363		08/08/11 14:21
Surrogate: 4-Bromofluorobenzene		23.6		ug/kg	25.0	94%	70 - 130			11H2363		08/08/11 14:21
Total Metals by EPA 6010C												
11H0287-BSD1												
Iron		403		mg/kg	385	104%	80 - 120	6	20	11H0287		08/06/11 02:28
Manganese		194		mg/kg	193	101%	80 - 120	5	20	11H0287		08/06/11 02:28
Semivolatile Organic Compounds by EPA Method 8270D												
11H0318-BSD1												
Acenaphthene		2.87		mg/kg wet	3.33	86%	40 - 140	6	30	11H0318		08/07/11 11:01
Acenaphthylene		2.76		mg/kg wet	3.33	83%	40 - 140	6	30	11H0318		08/07/11 11:01
Azobenzene		2.87		mg/kg wet	3.33	86%	40 - 140	4	30	11H0318		08/07/11 11:01
Aniline		4.48		mg/kg wet	3.33	134%	40 - 140	3	30	11H0318		08/07/11 11:01
Anthracene		3.17		mg/kg wet	3.33	95%	40 - 140	0.04	30	11H0318		08/07/11 11:01
Benzo (a) anthracene		3.00		mg/kg wet	3.33	90%	40 - 140	5	30	11H0318		08/07/11 11:01
Benzo (a) pyrene		3.07		mg/kg wet	3.33	92%	40 - 140	8	30	11H0318		08/07/11 11:01
Benzo (b) fluoranthene		3.24		mg/kg wet	3.33	97%	40 - 140	1	30	11H0318		08/07/11 11:01
Benzo (g,h,i) perylene		3.04		mg/kg wet	3.33	91%	40 - 140	8	30	11H0318		08/07/11 11:01
Benzo (k) fluoranthene		2.52		mg/kg wet	3.33	76%	40 - 140	17	30	11H0318		08/07/11 11:01
Bis(2-chloroethoxy)methane		2.75		mg/kg wet	3.33	83%	40 - 140	4	30	11H0318		08/07/11 11:01
Bis(2-chloroethyl)ether		2.72		mg/kg wet	3.33	82%	40 - 140	4	30	11H0318		08/07/11 11:01
Bis(2-chloroisopropyl)ether		2.79		mg/kg wet	3.33	84%	40 - 140	3	30	11H0318		08/07/11 11:01
Bis(2-ethylhexyl)phthalate		3.05		mg/kg wet	3.33	91%	40 - 140	5	30	11H0318		08/07/11 11:01
4-Bromophenyl phenyl ether		2.95		mg/kg wet	3.33	88%	40 - 140	3	30	11H0318		08/07/11 11:01
Butyl benzyl phthalate		3.17		mg/kg wet	3.33	95%	40 - 140	2	30	11H0318		08/07/11 11:01
4-Chloroaniline		3.19		mg/kg wet	3.33	96%	40 - 140	2	30	11H0318		08/07/11 11:01
2-Chloronaphthalene		2.45		mg/kg wet	3.33	73%	40 - 140	7	30	11H0318		08/07/11 11:01
2-Chlorophenol		3.17		mg/kg wet	3.33	95%	30 - 130	0.4	30	11H0318		08/07/11 11:01
4-Chlorophenyl phenyl ether		2.83		mg/kg wet	3.33	85%	40 - 140	5	30	11H0318		08/07/11 11:01
Chrysene		2.84		mg/kg wet	3.33	85%	40 - 140	5	30	11H0318		08/07/11 11:01
Dibenz (a,h) anthracene		3.16		mg/kg wet	3.33	95%	40 - 140	9	30	11H0318		08/07/11 11:01

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270D												
11H0318-BSD1												
Dibenzofuran		2.94		mg/kg wet	3.33	88%	40 - 140	6	30	11H0318		08/07/11 11:01
Di-n-butyl phthalate		3.04		mg/kg wet	3.33	91%	40 - 140	2	30	11H0318		08/07/11 11:01
3,3-Dichlorobenzidine		2.87		mg/kg wet	3.33	86%	40 - 140	9	30	11H0318		08/07/11 11:01
1,2-Dichlorobenzene		2.51		mg/kg wet	3.33	75%	40 - 140	6	30	11H0318		08/07/11 11:01
1,3-Dichlorobenzene		2.53		mg/kg wet	3.33	76%	40 - 140	0.5	30	11H0318		08/07/11 11:01
1,4-Dichlorobenzene		2.39		mg/kg wet	3.33	72%	40 - 140	3	30	11H0318		08/07/11 11:01
2,4-Dichlorophenol		2.75		mg/kg wet	3.33	82%	30 - 130	3	30	11H0318		08/07/11 11:01
Diethyl phthalate		2.75		mg/kg wet	3.33	82%	40 - 140	7	30	11H0318		08/07/11 11:01
2,4-Dimethylphenol		3.02		mg/kg wet	3.33	91%	30 - 130	3	30	11H0318		08/07/11 11:01
Dimethyl phthalate		2.82		mg/kg wet	3.33	85%	40 - 140	3	30	11H0318		08/07/11 11:01
2,4-Dinitrophenol		2.30		mg/kg wet	3.33	69%	30 - 130	5	30	11H0318		08/07/11 11:01
2,4-Dinitrotoluene		2.64		mg/kg wet	3.33	79%	40 - 140	6	30	11H0318		08/07/11 11:01
2,6-Dinitrotoluene		2.51		mg/kg wet	3.33	75%	40 - 140	5	30	11H0318		08/07/11 11:01
Di-n-octyl phthalate		3.04		mg/kg wet	3.33	91%	40 - 140	7	30	11H0318		08/07/11 11:01
Fluoranthene		3.15		mg/kg wet	3.33	95%	40 - 140	1	30	11H0318		08/07/11 11:01
Fluorene		3.02		mg/kg wet	3.33	91%	40 - 140	9	30	11H0318		08/07/11 11:01
Hexachlorobenzene		2.76		mg/kg wet	3.33	83%	40 - 140	7	30	11H0318		08/07/11 11:01
Hexachlorobutadiene		2.79		mg/kg wet	3.33	84%	40 - 140	8	30	11H0318		08/07/11 11:01
Hexachloroethane		2.71		mg/kg wet	3.33	81%	40 - 140	3	30	11H0318		08/07/11 11:01
Indeno (1,2,3-cd) pyrene		3.09		mg/kg wet	3.33	93%	40 - 140	9	30	11H0318		08/07/11 11:01
Isophorone		2.40		mg/kg wet	3.33	72%	40 - 140	5	30	11H0318		08/07/11 11:01
2-Methylnaphthalene		2.83		mg/kg wet	3.33	85%	40 - 140	3	30	11H0318		08/07/11 11:01
2-Methylphenol		2.67		mg/kg wet	3.33	80%	30 - 130	7	30	11H0318		08/07/11 11:01
3/4-Methylphenol		2.65		mg/kg wet	3.33	80%	30 - 130	5	30	11H0318		08/07/11 11:01
Naphthalene		3.16		mg/kg wet	3.33	95%	40 - 140	2	30	11H0318		08/07/11 11:01
Nitrobenzene		2.21		mg/kg wet	3.33	66%	40 - 140	4	30	11H0318		08/07/11 11:01
2-Nitrophenol		2.86		mg/kg wet	3.33	86%	30 - 130	0.5	30	11H0318		08/07/11 11:01
4-Nitrophenol		2.59		mg/kg wet	3.33	78%	30 - 130	11	30	11H0318		08/07/11 11:01
Pentachlorophenol		3.24		mg/kg wet	3.33	97%	30 - 130	8	30	11H0318		08/07/11 11:01
Phenanthrene		2.98		mg/kg wet	3.33	89%	40 - 140	4	30	11H0318		08/07/11 11:01
Phenol		2.90		mg/kg wet	3.33	87%	30 - 130	0.7	30	11H0318		08/07/11 11:01
Pyrene		2.90		mg/kg wet	3.33	87%	40 - 140	5	30	11H0318		08/07/11 11:01
1,2,4-Trichlorobenzene		2.33		mg/kg wet	3.33	70%	40 - 140	4	30	11H0318		08/07/11 11:01
2,4,5-Trichlorophenol		2.40		mg/kg wet	3.33	72%	30 - 130	10	30	11H0318		08/07/11 11:01
2,4,6-Trichlorophenol		2.86		mg/kg wet	3.33	86%	30 - 130	11	30	11H0318		08/07/11 11:01
Surrogate: 2-Fluorophenol		2.71		mg/kg wet	3.33	81%	30 - 130			11H0318		08/07/11 11:01
Surrogate: Phenol-d5		2.56		mg/kg wet	3.33	77%	30 - 130			11H0318		08/07/11 11:01
Surrogate: 2-Fluorobiphenyl		2.36		mg/kg wet	3.33	71%	30 - 130			11H0318		08/07/11 11:01
Surrogate: Nitrobenzene-d5		2.25		mg/kg wet	3.33	68%	30 - 130			11H0318		08/07/11 11:01
Surrogate: Terphenyl-d14		2.96		mg/kg wet	3.33	89%	30 - 130			11H0318		08/07/11 11:01
Surrogate: 2,4,6-Tribromophenol		2.42		mg/kg wet	3.33	73%	30 - 130			11H0318		08/07/11 11:01

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Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

PROJECT QUALITY CONTROL DATA

LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time

Semivolatile Organic Compounds by EPA Method 8270D

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUG4207
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	07/29/11 08:40

DATA QUALIFIERS AND DEFINITIONS

B	Analyte was detected in the associated Method Blank.
L	Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was above the acceptance limits. Analyte not detected, data not impacted.
L1	Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was above acceptance limits.
L2	Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was below acceptance limits.
R	The RPD exceeded the method control limit. The individual analyte QA/QC recoveries, however, were within acceptance limits.
R2	The RPD exceeded the acceptance limit.
T14	The PAH compounds were analyzed and reported by method 8270.
YES	Yes
Z6	Surrogate recovery was below acceptance limits.
ZX	Due to sample matrix effects, the surrogate recovery was outside the acceptance limits.
ND	Not detected at the reporting limit (or method detection limit if shown)

METHOD MODIFICATION NOTES

TOC in soil 9060 M - M = Modified for soil analysis

2500X
AG
2X PIDSurr

HP-51 8021 MADEP-VPH

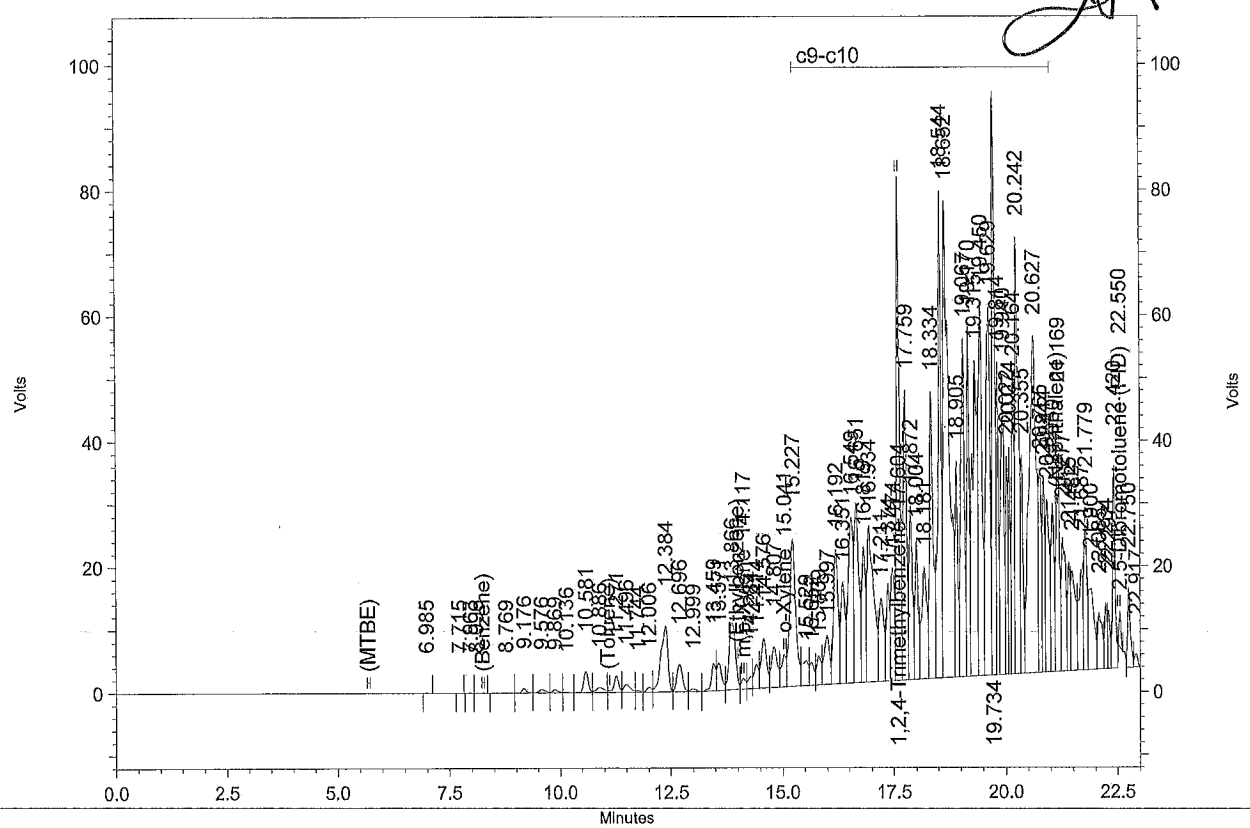
Column: RTX-502.2 105m x 0.53mm x 3.0um

File: \\Nvlez01\EZCHROMDATA\Projects\UST\HP 51\Data\080111\080111HP51.024.DAT
Method: \\Nvlez01\EZCHROMDATA\Projects\UST\HP 51\Method\071111hp51samples.met
Sample ID: NUG4207-01@50
Aquired: 8/2/2011 3:27:47 PM

PID Results

Name	Retention Time	Area	ESTD concentration	Integration Codes
MTBE			0.000 BDL	
Benzene			0.000 BDL	
Toluene			0.000 BDL	
Ethylbenzene			0.000 BDL	
m,p-Xylene	14.117	11710	15.409	VV
o-Xylene	15.041	40739	61.624	VV
1,2,4-Trimethylbenzene	17.604	395918	819.379	VV
Naphthalene			0.000 BDL	
2,5-Dibromotoluene (PID)	22.550	16547	20.793	MM
c9-c10		8410831	16288.621	

YP 8-3-11



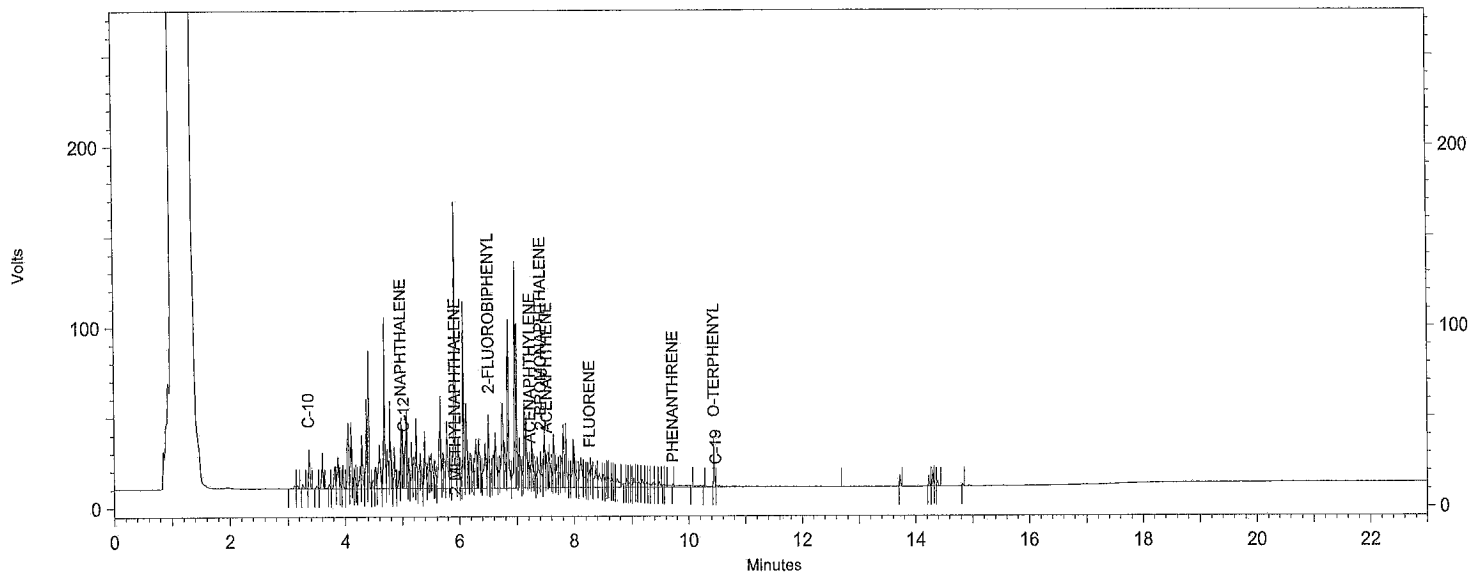
TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

HP 84 -- 8015B/C/D

File : \\Nvlez01\EZCHROMDATA\Projects\DRO\HP 84\Data\080411\080411hp84.051.dat
Method : \\Nvlez01\EZCHROMDATA\Projects\DRO\HP 84\Method\MADEP EPH\072211hp84.maeph.met

Sample ID : nug4207-01re1@5 aro
Aquired Time : 8/5/2011 3:09:39 PM

ZB-5 30m x 0.25 mm x 0.25 um



FID Results

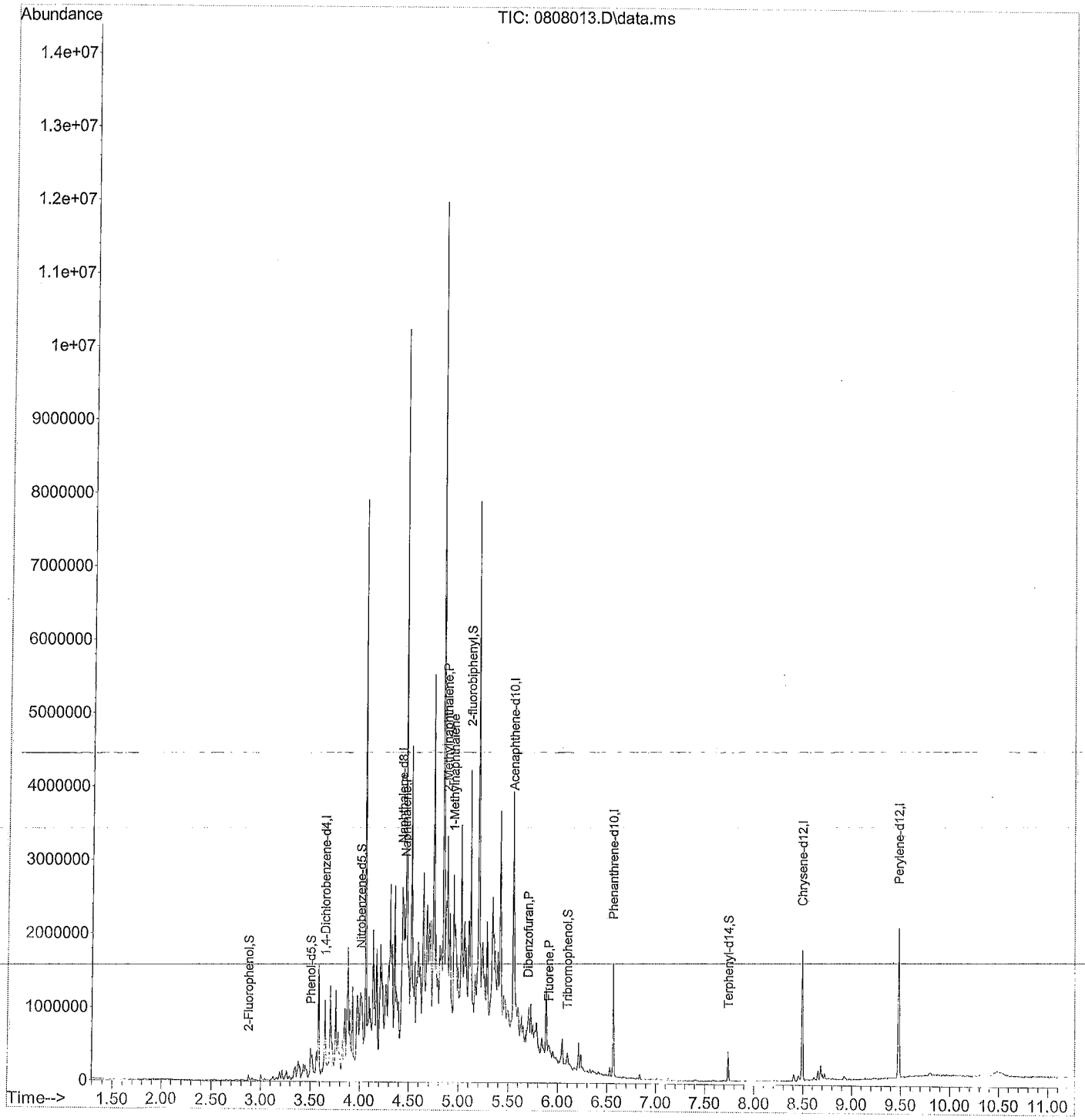
Name	Retention Time	Area	ESTD concentration	Integration Codes
C-9			0 BDL	
C-10	3.37	33075	0	MM
NAPHTHALENE	4.98	45964	13	MM
C-12	5.03	18601	0	MM
2-METHYLNAPHTHALENE	5.92	263678	75	MM
2-FLUOROBIPHENYL	6.51	37686	12	MM
ACENAPHTHYLENE	7.23	17162	5	MM
2-BROMONAPHTHALENE	7.42	12256	6	MM
ACENAPHTHENE	7.52	28360	8	MM
FLUORENE	8.27	23582	7	MM
C16			0 BDL	
PHENANTHRENE	9.72	2533	1	MM
ANTHRACENE			0 BDL	
O-TERPHENYL	10.44	29728	8	MM
C-19	10.47	22564	0	MM
C-20			0 BDL	
FLUORANTHENE			0 BDL	
COD			0 BDL	
PYRENE			0 BDL	
BENZO(A)ANTHRACENE			0 BDL	
CHRYSENE			0 BDL	
C-28			0 BDL	
BENZO(B)FLUORANTHEN			0 BDL	
BENZO(K)FLUORANTHEN			0 BDL	
BENZO(A)PYRENE			0 BDL	
INDE(123)PYRENE			0 BDL	
DIBENZ(AH)ANTHRACEN			0 BDL	
BENZO(GHI)PERYLENE			0 BDL	
C-35			0 BDL	
C-36			0 BDL	
C9-C18 Aliphatic Hydrocarbons		4201694	1192	
C19-C36 Aliphatic Hydrocarbons		85394	24	
C11-C22 Aromatic Hydrocarbons, Unadjusted		3367030	988	

8/16/11

Quantitation Report (QT Reviewed)

Data Path : C:\MSDChem\1\DATA\080811\
Data File : 0808013.D
Acq On : 8 Aug 2011 5:17 pm
Operator : HP-31
Sample : NUG4207-01RE1@5
Misc : WATER
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 09 14:12:16 2011
Quant Method : C:\MSDCHEM\1\METHODS\SV073111.M
Quant Title : SW846 METHOD 8270 HP-31
QLast Update : Sun Aug 07 07:58:40 2011
Response via : Initial Calibration



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Nashville, TN

COOLER REC

NUG4207

Cooler Received/Opened On_07/29/11 @ 08:40

1. Tracking #_5994_(last 4 digits, f

Courier: ___FED-EX IR-GUN-97310166

2. Temperature of rep. sample or temp blank when opened: 0.0 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

   If yes, how many and where: 1-FLOAT

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) _B_

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

   Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

   b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) _RC_

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

   b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

   16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) _MW_

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) _MW_

I certify that I attached a label with the unique LIMS number to each container (intial) _MW_

21. Were there Non-Conformance issues at login? YES...NO Was a PIPE generated? YES...NO...#_____

BIS = Broken in shipment

Cooler Receipt Form.doc

LF-1

End of Form

Revised 9/6/07

General Chemical

NUG4207
08/12/11 23 59

TestAmerica

Nashville Division
2960 Foster Creighton
Nashville, TN 37204

Phone: 615-726-0177
Toll Free: 800-765-0980
Fax: 615-726-3404

Consultant Name: GES
Address: 364 Littleton Road
City/State/Zip: Westford, MA 01886
~~Client~~ Project Mgr:
Consultant Project Mgr: Stefan Sokol
Consultant Telephone Number: 800-221-6119
Fax No.: 978-392-8583
Sampler Name: (Print) Mary Cathey
Sampler Signature: Mary Cathey

TA Account #:
Invoice To:
Report To: Stefan Sokol ssokol@gesonline.com
PO #:
PROJECT #: 1603978
Facility ID # General Chemical
Site Address 133 Leland St
City, State, Zip Framingham, MA
Regulatory District (CA)

Sample ID or Field ID	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative: Methanol	Sodium Bisulfate	HCl (Blue Label)	NaOH (Orange Label)	H_2SO_4 Plastic (Yellow Label)	H_2SO_4 Glass (Yellow Label)	HNO_3 (Red Label)	None (Black Label)	Matrix: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify)	Analyze For: VOCs	VPH	SVOCs	EPH	TOC	total Fe & Mn	% Solids					RUSH TAT (Pre-Schedule) *	TAT request (in Bus. Days)	Fax Results (yes or no)	Due Date of Report
MW-15 (8')	7/25/11	845	6	X			4							2					X		X	X	X	X	X	X	X	NUG4207-		01					
SB11-01 (6')	↓	1045	6	X			4							2					↓		↓	↓	↓	↓	↓	↓	↓			02					
MW-22 (6')	↓	1215	7	X			4							3																03					
MW-17 (4')		1350	7	X			4							3																04					
MW-16 (6')	↓	1500	6	X			4							2					↓		↓	↓	↓	↓	↓	↓	↓			05					
trip blk	7/25/11	0800	1				1													X	X									06					

Comments/Special Instructions:

Laboratory Comments:
Temperature Upon Receipt: 0.0°C
Sample Containers Intact? Y N
VOCs Free of Headspace? Y N
QC Deliverables (please circle one)
Level 2 Level 3 Level 4 Other

Relinquished by:	Date	Time	Received by:	Date	Time
Mary Cathey	7/25/11	1800	GES Stock ~~[illegible]~~	7/25/11	1800
[illegible]	7/26/11	1400	Received by TestAmerica: JRBC	7-28-11	14:00

7-29-11 7-28-11 @ ~~0815~~ 0840
7-29-11 @ 7-29-11

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

August 23, 2011 8:32:21AM

Client: GES Westford (10650)
364 Littleton Road, Suite 4
Westford, MA 01886
Attn: Stefan Sokol

Work Order: NUH0588
Project Name: General Chemical
Project Nbr: Framingham, MA
P/O Nbr: 1603978
Date Received: 08/03/11

SAMPLE IDENTIFICATION	LAB NUMBER	COLLECTION DATE AND TIME
MW-16 (12.5-15')	NUH0588-01	08/01/11 09:45
Trip Blank	NUH0588-02	08/01/11 08:00

An executed copy of the chain of custody, the project quality control data, and the sample receipt form are also included as an addendum to this report. If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-800-765-0980. These results relate only to the items tested, and this report may not be reproduced except in full and with the permission of the Laboratory. Any opinions, if expressed, are outside the scope of the Laboratory's accredidation.

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Certification Number: M-TN032

EPH/VPH Qualifications

*C11-C22 Aromatic hydrocarbons exclude concentration of PAH's.

*HydroCarbon Range data exclude area counts of any surrogate(s) and/or internal standards eluting in that range.
*VPH C5-C8 Aliphatic Hydrocarbons exclude the concentration of Target Analytes eluting in that range.
*Adjusted C5-C8 Aliphatic Hydrocarbons range excluded the concentrations of MTBE, Benzene and Toluene.
*VPH C9-C12 Aliphatic Hydrocarbons exclude target analytes eluting in that range AND concentration of C9-C10 Aromatic Hydrocarbons.
*Adjusted C9-C12 Aliphatic Hydrocarbon range excludes the concentration of Ethylbenzene, m-, p-, and o- Xylene and the C9-C10 Aromatic Hydrocarbon values.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

Additional Laboratory Comments:
All samples were received in good condition, properly preserved, and properly labeled. All analyses were completed within holding times.

All no responses from the attached "MCP Response Action Analytical Report Certification Form" are addressed below.

G. The EPH reporting limits for the PAHs were above the MADEP CAM limits. The reporting limits did meet the client requested limits.

The volatile reporting limit for 1,4-Dioxane was above the MADEP CAM limits. The reporting limits did meet the client requested limits.

The semi-volatile reporting limits for azobenzene, aniline, 3,3-dichlorobenzidine, 2,4-dinitrophenol, 4-nitrophenol, Pentachlorophenol and 2,4,5-trichlorophenol were above the MADEP CAM limits. The reporting limits did meet the client requested limits.

H. The Volatile method blank for batch 11H0292 was positive above the reporting limits for Acetone, 2-Butanone, and Tetrahydrofuran. The associated samples were non-detect at the reporting limits; therefore the data was accepted without further analysis.

The volatile blank spike and/or blank spike duplicate (LCS/LCSD) recoveries for Acetone, 2,2-Dichloropropane and 1,4-Dioxane in batch 11H0292 and Acetone, 2,2-Dichloropropane and Isopropylbenzene in batch 11H2363 were outside QC limits. Batch 11H2363 was a batch used for dilutions or confirmations and none of the listed compounds were reported from this batch in this work order. Also, less than 10% of the analytes were outside criteria and the recoveries were within greater than 10%; therefore the data was accepted without further analysis.

The volatile blank spike duplicate (LCSD) RPD for 1,4-Dioxane and Isopropylbenzene in batch 11H0292 were outside QC limits.

A sample was not submitted for MS/MSD for the metals analysis.

I. The full MCP Metals CAM analyte list was not reported. Only those analytes requested on the chain of custody by the client were reported.

The Chain(s) of Custody, 2 pages, are included and are an integral part of this report.

These results relate only to the items tested. This report shall not be reproduced except in full and with permission of the laboratory.

All solids results are reported in wet weight unless specifically stated.
Estimated uncertainty is available upon request.
This report has been electronically signed.
Report Approved By:

Jennifer Huckaba

Jennifer Huckaba

Senior Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

Sample Cooler Information

Lab ID	Cooler ID	Temp	Seals	Containers Intact	Preservation Confirmed	On Ice
	6041	1.2C	Yes	Yes	No	Yes

MassDEP Analytical Protocol Certification Form

Laboratory Name: TestAmerica Analytical Testing Corporation | Project #: Framingham, MA

Project Location: General Chemical | RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):

NUH0588

Matrices: Groundwater/Surface Water (Soil/Sediment) Drinking Water Air Other:

CAM Protocol (check all that apply below):

8260 VOC CAM II A X	7470/7471 Hg CAM III B	MassDEP VPH CAM IV A X	8081 Pesticides CAM V B	7196 Hex Cr CAM VI B	MassDEP APH CAM IX A
8270 SVOC CAM II B X	7010 Metals CAM III C	MassDEP EPH CAM IV B X	8151 Herbicides CAM V C	8330 Explosives CAM VIII A	TO-15 VOC CAM IX B
6010 Metals CAM III A X	6020 Metals CAM III D	8082 PCB CAM V A	9014 Total Cyanide/PAC CAM VI A	6860 Perchlorate CAM VIII B	

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	(Yes) No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	(Yes) No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	(Yes) No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	(Yes) No
E	VPH, EPH, APH, and TO-15 only: a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	(Yes) No Yes No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	(Yes) No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	Yes (No[1])

***Data User Note**: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.*

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	Yes (No)
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	Yes (No)

[1]*All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Jennifer Huckaba **Position:** Sr Proj. Mgr.

Printed Name: Jennifer Huckaba **Date:** 8-23-11

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUH0588-01 (MW-16 (12.5-15') - Soil) Sampled: 08/01/11 09:45										
General Chemistry Parameters										
% Dry Solids	**77.3**	%		0.500	1	08/12/11 11:53	08/15/11 12:22	RRS	SW-846	11H2928
Total Organic Carbon	ND	mg/kg dry		1000	1	08/16/11 16:06	08/19/11 10:10	SHJ	SW846 9060M	11H3859

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUH0588-01 (MW-16 (12.5-15') - Soil) - cont. Sampled: 08/01/11 09:45										
MADEP VPH										
Received on MeOH	Yes									
MeOH Covers Soil	Yes									
Methyl tert-Butyl Ether	ND	mg/kg dry		0.0953	50	08/01/11 09:45	08/05/11 17:37	KAR2	MADEP VPH	11H1301
Benzene	ND	mg/kg dry		0.0953	50	08/01/11 09:45	08/05/11 17:37	KAR2	MADEP VPH	11H1301
Toluene	ND	mg/kg dry		0.286	50	08/01/11 09:45	08/05/11 17:37	KAR2	MADEP VPH	11H1301
Ethylbenzene	ND	mg/kg dry		0.0953	50	08/01/11 09:45	08/05/11 17:37	KAR2	MADEP VPH	11H1301
m,p-Xylene	ND	mg/kg dry		0.381	50	08/01/11 09:45	08/05/11 17:37	KAR2	MADEP VPH	11H1301
o-Xylene	ND	mg/kg dry		0.191	50	08/01/11 09:45	08/05/11 17:37	KAR2	MADEP VPH	11H1301
Naphthalene	**1.80**	mg/kg dry		0.477	50	08/01/11 09:45	08/05/11 17:37	KAR2	MADEP VPH	11H1301
C5 - C8 Aliphatic Hydrocarbons, Unadjuste	**20.8**	mg/kg dry		9.53	50	08/01/11 09:45	08/05/11 17:37	KAR2	MADEP VPH	11H1301
C9 - C12 Aliphatic Hydrocarbons, Unadjust	**57.0**	mg/kg dry		9.53	50	08/01/11 09:45	08/05/11 17:37	KAR2	MADEP VPH	11H1301
C5 - C8 Aliphatic Hydrocarbons	**20.8**	mg/kg dry		9.53	50	08/01/11 09:45	08/05/11 17:37	KAR2	MADEP VPH	11H1301
C9 - C12 Aliphatic Hydrocarbons	**28.1**	mg/kg dry		9.53	50	08/01/11 09:45	08/05/11 17:37	KAR2	MADEP VPH	11H1301
C9 - C10 Aromatic Hydrocarbons	**28.9**	mg/kg dry		9.53	50	08/01/11 09:45	08/05/11 17:37	KAR2	MADEP VPH	11H1301
Surr: 2,5-Dibromotoluene (FID) (70-130%)	*128 %*						08/05/11 17:37	KAR2	MADEP VPH	11H1301
Surr: 2,5-Dibromotoluene (PID) (70-130%)	*103 %*						08/05/11 17:37	KAR2	MADEP VPH	11H1301

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUH0588-01 (MW-16 (12.5-15') - Soil) - cont. Sampled: 08/01/11 09:45										
MADEP EPH										
C9 - C18 Aliphatic Hydrocarbons	**216**	mg/kg dry		24.9	2	08/10/11 06:45	08/15/11 11:58	jlf	MADEP EPH	11H1275
C19 - C36 Aliphatic Hydrocarbons	**32.1**	mg/kg dry		12.4	1	08/10/11 06:45	08/13/11 17:16	jlf	MADEP EPH	11H1275
C11 - C22 Aromatic Hydrocarbons	**83.8**	mg/kg dry		12.4	1	08/10/11 06:45	08/13/11 17:16	jlf	MADEP EPH	11H1275
C11 - C22 Aromatic Hydrocarbons, Unadjus	**84.9**	mg/kg dry		12.4	1	08/10/11 06:45	08/13/11 17:47	jlf	MADEP EPH	11H1275
2-Methylnaphthalene	**1.09**	mg/kg dry		0.747	1	08/10/11 06:45	08/13/11 17:47	jlf	MADEP EPH	11H1275
Acenaphthene	ND	mg/kg dry		1.24	1	08/10/11 06:45	08/13/11 17:47	jlf	MADEP EPH	11H1275
Acenaphthylene	ND	mg/kg dry		1.24	1	08/10/11 06:45	08/13/11 17:47	jlf	MADEP EPH	11H1275
Anthracene	ND	mg/kg dry		1.24	1	08/10/11 06:45	08/13/11 17:47	jlf	MADEP EPH	11H1275
Benzo (a) anthracene	ND	mg/kg dry		0.747	1	08/10/11 06:45	08/13/11 17:47	jlf	MADEP EPH	11H1275
Benzo (a) pyrene	ND	mg/kg dry		0.747	1	08/10/11 06:45	08/13/11 17:47	jlf	MADEP EPH	11H1275
Benzo (b) fluoranthene	ND	mg/kg dry		0.747	1	08/10/11 06:45	08/13/11 17:47	jlf	MADEP EPH	11H1275
Benzo (g,h,i) perylene	ND	mg/kg dry		1.24	1	08/10/11 06:45	08/13/11 17:47	jlf	MADEP EPH	11H1275
Benzo (k) fluoranthene	ND	mg/kg dry		1.24	1	08/10/11 06:45	08/13/11 17:47	jlf	MADEP EPH	11H1275
Chrysene	ND	mg/kg dry		1.24	1	08/10/11 06:45	08/13/11 17:47	jlf	MADEP EPH	11H1275
Dibenz (a,h) anthracene	ND	mg/kg dry		0.747	1	08/10/11 06:45	08/13/11 17:47	jlf	MADEP EPH	11H1275
Fluoranthene	ND	mg/kg dry		1.24	1	08/10/11 06:45	08/13/11 17:47	jlf	MADEP EPH	11H1275
Fluorene	ND	mg/kg dry		1.24	1	08/10/11 06:45	08/13/11 17:47	jlf	MADEP EPH	11H1275
Indeno (1,2,3-cd) pyrene	ND	mg/kg dry		0.747	1	08/10/11 06:45	08/13/11 17:47	jlf	MADEP EPH	11H1275
Naphthalene	ND	mg/kg dry		1.24	1	08/10/11 06:45	08/13/11 17:47	jlf	MADEP EPH	11H1275
Phenanthrene	ND	mg/kg dry		1.24	1	08/10/11 06:45	08/13/11 17:47	jlf	MADEP EPH	11H1275
Pyrene	ND	mg/kg dry		1.24	1	08/10/11 06:45	08/13/11 17:47	jlf	MADEP EPH	11H1275
Surr: 1-Chlorooctadecane (40-140%)	*82 %*						08/13/11 17:16	jlf	MADEP EPH	11H1275
Surr: o-Terphenyl (40-140%)	*101 %*						08/13/11 17:47	jlf	MADEP EPH	11H1275
Surr: 2-Fluorobiphenyl (40-140%)	*111 %*						08/13/11 17:47	jlf	MADEP EPH	11H1275
Surr: 2-Bromonaphthalene (40-140%)	*111 %*						08/13/11 17:47	jlf	MADEP EPH	11H1275

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Sample ID: NUH0588-01 (MW-16 (12.5-15') - Soil) - cont. Sampled: 08/01/11 09:45

Volatile Organic - MCP CAM Method 8260

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acetone	ND	mg/kg dry	L	1.81	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Tert-Amyl Methyl Ether	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Benzene	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Bromobenzene	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Bromochloromethane	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Bromodichloromethane	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Bromoform	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Bromomethane	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
2-Butanone	ND	mg/kg dry		1.81	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
tert-Butylbenzene	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
n-Butylbenzene	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
sec-Butylbenzene	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Carbon disulfide	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Carbon Tetrachloride	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Chlorobenzene	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Chlorodibromomethane	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Chloroethane	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Chloroform	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Chloromethane	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
2-Chlorotoluene	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
4-Chlorotoluene	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
1,2-Dibromo-3-chloropropane	ND	mg/kg dry		0.181	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
1,2-Dibromoethane (EDB)	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Dibromomethane	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
1,2-Dichlorobenzene	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
1,3-Dichlorobenzene	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
1,4-Dichlorobenzene	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Dichlorodifluoromethane	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
1,2-Dichloroethane	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
1,1-Dichloroethane	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
1,1-Dichloroethene	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
trans-1,2-Dichloroethene	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
cis-1,2-Dichloroethene	**8.65**	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
1,3-Dichloropropane	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
2,2-Dichloropropane	ND	mg/kg dry	L	0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
1,2-Dichloropropane	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
trans-1,3-Dichloropropene	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
1,1-Dichloropropene	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
cis-1,3-Dichloropropene	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Diethyl ether	ND	mg/kg dry		0.181	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUH0588-01 (MW-16 (12.5-15') - Soil) - cont. Sampled: 08/01/11 09:45										
Volatile Organic - MCP CAM Method 8260 - cont.										
1,4-Dioxane	ND	mg/kg dry	L2	18.1	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Ethylbenzene	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Ethyl tert-Butyl Ether	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Hexachlorobutadiene	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
2-Hexanone	ND	mg/kg dry		1.81	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Isopropylbenzene	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Diisopropyl Ether	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
p-Isopropyltoluene	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Methyl tert-Butyl Ether	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Methylene Chloride	ND	mg/kg dry		0.181	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
4-Methyl-2-pentanone	ND	mg/kg dry		1.81	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Naphthalene	ND	mg/kg dry		0.181	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
n-Propylbenzene	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Styrene	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
1,1,2,2-Tetrachloroethane	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
1,1,1,2-Tetrachloroethane	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Tetrachloroethene	**3.10**	mg/kg dry		0.0907	50	08/01/11 09:45	08/09/11 00:12	EML	SW846 8260B	11H2363
Tetrahydrofuran	ND	mg/kg dry		0.181	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Toluene	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.181	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
1,2,3-Trichlorobenzene	ND	mg/kg dry		0.181	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
1,1,1-Trichloroethane	**10.6**	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
1,1,2-Trichloroethane	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Trichloroethene	**0.576**	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Trichlorofluoromethane	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
1,2,3-Trichloropropane	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
1,3,5-Trimethylbenzene	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
1,2,4-Trimethylbenzene	**0.212**	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Vinyl chloride	ND	mg/kg dry		0.0907	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Xylenes, total	ND	mg/kg dry		0.272	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
1,1,2-Trifluorotrichloroethane	**0.517**	mg/kg dry		0.181	50	08/01/11 09:45	08/07/11 17:57	EML	SW846 8260B	11H0292
Surr: 1,2-Dichloroethane-d4 (70-130%)	*103 %*						08/07/11 17:57	EML	SW846 8260B	11H0292
Surr: 1,2-Dichloroethane-d4 (70-130%)	*91 %*						08/09/11 00:12	EML	SW846 8260B	11H2363
Surr: Dibromofluoromethane (70-130%)	*100 %*						08/07/11 17:57	EML	SW846 8260B	11H0292
Surr: Dibromofluoromethane (70-130%)	*91 %*						08/09/11 00:12	EML	SW846 8260B	11H2363
Surr: Toluene-d8 (70-130%)	*93 %*						08/07/11 17:57	EML	SW846 8260B	11H0292
Surr: Toluene-d8 (70-130%)	*86 %*						08/09/11 00:12	EML	SW846 8260B	11H2363
Surr: 4-Bromofluorobenzene (70-130%)	*104 %*						08/07/11 17:57	EML	SW846 8260B	11H0292
Surr: 4-Bromofluorobenzene (70-130%)	*95 %*						08/09/11 00:12	EML	SW846 8260B	11H2363

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Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUH0588-01 (MW-16 (12.5-15') - Soil) - cont. Sampled: 08/01/11 09:45										
Total Metals by EPA 6010C										
Iron	**5770**	mg/kg		9.80	1	08/11/11 07:05	08/12/11 14:00	AVR	SW846 6010C	11H1701
Manganese	**48.5**	mg/kg		2.94	1	08/11/11 07:05	08/12/11 14:00	AVR	SW846 6010C	11H1701

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Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Sample ID: NUH0588-01 (MW-16 (12.5-15') - Soil) - cont. Sampled: 08/01/11 09:45

Semivolatile Organic Compounds by EPA Method 8270D

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acenaphthene	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Acenaphthylene	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Azobenzene	ND	mg/kg dry		2.09	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Aniline	ND	mg/kg dry		0.835	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Anthracene	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Benzo (a) anthracene	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Benzo (a) pyrene	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Benzo (b) fluoranthene	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Benzo (g,h,i) perylene	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Benzo (k) fluoranthene	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Bis(2-chloroethoxy)methane	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Bis(2-chloroethyl)ether	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Bis(2-chloroisopropyl)ether	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Bis(2-ethylhexyl)phthalate	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
4-Bromophenyl phenyl ether	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Butyl benzyl phthalate	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
4-Chloroaniline	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
2-Chloronaphthalene	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
2-Chlorophenol	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
4-Chlorophenyl phenyl ether	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Chrysene	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Dibenz (a,h) anthracene	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Dibenzofuran	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Di-n-butyl phthalate	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
3,3-Dichlorobenzidine	ND	mg/kg dry		0.835	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
1,2-Dichlorobenzene	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
1,3-Dichlorobenzene	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
1,4-Dichlorobenzene	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
2,4-Dichlorophenol	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Diethyl phthalate	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
2,4-Dimethylphenol	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Dimethyl phthalate	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
2,4-Dinitrophenol	ND	mg/kg dry		1.04	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
2,4-Dinitrotoluene	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
2,6-Dinitrotoluene	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Di-n-octyl phthalate	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Fluoranthene	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Fluorene	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Hexachlorobenzene	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Hexachlorobutadiene	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478

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Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUH0588-01 (MW-16 (12.5-15') - Soil) - cont. Sampled: 08/01/11 09:45										
Semivolatile Organic Compounds by EPA Method 8270D - cont.										
Hexachloroethane	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Indeno (1,2,3-cd) pyrene	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Isophorone	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
2-Methylnaphthalene	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
2-Methylphenol	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
3/4-Methylphenol	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Naphthalene	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Nitrobenzene	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
2-Nitrophenol	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
4-Nitrophenol	ND	mg/kg dry		1.04	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Pentachlorophenol	ND	mg/kg dry		1.04	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Phenanthrene	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Phenol	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Pyrene	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
2,4,5-Trichlorophenol	ND	mg/kg dry		1.04	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
2,4,6-Trichlorophenol	ND	mg/kg dry		0.417	1	08/15/11 10:00	08/15/11 20:48	BES	SW846 8270D	11H3478
Surr: 2-Fluorophenol (30-130%)	*58 %*						08/15/11 20:48	BES	SW846 8270D	11H3478
Surr: Phenol-d5 (30-130%)	*61 %*						08/15/11 20:48	BES	SW846 8270D	11H3478
Surr: 2-Fluorobiphenyl (30-130%)	*69 %*						08/15/11 20:48	BES	SW846 8270D	11H3478
Surr: Nitrobenzene-d5 (30-130%)	*69 %*						08/15/11 20:48	BES	SW846 8270D	11H3478
Surr: Terphenyl-d14 (30-130%)	*96 %*						08/15/11 20:48	BES	SW846 8270D	11H3478
Surr: 2,4,6-Tribromophenol (30-130%)	*74 %*						08/15/11 20:48	BES	SW846 8270D	11H3478

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUH0588-02 (Trip Blank - Soil) Sampled: 08/01/11 08:00										
Volatile Organic - MCP CAM Method 8260										
Acetone	ND	mg/kg wet	L	1.00	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Tert-Amyl Methyl Ether	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Benzene	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Bromobenzene	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Bromochloromethane	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Bromodichloromethane	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Bromoform	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Bromomethane	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
2-Butanone	ND	mg/kg wet		1.00	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
tert-Butylbenzene	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
n-Butylbenzene	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
sec-Butylbenzene	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Carbon disulfide	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Carbon Tetrachloride	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Chlorobenzene	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Chlorodibromomethane	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Chloroethane	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Chloroform	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Chloromethane	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
2-Chlorotoluene	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
4-Chlorotoluene	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
1,2-Dibromo-3-chloropropane	ND	mg/kg wet		0.100	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
1,2-Dibromoethane (EDB)	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Dibromomethane	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
1,2-Dichlorobenzene	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
1,3-Dichlorobenzene	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
1,4-Dichlorobenzene	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Dichlorodifluoromethane	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
1,2-Dichloroethane	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
1,1-Dichloroethane	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
1,1-Dichloroethene	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
trans-1,2-Dichloroethene	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
cis-1,2-Dichloroethene	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
1,3-Dichloropropane	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
2,2-Dichloropropane	ND	mg/kg wet	L	0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
1,2-Dichloropropane	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
trans-1,3-Dichloropropene	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
1,1-Dichloropropene	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
cis-1,3-Dichloropropene	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Diethyl ether	ND	mg/kg wet		0.100	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292

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Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUH0588-02 (Trip Blank - Soil) - cont. Sampled: 08/01/11 08:00										
Volatile Organic - MCP CAM Method 8260 - cont.										
1,4-Dioxane	ND	mg/kg wet	L2	10.0	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Ethylbenzene	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Ethyl tert-Butyl Ether	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Hexachlorobutadiene	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
2-Hexanone	ND	mg/kg wet		1.00	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Isopropylbenzene	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Diisopropyl Ether	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
p-Isopropyltoluene	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Methyl tert-Butyl Ether	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Methylene Chloride	ND	mg/kg wet		0.100	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
4-Methyl-2-pentanone	ND	mg/kg wet		1.00	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Naphthalene	ND	mg/kg wet		0.100	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
n-Propylbenzene	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Styrene	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
1,1,2,2-Tetrachloroethane	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
1,1,1,2-Tetrachloroethane	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Tetrachloroethene	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Tetrahydrofuran	ND	mg/kg wet		0.100	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Toluene	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
1,2,4-Trichlorobenzene	ND	mg/kg wet		0.100	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
1,2,3-Trichlorobenzene	ND	mg/kg wet		0.100	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
1,1,1-Trichloroethane	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
1,1,2-Trichloroethane	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Trichloroethene	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Trichlorofluoromethane	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
1,2,3-Trichloropropane	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
1,3,5-Trimethylbenzene	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
1,2,4-Trimethylbenzene	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Vinyl chloride	ND	mg/kg wet		0.0500	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Xylenes, total	ND	mg/kg wet		0.150	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
1,1,2-Trifluorotrichloroethane	ND	mg/kg wet		0.100	50	08/01/11 08:00	08/07/11 13:42	EML	SW846 8260B	11H0292
Surr: 1,2-Dichloroethane-d4 (70-130%)	*99 %*						08/07/11 13:42	EML	SW846 8260B	11H0292
Surr: Dibromofluoromethane (70-130%)	*95 %*						08/07/11 13:42	EML	SW846 8260B	11H0292
Surr: Toluene-d8 (70-130%)	*94 %*						08/07/11 13:42	EML	SW846 8260B	11H0292
Surr: 4-Bromofluorobenzene (70-130%)	*101 %*						08/07/11 13:42	EML	SW846 8260B	11H0292

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	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

SAMPLE EXTRACTION DATA

Parameter	Batch	Lab Number	Wt/Vol Extracted	Extract Vol	Date	Analyst	Extraction Method
MADEP EPH							
MADEP EPH	11H1275	NUH0588-01	10.40	1.00	08/10/11 06:45	JJR	MADEP soil
MADEP EPH	11H1275	NUH0588-01RE1	10.40	1.00	08/10/11 06:45	JJR	MADEP soil
MADEP VPH							
MADEP VPH	11H1301	NUH0588-01	12.04	15.00	08/01/11 09:45	KAR2	MADEP
Semivolatile Organic Compounds by EPA Method 8270D							
SW846 8270D	11H1277	NUH0588-01	15.09	1.00	08/09/11 11:55	RCH2	EPA 3541
SW846 8270D	11H3478	NUH0588-01RE1	15.51	1.00	08/15/11 10:00	AMS	EPA 3541
Total Metals by EPA 6010C							
SW846 6010C	11H1701	NUH0588-01	0.51	100.00	08/11/11 07:05	RDS	EPA 3051A/6010
SW846 6010C	11H1701	NUH0588-01	0.51	100.00	08/11/11 07:05	RDS	EPA 3051A/6010
Volatile Organic - MCP CAM Method 8260							
SW846 8260B	11H0292	NUH0588-01	7.13	10.00	08/01/11 09:45	AAN	EPA 5035
SW846 8260B	11H2363	NUH0588-01RE1	7.13	10.00	08/01/11 09:45	AAN	EPA 5035
SW846 8260B	11H0292	NUH0588-02	10.00	10.00	08/01/11 08:00	AAN	EPA 5035

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	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
Blank

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
General Chemistry Parameters						
11H3859-BLK1						
Total Organic Carbon	798		mg/kg wet	11H3859	11H3859-BLK1	08/18/11 14:13
MADEP VPH						
11H1301-BLK1						
Methyl tert-Butyl Ether	<0.0350		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
Benzene	<0.0200		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
Toluene	<0.0250		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
Ethylbenzene	<0.0250		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
m,p-Xylene	<0.0650		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
o-Xylene	<0.0300		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
Naphthalene	0.134		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
C5 - C8 Aliphatic Hydrocarbons, Unadjustec	<2.50		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
C9 - C12 Aliphatic Hydrocarbons, Unadjuste	<2.50		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
C5 - C8 Aliphatic Hydrocarbons	<2.50		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
C9 - C12 Aliphatic Hydrocarbons	<2.50		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
C9 - C10 Aromatic Hydrocarbons	<2.50		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
Surrogate: 2,5-Dibromotoluene (FID)	99%			11H1301	11H1301-BLK1	08/05/11 15:35
Surrogate: 2,5-Dibromotoluene (PID)	97%			11H1301	11H1301-BLK1	08/05/11 15:35
MADEP EPH						
11H1275-BLK1						
C9 - C18 Aliphatic Hydrocarbons	<1.90		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:09
C19 - C36 Aliphatic Hydrocarbons	<1.90		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:09
C11 - C22 Aromatic Hydrocarbons, Unadjus	<1.40		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
2-Methylnaphthalene	<0.0210		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Acenaphthene	<0.0140		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Acenaphthylene	<0.0200		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Anthracene	<0.00900		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Benzo (a) anthracene	<0.0110		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Benzo (a) pyrene	<0.00800		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Benzo (b) fluoranthene	<0.0380		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Benzo (g,h,i) perylene	<0.00900		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Benzo (k) fluoranthene	<0.0370		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Chrysene	<0.0310		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Dibenz (a,h) anthracene	<0.0150		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Fluoranthene	<0.0110		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Fluorene	<0.0200		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Indeno (1,2,3-cd) pyrene	<0.0310		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Naphthalene	0.117		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Phenanthrene	<0.0100		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Pyrene	<0.0230		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40

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	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
MADEP EPH						
11H1275-BLK1						
Surrogate: 1-Chlorooctadecane	71%			11H1275	11H1275-BLK1	08/13/11 11:09
Surrogate: o-Terphenyl	83%			11H1275	11H1275-BLK1	08/13/11 11:40
Surrogate: 2-Fluorobiphenyl	105%			11H1275	11H1275-BLK1	08/13/11 11:40
Surrogate: 2-Bromonaphthalene	105%			11H1275	11H1275-BLK1	08/13/11 11:40
Volatile Organic - MCP CAM Method 8260						
11H0292-BLK1						
Acetone	1.23		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Tert-Amyl Methyl Ether	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Benzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromobenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromochloromethane	<0.0120		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromodichloromethane	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromoform	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromomethane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
2-Butanone	2.92		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
tert-Butylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
n-Butylbenzene	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
sec-Butylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Carbon disulfide	<0.00650		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Carbon Tetrachloride	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Chlorobenzene	<0.00950		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Chlorodibromomethane	<0.0105		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Chloroethane	<0.0105		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Chloroform	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Chloromethane	<0.0150		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
2-Chlorotoluene	<0.00700		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
4-Chlorotoluene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dibromo-3-chloropropane	<0.0135		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dibromoethane (EDB)	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Dibromomethane	<0.00800		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dichlorobenzene	<0.00650		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,3-Dichlorobenzene	<0.00700		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,4-Dichlorobenzene	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Dichlorodifluoromethane	<0.00700		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dichloroethane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1-Dichloroethane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1-Dichloroethene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
trans-1,2-Dichloroethene	<0.00800		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
cis-1,2-Dichloroethene	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,3-Dichloropropane	<0.00550		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11H0292-BLK1						
2,2-Dichloropropane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dichloropropane	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
trans-1,3-Dichloropropene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1-Dichloropropene	<0.00550		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
cis-1,3-Dichloropropene	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Diethyl ether	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,4-Dioxane	<0.900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Ethylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Ethyl tert-Butyl Ether	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Hexachlorobutadiene	<0.0130		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
2-Hexanone	<0.0355		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Isopropylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Diisopropyl Ether	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
p-Isopropyltoluene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Methyl tert-Butyl Ether	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Methylene Chloride	<0.0835		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
4-Methyl-2-pentanone	<0.165		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Naphthalene	<0.0850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
n-Propylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Styrene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,2,2-Tetrachloroethane	<0.00700		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,1,2-Tetrachloroethane	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Tetrachloroethene	<0.00950		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Tetrahydrofuran	0.201		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Toluene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2,4-Trichlorobenzene	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2,3-Trichlorobenzene	0.0125		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,1-Trichloroethane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,2-Trichloroethane	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Trichloroethene	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Trichlorofluoromethane	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2,3-Trichloropropane	<0.0135		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,3,5-Trimethylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2,4-Trimethylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Vinyl chloride	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Xylenes, total	<0.0195		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,2-Trifluorotrichloroethane	<0.0380		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Surrogate: 1,2-Dichloroethane-d4	101%			11H0292	11H0292-BLK1	08/07/11 11:50
Surrogate: Dibromofluoromethane	97%			11H0292	11H0292-BLK1	08/07/11 11:50
Surrogate: Toluene-d8	89%			11H0292	11H0292-BLK1	08/07/11 11:50
Surrogate: 4-Bromofluorobenzene	101%			11H0292	11H0292-BLK1	08/07/11 11:50

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Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11H2363-BLK1						
Acetone	<0.250		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Tert-Amyl Methyl Ether	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Benzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Bromobenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Bromochloromethane	<0.0120		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Bromodichloromethane	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Bromoform	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Bromomethane	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
2-Butanone	0.306		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
tert-Butylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
n-Butylbenzene	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
sec-Butylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Carbon disulfide	<0.00650		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Carbon Tetrachloride	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Chlorobenzene	<0.00950		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Chlorodibromomethane	<0.0105		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Chloroethane	<0.0105		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Chloroform	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Chloromethane	<0.0150		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
2-Chlorotoluene	<0.00700		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
4-Chlorotoluene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2-Dibromo-3-chloropropane	<0.0135		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2-Dibromoethane (EDB)	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Dibromomethane	<0.00800		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2-Dichlorobenzene	<0.00650		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,3-Dichlorobenzene	<0.00700		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,4-Dichlorobenzene	<0.00750		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Dichlorodifluoromethane	<0.00700		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2-Dichloroethane	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1-Dichloroethane	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1-Dichloroethene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
trans-1,2-Dichloroethene	<0.00800		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
cis-1,2-Dichloroethene	<0.00750		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,3-Dichloropropane	<0.00550		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
2,2-Dichloropropane	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2-Dichloropropane	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
trans-1,3-Dichloropropene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1-Dichloropropene	<0.00550		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
cis-1,3-Dichloropropene	<0.00750		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Diethyl ether	<0.00750		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,4-Dioxane	<0.900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14

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Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11H2363-BLK1						
Ethylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Ethyl tert-Butyl Ether	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Hexachlorobutadiene	<0.0130		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
2-Hexanone	<0.0355		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Isopropylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Diisopropyl Ether	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
p-Isopropyltoluene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Methyl tert-Butyl Ether	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Methylene Chloride	<0.0835		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
4-Methyl-2-pentanone	<0.165		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Naphthalene	<0.0850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
n-Propylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Styrene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1,2,2-Tetrachloroethane	<0.00700		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1,1,2-Tetrachloroethane	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Tetrachloroethene	<0.00950		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Tetrahydrofuran	<0.0730		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Toluene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2,4-Trichlorobenzene	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2,3-Trichlorobenzene	<0.0125		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1,1-Trichloroethane	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1,2-Trichloroethane	<0.00750		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Trichloroethene	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Trichlorofluoromethane	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2,3-Trichloropropane	<0.0135		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,3,5-Trimethylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2,4-Trimethylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Vinyl chloride	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Xylenes, total	<0.0195		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Surrogate: 1,2-Dichloroethane-d4	94%			11H2363	11H2363-BLK1	08/08/11 16:14
Surrogate: Dibromofluoromethane	92%			11H2363	11H2363-BLK1	08/08/11 16:14
Surrogate: Toluene-d8	85%			11H2363	11H2363-BLK1	08/08/11 16:14
Surrogate: 4-Bromofluorobenzene	95%			11H2363	11H2363-BLK1	08/08/11 16:14
Total Metals by EPA 6010C						
11H1701-BLK1						
Iron	<4.84		mg/kg	11H1701	11H1701-BLK1	08/12/11 12:13
Manganese	0.251		mg/kg	11H1701	11H1701-BLK1	08/12/11 12:13
Semivolatile Organic Compounds by EPA Method 8270D						
11H3478-BLK1						

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Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270D						
11H3478-BLK1						
Acenaphthene	<0.0140		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Acenaphthylene	<0.0200		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Azobenzene	<0.173		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Aniline	<0.122		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Anthracene	<0.00900		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Benzo (a) anthracene	<0.0110		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Benzo (a) pyrene	<0.00800		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Benzo (b) fluoranthene	<0.0380		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Benzo (g,h,i) perylene	<0.00900		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Benzo (k) fluoranthene	<0.0370		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Bis(2-chloroethoxy)methane	<0.128		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Bis(2-chloroethyl)ether	<0.151		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Bis(2-chloroisopropyl)ether	<0.158		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Bis(2-ethylhexyl)phthalate	<0.126		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
4-Bromophenyl phenyl ether	<0.150		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Butyl benzyl phthalate	<0.125		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
4-Chloroaniline	<0.103		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
2-Chloronaphthalene	<0.150		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
2-Chlorophenol	<0.149		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
4-Chlorophenyl phenyl ether	<0.148		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Chrysene	<0.0310		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Dibenz (a,h) anthracene	<0.0150		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Dibenzofuran	<0.0140		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Di-n-butyl phthalate	<0.141		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
3,3-Dichlorobenzidine	<0.0480		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
1,2-Dichlorobenzene	<0.154		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
1,3-Dichlorobenzene	<0.143		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
1,4-Dichlorobenzene	<0.147		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
2,4-Dichlorophenol	<0.131		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Diethyl phthalate	<0.148		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
2,4-Dimethylphenol	<0.137		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Dimethyl phthalate	<0.157		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
2,4-Dinitrophenol	<0.0990		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
2,4-Dinitrotoluene	<0.140		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
2,6-Dinitrotoluene	<0.150		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Di-n-octyl phthalate	<0.135		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Fluoranthene	<0.0110		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Fluorene	<0.0200		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Hexachlorobenzene	<0.153		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Hexachlorobutadiene	<0.174		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Hexachloroethane	<0.150		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270D						
11H3478-BLK1						
Indeno (1,2,3-cd) pyrene	<0.0310		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Isophorone	<0.135		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
2-Methylnaphthalene	<0.0210		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
2-Methylphenol	<0.189		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
3/4-Methylphenol	<0.166		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Naphthalene	<0.0140		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Nitrobenzene	<0.159		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
2-Nitrophenol	<0.196		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
4-Nitrophenol	<0.153		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Pentachlorophenol	<0.123		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Phenanthrene	<0.0100		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Phenol	<0.131		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Pyrene	<0.0230		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
1,2,4-Trichlorobenzene	<0.144		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
2,4,5-Trichlorophenol	<0.148		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
2,4,6-Trichlorophenol	<0.149		mg/kg wet	11H3478	11H3478-BLK1	08/15/11 16:21
Surrogate: 2-Fluorophenol	56%			11H3478	11H3478-BLK1	08/15/11 16:21
Surrogate: Phenol-d5	60%			11H3478	11H3478-BLK1	08/15/11 16:21
Surrogate: 2-Fluorobiphenyl	71%			11H3478	11H3478-BLK1	08/15/11 16:21
Surrogate: Nitrobenzene-d5	70%			11H3478	11H3478-BLK1	08/15/11 16:21
Surrogate: Terphenyl-d14	96%			11H3478	11H3478-BLK1	08/15/11 16:21
Surrogate: 2,4,6-Tribromophenol	73%			11H3478	11H3478-BLK1	08/15/11 16:21

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
General Chemistry Parameters								
11H3859-BS1								
Total Organic Carbon	29900	32400		mg/kg wet	108%	80 - 120	11H3859	08/18/11 14:13
MADEP VPH								
11H1301-BS1								
Methyl tert-Butyl Ether	0.100	0.0977		mg/kg wet	98%	70 - 130	11H1301	08/05/11 11:04
Benzene	0.100	0.104		mg/kg wet	104%	70 - 130	11H1301	08/05/11 11:04
Toluene	0.100	0.102		mg/kg wet	102%	70 - 130	11H1301	08/05/11 11:04
Ethylbenzene	0.100	0.104		mg/kg wet	104%	70 - 130	11H1301	08/05/11 11:04
m,p-Xylene	0.200	0.210		mg/kg wet	105%	70 - 130	11H1301	08/05/11 11:04
o-Xylene	0.100	0.103		mg/kg wet	103%	70 - 130	11H1301	08/05/11 11:04
Naphthalene	0.100	0.0973		mg/kg wet	97%	70 - 130	11H1301	08/05/11 11:04
C5 - C8 Aliphatic Hydrocarbons, Unadjusted	0.300	0.320		mg/kg wet	107%	70 - 130	11H1301	08/05/11 11:04
C9 - C12 Aliphatic Hydrocarbons, Unadjusted	0.200	0.197		mg/kg wet	98%	70 - 130	11H1301	08/05/11 11:04
C9 - C10 Aromatic Hydrocarbons	0.100	0.104		mg/kg wet	104%	70 - 130	11H1301	08/05/11 11:04
Surrogate: 2,5-Dibromotoluene (FID)	40.0	38.5			96%	70 - 130	11H1301	08/05/11 11:04
Surrogate: 2,5-Dibromotoluene (PID)	40.0	39.4			98%	70 - 130	11H1301	08/05/11 11:04
MADEP EPH								
11H1275-BS1								
C9 - C18 Aliphatic Hydrocarbons	15.0	12.0		mg/kg wet	80%	40 - 140	11H1275	08/13/11 12:10
C19 - C36 Aliphatic Hydrocarbons	20.0	17.0		mg/kg wet	85%	40 - 140	11H1275	08/13/11 12:10
C11 - C22 Aromatic Hydrocarbons, Unadjustec	42.5	39.0		mg/kg wet	92%	40 - 140	11H1275	08/13/11 12:41
2-Methylnaphthalene	2.50	2.33		mg/kg wet	93%	40 - 140	11H1275	08/13/11 12:41
Acenaphthene	2.50	2.37		mg/kg wet	95%	40 - 140	11H1275	08/13/11 12:41
Acenaphthylene	2.50	2.33		mg/kg wet	93%	40 - 140	11H1275	08/13/11 12:41
Anthracene	2.50	2.22		mg/kg wet	89%	40 - 140	11H1275	08/13/11 12:41
Benzo (a) anthracene	2.50	2.18		mg/kg wet	87%	40 - 140	11H1275	08/13/11 12:41
Benzo (a) pyrene	2.50	2.30		mg/kg wet	92%	40 - 140	11H1275	08/13/11 12:41
Benzo (b) fluoranthene	2.50	2.17		mg/kg wet	87%	40 - 140	11H1275	08/13/11 12:41
Benzo (g,h,i) perylene	2.50	2.27		mg/kg wet	91%	40 - 140	11H1275	08/13/11 12:41
Benzo (k) fluoranthene	2.50	2.22		mg/kg wet	89%	40 - 140	11H1275	08/13/11 12:41
Chrysene	2.50	2.24		mg/kg wet	90%	40 - 140	11H1275	08/13/11 12:41
Dibenz (a,h) anthracene	2.50	2.28		mg/kg wet	91%	40 - 140	11H1275	08/13/11 12:41
Fluoranthene	2.50	2.35		mg/kg wet	94%	40 - 140	11H1275	08/13/11 12:41
Fluorene	2.50	2.40		mg/kg wet	96%	40 - 140	11H1275	08/13/11 12:41
Indeno (1,2,3-cd) pyrene	2.50	2.17		mg/kg wet	87%	40 - 140	11H1275	08/13/11 12:41
Naphthalene	2.50	2.42		mg/kg wet	97%	40 - 140	11H1275	08/13/11 12:41
Phenanthrene	2.50	2.38		mg/kg wet	95%	40 - 140	11H1275	08/13/11 12:41
Pyrene	2.50	2.30		mg/kg wet	92%	40 - 140	11H1275	08/13/11 12:41
Surrogate: 1-Chlorooctadecane	4.00	3.40			85%	40 - 140	11H1275	08/13/11 12:10
Surrogate: o-Terphenyl	4.00	3.76			94%	40 - 140	11H1275	08/13/11 12:41

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
MADEP EPH								
11H1275-BS1								
Surrogate: 2-Fluorobiphenyl	4.00	4.36			109%	40 - 140	11H1275	08/13/11 12:41
Surrogate: 2-Bromonaphthalene	4.00	4.62			116%	40 - 140	11H1275	08/13/11 12:41
Volatile Organic - MCP CAM Method 8260								
11H0292-BS1								
Acetone	250	327	L, B	ug/kg	131%	70 - 130	11H0292	08/07/11 09:02
Tert-Amyl Methyl Ether	50.0	48.9		ug/kg	98%	70 - 130	11H0292	08/07/11 09:02
Benzene	50.0	54.6		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
Bromobenzene	50.0	50.6		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02
Bromochloromethane	50.0	52.9		ug/kg	106%	70 - 130	11H0292	08/07/11 09:02
Bromodichloromethane	50.0	53.5		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Bromoform	50.0	40.4		ug/kg	81%	70 - 130	11H0292	08/07/11 09:02
Bromomethane	50.0	56.4		ug/kg	113%	70 - 130	11H0292	08/07/11 09:02
2-Butanone	250	266	B	ug/kg	106%	70 - 130	11H0292	08/07/11 09:02
tert-Butylbenzene	50.0	55.4		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
n-Butylbenzene	50.0	48.9		ug/kg	98%	70 - 130	11H0292	08/07/11 09:02
sec-Butylbenzene	50.0	55.8		ug/kg	112%	70 - 130	11H0292	08/07/11 09:02
Carbon disulfide	50.0	53.6		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Carbon Tetrachloride	50.0	58.7		ug/kg	117%	70 - 130	11H0292	08/07/11 09:02
Chlorobenzene	50.0	53.3		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Chlorodibromomethane	50.0	50.4		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02
Chloroethane	50.0	52.4		ug/kg	105%	70 - 130	11H0292	08/07/11 09:02
Chloroform	50.0	53.9		ug/kg	108%	70 - 130	11H0292	08/07/11 09:02
Chloromethane	50.0	54.5		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
2-Chlorotoluene	50.0	53.5		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
4-Chlorotoluene	50.0	56.1		ug/kg	112%	70 - 130	11H0292	08/07/11 09:02
1,2-Dibromo-3-chloropropane	50.0	44.2		ug/kg	88%	70 - 130	11H0292	08/07/11 09:02
1,2-Dibromoethane (EDB)	50.0	54.3		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
Dibromomethane	50.0	50.0		ug/kg	100%	70 - 130	11H0292	08/07/11 09:02
1,2-Dichlorobenzene	50.0	54.2		ug/kg	108%	70 - 130	11H0292	08/07/11 09:02
1,3-Dichlorobenzene	50.0	55.4		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
1,4-Dichlorobenzene	50.0	53.7		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Dichlorodifluoromethane	50.0	61.7		ug/kg	123%	70 - 130	11H0292	08/07/11 09:02
1,2-Dichloroethane	50.0	52.2		ug/kg	104%	70 - 130	11H0292	08/07/11 09:02
1,1-Dichloroethane	50.0	52.9		ug/kg	106%	70 - 130	11H0292	08/07/11 09:02
1,1-Dichloroethene	50.0	53.3		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
trans-1,2-Dichloroethene	50.0	54.2		ug/kg	108%	70 - 130	11H0292	08/07/11 09:02
cis-1,2-Dichloroethene	50.0	55.5		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
1,3-Dichloropropane	50.0	53.0		ug/kg	106%	70 - 130	11H0292	08/07/11 09:02
2,2-Dichloropropane	50.0	66.4	L	ug/kg	133%	70 - 130	11H0292	08/07/11 09:02
1,2-Dichloropropane	50.0	50.4		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11H0292-BS1								
trans-1,3-Dichloropropene	50.0	50.3		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02
1,1-Dichloropropene	50.0	55.3		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
cis-1,3-Dichloropropene	50.0	60.1		ug/kg	120%	70 - 130	11H0292	08/07/11 09:02
Diethyl ether	50.0	51.1		ug/kg	102%	70 - 130	11H0292	08/07/11 09:02
1,4-Dioxane	5000	3910		ug/kg	78%	70 - 130	11H0292	08/07/11 09:02
Ethylbenzene	50.0	55.4		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
Ethyl tert-Butyl Ether	50.0	48.0		ug/kg	96%	70 - 130	11H0292	08/07/11 09:02
Hexachlorobutadiene	50.0	60.6		ug/kg	121%	70 - 130	11H0292	08/07/11 09:02
2-Hexanone	250	284		ug/kg	114%	70 - 130	11H0292	08/07/11 09:02
Isopropylbenzene	50.0	42.0		ug/kg	84%	70 - 130	11H0292	08/07/11 09:02
Diisopropyl Ether	50.0	50.9		ug/kg	102%	70 - 130	11H0292	08/07/11 09:02
p-Isopropyltoluene	50.0	55.0		ug/kg	110%	70 - 130	11H0292	08/07/11 09:02
Methyl tert-Butyl Ether	50.0	50.4		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02
Methylene Chloride	50.0	54.0		ug/kg	108%	70 - 130	11H0292	08/07/11 09:02
4-Methyl-2-pentanone	250	232		ug/kg	93%	70 - 130	11H0292	08/07/11 09:02
Naphthalene	50.0	45.8		ug/kg	92%	70 - 130	11H0292	08/07/11 09:02
n-Propylbenzene	50.0	54.4		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
Styrene	50.0	48.4		ug/kg	97%	70 - 130	11H0292	08/07/11 09:02
1,1,2,2-Tetrachloroethane	50.0	47.2		ug/kg	94%	70 - 130	11H0292	08/07/11 09:02
1,1,1,2-Tetrachloroethane	50.0	56.4		ug/kg	113%	70 - 130	11H0292	08/07/11 09:02
Tetrachloroethene	50.0	56.3		ug/kg	113%	70 - 130	11H0292	08/07/11 09:02
Tetrahydrofuran	500	471	B	ug/kg	94%	70 - 130	11H0292	08/07/11 09:02
Toluene	50.0	51.8		ug/kg	104%	70 - 130	11H0292	08/07/11 09:02
1,2,4-Trichlorobenzene	50.0	54.7		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
1,2,3-Trichlorobenzene	50.0	47.1		ug/kg	94%	70 - 130	11H0292	08/07/11 09:02
1,1,1-Trichloroethane	50.0	56.8		ug/kg	114%	70 - 130	11H0292	08/07/11 09:02
1,1,2-Trichloroethane	50.0	53.7		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Trichloroethene	50.0	53.4		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Trichlorofluoromethane	50.0	54.7		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
1,2,3-Trichloropropane	50.0	47.8		ug/kg	96%	70 - 130	11H0292	08/07/11 09:02
1,3,5-Trimethylbenzene	50.0	56.2		ug/kg	112%	70 - 130	11H0292	08/07/11 09:02
1,2,4-Trimethylbenzene	50.0	55.9		ug/kg	112%	70 - 130	11H0292	08/07/11 09:02
Vinyl chloride	50.0	58.7		ug/kg	117%	70 - 130	11H0292	08/07/11 09:02
Xylenes, total	150	157		ug/kg	105%	70 - 130	11H0292	08/07/11 09:02
1,1,2-Trifluorotrichloroethane	50.0	57.4		ug/kg	115%	61 - 134	11H0292	08/07/11 09:02
Surrogate: 1,2-Dichloroethane-d4	25.0	24.6			98%	70 - 130	11H0292	08/07/11 09:02
Surrogate: Dibromofluoromethane	25.0	25.5			102%	70 - 130	11H0292	08/07/11 09:02
Surrogate: Toluene-d8	25.0	24.1			96%	70 - 130	11H0292	08/07/11 09:02
Surrogate: 4-Bromofluorobenzene	25.0	24.8			99%	70 - 130	11H0292	08/07/11 09:02

11H2363-BS1

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11H2363-BS1								
Acetone	250	337	L	ug/kg	135%	70 - 130	11H2363	08/08/11 13:52
Tert-Amyl Methyl Ether	50.0	59.5		ug/kg	119%	70 - 130	11H2363	08/08/11 13:52
Benzene	50.0	53.0		ug/kg	106%	70 - 130	11H2363	08/08/11 13:52
Bromobenzene	50.0	48.0		ug/kg	96%	70 - 130	11H2363	08/08/11 13:52
Bromochloromethane	50.0	51.7		ug/kg	103%	70 - 130	11H2363	08/08/11 13:52
Bromodichloromethane	50.0	51.7		ug/kg	103%	70 - 130	11H2363	08/08/11 13:52
Bromoform	50.0	51.8		ug/kg	104%	70 - 130	11H2363	08/08/11 13:52
Bromomethane	50.0	53.0		ug/kg	106%	70 - 130	11H2363	08/08/11 13:52
2-Butanone	250	287		ug/kg	115%	70 - 130	11H2363	08/08/11 13:52
tert-Butylbenzene	50.0	57.4		ug/kg	115%	70 - 130	11H2363	08/08/11 13:52
n-Butylbenzene	50.0	50.8		ug/kg	102%	70 - 130	11H2363	08/08/11 13:52
sec-Butylbenzene	50.0	58.0		ug/kg	116%	70 - 130	11H2363	08/08/11 13:52
Carbon disulfide	50.0	52.4		ug/kg	105%	70 - 130	11H2363	08/08/11 13:52
Carbon Tetrachloride	50.0	59.0		ug/kg	118%	70 - 130	11H2363	08/08/11 13:52
Chlorobenzene	50.0	53.5		ug/kg	107%	70 - 130	11H2363	08/08/11 13:52
Chlorodibromomethane	50.0	48.9		ug/kg	98%	70 - 130	11H2363	08/08/11 13:52
Chloroethane	50.0	48.7		ug/kg	97%	70 - 130	11H2363	08/08/11 13:52
Chloroform	50.0	52.8		ug/kg	106%	70 - 130	11H2363	08/08/11 13:52
Chloromethane	50.0	39.8		ug/kg	80%	70 - 130	11H2363	08/08/11 13:52
2-Chlorotoluene	50.0	51.5		ug/kg	103%	70 - 130	11H2363	08/08/11 13:52
4-Chlorotoluene	50.0	54.7		ug/kg	109%	70 - 130	11H2363	08/08/11 13:52
1,2-Dibromo-3-chloropropane	50.0	46.2		ug/kg	92%	70 - 130	11H2363	08/08/11 13:52
1,2-Dibromoethane (EDB)	50.0	50.6		ug/kg	101%	70 - 130	11H2363	08/08/11 13:52
Dibromomethane	50.0	47.7		ug/kg	95%	70 - 130	11H2363	08/08/11 13:52
1,2-Dichlorobenzene	50.0	56.3		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52
1,3-Dichlorobenzene	50.0	56.6		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52
1,4-Dichlorobenzene	50.0	56.2		ug/kg	112%	70 - 130	11H2363	08/08/11 13:52
Dichlorodifluoromethane	50.0	49.8		ug/kg	100%	70 - 130	11H2363	08/08/11 13:52
1,2-Dichloroethane	50.0	48.1		ug/kg	96%	70 - 130	11H2363	08/08/11 13:52
1,1-Dichloroethane	50.0	51.5		ug/kg	103%	70 - 130	11H2363	08/08/11 13:52
1,1-Dichloroethene	50.0	52.5		ug/kg	105%	70 - 130	11H2363	08/08/11 13:52
trans-1,2-Dichloroethene	50.0	51.2		ug/kg	102%	70 - 130	11H2363	08/08/11 13:52
cis-1,2-Dichloroethene	50.0	51.8		ug/kg	104%	70 - 130	11H2363	08/08/11 13:52
1,3-Dichloropropane	50.0	47.2		ug/kg	94%	70 - 130	11H2363	08/08/11 13:52
2,2-Dichloropropane	50.0	68.3	L	ug/kg	137%	70 - 130	11H2363	08/08/11 13:52
1,2-Dichloropropane	50.0	47.1		ug/kg	94%	70 - 130	11H2363	08/08/11 13:52
trans-1,3-Dichloropropene	50.0	46.6		ug/kg	93%	70 - 130	11H2363	08/08/11 13:52
1,1-Dichloropropene	50.0	53.2		ug/kg	106%	70 - 130	11H2363	08/08/11 13:52
cis-1,3-Dichloropropene	50.0	60.3		ug/kg	121%	70 - 130	11H2363	08/08/11 13:52
Diethyl ether	50.0	49.4		ug/kg	99%	70 - 130	11H2363	08/08/11 13:52
1,4-Dioxane	5000	3490		ug/kg	70%	70 - 130	11H2363	08/08/11 13:52

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11H2363-BS1								
Ethylbenzene	50.0	55.2		ug/kg	110%	70 - 130	11H2363	08/08/11 13:52
Ethyl tert-Butyl Ether	50.0	53.4		ug/kg	107%	70 - 130	11H2363	08/08/11 13:52
Hexachlorobutadiene	50.0	58.4		ug/kg	117%	70 - 130	11H2363	08/08/11 13:52
2-Hexanone	250	274		ug/kg	109%	70 - 130	11H2363	08/08/11 13:52
Isopropylbenzene	50.0	65.9	L1	ug/kg	132%	70 - 130	11H2363	08/08/11 13:52
Diisopropyl Ether	50.0	48.8		ug/kg	98%	70 - 130	11H2363	08/08/11 13:52
p-Isopropyltoluene	50.0	58.4		ug/kg	117%	70 - 130	11H2363	08/08/11 13:52
Methyl tert-Butyl Ether	50.0	56.1		ug/kg	112%	70 - 130	11H2363	08/08/11 13:52
Methylene Chloride	50.0	51.0		ug/kg	102%	70 - 130	11H2363	08/08/11 13:52
4-Methyl-2-pentanone	250	223		ug/kg	89%	70 - 130	11H2363	08/08/11 13:52
Naphthalene	50.0	50.5		ug/kg	101%	70 - 130	11H2363	08/08/11 13:52
n-Propylbenzene	50.0	54.2		ug/kg	108%	70 - 130	11H2363	08/08/11 13:52
Styrene	50.0	60.3		ug/kg	121%	70 - 130	11H2363	08/08/11 13:52
1,1,2,2-Tetrachloroethane	50.0	43.8		ug/kg	88%	70 - 130	11H2363	08/08/11 13:52
1,1,1,2-Tetrachloroethane	50.0	58.6		ug/kg	117%	70 - 130	11H2363	08/08/11 13:52
Tetrachloroethene	50.0	54.2		ug/kg	108%	70 - 130	11H2363	08/08/11 13:52
Tetrahydrofuran	500	458		ug/kg	92%	70 - 130	11H2363	08/08/11 13:52
Toluene	50.0	48.1		ug/kg	96%	70 - 130	11H2363	08/08/11 13:52
1,2,4-Trichlorobenzene	50.0	56.6		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52
1,2,3-Trichlorobenzene	50.0	51.1		ug/kg	102%	70 - 130	11H2363	08/08/11 13:52
1,1,1-Trichloroethane	50.0	58.0		ug/kg	116%	70 - 130	11H2363	08/08/11 13:52
1,1,2-Trichloroethane	50.0	49.8		ug/kg	100%	70 - 130	11H2363	08/08/11 13:52
Trichloroethene	50.0	53.6		ug/kg	107%	70 - 130	11H2363	08/08/11 13:52
Trichlorofluoromethane	50.0	49.2		ug/kg	98%	70 - 130	11H2363	08/08/11 13:52
1,2,3-Trichloropropane	50.0	47.1		ug/kg	94%	70 - 130	11H2363	08/08/11 13:52
1,3,5-Trimethylbenzene	50.0	56.6		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52
1,2,4-Trimethylbenzene	50.0	56.4		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52
Vinyl chloride	50.0	47.1		ug/kg	94%	70 - 130	11H2363	08/08/11 13:52
Xylenes, total	150	170		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52
Surrogate: 1,2-Dichloroethane-d4	25.0	22.5			90%	70 - 130	11H2363	08/08/11 13:52
Surrogate: Dibromofluoromethane	25.0	24.0			96%	70 - 130	11H2363	08/08/11 13:52
Surrogate: Toluene-d8	25.0	21.4			86%	70 - 130	11H2363	08/08/11 13:52
Surrogate: 4-Bromofluorobenzene	25.0	23.9			95%	70 - 130	11H2363	08/08/11 13:52
Total Metals by EPA 6010C								
11H1701-BS1								
Iron	382	405		mg/kg	106%	80 - 120	11H1701	08/12/11 12:26
Manganese	191	197		mg/kg	103%	80 - 120	11H1701	08/12/11 12:26
Semivolatile Organic Compounds by EPA Method 8270D								
11H3478-BS1								

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Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270D								
11H3478-BS1								
Acenaphthene	3.33	2.74		mg/kg wet	82%	40 - 140	11H3478	08/15/11 16:40
Acenaphthylene	3.33	2.92		mg/kg wet	88%	40 - 140	11H3478	08/15/11 16:40
Azobenzene	3.33	3.32		mg/kg wet	100%	40 - 140	11H3478	08/15/11 16:40
Aniline	3.33	3.88		mg/kg wet	116%	40 - 140	11H3478	08/15/11 16:40
Anthracene	3.33	3.02		mg/kg wet	91%	40 - 140	11H3478	08/15/11 16:40
Benzo (a) anthracene	3.33	2.75		mg/kg wet	82%	40 - 140	11H3478	08/15/11 16:40
Benzo (a) pyrene	3.33	3.22		mg/kg wet	97%	40 - 140	11H3478	08/15/11 16:40
Benzo (b) fluoranthene	3.33	2.77		mg/kg wet	83%	40 - 140	11H3478	08/15/11 16:40
Benzo (g,h,i) perylene	3.33	2.97		mg/kg wet	89%	40 - 140	11H3478	08/15/11 16:40
Benzo (k) fluoranthene	3.33	3.14		mg/kg wet	94%	40 - 140	11H3478	08/15/11 16:40
Bis(2-chloroethoxy)methane	3.33	2.81		mg/kg wet	84%	40 - 140	11H3478	08/15/11 16:40
Bis(2-chloroethyl)ether	3.33	2.53		mg/kg wet	76%	40 - 140	11H3478	08/15/11 16:40
Bis(2-chloroisopropyl)ether	3.33	2.61		mg/kg wet	78%	40 - 140	11H3478	08/15/11 16:40
Bis(2-ethylhexyl)phthalate	3.33	3.11		mg/kg wet	93%	40 - 140	11H3478	08/15/11 16:40
4-Bromophenyl phenyl ether	3.33	3.07		mg/kg wet	92%	40 - 140	11H3478	08/15/11 16:40
Butyl benzyl phthalate	3.33	2.93		mg/kg wet	88%	40 - 140	11H3478	08/15/11 16:40
4-Chloroaniline	3.33	3.04		mg/kg wet	91%	40 - 140	11H3478	08/15/11 16:40
2-Chloronaphthalene	3.33	2.40		mg/kg wet	72%	40 - 140	11H3478	08/15/11 16:40
2-Chlorophenol	3.33	2.49		mg/kg wet	75%	30 - 130	11H3478	08/15/11 16:40
4-Chlorophenyl phenyl ether	3.33	2.99		mg/kg wet	90%	40 - 140	11H3478	08/15/11 16:40
Chrysene	3.33	2.69		mg/kg wet	81%	40 - 140	11H3478	08/15/11 16:40
Dibenz (a,h) anthracene	3.33	3.00		mg/kg wet	90%	40 - 140	11H3478	08/15/11 16:40
Dibenzofuran	3.33	2.93		mg/kg wet	88%	40 - 140	11H3478	08/15/11 16:40
Di-n-butyl phthalate	3.33	3.11		mg/kg wet	93%	40 - 140	11H3478	08/15/11 16:40
3,3-Dichlorobenzidine	3.33	2.89		mg/kg wet	87%	40 - 140	11H3478	08/15/11 16:40
1,2-Dichlorobenzene	3.33	2.25		mg/kg wet	68%	40 - 140	11H3478	08/15/11 16:40
1,3-Dichlorobenzene	3.33	2.21		mg/kg wet	66%	40 - 140	11H3478	08/15/11 16:40
1,4-Dichlorobenzene	3.33	2.22		mg/kg wet	67%	40 - 140	11H3478	08/15/11 16:40
2,4-Dichlorophenol	3.33	2.67		mg/kg wet	80%	30 - 130	11H3478	08/15/11 16:40
Diethyl phthalate	3.33	3.18		mg/kg wet	95%	40 - 140	11H3478	08/15/11 16:40
2,4-Dimethylphenol	3.33	2.83		mg/kg wet	85%	30 - 130	11H3478	08/15/11 16:40
Dimethyl phthalate	3.33	2.88		mg/kg wet	86%	40 - 140	11H3478	08/15/11 16:40
2,4-Dinitrophenol	3.33	2.30		mg/kg wet	69%	30 - 130	11H3478	08/15/11 16:40
2,4-Dinitrotoluene	3.33	2.57		mg/kg wet	77%	40 - 140	11H3478	08/15/11 16:40
2,6-Dinitrotoluene	3.33	2.63		mg/kg wet	79%	40 - 140	11H3478	08/15/11 16:40
Di-n-octyl phthalate	3.33	3.26		mg/kg wet	98%	40 - 140	11H3478	08/15/11 16:40
Fluoranthene	3.33	3.02		mg/kg wet	90%	40 - 140	11H3478	08/15/11 16:40
Fluorene	3.33	3.02		mg/kg wet	91%	40 - 140	11H3478	08/15/11 16:40
Hexachlorobenzene	3.33	3.07		mg/kg wet	92%	40 - 140	11H3478	08/15/11 16:40
Hexachlorobutadiene	3.33	3.57		mg/kg wet	107%	40 - 140	11H3478	08/15/11 16:40
Hexachloroethane	3.33	2.86		mg/kg wet	86%	40 - 140	11H3478	08/15/11 16:40

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Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270D								
11H3478-BS1								
Indeno (1,2,3-cd) pyrene	3.33	2.99		mg/kg wet	90%	40 - 140	11H3478	08/15/11 16:40
Isophorone	3.33	2.66		mg/kg wet	80%	40 - 140	11H3478	08/15/11 16:40
2-Methylnaphthalene	3.33	2.83		mg/kg wet	85%	40 - 140	11H3478	08/15/11 16:40
2-Methylphenol	3.33	2.38		mg/kg wet	72%	30 - 130	11H3478	08/15/11 16:40
3/4-Methylphenol	3.33	2.15		mg/kg wet	65%	30 - 130	11H3478	08/15/11 16:40
Naphthalene	3.33	3.02		mg/kg wet	91%	40 - 140	11H3478	08/15/11 16:40
Nitrobenzene	3.33	2.49		mg/kg wet	75%	40 - 140	11H3478	08/15/11 16:40
2-Nitrophenol	3.33	2.72		mg/kg wet	82%	30 - 130	11H3478	08/15/11 16:40
4-Nitrophenol	3.33	2.94		mg/kg wet	88%	30 - 130	11H3478	08/15/11 16:40
Pentachlorophenol	3.33	3.36		mg/kg wet	101%	30 - 130	11H3478	08/15/11 16:40
Phenanthrene	3.33	2.89		mg/kg wet	87%	40 - 140	11H3478	08/15/11 16:40
Phenol	3.33	2.35		mg/kg wet	71%	30 - 130	11H3478	08/15/11 16:40
Pyrene	3.33	2.72		mg/kg wet	82%	40 - 140	11H3478	08/15/11 16:40
1,2,4-Trichlorobenzene	3.33	2.40		mg/kg wet	72%	40 - 140	11H3478	08/15/11 16:40
2,4,5-Trichlorophenol	3.33	2.55		mg/kg wet	76%	30 - 130	11H3478	08/15/11 16:40
2,4,6-Trichlorophenol	3.33	3.13		mg/kg wet	94%	30 - 130	11H3478	08/15/11 16:40
Surrogate: 2-Fluorophenol	3.33	2.05			61%	30 - 130	11H3478	08/15/11 16:40
Surrogate: Phenol-d5	3.33	2.18			66%	30 - 130	11H3478	08/15/11 16:40
Surrogate: 2-Fluorobiphenyl	3.33	2.54			76%	30 - 130	11H3478	08/15/11 16:40
Surrogate: Nitrobenzene-d5	3.33	2.51			75%	30 - 130	11H3478	08/15/11 16:40
Surrogate: Terphenyl-d14	3.33	2.91			87%	30 - 130	11H3478	08/15/11 16:40
Surrogate: 2,4,6-Tribromophenol	3.33	2.60			78%	30 - 130	11H3478	08/15/11 16:40

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Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS Dup

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
MADEP VPH												
11H1301-BSD1												
Methyl tert-Butyl Ether		0.0965		mg/kg wet	0.100	97%	70 - 130	1	25	11H1301		08/05/11 11:34
Benzene		0.0983		mg/kg wet	0.100	98%	70 - 130	5	25	11H1301		08/05/11 11:34
Toluene		0.0957		mg/kg wet	0.100	96%	70 - 130	6	25	11H1301		08/05/11 11:34
Ethylbenzene		0.0982		mg/kg wet	0.100	98%	70 - 130	6	25	11H1301		08/05/11 11:34
m,p-Xylene		0.198		mg/kg wet	0.200	99%	70 - 130	6	25	11H1301		08/05/11 11:34
o-Xylene		0.0976		mg/kg wet	0.100	98%	70 - 130	6	25	11H1301		08/05/11 11:34
Naphthalene		0.0954		mg/kg wet	0.100	95%	70 - 130	2	25	11H1301		08/05/11 11:34
C5 - C8 Aliphatic Hydrocarbons, Unadjusted		0.300		mg/kg wet	0.300	100%	70 - 130	6	25	11H1301		08/05/11 11:34
C9 - C12 Aliphatic Hydrocarbons, Unadjusted		0.204		mg/kg wet	0.200	102%	70 - 130	4	25	11H1301		08/05/11 11:34
C9 - C10 Aromatic Hydrocarbons		0.0986		mg/kg wet	0.100	99%	70 - 130	5	25	11H1301		08/05/11 11:34
Surrogate: 2,5-Dibromotoluene (FID)		37.4		ug/L	40.0	94%	70 - 130			11H1301		08/05/11 11:34
Surrogate: 2,5-Dibromotoluene (PID)		38.4		ug/L	40.0	96%	70 - 130			11H1301		08/05/11 11:34
MADEP EPH												
11H1275-BSD1												
C9 - C18 Aliphatic Hydrocarbons		13.1		mg/kg wet	15.0	88%	40 - 140	9	25	11H1275		08/13/11 13:11
C19 - C36 Aliphatic Hydrocarbons		18.4		mg/kg wet	20.0	92%	40 - 140	8	25	11H1275		08/13/11 13:11
C11 - C22 Aromatic Hydrocarbons, Unadjuste		38.3		mg/kg wet	42.5	90%	40 - 140	2	25	11H1275		08/13/11 13:42
2-Methylnaphthalene		2.32		mg/kg wet	2.50	93%	40 - 140	0.3	25	11H1275		08/13/11 13:42
Acenaphthene		2.37		mg/kg wet	2.50	95%	40 - 140	0.2	25	11H1275		08/13/11 13:42
Acenaphthylene		2.34		mg/kg wet	2.50	94%	40 - 140	0.2	25	11H1275		08/13/11 13:42
Anthracene		2.20		mg/kg wet	2.50	88%	40 - 140	1	25	11H1275		08/13/11 13:42
Benzo (a) anthracene		2.17		mg/kg wet	2.50	87%	40 - 140	0.4	25	11H1275		08/13/11 13:42
Benzo (a) pyrene		2.24		mg/kg wet	2.50	90%	40 - 140	2	25	11H1275		08/13/11 13:42
Benzo (b) fluoranthene		2.13		mg/kg wet	2.50	85%	40 - 140	2	25	11H1275		08/13/11 13:42
Benzo (g,h,i) perylene		2.21		mg/kg wet	2.50	88%	40 - 140	3	25	11H1275		08/13/11 13:42
Benzo (k) fluoranthene		2.17		mg/kg wet	2.50	87%	40 - 140	2	25	11H1275		08/13/11 13:42
Chrysene		2.18		mg/kg wet	2.50	87%	40 - 140	3	25	11H1275		08/13/11 13:42
Dibenz (a,h) anthracene		2.22		mg/kg wet	2.50	89%	40 - 140	3	25	11H1275		08/13/11 13:42
Fluoranthene		2.31		mg/kg wet	2.50	92%	40 - 140	2	25	11H1275		08/13/11 13:42
Fluorene		2.38		mg/kg wet	2.50	95%	40 - 140	1	25	11H1275		08/13/11 13:42
Indeno (1,2,3-cd) pyrene		2.12		mg/kg wet	2.50	85%	40 - 140	2	25	11H1275		08/13/11 13:42
Naphthalene		2.44		mg/kg wet	2.50	98%	40 - 140	0.7	25	11H1275		08/13/11 13:42
Phenanthrene		2.32		mg/kg wet	2.50	93%	40 - 140	3	25	11H1275		08/13/11 13:42
Pyrene		2.27		mg/kg wet	2.50	91%	40 - 140	1	25	11H1275		08/13/11 13:42
Surrogate: 1-Chlorooctadecane		3.63		mg/kg wet	4.00	91%	40 - 140			11H1275		08/13/11 13:11
Surrogate: o-Terphenyl		3.70		mg/kg wet	4.00	93%	40 - 140			11H1275		08/13/11 13:42
Surrogate: 2-Fluorobiphenyl		4.23		mg/kg wet	4.00	106%	40 - 140			11H1275		08/13/11 13:42
Surrogate: 2-Bromonaphthalene		4.39		mg/kg wet	4.00	110%	40 - 140			11H1275		08/13/11 13:42

Volatile Organic - MCP CAM Method 8260

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Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11H0292-BSD1												
Acetone		306	B	ug/kg	250	122%	70 - 130	7	25	11H0292		08/07/11 09:30
Tert-Amyl Methyl Ether		47.9		ug/kg	50.0	96%	70 - 130	2	25	11H0292		08/07/11 09:30
Benzene		53.0		ug/kg	50.0	106%	70 - 130	3	25	11H0292		08/07/11 09:30
Bromobenzene		50.9		ug/kg	50.0	102%	70 - 130	0.7	25	11H0292		08/07/11 09:30
Bromochloromethane		53.0		ug/kg	50.0	106%	70 - 130	0.1	25	11H0292		08/07/11 09:30
Bromodichloromethane		51.9		ug/kg	50.0	104%	70 - 130	3	25	11H0292		08/07/11 09:30
Bromoform		46.8		ug/kg	50.0	94%	70 - 130	15	25	11H0292		08/07/11 09:30
Bromomethane		54.5		ug/kg	50.0	109%	70 - 130	3	25	11H0292		08/07/11 09:30
2-Butanone		265	B	ug/kg	250	106%	70 - 130	0.2	25	11H0292		08/07/11 09:30
tert-Butylbenzene		54.2		ug/kg	50.0	108%	70 - 130	2	25	11H0292		08/07/11 09:30
n-Butylbenzene		48.6		ug/kg	50.0	97%	70 - 130	0.7	25	11H0292		08/07/11 09:30
sec-Butylbenzene		55.2		ug/kg	50.0	110%	70 - 130	1	25	11H0292		08/07/11 09:30
Carbon disulfide		51.6		ug/kg	50.0	103%	70 - 130	4	25	11H0292		08/07/11 09:30
Carbon Tetrachloride		56.3		ug/kg	50.0	113%	70 - 130	4	25	11H0292		08/07/11 09:30
Chlorobenzene		52.6		ug/kg	50.0	105%	70 - 130	1	25	11H0292		08/07/11 09:30
Chlorodibromomethane		49.7		ug/kg	50.0	99%	70 - 130	1	25	11H0292		08/07/11 09:30
Chloroethane		50.4		ug/kg	50.0	101%	70 - 130	4	25	11H0292		08/07/11 09:30
Chloroform		53.7		ug/kg	50.0	107%	70 - 130	0.5	25	11H0292		08/07/11 09:30
Chloromethane		52.8		ug/kg	50.0	106%	70 - 130	3	25	11H0292		08/07/11 09:30
2-Chlorotoluene		52.5		ug/kg	50.0	105%	70 - 130	2	25	11H0292		08/07/11 09:30
4-Chlorotoluene		54.7		ug/kg	50.0	109%	70 - 130	3	25	11H0292		08/07/11 09:30
1,2-Dibromo-3-chloropropane		41.6		ug/kg	50.0	83%	70 - 130	6	25	11H0292		08/07/11 09:30
1,2-Dibromoethane (EDB)		54.2		ug/kg	50.0	108%	70 - 130	0.2	25	11H0292		08/07/11 09:30
Dibromomethane		49.8		ug/kg	50.0	100%	70 - 130	0.5	25	11H0292		08/07/11 09:30
1,2-Dichlorobenzene		52.8		ug/kg	50.0	106%	70 - 130	3	25	11H0292		08/07/11 09:30
1,3-Dichlorobenzene		54.4		ug/kg	50.0	109%	70 - 130	2	25	11H0292		08/07/11 09:30
1,4-Dichlorobenzene		52.8		ug/kg	50.0	106%	70 - 130	2	25	11H0292		08/07/11 09:30
Dichlorodifluoromethane		63.4		ug/kg	50.0	127%	70 - 130	3	25	11H0292		08/07/11 09:30
1,2-Dichloroethane		50.7		ug/kg	50.0	101%	70 - 130	3	25	11H0292		08/07/11 09:30
1,1-Dichloroethane		52.8		ug/kg	50.0	106%	70 - 130	0.2	25	11H0292		08/07/11 09:30
1,1-Dichloroethene		52.0		ug/kg	50.0	104%	70 - 130	2	25	11H0292		08/07/11 09:30
trans-1,2-Dichloroethene		52.2		ug/kg	50.0	104%	70 - 130	4	25	11H0292		08/07/11 09:30
cis-1,2-Dichloroethene		53.7		ug/kg	50.0	107%	70 - 130	3	25	11H0292		08/07/11 09:30
1,3-Dichloropropane		51.6		ug/kg	50.0	103%	70 - 130	3	25	11H0292		08/07/11 09:30
2,2-Dichloropropane		63.8		ug/kg	50.0	128%	70 - 130	4	25	11H0292		08/07/11 09:30
1,2-Dichloropropane		50.0		ug/kg	50.0	100%	70 - 130	0.8	25	11H0292		08/07/11 09:30
trans-1,3-Dichloropropene		49.3		ug/kg	50.0	99%	70 - 130	2	25	11H0292		08/07/11 09:30
1,1-Dichloropropene		53.1		ug/kg	50.0	106%	70 - 130	4	25	11H0292		08/07/11 09:30
cis-1,3-Dichloropropene		58.3		ug/kg	50.0	117%	70 - 130	3	25	11H0292		08/07/11 09:30
Diethyl ether		50.4		ug/kg	50.0	101%	70 - 130	1	25	11H0292		08/07/11 09:30
1,4-Dioxane		2960	L2, R2	ug/kg	5000	59%	70 - 130	28	25	11H0292		08/07/11 09:30

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11H0292-BSD1												
Ethylbenzene		54.9		ug/kg	50.0	110%	70 - 130	0.9	25	11H0292		08/07/11 09:30
Ethyl tert-Butyl Ether		46.7		ug/kg	50.0	93%	70 - 130	3	25	11H0292		08/07/11 09:30
Hexachlorobutadiene		54.6		ug/kg	50.0	109%	70 - 130	11	25	11H0292		08/07/11 09:30
2-Hexanone		286		ug/kg	250	114%	70 - 130	0.5	25	11H0292		08/07/11 09:30
Isopropylbenzene		59.6	R2	ug/kg	50.0	119%	70 - 130	35	25	11H0292		08/07/11 09:30
Diisopropyl Ether		50.4		ug/kg	50.0	101%	70 - 130	1	25	11H0292		08/07/11 09:30
p-Isopropyltoluene		55.1		ug/kg	50.0	110%	70 - 130	0.1	25	11H0292		08/07/11 09:30
Methyl tert-Butyl Ether		49.2		ug/kg	50.0	98%	70 - 130	2	25	11H0292		08/07/11 09:30
Methylene Chloride		53.0		ug/kg	50.0	106%	70 - 130	2	25	11H0292		08/07/11 09:30
4-Methyl-2-pentanone		225		ug/kg	250	90%	70 - 130	3	25	11H0292		08/07/11 09:30
Naphthalene		44.2		ug/kg	50.0	88%	70 - 130	4	25	11H0292		08/07/11 09:30
n-Propylbenzene		54.8		ug/kg	50.0	110%	70 - 130	0.8	25	11H0292		08/07/11 09:30
Styrene		55.4		ug/kg	50.0	111%	70 - 130	13	25	11H0292		08/07/11 09:30
1,1,2,2-Tetrachloroethane		49.0		ug/kg	50.0	98%	70 - 130	4	25	11H0292		08/07/11 09:30
1,1,1,2-Tetrachloroethane		56.8		ug/kg	50.0	114%	70 - 130	0.7	25	11H0292		08/07/11 09:30
Tetrachloroethene		54.9		ug/kg	50.0	110%	70 - 130	3	25	11H0292		08/07/11 09:30
Tetrahydrofuran		453	B	ug/kg	500	91%	70 - 130	4	25	11H0292		08/07/11 09:30
Toluene		51.6		ug/kg	50.0	103%	70 - 130	0.4	25	11H0292		08/07/11 09:30
1,2,4-Trichlorobenzene		51.4		ug/kg	50.0	103%	70 - 130	6	25	11H0292		08/07/11 09:30
1,2,3-Trichlorobenzene		44.4		ug/kg	50.0	89%	70 - 130	6	25	11H0292		08/07/11 09:30
1,1,1-Trichloroethane		55.5		ug/kg	50.0	111%	70 - 130	2	25	11H0292		08/07/11 09:30
1,1,2-Trichloroethane		52.2		ug/kg	50.0	104%	70 - 130	3	25	11H0292		08/07/11 09:30
Trichloroethene		52.2		ug/kg	50.0	104%	70 - 130	2	25	11H0292		08/07/11 09:30
Trichlorofluoromethane		52.3		ug/kg	50.0	105%	70 - 130	4	25	11H0292		08/07/11 09:30
1,2,3-Trichloropropane		48.2		ug/kg	50.0	96%	70 - 130	0.8	25	11H0292		08/07/11 09:30
1,3,5-Trimethylbenzene		54.9		ug/kg	50.0	110%	70 - 130	2	25	11H0292		08/07/11 09:30
1,2,4-Trimethylbenzene		55.2		ug/kg	50.0	110%	70 - 130	1	25	11H0292		08/07/11 09:30
Vinyl chloride		56.1		ug/kg	50.0	112%	70 - 130	4	25	11H0292		08/07/11 09:30
Xylenes, total		165		ug/kg	150	110%	70 - 130	5	25	11H0292		08/07/11 09:30
1,1,2-Trifluorotrichloroethane		56.1		ug/kg	50.0	112%	61 - 134	2	46	11H0292		08/07/11 09:30
Surrogate: 1,2-Dichloroethane-d4		24.6		ug/kg	25.0	98%	70 - 130			11H0292		08/07/11 09:30
Surrogate: Dibromofluoromethane		24.7		ug/kg	25.0	99%	70 - 130			11H0292		08/07/11 09:30
Surrogate: Toluene-d8		24.0		ug/kg	25.0	96%	70 - 130			11H0292		08/07/11 09:30
Surrogate: 4-Bromofluorobenzene		24.9		ug/kg	25.0	100%	70 - 130			11H0292		08/07/11 09:30
11H2363-BSD1												
Acetone		343	L	ug/kg	250	137%	70 - 130	2	25	11H2363		08/08/11 14:21
Tert-Amyl Methyl Ether		58.0		ug/kg	50.0	116%	70 - 130	2	25	11H2363		08/08/11 14:21
Benzene		52.4		ug/kg	50.0	105%	70 - 130	1	25	11H2363		08/08/11 14:21
Bromobenzene		46.8		ug/kg	50.0	94%	70 - 130	2	25	11H2363		08/08/11 14:21
Bromochloromethane		51.4		ug/kg	50.0	103%	70 - 130	0.7	25	11H2363		08/08/11 14:21

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11H2363-BSD1												
Bromodichloromethane		50.9		ug/kg	50.0	102%	70 - 130	2	25	11H2363		08/08/11 14:21
Bromoform		51.6		ug/kg	50.0	103%	70 - 130	0.5	25	11H2363		08/08/11 14:21
Bromomethane		53.0		ug/kg	50.0	106%	70 - 130	0.02	25	11H2363		08/08/11 14:21
2-Butanone		286		ug/kg	250	114%	70 - 130	0.4	25	11H2363		08/08/11 14:21
tert-Butylbenzene		56.6		ug/kg	50.0	113%	70 - 130	1	25	11H2363		08/08/11 14:21
n-Butylbenzene		48.7		ug/kg	50.0	97%	70 - 130	4	25	11H2363		08/08/11 14:21
sec-Butylbenzene		57.1		ug/kg	50.0	114%	70 - 130	1	25	11H2363		08/08/11 14:21
Carbon disulfide		51.4		ug/kg	50.0	103%	70 - 130	2	25	11H2363		08/08/11 14:21
Carbon Tetrachloride		57.0		ug/kg	50.0	114%	70 - 130	3	25	11H2363		08/08/11 14:21
Chlorobenzene		53.2		ug/kg	50.0	106%	70 - 130	0.5	25	11H2363		08/08/11 14:21
Chlorodibromomethane		48.5		ug/kg	50.0	97%	70 - 130	0.8	25	11H2363		08/08/11 14:21
Chloroethane		47.2		ug/kg	50.0	94%	70 - 130	3	25	11H2363		08/08/11 14:21
Chloroform		51.9		ug/kg	50.0	104%	70 - 130	2	25	11H2363		08/08/11 14:21
Chloromethane		39.0		ug/kg	50.0	78%	70 - 130	2	25	11H2363		08/08/11 14:21
2-Chlorotoluene		50.6		ug/kg	50.0	101%	70 - 130	2	25	11H2363		08/08/11 14:21
4-Chlorotoluene		53.6		ug/kg	50.0	107%	70 - 130	2	25	11H2363		08/08/11 14:21
1,2-Dibromo-3-chloropropane		44.3		ug/kg	50.0	89%	70 - 130	4	25	11H2363		08/08/11 14:21
1,2-Dibromoethane (EDB)		50.9		ug/kg	50.0	102%	70 - 130	0.6	25	11H2363		08/08/11 14:21
Dibromomethane		46.3		ug/kg	50.0	93%	70 - 130	3	25	11H2363		08/08/11 14:21
1,2-Dichlorobenzene		54.4		ug/kg	50.0	109%	70 - 130	3	25	11H2363		08/08/11 14:21
1,3-Dichlorobenzene		55.4		ug/kg	50.0	111%	70 - 130	2	25	11H2363		08/08/11 14:21
1,4-Dichlorobenzene		54.3		ug/kg	50.0	109%	70 - 130	3	25	11H2363		08/08/11 14:21
Dichlorodifluoromethane		48.6		ug/kg	50.0	97%	70 - 130	2	25	11H2363		08/08/11 14:21
1,2-Dichloroethane		47.7		ug/kg	50.0	95%	70 - 130	0.9	25	11H2363		08/08/11 14:21
1,1-Dichloroethane		50.2		ug/kg	50.0	100%	70 - 130	3	25	11H2363		08/08/11 14:21
1,1-Dichloroethene		52.3		ug/kg	50.0	105%	70 - 130	0.4	25	11H2363		08/08/11 14:21
trans-1,2-Dichloroethene		50.2		ug/kg	50.0	100%	70 - 130	2	25	11H2363		08/08/11 14:21
cis-1,2-Dichloroethene		50.8		ug/kg	50.0	102%	70 - 130	2	25	11H2363		08/08/11 14:21
1,3-Dichloropropane		47.2		ug/kg	50.0	94%	70 - 130	0.2	25	11H2363		08/08/11 14:21
2,2-Dichloropropane		66.0	L	ug/kg	50.0	132%	70 - 130	3	25	11H2363		08/08/11 14:21
1,2-Dichloropropane		46.6		ug/kg	50.0	93%	70 - 130	1	25	11H2363		08/08/11 14:21
trans-1,3-Dichloropropene		46.1		ug/kg	50.0	92%	70 - 130	1	25	11H2363		08/08/11 14:21
1,1-Dichloropropene		51.8		ug/kg	50.0	104%	70 - 130	3	25	11H2363		08/08/11 14:21
cis-1,3-Dichloropropene		59.4		ug/kg	50.0	119%	70 - 130	1	25	11H2363		08/08/11 14:21
Diethyl ether		50.3		ug/kg	50.0	101%	70 - 130	2	25	11H2363		08/08/11 14:21
1,4-Dioxane		3760		ug/kg	5000	75%	70 - 130	7	25	11H2363		08/08/11 14:21
Ethylbenzene		54.9		ug/kg	50.0	110%	70 - 130	0.6	25	11H2363		08/08/11 14:21
Ethyl tert-Butyl Ether		52.7		ug/kg	50.0	105%	70 - 130	1	25	11H2363		08/08/11 14:21
Hexachlorobutadiene		57.5		ug/kg	50.0	115%	70 - 130	2	25	11H2363		08/08/11 14:21
2-Hexanone		277		ug/kg	250	111%	70 - 130	1	25	11H2363		08/08/11 14:21
Isopropylbenzene		65.8	L1	ug/kg	50.0	132%	70 - 130	0.2	25	11H2363		08/08/11 14:21

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11H2363-BSD1												
Diisopropyl Ether		48.2		ug/kg	50.0	96%	70 - 130	1	25	11H2363		08/08/11 14:21
p-Isopropyltoluene		57.8		ug/kg	50.0	116%	70 - 130	1	25	11H2363		08/08/11 14:21
Methyl tert-Butyl Ether		55.5		ug/kg	50.0	111%	70 - 130	1	25	11H2363		08/08/11 14:21
Methylene Chloride		50.6		ug/kg	50.0	101%	70 - 130	0.9	25	11H2363		08/08/11 14:21
4-Methyl-2-pentanone		201		ug/kg	250	80%	70 - 130	10	25	11H2363		08/08/11 14:21
Naphthalene		49.7		ug/kg	50.0	99%	70 - 130	2	25	11H2363		08/08/11 14:21
n-Propylbenzene		52.6		ug/kg	50.0	105%	70 - 130	3	25	11H2363		08/08/11 14:21
Styrene		60.2		ug/kg	50.0	120%	70 - 130	0.1	25	11H2363		08/08/11 14:21
1,1,2,2-Tetrachloroethane		43.7		ug/kg	50.0	87%	70 - 130	0.3	25	11H2363		08/08/11 14:21
1,1,1,2-Tetrachloroethane		57.5		ug/kg	50.0	115%	70 - 130	2	25	11H2363		08/08/11 14:21
Tetrachloroethene		53.8		ug/kg	50.0	108%	70 - 130	0.7	25	11H2363		08/08/11 14:21
Tetrahydrofuran		456		ug/kg	500	91%	70 - 130	0.5	25	11H2363		08/08/11 14:21
Toluene		47.5		ug/kg	50.0	95%	70 - 130	1	25	11H2363		08/08/11 14:21
1,2,4-Trichlorobenzene		55.4		ug/kg	50.0	111%	70 - 130	2	25	11H2363		08/08/11 14:21
1,2,3-Trichlorobenzene		49.2		ug/kg	50.0	98%	70 - 130	4	25	11H2363		08/08/11 14:21
1,1,1-Trichloroethane		56.8		ug/kg	50.0	114%	70 - 130	2	25	11H2363		08/08/11 14:21
1,1,2-Trichloroethane		49.3		ug/kg	50.0	99%	70 - 130	1	25	11H2363		08/08/11 14:21
Trichloroethene		52.2		ug/kg	50.0	104%	70 - 130	3	25	11H2363		08/08/11 14:21
Trichlorofluoromethane		48.9		ug/kg	50.0	98%	70 - 130	0.7	25	11H2363		08/08/11 14:21
1,2,3-Trichloropropane		46.2		ug/kg	50.0	92%	70 - 130	2	25	11H2363		08/08/11 14:21
1,3,5-Trimethylbenzene		55.2		ug/kg	50.0	110%	70 - 130	2	25	11H2363		08/08/11 14:21
1,2,4-Trimethylbenzene		54.7		ug/kg	50.0	109%	70 - 130	3	25	11H2363		08/08/11 14:21
Vinyl chloride		45.8		ug/kg	50.0	92%	70 - 130	3	25	11H2363		08/08/11 14:21
Xylenes, total		168		ug/kg	150	112%	70 - 130	0.7	25	11H2363		08/08/11 14:21
Surrogate: 1,2-Dichloroethane-d4		22.8		ug/kg	25.0	91%	70 - 130			11H2363		08/08/11 14:21
Surrogate: Dibromofluoromethane		23.6		ug/kg	25.0	95%	70 - 130			11H2363		08/08/11 14:21
Surrogate: Toluene-d8		21.4		ug/kg	25.0	86%	70 - 130			11H2363		08/08/11 14:21
Surrogate: 4-Bromofluorobenzene		23.6		ug/kg	25.0	94%	70 - 130			11H2363		08/08/11 14:21
Total Metals by EPA 6010C												
11H1701-BSD1												
Iron		402		mg/kg	391	103%	80 - 120	0.8	20	11H1701		08/12/11 12:29
Manganese		194		mg/kg	196	99%	80 - 120	1	20	11H1701		08/12/11 12:29
Semivolatile Organic Compounds by EPA Method 8270D												
11H3478-BSD1												
Acenaphthene		3.24		mg/kg wet	3.33	97%	40 - 140	17	30	11H3478		08/15/11 16:59
Acenaphthylene		3.34		mg/kg wet	3.33	100%	40 - 140	13	30	11H3478		08/15/11 16:59
Azobenzene		3.82		mg/kg wet	3.33	115%	40 - 140	14	30	11H3478		08/15/11 16:59
Aniline		4.49		mg/kg wet	3.33	135%	40 - 140	14	30	11H3478		08/15/11 16:59
Anthracene		3.51		mg/kg wet	3.33	105%	40 - 140	15	30	11H3478		08/15/11 16:59

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270D												
11H3478-BSD1												
Benzo (a) anthracene		3.23		mg/kg wet	3.33	97%	40 - 140	16	30	11H3478		08/15/11 16:59
Benzo (a) pyrene		3.81		mg/kg wet	3.33	114%	40 - 140	17	30	11H3478		08/15/11 16:59
Benzo (b) fluoranthene		3.29		mg/kg wet	3.33	99%	40 - 140	17	30	11H3478		08/15/11 16:59
Benzo (g,h,i) perylene		3.49		mg/kg wet	3.33	105%	40 - 140	16	30	11H3478		08/15/11 16:59
Benzo (k) fluoranthene		2.86		mg/kg wet	3.33	86%	40 - 140	9	30	11H3478		08/15/11 16:59
Bis(2-chloroethoxy)methane		3.34		mg/kg wet	3.33	100%	40 - 140	17	30	11H3478		08/15/11 16:59
Bis(2-chloroethyl)ether		2.93		mg/kg wet	3.33	88%	40 - 140	15	30	11H3478		08/15/11 16:59
Bis(2-chloroisopropyl)ether		3.21		mg/kg wet	3.33	96%	40 - 140	21	30	11H3478		08/15/11 16:59
Bis(2-ethylhexyl)phthalate		3.38		mg/kg wet	3.33	101%	40 - 140	8	30	11H3478		08/15/11 16:59
4-Bromophenyl phenyl ether		3.57		mg/kg wet	3.33	107%	40 - 140	15	30	11H3478		08/15/11 16:59
Butyl benzyl phthalate		3.40		mg/kg wet	3.33	102%	40 - 140	15	30	11H3478		08/15/11 16:59
4-Chloroaniline		3.62		mg/kg wet	3.33	108%	40 - 140	17	30	11H3478		08/15/11 16:59
2-Chloronaphthalene		2.81		mg/kg wet	3.33	84%	40 - 140	16	30	11H3478		08/15/11 16:59
2-Chlorophenol		2.77		mg/kg wet	3.33	83%	30 - 130	11	30	11H3478		08/15/11 16:59
4-Chlorophenyl phenyl ether		3.34		mg/kg wet	3.33	100%	40 - 140	11	30	11H3478		08/15/11 16:59
Chrysene		3.13		mg/kg wet	3.33	94%	40 - 140	15	30	11H3478		08/15/11 16:59
Dibenz (a,h) anthracene		3.59		mg/kg wet	3.33	108%	40 - 140	18	30	11H3478		08/15/11 16:59
Dibenzofuran		3.41		mg/kg wet	3.33	102%	40 - 140	15	30	11H3478		08/15/11 16:59
Di-n-butyl phthalate		3.57		mg/kg wet	3.33	107%	40 - 140	14	30	11H3478		08/15/11 16:59
3,3-Dichlorobenzidine		3.32		mg/kg wet	3.33	100%	40 - 140	14	30	11H3478		08/15/11 16:59
1,2-Dichlorobenzene		2.67		mg/kg wet	3.33	80%	40 - 140	17	30	11H3478		08/15/11 16:59
1,3-Dichlorobenzene		2.55		mg/kg wet	3.33	76%	40 - 140	14	30	11H3478		08/15/11 16:59
1,4-Dichlorobenzene		2.48		mg/kg wet	3.33	75%	40 - 140	11	30	11H3478		08/15/11 16:59
2,4-Dichlorophenol		3.13		mg/kg wet	3.33	94%	30 - 130	16	30	11H3478		08/15/11 16:59
Diethyl phthalate		3.54		mg/kg wet	3.33	106%	40 - 140	11	30	11H3478		08/15/11 16:59
2,4-Dimethylphenol		3.47		mg/kg wet	3.33	104%	30 - 130	20	30	11H3478		08/15/11 16:59
Dimethyl phthalate		3.29		mg/kg wet	3.33	99%	40 - 140	13	30	11H3478		08/15/11 16:59
2,4-Dinitrophenol		2.45		mg/kg wet	3.33	73%	30 - 130	6	30	11H3478		08/15/11 16:59
2,4-Dinitrotoluene		3.03		mg/kg wet	3.33	91%	40 - 140	16	30	11H3478		08/15/11 16:59
2,6-Dinitrotoluene		3.08		mg/kg wet	3.33	92%	40 - 140	16	30	11H3478		08/15/11 16:59
Di-n-octyl phthalate		3.77		mg/kg wet	3.33	113%	40 - 140	14	30	11H3478		08/15/11 16:59
Fluoranthene		3.56		mg/kg wet	3.33	107%	40 - 140	17	30	11H3478		08/15/11 16:59
Fluorene		3.56		mg/kg wet	3.33	107%	40 - 140	16	30	11H3478		08/15/11 16:59
Hexachlorobenzene		3.55		mg/kg wet	3.33	107%	40 - 140	15	30	11H3478		08/15/11 16:59
Hexachlorobutadiene		4.18		mg/kg wet	3.33	125%	40 - 140	16	30	11H3478		08/15/11 16:59
Hexachloroethane		3.29		mg/kg wet	3.33	99%	40 - 140	14	30	11H3478		08/15/11 16:59
Indeno (1,2,3-cd) pyrene		3.57		mg/kg wet	3.33	107%	40 - 140	18	30	11H3478		08/15/11 16:59
Isophorone		3.19		mg/kg wet	3.33	96%	40 - 140	18	30	11H3478		08/15/11 16:59
2-Methylnaphthalene		3.44		mg/kg wet	3.33	103%	40 - 140	19	30	11H3478		08/15/11 16:59
2-Methylphenol		2.64		mg/kg wet	3.33	79%	30 - 130	10	30	11H3478		08/15/11 16:59
3/4-Methylphenol		2.46		mg/kg wet	3.33	74%	30 - 130	13	30	11H3478		08/15/11 16:59

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA

LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270D												
11H3478-BSD1												
Naphthalene		3.71		mg/kg wet	3.33	111%	40 - 140	20	30	11H3478		08/15/11 16:59
Nitrobenzene		3.06		mg/kg wet	3.33	92%	40 - 140	21	30	11H3478		08/15/11 16:59
2-Nitrophenol		3.16		mg/kg wet	3.33	95%	30 - 130	15	30	11H3478		08/15/11 16:59
4-Nitrophenol		3.43		mg/kg wet	3.33	103%	30 - 130	16	30	11H3478		08/15/11 16:59
Pentachlorophenol		3.94		mg/kg wet	3.33	118%	30 - 130	16	30	11H3478		08/15/11 16:59
Phenanthrene		3.40		mg/kg wet	3.33	102%	40 - 140	16	30	11H3478		08/15/11 16:59
Phenol		2.70		mg/kg wet	3.33	81%	30 - 130	14	30	11H3478		08/15/11 16:59
Pyrene		3.19		mg/kg wet	3.33	96%	40 - 140	16	30	11H3478		08/15/11 16:59
1,2,4-Trichlorobenzene		2.81		mg/kg wet	3.33	84%	40 - 140	15	30	11H3478		08/15/11 16:59
2,4,5-Trichlorophenol		2.89		mg/kg wet	3.33	87%	30 - 130	13	30	11H3478		08/15/11 16:59
2,4,6-Trichlorophenol		3.62		mg/kg wet	3.33	109%	30 - 130	14	30	11H3478		08/15/11 16:59
Surrogate: 2-Fluorophenol		2.32		mg/kg wet	3.33	70%	30 - 130			11H3478		08/15/11 16:59
Surrogate: Phenol-d5		2.49		mg/kg wet	3.33	75%	30 - 130			11H3478		08/15/11 16:59
Surrogate: 2-Fluorobiphenyl		2.83		mg/kg wet	3.33	85%	30 - 130			11H3478		08/15/11 16:59
Surrogate: Nitrobenzene-d5		2.96		mg/kg wet	3.33	89%	30 - 130			11H3478		08/15/11 16:59
Surrogate: Terphenyl-d14		3.28		mg/kg wet	3.33	98%	30 - 130			11H3478		08/15/11 16:59
Surrogate: 2,4,6-Tribromophenol		2.99		mg/kg wet	3.33	90%	30 - 130			11H3478		08/15/11 16:59

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THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0588
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

DATA QUALIFIERS AND DEFINITIONS

B	Analyte was detected in the associated Method Blank.
L	Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was above the acceptance limits. Analyte not detected, data not impacted.
L1	Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was above acceptance limits.
L2	Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was below acceptance limits.
R2	The RPD exceeded the acceptance limit.
YES	Yes
ND	Not detected at the reporting limit (or method detection limit if shown)

METHOD MODIFICATION NOTES

TOC in soil 9060 M - M = Modified for soil analysis

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THE LEADER IN ENVIRONMENTAL TESTING

Nashville, TN

COOLER REC

NUH0588

Cooler Received/Opened On_08/03/11 @ 08:30

1. Tracking # 6041 (last 4 digits

Courier: ___FED-EX IR-GUN-97310166

2. Temperature of rep. sample or temp blank when opened: 1.2 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

   If yes, how many and where: 1-FRONT

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) _____

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

   Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

   b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) J.G.

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

   b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

   16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) J.G.

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) J.G.

I certify that I attached a label with the unique LIMS number to each container (intial) J.G.

21. Were there Non-Conformance issues at login? YES...NO Was a PIPE generated? YES...NO...#_____

BIS = Broken in shipment

Cooler Receipt Form.doc

General Chemical

NUH0588

08/17/11 23:59

TestAmerica

Nashville Division
2960 Foster Creighton
Nashville, TN 37204

Phone: 615-726-0177
Toll Free: 800-765-0980
Fax: 615-726-3404

Consultant Name: GES
Address: 364 Littleton Road
City/State/Zip: Westford, MA 01886
Project Mgr: Stefan SOKOL
Consultant Project Mgr:
Consultant Telephone Number: 800-221-6119
Fax No.: 978-392-8583
Sampler Name: (Print) Mary Cathey
Sampler Signature: Mary Cathey

TA Account #:
Invoice To:
Report To: Stefan SOKOL SSOKOL@gesonline.com
PO #:
PROJECT #: General Chemical
Facility ID # 1603978
Site Address 133 Leland St
City, State, Zip Framingham, MA
Regulatory District (CA)

Sample ID or Field ID	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative: Methanol	Sodium Bisulfate	HCl (Blue Label)	NaOH (Orange Label)	H_2SO_4 Plastic (Yellow Label)	H_2SO_4 Glass(Yellow Label)	HNO_3 (Red Label)	None (Black Label)	Matrix: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	Analyze For: VOCs	VPH	SVOCs	EPH	TOC	total Fe & Mn	% solids					RUSH TAT (Pre-Schedule) *	TAT request (in Bus. Days)	Fax Results (yes or no)	Due Date of Report
MW-16 (12.5-15')	8/1/11	0945	5	X			4							1					X		X	X	X	X	X	X	X								
trip blank	8/1/11	0800	1				1													X	X														

Comments/Special Instructions: S-1 reporting limits required.

Laboratory Comments:
Temperature Upon Receipt: 1.2
Sample Containers Intact? Y N
VOCs Free of Headspace? Y N
QC Deliverables (please circle one)
Level 2 Level 3 Level 4 Other

Relinquished by:	Date	Time	Received by:	Date	Time
Mary Cathey	8/1/2011	1430	GES Stefan Sokol	8/1/2011	1430
Stefan Sokol	8/2/11	1130	TestAmerica RBL	8-2-11	11:30
			8/3/11	830	

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THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

August 23, 2011 10:08:33AM

Client: GES Westford (10650)
364 Littleton Road, Suite 4
Westford, MA 01886
Attn: Stefan Sokol

Work Order: NUH0582
Project Name: General Chemical
Project Nbr: Framingham, MA
P/O Nbr: 1603978
Date Received: 08/03/11

SAMPLE IDENTIFICATION	LAB NUMBER	COLLECTION DATE AND TIME
MW-22 (24-26')	NUH0582-01	07/28/11 09:50
MW-22 (26-28')	NUH0582-02	07/28/11 10:00
Trip Blank	NUH0582-03	07/28/11 08:00

An executed copy of the chain of custody, the project quality control data, and the sample receipt form are also included as an addendum to this report. If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-800-765-0980. These results relate only to the items tested, and this report may not be reproduced except in full and with the permission of the Laboratory. Any opinions, if expressed, are outside the scope of the Laboratory's accredidation.

This material is intended only for the use of the individual(s) or entity to whom it is addressed, and may contain information that is privileged and confidential. If you are not the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this material is strictly prohibited. If you have received this material in error, please notify us immediately at 615-726-0177.

Certification Number: M-TN032

EPH/VPH Qualifications

*C11-C22 Aromatic hydrocarbons exclude concentration of PAH's.

*HydroCarbon Range data exclude area counts of any surrogate(s) and/or internal standards eluting in that range.
*VPH C5-C8 Aliphatic Hydrocarbons exclude the concentration of Target Analytes eluting in that range.
*Adjusted C5-C8 Aliphatic Hydrocarbons range excluded the concentrations of MTBE, Benzene and Toluene.
*VPH C9-C12 Aliphatic Hydrocarbons exclude target analytes eluting in that range AND concentration of C9-C10 Aromatic Hydrocarbons.
*Adjusted C9-C12 Aliphatic Hydrocarbon range excludes the concentration of Ethylbenzene, m-, p-, and o- Xylene and the C9-C10 Aromatic Hydrocarbon values.

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THE LEADER IN ENVIRONMENTAL TESTING
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Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

Additional Laboratory Comments:
All samples were received in good condition, properly preserved, and properly labeled. All analyses were completed within holding times.

All no responses from the attached "MCP Response Action Analytical Report Certification Form" are addressed below.

G. The EPH reporting limits for the PAHs were above the MADEP CAM limits. There were no other reporting limits specified to meet.

The volatile reporting limit for 1,4-Dioxane was above the MADEP CAM limits. There were no other reporting limits specified to meet.

The semi-volatile reporting limits for azobenzene, aniline, 3,3-dichlorobenzidine, 2,4-dinitrophenol, 4-nitrophenol, Pentachlorophenol and 2,4,5-trichlorophenol were above the MADEP CAM limits. There were no other reporting limits specified to meet.

H. The Volatile method blank for batch 11H0292 was positive above the reporting limits for Acetone, 2-Butanone, and Tetrahydrofuran. The associated samples were non-detect at the reporting limits; therefore the data was accepted without further analysis.

The volatile blank spike and/or blank spike duplicate (LCS/LCSD) recoveries for Acetone, 2,2-Dichloropropane and 1,4-Dioxane in batch 11H0292 and Acetone, 2,2-Dichloropropane and Isopropylbenzene in batch 11H2363 and 4-Methyl-2-pentanone in batch 11H2828 were outside QC limits. Batch 11H2363 was a batch used for dilutions or confirmations and none of the listed compounds were reported from this batch in this work order. Also, less than 10% of the analytes were outside criteria and the recoveries were within greater than 10%; therefore the data was accepted without further analysis.

The volatile blank spike duplicate (LCSD) RPD for 1,4-Dioxane and Isopropylbenzene in batch 11H0292 were outside QC limits.

For Semivolatiles, the initial run for batch 11H1277 did not include a blank spike duplicate (LCSD) due to laboratory error; therefore the sample was re-analyzed. The re-extraction was past holding time, but confirms the original analysis; therefore only the initial analysis is reported.

A sample was not submitted for MS/MSD for the metals analysis.

I. The full MCP Metals CAM analyte list was not reported. Only those analytes requested on the chain of custody by the client were reported.

The Chain(s) of Custody, 2 pages, are included and are an integral part of this report.

These results relate only to the items tested. This report shall not be reproduced except in full and with permission of the laboratory.

All solids results are reported in wet weight unless specifically stated.
Estimated uncertainty is available upon request.
This report has been electronically signed.
Report Approved By:

Jennifer Huckaba

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

Jennifer Huckaba

Senior Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

Sample Cooler Information

Lab ID	Cooler ID	Temp	Seals	Containers Intact	Preservation Confirmed	On Ice
	6041	1.2C	Yes	Yes	No	Yes

MassDEP Analytical Protocol Certification Form

Laboratory Name: TestAmerica Analytical Testing Corporation | Project #: Framingham, MA

Project Location: General Chemical | RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):

NUH0582

Matrices: Groundwater/Surface Water (Soil/Sediment) Drinking Water Air Other:

CAM Protocol (check all that apply below):

8260 VOC CAM II A X	7470/7471 Hg CAM III B	MassDEP VPH CAM IV A X	8081 Pesticides CAM V B	7196 Hex Cr CAM VI B	MassDEP APH CAM IX A
8270 SVOC CAM II B X	7010 Metals CAM III C	MassDEP EPH CAM IV B X	8151 Herbicides CAM V C	8330 Explosives CAM VIII A	TO-15 VOC CAM IX B
6010 Metals CAM III A X	6020 Metals CAM III D	8082 PCB CAM V A	9014 Total Cyanide/PAC CAM VI A	6860 Perchlorate CAM VIII B	

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	(Yes) No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	(Yes) No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	(Yes) No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	(Yes) No
E	VPH, EPH, APH, and TO-15 only: a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	(Yes) No Yes No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	(Yes) No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	Yes (No[1])

Data User Note: ***Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.***

H	Were all QC performance standards specified in the CAM protocol(s) achieved?	Yes (No[1])
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	Yes (No[1])

[1]*All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Jennifer Huckaba **Position:** Sr Proj Mgr.

Printed Name: Jennifer Huckaba **Date:** 8-23-11

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUH0582-01 (MW-22 (24-26') - Soil) Sampled: 07/28/11 09:50										
General Chemistry Parameters										
% Dry Solids	**83.5**	%		0.500	1	08/12/11 11:53	08/15/11 12:22	RRS	SW-846	11H2928
Total Organic Carbon	**1340**	mg/kg dry		1000	1	08/16/11 16:06	08/18/11 14:13	SHJ	SW846 9060M	11H3859

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUH0582-01 (MW-22 (24-26') - Soil) - cont. Sampled: 07/28/11 09:50										
MADEP VPH										
Received on MeOH	Yes									
MeOH Covers Soil	Yes									
Methyl tert-Butyl Ether	ND	mg/kg dry		0.0895	50	07/28/11 09:50	08/05/11 16:06	KAR2	MADEP VPH	11H1301
Benzene	ND	mg/kg dry		0.0895	50	07/28/11 09:50	08/05/11 16:06	KAR2	MADEP VPH	11H1301
Toluene	ND	mg/kg dry		0.269	50	07/28/11 09:50	08/05/11 16:06	KAR2	MADEP VPH	11H1301
Ethylbenzene	**0.161**	mg/kg dry		0.0895	50	07/28/11 09:50	08/05/11 16:06	KAR2	MADEP VPH	11H1301
m,p-Xylene	ND	mg/kg dry		0.358	50	07/28/11 09:50	08/05/11 16:06	KAR2	MADEP VPH	11H1301
o-Xylene	ND	mg/kg dry		0.179	50	07/28/11 09:50	08/05/11 16:06	KAR2	MADEP VPH	11H1301
Naphthalene	**1.81**	mg/kg dry		0.448	50	07/28/11 09:50	08/05/11 16:06	KAR2	MADEP VPH	11H1301
C5 - C8 Aliphatic Hydrocarbons, Unadjuste	**62.1**	mg/kg dry		8.95	50	07/28/11 09:50	08/05/11 16:06	KAR2	MADEP VPH	11H1301
C9 - C12 Aliphatic Hydrocarbons, Unadjust	**44.2**	mg/kg dry		8.95	50	07/28/11 09:50	08/05/11 16:06	KAR2	MADEP VPH	11H1301
C5 - C8 Aliphatic Hydrocarbons	**62.1**	mg/kg dry		8.95	50	07/28/11 09:50	08/05/11 16:06	KAR2	MADEP VPH	11H1301
C9 - C12 Aliphatic Hydrocarbons	**21.4**	mg/kg dry		8.95	50	07/28/11 09:50	08/05/11 16:06	KAR2	MADEP VPH	11H1301
C9 - C10 Aromatic Hydrocarbons	**22.6**	mg/kg dry		8.95	50	07/28/11 09:50	08/05/11 16:06	KAR2	MADEP VPH	11H1301
Surr: 2,5-Dibromotoluene (FID) (70-130%)	*130 %*						08/05/11 16:06	KAR2	MADEP VPH	11H1301
Surr: 2,5-Dibromotoluene (PID) (70-130%)	*104 %*						08/05/11 16:06	KAR2	MADEP VPH	11H1301

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUH0582-01 (MW-22 (24-26') - Soil) - cont. Sampled: 07/28/11 09:50										
MADEP EPH										
C9 - C18 Aliphatic Hydrocarbons	**52.3**	mg/kg dry		11.9	1	08/10/11 06:45	08/13/11 14:13	jlf	MADEP EPH	11H1275
C19 - C36 Aliphatic Hydrocarbons	ND	mg/kg dry		11.9	1	08/10/11 06:45	08/13/11 14:13	jlf	MADEP EPH	11H1275
C11 - C22 Aromatic Hydrocarbons	**20.6**	mg/kg dry		11.9	1	08/10/11 06:45	08/13/11 14:13	jlf	MADEP EPH	11H1275
C11 - C22 Aromatic Hydrocarbons, Unadjus	**20.6**	mg/kg dry		11.9	1	08/10/11 06:45	08/13/11 14:43	jlf	MADEP EPH	11H1275
2-Methylnaphthalene	ND	mg/kg dry		0.716	1	08/10/11 06:45	08/13/11 14:43	jlf	MADEP EPH	11H1275
Acenaphthene	ND	mg/kg dry		1.19	1	08/10/11 06:45	08/13/11 14:43	jlf	MADEP EPH	11H1275
Acenaphthylene	ND	mg/kg dry		1.19	1	08/10/11 06:45	08/13/11 14:43	jlf	MADEP EPH	11H1275
Anthracene	ND	mg/kg dry		1.19	1	08/10/11 06:45	08/13/11 14:43	jlf	MADEP EPH	11H1275
Benzo (a) anthracene	ND	mg/kg dry		0.716	1	08/10/11 06:45	08/13/11 14:43	jlf	MADEP EPH	11H1275
Benzo (a) pyrene	ND	mg/kg dry		0.716	1	08/10/11 06:45	08/13/11 14:43	jlf	MADEP EPH	11H1275
Benzo (b) fluoranthene	ND	mg/kg dry		0.716	1	08/10/11 06:45	08/13/11 14:43	jlf	MADEP EPH	11H1275
Benzo (g,h,i) perylene	ND	mg/kg dry		1.19	1	08/10/11 06:45	08/13/11 14:43	jlf	MADEP EPH	11H1275
Benzo (k) fluoranthene	ND	mg/kg dry		1.19	1	08/10/11 06:45	08/13/11 14:43	jlf	MADEP EPH	11H1275
Chrysene	ND	mg/kg dry		1.19	1	08/10/11 06:45	08/13/11 14:43	jlf	MADEP EPH	11H1275
Dibenz (a,h) anthracene	ND	mg/kg dry		0.716	1	08/10/11 06:45	08/13/11 14:43	jlf	MADEP EPH	11H1275
Fluoranthene	ND	mg/kg dry		1.19	1	08/10/11 06:45	08/13/11 14:43	jlf	MADEP EPH	11H1275
Fluorene	ND	mg/kg dry		1.19	1	08/10/11 06:45	08/13/11 14:43	jlf	MADEP EPH	11H1275
Indeno (1,2,3-cd) pyrene	ND	mg/kg dry		0.716	1	08/10/11 06:45	08/13/11 14:43	jlf	MADEP EPH	11H1275
Naphthalene	ND	mg/kg dry		1.19	1	08/10/11 06:45	08/13/11 14:43	jlf	MADEP EPH	11H1275
Phenanthrene	ND	mg/kg dry		1.19	1	08/10/11 06:45	08/13/11 14:43	jlf	MADEP EPH	11H1275
Pyrene	ND	mg/kg dry		1.19	1	08/10/11 06:45	08/13/11 14:43	jlf	MADEP EPH	11H1275
Surr: 1-Chlorooctadecane (40-140%)	*79 %*						08/13/11 14:13	jlf	MADEP EPH	11H1275
Surr: o-Terphenyl (40-140%)	*88 %*						08/13/11 14:43	jlf	MADEP EPH	11H1275
Surr: 2-Fluorobiphenyl (40-140%)	*106 %*						08/13/11 14:43	jlf	MADEP EPH	11H1275
Surr: 2-Bromonaphthalene (40-140%)	*115 %*						08/13/11 14:43	jlf	MADEP EPH	11H1275

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Sample ID: NUH0582-01 (MW-22 (24-26') - Soil) - cont. Sampled: 07/28/11 09:50

Volatile Organic - MCP CAM Method 8260

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acetone	ND	mg/kg dry	L	1.65	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Tert-Amyl Methyl Ether	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Benzene	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Bromobenzene	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Bromochloromethane	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Bromodichloromethane	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Bromoform	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Bromomethane	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
2-Butanone	ND	mg/kg dry		1.65	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
tert-Butylbenzene	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
n-Butylbenzene	**0.171**	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
sec-Butylbenzene	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Carbon disulfide	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Carbon Tetrachloride	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Chlorobenzene	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Chlorodibromomethane	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Chloroethane	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Chloroform	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Chloromethane	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
2-Chlorotoluene	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
4-Chlorotoluene	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
1,2-Dibromo-3-chloropropane	ND	mg/kg dry		0.165	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
1,2-Dibromoethane (EDB)	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Dibromomethane	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
1,2-Dichlorobenzene	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
1,3-Dichlorobenzene	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
1,4-Dichlorobenzene	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Dichlorodifluoromethane	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
1,2-Dichloroethane	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
1,1-Dichloroethane	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
1,1-Dichloroethene	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
trans-1,2-Dichloroethene	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
cis-1,2-Dichloroethene	**2.57**	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
1,3-Dichloropropane	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
2,2-Dichloropropane	ND	mg/kg dry	L	0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
1,2-Dichloropropane	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
trans-1,3-Dichloropropene	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
1,1-Dichloropropene	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
cis-1,3-Dichloropropene	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Diethyl ether	ND	mg/kg dry		0.165	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Sample ID: NUH0582-01 (MW-22 (24-26') - Soil) - cont. Sampled: 07/28/11 09:50

Volatile Organic - MCP CAM Method 8260 - cont.

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
1,4-Dioxane	ND	mg/kg dry	L2	16.5	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Ethylbenzene	**0.102**	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Ethyl tert-Butyl Ether	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Hexachlorobutadiene	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
2-Hexanone	ND	mg/kg dry		1.65	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Isopropylbenzene	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Diisopropyl Ether	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
p-Isopropyltoluene	**0.0900**	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Methyl tert-Butyl Ether	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Methylene Chloride	ND	mg/kg dry		0.165	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
4-Methyl-2-pentanone	ND	mg/kg dry		1.65	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Naphthalene	**0.544**	mg/kg dry		0.165	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
n-Propylbenzene	**0.0867**	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Styrene	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
1,1,2,2-Tetrachloroethane	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
1,1,1,2-Tetrachloroethane	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Tetrachloroethene	**201**	mg/kg dry		3.30	2000	07/28/11 09:50	08/08/11 22:20	EML	SW846 8260B	11H2363
Tetrahydrofuran	ND	mg/kg dry		0.165	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Toluene	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.165	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
1,2,3-Trichlorobenzene	ND	mg/kg dry		0.165	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
1,1,1-Trichloroethane	**2.07**	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
1,1,2-Trichloroethane	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Trichloroethene	**3.14**	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Trichlorofluoromethane	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
1,2,3-Trichloropropane	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
1,3,5-Trimethylbenzene	**0.347**	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
1,2,4-Trimethylbenzene	**0.981**	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Vinyl chloride	ND	mg/kg dry		0.0826	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Xylenes, total	**0.407**	mg/kg dry		0.248	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
1,1,2-Trifluorotrichloroethane	**1.42**	mg/kg dry		0.165	50	07/28/11 09:50	08/07/11 17:00	EML	SW846 8260B	11H0292
Surr: 1,2-Dichloroethane-d4 (70-130%)	*102 %*						08/07/11 17:00	EML	SW846 8260B	11H0292
Surr: 1,2-Dichloroethane-d4 (70-130%)	*90 %*						08/08/11 22:20	EML	SW846 8260B	11H2363
Surr: Dibromofluoromethane (70-130%)	*98 %*						08/07/11 17:00	EML	SW846 8260B	11H0292
Surr: Dibromofluoromethane (70-130%)	*94 %*						08/08/11 22:20	EML	SW846 8260B	11H2363
Surr: Toluene-d8 (70-130%)	*98 %*						08/07/11 17:00	EML	SW846 8260B	11H0292
Surr: Toluene-d8 (70-130%)	*89 %*						08/08/11 22:20	EML	SW846 8260B	11H2363
Surr: 4-Bromofluorobenzene (70-130%)	*103 %*						08/07/11 17:00	EML	SW846 8260B	11H0292
Surr: 4-Bromofluorobenzene (70-130%)	*96 %*						08/08/11 22:20	EML	SW846 8260B	11H2363

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUH0582-01 (MW-22 (24-26') - Soil) - cont. Sampled: 07/28/11 09:50										
Total Metals by EPA 6010C										
Iron	**15200**	mg/kg		9.58	1	08/11/11 07:05	08/12/11 13:51	AVR	SW846 6010C	11H1701
Manganese	**112**	mg/kg		2.87	1	08/11/11 07:05	08/12/11 13:51	AVR	SW846 6010C	11H1701

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Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Sample ID: NUH0582-01 (MW-22 (24-26') - Soil) - cont. Sampled: 07/28/11 09:50

Semivolatile Organic Compounds by EPA Method 8270D

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acenaphthene	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Acenaphthylene	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Azobenzene	ND	mg/kg dry		1.99	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Aniline	ND	mg/kg dry		0.796	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Anthracene	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Benzo (a) anthracene	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Benzo (a) pyrene	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Benzo (b) fluoranthene	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Benzo (g,h,i) perylene	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Benzo (k) fluoranthene	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Bis(2-chloroethoxy)methane	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Bis(2-chloroethyl)ether	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Bis(2-chloroisopropyl)ether	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Bis(2-ethylhexyl)phthalate	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
4-Bromophenyl phenyl ether	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Butyl benzyl phthalate	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
4-Chloroaniline	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
2-Chloronaphthalene	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
2-Chlorophenol	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
4-Chlorophenyl phenyl ether	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Chrysene	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Dibenz (a,h) anthracene	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Dibenzofuran	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Di-n-butyl phthalate	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
3,3-Dichlorobenzidine	ND	mg/kg dry		0.796	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
1,2-Dichlorobenzene	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
1,3-Dichlorobenzene	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
1,4-Dichlorobenzene	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
2,4-Dichlorophenol	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Diethyl phthalate	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
2,4-Dimethylphenol	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Dimethyl phthalate	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
2,4-Dinitrophenol	ND	mg/kg dry		0.994	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
2,4-Dinitrotoluene	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
2,6-Dinitrotoluene	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Di-n-octyl phthalate	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Fluoranthene	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Fluorene	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Hexachlorobenzene	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Hexachlorobutadiene	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUH0582-01 (MW-22 (24-26') - Soil) - cont. Sampled: 07/28/11 09:50										
Semivolatile Organic Compounds by EPA Method 8270D - cont.										
Hexachloroethane	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Indeno (1,2,3-cd) pyrene	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Isophorone	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
2-Methylnaphthalene	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
2-Methylphenol	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
3/4-Methylphenol	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Naphthalene	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Nitrobenzene	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
2-Nitrophenol	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
4-Nitrophenol	ND	mg/kg dry		0.994	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Pentachlorophenol	ND	mg/kg dry		0.994	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Phenanthrene	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Phenol	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Pyrene	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
2,4,5-Trichlorophenol	ND	mg/kg dry		0.994	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
2,4,6-Trichlorophenol	ND	mg/kg dry		0.397	1	08/09/11 11:55	08/14/11 02:28	BES	SW846 8270D	11H1277
Surr: 2-Fluorophenol (30-130%)	*67 %*						08/14/11 02:28	BES	SW846 8270D	11H1277
Surr: Phenol-d5 (30-130%)	*70 %*						08/14/11 02:28	BES	SW846 8270D	11H1277
Surr: 2-Fluorobiphenyl (30-130%)	*78 %*						08/14/11 02:28	BES	SW846 8270D	11H1277
Surr: Nitrobenzene-d5 (30-130%)	*79 %*						08/14/11 02:28	BES	SW846 8270D	11H1277
Surr: Terphenyl-d14 (30-130%)	*106 %*						08/14/11 02:28	BES	SW846 8270D	11H1277
Surr: 2,4,6-Tribromophenol (30-130%)	*84 %*						08/14/11 02:28	BES	SW846 8270D	11H1277

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUH0582-02 (MW-22 (26-28') - Soil) Sampled: 07/28/11 10:00										
General Chemistry Parameters										
% Dry Solids	**81.8**	%		0.500	1	08/12/11 11:53	08/15/11 12:22	RRS	SW-846	11H2928
Total Organic Carbon	ND	mg/kg dry		1000	1	08/16/11 16:06	08/18/11 14:13	SHJ	SW846 9060M	11H3859

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUH0582-02 (MW-22 (26-28') - Soil) - cont. Sampled: 07/28/11 10:00										
MADEP VPH										
Received on MeOH	Yes									
MeOH Covers Soil	Yes									
Methyl tert-Butyl Ether	ND	mg/kg dry		0.0876	50	07/28/11 10:00	08/05/11 16:36	KAR2	MADEP VPH	11H1301
Benzene	ND	mg/kg dry		0.0876	50	07/28/11 10:00	08/05/11 16:36	KAR2	MADEP VPH	11H1301
Toluene	ND	mg/kg dry		0.263	50	07/28/11 10:00	08/05/11 16:36	KAR2	MADEP VPH	11H1301
Ethylbenzene	ND	mg/kg dry		0.0876	50	07/28/11 10:00	08/05/11 16:36	KAR2	MADEP VPH	11H1301
m,p-Xylene	ND	mg/kg dry		0.351	50	07/28/11 10:00	08/05/11 16:36	KAR2	MADEP VPH	11H1301
o-Xylene	ND	mg/kg dry		0.175	50	07/28/11 10:00	08/05/11 16:36	KAR2	MADEP VPH	11H1301
Naphthalene	ND	mg/kg dry		0.438	50	07/28/11 10:00	08/05/11 16:36	KAR2	MADEP VPH	11H1301
C5 - C8 Aliphatic Hydrocarbons, Unadjuste	**13.7**	mg/kg dry		8.76	50	07/28/11 10:00	08/05/11 16:36	KAR2	MADEP VPH	11H1301
C9 - C12 Aliphatic Hydrocarbons, Unadjust	**13.3**	mg/kg dry		8.76	50	07/28/11 10:00	08/05/11 16:36	KAR2	MADEP VPH	11H1301
C5 - C8 Aliphatic Hydrocarbons	**13.7**	mg/kg dry		8.76	50	07/28/11 10:00	08/05/11 16:36	KAR2	MADEP VPH	11H1301
C9 - C12 Aliphatic Hydrocarbons	**8.92**	mg/kg dry		8.76	50	07/28/11 10:00	08/05/11 16:36	KAR2	MADEP VPH	11H1301
C9 - C10 Aromatic Hydrocarbons	**4.38**	mg/kg dry		4.38	50	07/28/11 10:00	08/05/11 16:36	KAR2	MADEP VPH	11H1301
Surr: 2,5-Dibromotoluene (FID) (70-130%)	*102 %*						08/05/11 16:36	KAR2	MADEP VPH	11H1301
Surr: 2,5-Dibromotoluene (PID) (70-130%)	*94 %*						08/05/11 16:36	KAR2	MADEP VPH	11H1301

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THE LEADER IN ENVIRONMENTAL TESTING
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Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUH0582-02 (MW-22 (26-28') - Soil) - cont. Sampled: 07/28/11 10:00										
MADEP EPH										
C9 - C18 Aliphatic Hydrocarbons	**107**	mg/kg dry		11.3	1	08/10/11 06:45	08/13/11 15:14	jlf	MADEP EPH	11H1275
C19 - C36 Aliphatic Hydrocarbons	**12.0**	mg/kg dry		11.3	1	08/10/11 06:45	08/13/11 15:14	jlf	MADEP EPH	11H1275
C11 - C22 Aromatic Hydrocarbons	**34.1**	mg/kg dry		11.3	1	08/10/11 06:45	08/13/11 15:14	jlf	MADEP EPH	11H1275
C11 - C22 Aromatic Hydrocarbons, Unadjus	**35.1**	mg/kg dry		11.3	1	08/10/11 06:45	08/13/11 15:45	jlf	MADEP EPH	11H1275
2-Methylnaphthalene	**0.991**	mg/kg dry		0.680	1	08/10/11 06:45	08/13/11 15:45	jlf	MADEP EPH	11H1275
Acenaphthene	ND	mg/kg dry		1.13	1	08/10/11 06:45	08/13/11 15:45	jlf	MADEP EPH	11H1275
Acenaphthylene	ND	mg/kg dry		1.13	1	08/10/11 06:45	08/13/11 15:45	jlf	MADEP EPH	11H1275
Anthracene	ND	mg/kg dry		1.13	1	08/10/11 06:45	08/13/11 15:45	jlf	MADEP EPH	11H1275
Benzo (a) anthracene	ND	mg/kg dry		0.680	1	08/10/11 06:45	08/13/11 15:45	jlf	MADEP EPH	11H1275
Benzo (a) pyrene	ND	mg/kg dry		0.680	1	08/10/11 06:45	08/13/11 15:45	jlf	MADEP EPH	11H1275
Benzo (b) fluoranthene	ND	mg/kg dry		0.680	1	08/10/11 06:45	08/13/11 15:45	jlf	MADEP EPH	11H1275
Benzo (g,h,i) perylene	ND	mg/kg dry		1.13	1	08/10/11 06:45	08/13/11 15:45	jlf	MADEP EPH	11H1275
Benzo (k) fluoranthene	ND	mg/kg dry		1.13	1	08/10/11 06:45	08/13/11 15:45	jlf	MADEP EPH	11H1275
Chrysene	ND	mg/kg dry		1.13	1	08/10/11 06:45	08/13/11 15:45	jlf	MADEP EPH	11H1275
Dibenz (a,h) anthracene	ND	mg/kg dry		0.680	1	08/10/11 06:45	08/13/11 15:45	jlf	MADEP EPH	11H1275
Fluoranthene	ND	mg/kg dry		1.13	1	08/10/11 06:45	08/13/11 15:45	jlf	MADEP EPH	11H1275
Fluorene	ND	mg/kg dry		1.13	1	08/10/11 06:45	08/13/11 15:45	jlf	MADEP EPH	11H1275
Indeno (1,2,3-cd) pyrene	ND	mg/kg dry		0.680	1	08/10/11 06:45	08/13/11 15:45	jlf	MADEP EPH	11H1275
Naphthalene	ND	mg/kg dry		1.13	1	08/10/11 06:45	08/13/11 15:45	jlf	MADEP EPH	11H1275
Phenanthrene	ND	mg/kg dry		1.13	1	08/10/11 06:45	08/13/11 15:45	jlf	MADEP EPH	11H1275
Pyrene	ND	mg/kg dry		1.13	1	08/10/11 06:45	08/13/11 15:45	jlf	MADEP EPH	11H1275
Surr: 1-Chlorooctadecane (40-140%)	*137 %*						08/13/11 15:14	jlf	MADEP EPH	11H1275
Surr: o-Terphenyl (40-140%)	*129 %*						08/13/11 15:45	jlf	MADEP EPH	11H1275
Surr: 2-Fluorobiphenyl (40-140%)	*108 %*						08/13/11 15:45	jlf	MADEP EPH	11H1275
Surr: 2-Bromonaphthalene (40-140%)	*116 %*						08/13/11 15:45	jlf	MADEP EPH	11H1275

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUH0582-02 (MW-22 (26-28') - Soil) - cont. Sampled: 07/28/11 10:00										
Volatile Organic - MCP CAM Method 8260										
Acetone	ND	mg/kg dry		1.69	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Tert-Amyl Methyl Ether	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Benzene	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Bromobenzene	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Bromochloromethane	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Bromodichloromethane	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Bromoform	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Bromomethane	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
2-Butanone	ND	mg/kg dry		1.69	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
tert-Butylbenzene	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
n-Butylbenzene	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
sec-Butylbenzene	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Carbon disulfide	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Carbon Tetrachloride	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Chlorobenzene	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Chlorodibromomethane	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Chloroethane	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Chloroform	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Chloromethane	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
2-Chlorotoluene	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
4-Chlorotoluene	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
1,2-Dibromo-3-chloropropane	ND	mg/kg dry		0.169	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
1,2-Dibromoethane (EDB)	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Dibromomethane	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
1,2-Dichlorobenzene	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
1,3-Dichlorobenzene	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
1,4-Dichlorobenzene	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Dichlorodifluoromethane	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
1,2-Dichloroethane	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
1,1-Dichloroethane	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
1,1-Dichloroethene	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
trans-1,2-Dichloroethene	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
cis-1,2-Dichloroethene	**2.59**	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
1,3-Dichloropropane	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
2,2-Dichloropropane	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
1,2-Dichloropropane	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
trans-1,3-Dichloropropene	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
1,1-Dichloropropene	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
cis-1,3-Dichloropropene	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Diethyl ether	ND	mg/kg dry		0.169	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Sample ID: NUH0582-02 (MW-22 (26-28') - Soil) - cont. Sampled: 07/28/11 10:00

Volatile Organic - MCP CAM Method 8260 - cont.

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
1,4-Dioxane	ND	mg/kg dry		16.9	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Ethylbenzene	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Ethyl tert-Butyl Ether	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Hexachlorobutadiene	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
2-Hexanone	ND	mg/kg dry		1.69	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Isopropylbenzene	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Diisopropyl Ether	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
p-Isopropyltoluene	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Methyl tert-Butyl Ether	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Methylene Chloride	ND	mg/kg dry		0.169	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
4-Methyl-2-pentanone	ND	mg/kg dry	L2	1.69	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Naphthalene	ND	mg/kg dry		0.169	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
n-Propylbenzene	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Styrene	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
1,1,2,2-Tetrachloroethane	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
1,1,1,2-Tetrachloroethane	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Tetrachloroethene	**19.3**	mg/kg dry		0.844	500	07/28/11 10:00	08/10/11 02:38	EML	SW846 8260B	11H2828
Tetrahydrofuran	ND	mg/kg dry		0.169	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Toluene	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.169	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
1,2,3-Trichlorobenzene	ND	mg/kg dry		0.169	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
1,1,1-Trichloroethane	**0.524**	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
1,1,2-Trichloroethane	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Trichloroethene	**0.534**	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Trichlorofluoromethane	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
1,2,3-Trichloropropane	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
1,3,5-Trimethylbenzene	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
1,2,4-Trimethylbenzene	**0.103**	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Vinyl chloride	ND	mg/kg dry		0.0844	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Xylenes, total	ND	mg/kg dry		0.253	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
1,1,2-Trifluorotrichloroethane	ND	mg/kg dry		0.169	50	07/28/11 10:00	08/10/11 03:06	EML	SW846 8260B	11H2828
Surr: 1,2-Dichloroethane-d4 (70-130%)	*83 %*						08/10/11 03:06	EML	SW846 8260B	11H2828
Surr: 1,2-Dichloroethane-d4 (70-130%)	*84 %*						08/10/11 02:38	EML	SW846 8260B	11H2828
Surr: Dibromofluoromethane (70-130%)	*87 %*						08/10/11 03:06	EML	SW846 8260B	11H2828
Surr: Dibromofluoromethane (70-130%)	*86 %*						08/10/11 02:38	EML	SW846 8260B	11H2828
Surr: Toluene-d8 (70-130%)	*96 %*						08/10/11 03:06	EML	SW846 8260B	11H2828
Surr: Toluene-d8 (70-130%)	*96 %*						08/10/11 02:38	EML	SW846 8260B	11H2828
Surr: 4-Bromofluorobenzene (70-130%)	*96 %*						08/10/11 03:06	EML	SW846 8260B	11H2828
Surr: 4-Bromofluorobenzene (70-130%)	*95 %*						08/10/11 02:38	EML	SW846 8260B	11H2828

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUH0582-02 (MW-22 (26-28') - Soil) - cont. Sampled: 07/28/11 10:00										
Total Metals by EPA 6010C										
Iron	**7530**	mg/kg		9.84	1	08/11/11 07:05	08/12/11 13:54	AVR	SW846 6010C	11H1701
Manganese	**63.3**	mg/kg		2.95	1	08/11/11 07:05	08/12/11 13:54	AVR	SW846 6010C	11H1701

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Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Sample ID: NUH0582-02 (MW-22 (26-28') - Soil) - cont. Sampled: 07/28/11 10:00

Semivolatile Organic Compounds by EPA Method 8270D

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acenaphthene	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Acenaphthylene	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Azobenzene	ND	mg/kg dry		2.02	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Aniline	ND	mg/kg dry		0.808	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Anthracene	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Benzo (a) anthracene	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Benzo (a) pyrene	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Benzo (b) fluoranthene	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Benzo (g,h,i) perylene	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Benzo (k) fluoranthene	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Bis(2-chloroethoxy)methane	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Bis(2-chloroethyl)ether	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Bis(2-chloroisopropyl)ether	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Bis(2-ethylhexyl)phthalate	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
4-Bromophenyl phenyl ether	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Butyl benzyl phthalate	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
4-Chloroaniline	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
2-Chloronaphthalene	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
2-Chlorophenol	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
4-Chlorophenyl phenyl ether	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Chrysene	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Dibenz (a,h) anthracene	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Dibenzofuran	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Di-n-butyl phthalate	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
3,3-Dichlorobenzidine	ND	mg/kg dry		0.808	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
1,2-Dichlorobenzene	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
1,3-Dichlorobenzene	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
1,4-Dichlorobenzene	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
2,4-Dichlorophenol	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Diethyl phthalate	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
2,4-Dimethylphenol	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Dimethyl phthalate	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
2,4-Dinitrophenol	ND	mg/kg dry		1.01	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
2,4-Dinitrotoluene	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
2,6-Dinitrotoluene	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Di-n-octyl phthalate	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Fluoranthene	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Fluorene	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Hexachlorobenzene	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Hexachlorobutadiene	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277

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Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUH0582-02 (MW-22 (26-28') - Soil) - cont. Sampled: 07/28/11 10:00										
Semivolatile Organic Compounds by EPA Method 8270D - cont.										
Hexachloroethane	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Indeno (1,2,3-cd) pyrene	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Isophorone	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
2-Methylnaphthalene	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
2-Methylphenol	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
3/4-Methylphenol	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Naphthalene	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Nitrobenzene	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
2-Nitrophenol	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
4-Nitrophenol	ND	mg/kg dry		1.01	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Pentachlorophenol	ND	mg/kg dry		1.01	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Phenanthrene	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Phenol	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Pyrene	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
2,4,5-Trichlorophenol	ND	mg/kg dry		1.01	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
2,4,6-Trichlorophenol	ND	mg/kg dry		0.403	1	08/09/11 11:55	08/14/11 02:47	BES	SW846 8270D	11H1277
Surr: 2-Fluorophenol (30-130%)	*68 %*						08/14/11 02:47	BES	SW846 8270D	11H1277
Surr: Phenol-d5 (30-130%)	*71 %*						08/14/11 02:47	BES	SW846 8270D	11H1277
Surr: 2-Fluorobiphenyl (30-130%)	*75 %*						08/14/11 02:47	BES	SW846 8270D	11H1277
Surr: Nitrobenzene-d5 (30-130%)	*75 %*						08/14/11 02:47	BES	SW846 8270D	11H1277
Surr: Terphenyl-d14 (30-130%)	*96 %*						08/14/11 02:47	BES	SW846 8270D	11H1277
Surr: 2,4,6-Tribromophenol (30-130%)	*80 %*						08/14/11 02:47	BES	SW846 8270D	11H1277

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUH0582-03 (Trip Blank - Soil) Sampled: 07/28/11 08:00										
Volatile Organic - MCP CAM Method 8260										
Acetone	ND	mg/kg wet	L	1.00	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Tert-Amyl Methyl Ether	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Benzene	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Bromobenzene	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Bromochloromethane	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Bromodichloromethane	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Bromoform	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Bromomethane	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
2-Butanone	ND	mg/kg wet		1.00	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
tert-Butylbenzene	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
n-Butylbenzene	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
sec-Butylbenzene	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Carbon disulfide	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Carbon Tetrachloride	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Chlorobenzene	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Chlorodibromomethane	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Chloroethane	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Chloroform	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Chloromethane	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
2-Chlorotoluene	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
4-Chlorotoluene	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
1,2-Dibromo-3-chloropropane	ND	mg/kg wet		0.100	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
1,2-Dibromoethane (EDB)	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Dibromomethane	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
1,2-Dichlorobenzene	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
1,3-Dichlorobenzene	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
1,4-Dichlorobenzene	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Dichlorodifluoromethane	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
1,2-Dichloroethane	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
1,1-Dichloroethane	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
1,1-Dichloroethene	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
trans-1,2-Dichloroethene	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
cis-1,2-Dichloroethene	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
1,3-Dichloropropane	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
2,2-Dichloropropane	ND	mg/kg wet	L	0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
1,2-Dichloropropane	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
trans-1,3-Dichloropropene	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
1,1-Dichloropropene	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
cis-1,3-Dichloropropene	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Diethyl ether	ND	mg/kg wet		0.100	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUH0582-03 (Trip Blank - Soil) - cont. Sampled: 07/28/11 08:00										
Volatile Organic - MCP CAM Method 8260 - cont.										
1,4-Dioxane	ND	mg/kg wet	L2	10.0	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Ethylbenzene	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Ethyl tert-Butyl Ether	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Hexachlorobutadiene	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
2-Hexanone	ND	mg/kg wet		1.00	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Isopropylbenzene	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Diisopropyl Ether	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
p-Isopropyltoluene	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Methyl tert-Butyl Ether	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Methylene Chloride	ND	mg/kg wet		0.100	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
4-Methyl-2-pentanone	ND	mg/kg wet		1.00	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Naphthalene	ND	mg/kg wet		0.100	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
n-Propylbenzene	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Styrene	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
1,1,2,2-Tetrachloroethane	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
1,1,1,2-Tetrachloroethane	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Tetrachloroethene	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Tetrahydrofuran	ND	mg/kg wet		0.100	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Toluene	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
1,2,4-Trichlorobenzene	ND	mg/kg wet		0.100	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
1,2,3-Trichlorobenzene	ND	mg/kg wet		0.100	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
1,1,1-Trichloroethane	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
1,1,2-Trichloroethane	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Trichloroethene	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Trichlorofluoromethane	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
1,2,3-Trichloropropane	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
1,3,5-Trimethylbenzene	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
1,2,4-Trimethylbenzene	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Vinyl chloride	ND	mg/kg wet		0.0500	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Xylenes, total	ND	mg/kg wet		0.150	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
1,1,2-Trifluorotrichloroethane	ND	mg/kg wet		0.100	50	07/28/11 08:00	08/07/11 12:46	EML	SW846 8260B	11H0292
Surr: 1,2-Dichloroethane-d4 (70-130%)	*101 %*						08/07/11 12:46	EML	SW846 8260B	11H0292
Surr: Dibromofluoromethane (70-130%)	*94 %*						08/07/11 12:46	EML	SW846 8260B	11H0292
Surr: Toluene-d8 (70-130%)	*95 %*						08/07/11 12:46	EML	SW846 8260B	11H0292
Surr: 4-Bromofluorobenzene (70-130%)	*127 %*						08/07/11 12:46	EML	SW846 8260B	11H0292

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

SAMPLE EXTRACTION DATA

Parameter	Batch	Lab Number	Wt/Vol Extracted	Extract Vol	Date	Analyst	Extraction Method
MADEP EPH							
MADEP EPH	11H1275	NUH0582-01	10.03	1.00	08/10/11 06:45	JJR	MADEP soil
MADEP EPH	11H1275	NUH0582-02	10.79	1.00	08/10/11 06:45	JJR	MADEP soil
MADEP VPH							
MADEP VPH	11H1301	NUH0582-01	11.28	15.00	07/28/11 09:50	KAR2	MADEP
MADEP VPH	11H1301	NUH0582-02	11.98	15.00	07/28/11 10:00	KAR2	MADEP
Semivolatile Organic Compounds by EPA Method 8270D							
SW846 8270D	11H1277	NUH0582-01	15.05	1.00	08/09/11 11:55	RCH2	EPA 3541
SW846 8270D	11H3478	NUH0582-01RE1	15.02	1.00	08/15/11 10:00	AMS	EPA 3541
SW846 8270D	11H1277	NUH0582-02	15.14	1.00	08/09/11 11:55	RCH2	EPA 3541
SW846 8270D	11H3478	NUH0582-02RE1	15.52	1.00	08/15/11 10:00	AMS	EPA 3541
Total Metals by EPA 6010C							
SW846 6010C	11H1701	NUH0582-01	0.52	100.00	08/11/11 07:05	RDS	EPA 3051A/6010
SW846 6010C	11H1701	NUH0582-01	0.52	100.00	08/11/11 07:05	RDS	EPA 3051A/6010
SW846 6010C	11H1701	NUH0582-02	0.51	100.00	08/11/11 07:05	RDS	EPA 3051A/6010
SW846 6010C	11H1701	NUH0582-02	0.51	100.00	08/11/11 07:05	RDS	EPA 3051A/6010
Volatile Organic - MCP CAM Method 8260							
SW846 8260B	11H0292	NUH0582-01	7.25	10.00	07/28/11 09:50	AAN	EPA 5035
SW846 8260B	11H2363	NUH0582-01RE1	7.25	10.00	07/28/11 09:50	AAN	EPA 5035
SW846 8260B	11H2828	NUH0582-02	7.24	10.00	07/28/11 10:00	AAN	EPA 5035
SW846 8260B	11H2828	NUH0582-02RE1	7.24	10.00	07/28/11 10:00	AAN	EPA 5035
SW846 8260B	11H0292	NUH0582-03	10.00	10.00	07/28/11 08:00	AAN	EPA 5035

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THE LEADER IN ENVIRONMENTAL TESTING
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Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
Blank

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
General Chemistry Parameters						
11H3859-BLK1						
Total Organic Carbon	798		mg/kg wet	11H3859	11H3859-BLK1	08/18/11 14:13
MADEP VPH						
11H1301-BLK1						
Methyl tert-Butyl Ether	<0.0350		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
Benzene	<0.0200		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
Toluene	<0.0250		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
Ethylbenzene	<0.0250		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
m,p-Xylene	<0.0650		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
o-Xylene	<0.0300		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
Naphthalene	0.134		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
C5 - C8 Aliphatic Hydrocarbons, Unadjustec	<2.50		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
C9 - C12 Aliphatic Hydrocarbons, Unadjuste	<2.50		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
C5 - C8 Aliphatic Hydrocarbons	<2.50		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
C9 - C12 Aliphatic Hydrocarbons	<2.50		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
C9 - C10 Aromatic Hydrocarbons	<2.50		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
Surrogate: 2,5-Dibromotoluene (FID)	99%			11H1301	11H1301-BLK1	08/05/11 15:35
Surrogate: 2,5-Dibromotoluene (PID)	97%			11H1301	11H1301-BLK1	08/05/11 15:35
MADEP EPH						
11H1275-BLK1						
C9 - C18 Aliphatic Hydrocarbons	<1.90		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:09
C19 - C36 Aliphatic Hydrocarbons	<1.90		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:09
C11 - C22 Aromatic Hydrocarbons, Unadjus	<1.40		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
2-Methylnaphthalene	<0.0210		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Acenaphthene	<0.0140		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Acenaphthylene	<0.0200		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Anthracene	<0.00900		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Benzo (a) anthracene	<0.0110		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Benzo (a) pyrene	<0.00800		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Benzo (b) fluoranthene	<0.0380		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Benzo (g,h,i) perylene	<0.00900		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Benzo (k) fluoranthene	<0.0370		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Chrysene	<0.0310		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Dibenz (a,h) anthracene	<0.0150		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Fluoranthene	<0.0110		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Fluorene	<0.0200		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Indeno (1,2,3-cd) pyrene	<0.0310		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Naphthalene	0.117		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Phenanthrene	<0.0100		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Pyrene	<0.0230		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40

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Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
MADEP EPH						
11H1275-BLK1						
Surrogate: 1-Chlorooctadecane	71%			11H1275	11H1275-BLK1	08/13/11 11:09
Surrogate: o-Terphenyl	83%			11H1275	11H1275-BLK1	08/13/11 11:40
Surrogate: 2-Fluorobiphenyl	105%			11H1275	11H1275-BLK1	08/13/11 11:40
Surrogate: 2-Bromonaphthalene	105%			11H1275	11H1275-BLK1	08/13/11 11:40
Volatile Organic - MCP CAM Method 8260						
11H0292-BLK1						
Acetone	1.23		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Tert-Amyl Methyl Ether	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Benzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromobenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromochloromethane	<0.0120		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromodichloromethane	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromoform	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromomethane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
2-Butanone	2.92		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
tert-Butylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
n-Butylbenzene	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
sec-Butylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Carbon disulfide	<0.00650		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Carbon Tetrachloride	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Chlorobenzene	<0.00950		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Chlorodibromomethane	<0.0105		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Chloroethane	<0.0105		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Chloroform	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Chloromethane	<0.0150		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
2-Chlorotoluene	<0.00700		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
4-Chlorotoluene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dibromo-3-chloropropane	<0.0135		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dibromoethane (EDB)	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Dibromomethane	<0.00800		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dichlorobenzene	<0.00650		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,3-Dichlorobenzene	<0.00700		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,4-Dichlorobenzene	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Dichlorodifluoromethane	<0.00700		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dichloroethane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1-Dichloroethane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1-Dichloroethene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
trans-1,2-Dichloroethene	<0.00800		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
cis-1,2-Dichloroethene	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,3-Dichloropropane	<0.00550		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50

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Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11H0292-BLK1						
2,2-Dichloropropane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dichloropropane	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
trans-1,3-Dichloropropene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1-Dichloropropene	<0.00550		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
cis-1,3-Dichloropropene	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Diethyl ether	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,4-Dioxane	<0.900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Ethylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Ethyl tert-Butyl Ether	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Hexachlorobutadiene	<0.0130		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
2-Hexanone	<0.0355		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Isopropylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Diisopropyl Ether	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
p-Isopropyltoluene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Methyl tert-Butyl Ether	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Methylene Chloride	<0.0835		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
4-Methyl-2-pentanone	<0.165		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Naphthalene	<0.0850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
n-Propylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Styrene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,2,2-Tetrachloroethane	<0.00700		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,1,2-Tetrachloroethane	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Tetrachloroethene	<0.00950		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Tetrahydrofuran	0.201		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Toluene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2,4-Trichlorobenzene	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2,3-Trichlorobenzene	0.0125		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,1-Trichloroethane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,2-Trichloroethane	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Trichloroethene	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Trichlorofluoromethane	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2,3-Trichloropropane	<0.0135		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,3,5-Trimethylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2,4-Trimethylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Vinyl chloride	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Xylenes, total	<0.0195		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,2-Trifluorotrichloroethane	<0.0380		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Surrogate: 1,2-Dichloroethane-d4	101%			11H0292	11H0292-BLK1	08/07/11 11:50
Surrogate: Dibromofluoromethane	97%			11H0292	11H0292-BLK1	08/07/11 11:50
Surrogate: Toluene-d8	89%			11H0292	11H0292-BLK1	08/07/11 11:50
Surrogate: 4-Bromofluorobenzene	101%			11H0292	11H0292-BLK1	08/07/11 11:50

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Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11H2363-BLK1						
Acetone	<0.250		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Tert-Amyl Methyl Ether	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Benzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Bromobenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Bromochloromethane	<0.0120		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Bromodichloromethane	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Bromoform	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Bromomethane	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
2-Butanone	0.306		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
tert-Butylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
n-Butylbenzene	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
sec-Butylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Carbon disulfide	<0.00650		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Carbon Tetrachloride	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Chlorobenzene	<0.00950		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Chlorodibromomethane	<0.0105		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Chloroethane	<0.0105		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Chloroform	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Chloromethane	<0.0150		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
2-Chlorotoluene	<0.00700		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
4-Chlorotoluene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2-Dibromo-3-chloropropane	<0.0135		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2-Dibromoethane (EDB)	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Dibromomethane	<0.00800		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2-Dichlorobenzene	<0.00650		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,3-Dichlorobenzene	<0.00700		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,4-Dichlorobenzene	<0.00750		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Dichlorodifluoromethane	<0.00700		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2-Dichloroethane	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1-Dichloroethane	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1-Dichloroethene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
trans-1,2-Dichloroethene	<0.00800		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
cis-1,2-Dichloroethene	<0.00750		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,3-Dichloropropane	<0.00550		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
2,2-Dichloropropane	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2-Dichloropropane	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
trans-1,3-Dichloropropene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1-Dichloropropene	<0.00550		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
cis-1,3-Dichloropropene	<0.00750		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Diethyl ether	<0.00750		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,4-Dioxane	<0.900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14

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Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11H2363-BLK1						
Ethylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Ethyl tert-Butyl Ether	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Hexachlorobutadiene	<0.0130		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
2-Hexanone	<0.0355		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Isopropylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Diisopropyl Ether	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
p-Isopropyltoluene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Methyl tert-Butyl Ether	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Methylene Chloride	<0.0835		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
4-Methyl-2-pentanone	<0.165		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Naphthalene	<0.0850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
n-Propylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Styrene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1,2,2-Tetrachloroethane	<0.00700		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1,1,2-Tetrachloroethane	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Tetrachloroethene	<0.00950		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Tetrahydrofuran	<0.0730		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Toluene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2,4-Trichlorobenzene	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2,3-Trichlorobenzene	<0.0125		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1,1-Trichloroethane	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1,2-Trichloroethane	<0.00750		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Trichloroethene	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Trichlorofluoromethane	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2,3-Trichloropropane	<0.0135		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,3,5-Trimethylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2,4-Trimethylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Vinyl chloride	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Xylenes, total	<0.0195		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Surrogate: 1,2-Dichloroethane-d4	94%			11H2363	11H2363-BLK1	08/08/11 16:14
Surrogate: Dibromofluoromethane	92%			11H2363	11H2363-BLK1	08/08/11 16:14
Surrogate: Toluene-d8	85%			11H2363	11H2363-BLK1	08/08/11 16:14
Surrogate: 4-Bromofluorobenzene	95%			11H2363	11H2363-BLK1	08/08/11 16:14
11H2828-BLK1						
Acetone	<0.00500		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Tert-Amyl Methyl Ether	<0.000170		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Benzene	<0.000170		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Bromobenzene	<0.000170		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Bromochloromethane	<0.000240		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Bromodichloromethane	<0.000180		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50

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Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11H2828-BLK1						
Bromoform	<0.000180		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Bromomethane	<0.000170		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
2-Butanone	<0.00170		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
tert-Butylbenzene	<0.000170		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
n-Butylbenzene	<0.000180		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
sec-Butylbenzene	<0.000170		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Carbon disulfide	<0.000130		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Carbon Tetrachloride	<0.000170		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Chlorobenzene	<0.000190		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Chlorodibromomethane	<0.000210		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Chloroethane	<0.000210		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Chloroform	<0.000170		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Chloromethane	<0.000300		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
2-Chlorotoluene	<0.000140		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
4-Chlorotoluene	<0.000170		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
1,2-Dibromo-3-chloropropane	<0.000270		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
1,2-Dibromoethane (EDB)	<0.000180		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Dibromomethane	<0.000160		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
1,2-Dichlorobenzene	<0.000130		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
1,3-Dichlorobenzene	<0.000140		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
1,4-Dichlorobenzene	<0.000150		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Dichlorodifluoromethane	<0.000140		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
1,2-Dichloroethane	<0.000170		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
1,1-Dichloroethane	<0.000170		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
1,1-Dichloroethene	<0.000170		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
trans-1,2-Dichloroethene	<0.000160		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
cis-1,2-Dichloroethene	<0.000150		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
1,3-Dichloropropane	<0.000110		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
2,2-Dichloropropane	<0.000170		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
1,2-Dichloropropane	<0.000180		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
trans-1,3-Dichloropropene	<0.000170		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
1,1-Dichloropropene	<0.000110		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
cis-1,3-Dichloropropene	<0.000150		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Diethyl ether	<0.000150		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
1,4-Dioxane	<0.0180		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Ethylbenzene	<0.000170		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Ethyl tert-Butyl Ether	<0.000170		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Hexachlorobutadiene	<0.000260		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
2-Hexanone	<0.000710		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Isopropylbenzene	<0.000170		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Diisopropyl Ether	<0.000170		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11H2828-BLK1						
p-Isopropyltoluene	<0.000170		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Methyl tert-Butyl Ether	<0.000170		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Methylene Chloride	<0.00167		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
4-Methyl-2-pentanone	<0.00330		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Naphthalene	<0.00170		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
n-Propylbenzene	<0.000170		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Styrene	<0.000170		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
1,1,2,2-Tetrachloroethane	<0.000140		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
1,1,1,2-Tetrachloroethane	<0.000180		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Tetrachloroethene	<0.000190		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Tetrahydrofuran	<0.00146		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Toluene	<0.000170		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
1,2,4-Trichlorobenzene	<0.000180		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
1,2,3-Trichlorobenzene	<0.000250		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
1,1,1-Trichloroethane	<0.000170		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
1,1,2-Trichloroethane	<0.000150		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Trichloroethene	<0.000180		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Trichlorofluoromethane	<0.000180		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
1,2,3-Trichloropropane	<0.000270		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
1,3,5-Trimethylbenzene	<0.000170		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
1,2,4-Trimethylbenzene	<0.000170		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Vinyl chloride	<0.000170		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Xylenes, total	<0.000390		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
1,1,2-Trifluorotrichloroethane	<0.000760		mg/kg wet	11H2828	11H2828-BLK1	08/09/11 23:50
Surrogate: 1,2-Dichloroethane-d4	84%			11H2828	11H2828-BLK1	08/09/11 23:50
Surrogate: Dibromofluoromethane	91%			11H2828	11H2828-BLK1	08/09/11 23:50
Surrogate: Toluene-d8	99%			11H2828	11H2828-BLK1	08/09/11 23:50
Surrogate: 4-Bromofluorobenzene	95%			11H2828	11H2828-BLK1	08/09/11 23:50
Total Metals by EPA 6010C						
11H1701-BLK1						
Iron	<4.84		mg/kg	11H1701	11H1701-BLK1	08/12/11 12:13
Manganese	0.251		mg/kg	11H1701	11H1701-BLK1	08/12/11 12:13
Semivolatile Organic Compounds by EPA Method 8270D						
11H1277-BLK1						
Acenaphthene	<0.0140		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Acenaphthylene	<0.0200		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Azobenzene	<0.173		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Aniline	<0.122		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Anthracene	<0.00900		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31

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Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270D						
11H1277-BLK1						
Benzo (a) anthracene	<0.0110		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Benzo (a) pyrene	<0.00800		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Benzo (b) fluoranthene	<0.0380		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Benzo (g,h,i) perylene	<0.00900		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Benzo (k) fluoranthene	<0.0370		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Bis(2-chloroethoxy)methane	<0.128		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Bis(2-chloroethyl)ether	<0.151		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Bis(2-chloroisopropyl)ether	<0.158		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Bis(2-ethylhexyl)phthalate	<0.126		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
4-Bromophenyl phenyl ether	<0.150		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Butyl benzyl phthalate	<0.125		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
4-Chloroaniline	<0.103		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
2-Chloronaphthalene	<0.150		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
2-Chlorophenol	<0.149		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
4-Chlorophenyl phenyl ether	<0.148		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Chrysene	<0.0310		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Dibenz (a,h) anthracene	<0.0150		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Dibenzofuran	<0.0140		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Di-n-butyl phthalate	<0.141		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
3,3-Dichlorobenzidine	<0.0480		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
1,2-Dichlorobenzene	<0.154		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
1,3-Dichlorobenzene	<0.143		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
1,4-Dichlorobenzene	<0.147		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
2,4-Dichlorophenol	<0.131		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Diethyl phthalate	<0.148		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
2,4-Dimethylphenol	<0.137		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Dimethyl phthalate	<0.157		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
2,4-Dinitrophenol	<0.0990		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
2,4-Dinitrotoluene	<0.140		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
2,6-Dinitrotoluene	<0.150		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Di-n-octyl phthalate	<0.135		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Fluoranthene	<0.0110		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Fluorene	<0.0200		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Hexachlorobenzene	<0.153		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Hexachlorobutadiene	<0.174		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Hexachloroethane	<0.150		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Indeno (1,2,3-cd) pyrene	<0.0310		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Isophorone	<0.135		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
2-Methylnaphthalene	<0.0210		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
2-Methylphenol	<0.189		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
3/4-Methylphenol	<0.166		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270D						
11H1277-BLK1						
Naphthalene	<0.0140		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Nitrobenzene	<0.159		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
2-Nitrophenol	<0.196		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
4-Nitrophenol	<0.153		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Pentachlorophenol	<0.123		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Phenanthrene	<0.0100		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Phenol	<0.131		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Pyrene	<0.0230		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
1,2,4-Trichlorobenzene	<0.144		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
2,4,5-Trichlorophenol	<0.148		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
2,4,6-Trichlorophenol	<0.149		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Surrogate: 2-Fluorophenol	71%			11H1277	11H1277-BLK1	08/14/11 01:31
Surrogate: Phenol-d5	74%			11H1277	11H1277-BLK1	08/14/11 01:31
Surrogate: 2-Fluorobiphenyl	82%			11H1277	11H1277-BLK1	08/14/11 01:31
Surrogate: Nitrobenzene-d5	82%			11H1277	11H1277-BLK1	08/14/11 01:31
Surrogate: Terphenyl-d14	104%			11H1277	11H1277-BLK1	08/14/11 01:31
Surrogate: 2,4,6-Tribromophenol	87%			11H1277	11H1277-BLK1	08/14/11 01:31

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Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
General Chemistry Parameters								
11H3859-BS1								
Total Organic Carbon	29900	32400		mg/kg wet	108%	80 - 120	11H3859	08/18/11 14:13
MADEP VPH								
11H1301-BS1								
Methyl tert-Butyl Ether	0.100	0.0977		mg/kg wet	98%	70 - 130	11H1301	08/05/11 11:04
Benzene	0.100	0.104		mg/kg wet	104%	70 - 130	11H1301	08/05/11 11:04
Toluene	0.100	0.102		mg/kg wet	102%	70 - 130	11H1301	08/05/11 11:04
Ethylbenzene	0.100	0.104		mg/kg wet	104%	70 - 130	11H1301	08/05/11 11:04
m,p-Xylene	0.200	0.210		mg/kg wet	105%	70 - 130	11H1301	08/05/11 11:04
o-Xylene	0.100	0.103		mg/kg wet	103%	70 - 130	11H1301	08/05/11 11:04
Naphthalene	0.100	0.0973		mg/kg wet	97%	70 - 130	11H1301	08/05/11 11:04
C5 - C8 Aliphatic Hydrocarbons, Unadjusted	0.300	0.320		mg/kg wet	107%	70 - 130	11H1301	08/05/11 11:04
C9 - C12 Aliphatic Hydrocarbons, Unadjusted	0.200	0.197		mg/kg wet	98%	70 - 130	11H1301	08/05/11 11:04
C9 - C10 Aromatic Hydrocarbons	0.100	0.104		mg/kg wet	104%	70 - 130	11H1301	08/05/11 11:04
Surrogate: 2,5-Dibromotoluene (FID)	40.0	38.5			96%	70 - 130	11H1301	08/05/11 11:04
Surrogate: 2,5-Dibromotoluene (PID)	40.0	39.4			98%	70 - 130	11H1301	08/05/11 11:04
MADEP EPH								
11H1275-BS1								
C9 - C18 Aliphatic Hydrocarbons	15.0	12.0		mg/kg wet	80%	40 - 140	11H1275	08/13/11 12:10
C19 - C36 Aliphatic Hydrocarbons	20.0	17.0		mg/kg wet	85%	40 - 140	11H1275	08/13/11 12:10
C11 - C22 Aromatic Hydrocarbons, Unadjustec	42.5	39.0		mg/kg wet	92%	40 - 140	11H1275	08/13/11 12:41
2-Methylnaphthalene	2.50	2.33		mg/kg wet	93%	40 - 140	11H1275	08/13/11 12:41
Acenaphthene	2.50	2.37		mg/kg wet	95%	40 - 140	11H1275	08/13/11 12:41
Acenaphthylene	2.50	2.33		mg/kg wet	93%	40 - 140	11H1275	08/13/11 12:41
Anthracene	2.50	2.22		mg/kg wet	89%	40 - 140	11H1275	08/13/11 12:41
Benzo (a) anthracene	2.50	2.18		mg/kg wet	87%	40 - 140	11H1275	08/13/11 12:41
Benzo (a) pyrene	2.50	2.30		mg/kg wet	92%	40 - 140	11H1275	08/13/11 12:41
Benzo (b) fluoranthene	2.50	2.17		mg/kg wet	87%	40 - 140	11H1275	08/13/11 12:41
Benzo (g,h,i) perylene	2.50	2.27		mg/kg wet	91%	40 - 140	11H1275	08/13/11 12:41
Benzo (k) fluoranthene	2.50	2.22		mg/kg wet	89%	40 - 140	11H1275	08/13/11 12:41
Chrysene	2.50	2.24		mg/kg wet	90%	40 - 140	11H1275	08/13/11 12:41
Dibenz (a,h) anthracene	2.50	2.28		mg/kg wet	91%	40 - 140	11H1275	08/13/11 12:41
Fluoranthene	2.50	2.35		mg/kg wet	94%	40 - 140	11H1275	08/13/11 12:41
Fluorene	2.50	2.40		mg/kg wet	96%	40 - 140	11H1275	08/13/11 12:41
Indeno (1,2,3-cd) pyrene	2.50	2.17		mg/kg wet	87%	40 - 140	11H1275	08/13/11 12:41
Naphthalene	2.50	2.42		mg/kg wet	97%	40 - 140	11H1275	08/13/11 12:41
Phenanthrene	2.50	2.38		mg/kg wet	95%	40 - 140	11H1275	08/13/11 12:41
Pyrene	2.50	2.30		mg/kg wet	92%	40 - 140	11H1275	08/13/11 12:41
Surrogate: 1-Chlorooctadecane	4.00	3.40			85%	40 - 140	11H1275	08/13/11 12:10
Surrogate: o-Terphenyl	4.00	3.76			94%	40 - 140	11H1275	08/13/11 12:41

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Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
MADEP EPH								
11H1275-BS1								
Surrogate: 2-Fluorobiphenyl	4.00	4.36			109%	40 - 140	11H1275	08/13/11 12:41
Surrogate: 2-Bromonaphthalene	4.00	4.62			116%	40 - 140	11H1275	08/13/11 12:41
Volatile Organic - MCP CAM Method 8260								
11H0292-BS1								
Acetone	250	327	L, B	ug/kg	131%	70 - 130	11H0292	08/07/11 09:02
Tert-Amyl Methyl Ether	50.0	48.9		ug/kg	98%	70 - 130	11H0292	08/07/11 09:02
Benzene	50.0	54.6		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
Bromobenzene	50.0	50.6		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02
Bromochloromethane	50.0	52.9		ug/kg	106%	70 - 130	11H0292	08/07/11 09:02
Bromodichloromethane	50.0	53.5		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Bromoform	50.0	40.4		ug/kg	81%	70 - 130	11H0292	08/07/11 09:02
Bromomethane	50.0	56.4		ug/kg	113%	70 - 130	11H0292	08/07/11 09:02
2-Butanone	250	266	B	ug/kg	106%	70 - 130	11H0292	08/07/11 09:02
tert-Butylbenzene	50.0	55.4		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
n-Butylbenzene	50.0	48.9		ug/kg	98%	70 - 130	11H0292	08/07/11 09:02
sec-Butylbenzene	50.0	55.8		ug/kg	112%	70 - 130	11H0292	08/07/11 09:02
Carbon disulfide	50.0	53.6		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Carbon Tetrachloride	50.0	58.7		ug/kg	117%	70 - 130	11H0292	08/07/11 09:02
Chlorobenzene	50.0	53.3		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Chlorodibromomethane	50.0	50.4		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02
Chloroethane	50.0	52.4		ug/kg	105%	70 - 130	11H0292	08/07/11 09:02
Chloroform	50.0	53.9		ug/kg	108%	70 - 130	11H0292	08/07/11 09:02
Chloromethane	50.0	54.5		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
2-Chlorotoluene	50.0	53.5		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
4-Chlorotoluene	50.0	56.1		ug/kg	112%	70 - 130	11H0292	08/07/11 09:02
1,2-Dibromo-3-chloropropane	50.0	44.2		ug/kg	88%	70 - 130	11H0292	08/07/11 09:02
1,2-Dibromoethane (EDB)	50.0	54.3		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
Dibromomethane	50.0	50.0		ug/kg	100%	70 - 130	11H0292	08/07/11 09:02
1,2-Dichlorobenzene	50.0	54.2		ug/kg	108%	70 - 130	11H0292	08/07/11 09:02
1,3-Dichlorobenzene	50.0	55.4		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
1,4-Dichlorobenzene	50.0	53.7		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Dichlorodifluoromethane	50.0	61.7		ug/kg	123%	70 - 130	11H0292	08/07/11 09:02
1,2-Dichloroethane	50.0	52.2		ug/kg	104%	70 - 130	11H0292	08/07/11 09:02
1,1-Dichloroethane	50.0	52.9		ug/kg	106%	70 - 130	11H0292	08/07/11 09:02
1,1-Dichloroethene	50.0	53.3		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
trans-1,2-Dichloroethene	50.0	54.2		ug/kg	108%	70 - 130	11H0292	08/07/11 09:02
cis-1,2-Dichloroethene	50.0	55.5		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
1,3-Dichloropropane	50.0	53.0		ug/kg	106%	70 - 130	11H0292	08/07/11 09:02
2,2-Dichloropropane	50.0	66.4	L	ug/kg	133%	70 - 130	11H0292	08/07/11 09:02
1,2-Dichloropropane	50.0	50.4		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11H0292-BS1								
trans-1,3-Dichloropropene	50.0	50.3		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02
1,1-Dichloropropene	50.0	55.3		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
cis-1,3-Dichloropropene	50.0	60.1		ug/kg	120%	70 - 130	11H0292	08/07/11 09:02
Diethyl ether	50.0	51.1		ug/kg	102%	70 - 130	11H0292	08/07/11 09:02
1,4-Dioxane	5000	3910		ug/kg	78%	70 - 130	11H0292	08/07/11 09:02
Ethylbenzene	50.0	55.4		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
Ethyl tert-Butyl Ether	50.0	48.0		ug/kg	96%	70 - 130	11H0292	08/07/11 09:02
Hexachlorobutadiene	50.0	60.6		ug/kg	121%	70 - 130	11H0292	08/07/11 09:02
2-Hexanone	250	284		ug/kg	114%	70 - 130	11H0292	08/07/11 09:02
Isopropylbenzene	50.0	42.0		ug/kg	84%	70 - 130	11H0292	08/07/11 09:02
Diisopropyl Ether	50.0	50.9		ug/kg	102%	70 - 130	11H0292	08/07/11 09:02
p-Isopropyltoluene	50.0	55.0		ug/kg	110%	70 - 130	11H0292	08/07/11 09:02
Methyl tert-Butyl Ether	50.0	50.4		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02
Methylene Chloride	50.0	54.0		ug/kg	108%	70 - 130	11H0292	08/07/11 09:02
4-Methyl-2-pentanone	250	232		ug/kg	93%	70 - 130	11H0292	08/07/11 09:02
Naphthalene	50.0	45.8		ug/kg	92%	70 - 130	11H0292	08/07/11 09:02
n-Propylbenzene	50.0	54.4		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
Styrene	50.0	48.4		ug/kg	97%	70 - 130	11H0292	08/07/11 09:02
1,1,2,2-Tetrachloroethane	50.0	47.2		ug/kg	94%	70 - 130	11H0292	08/07/11 09:02
1,1,1,2-Tetrachloroethane	50.0	56.4		ug/kg	113%	70 - 130	11H0292	08/07/11 09:02
Tetrachloroethene	50.0	56.3		ug/kg	113%	70 - 130	11H0292	08/07/11 09:02
Tetrahydrofuran	500	471	B	ug/kg	94%	70 - 130	11H0292	08/07/11 09:02
Toluene	50.0	51.8		ug/kg	104%	70 - 130	11H0292	08/07/11 09:02
1,2,4-Trichlorobenzene	50.0	54.7		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
1,2,3-Trichlorobenzene	50.0	47.1		ug/kg	94%	70 - 130	11H0292	08/07/11 09:02
1,1,1-Trichloroethane	50.0	56.8		ug/kg	114%	70 - 130	11H0292	08/07/11 09:02
1,1,2-Trichloroethane	50.0	53.7		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Trichloroethene	50.0	53.4		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Trichlorofluoromethane	50.0	54.7		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
1,2,3-Trichloropropane	50.0	47.8		ug/kg	96%	70 - 130	11H0292	08/07/11 09:02
1,3,5-Trimethylbenzene	50.0	56.2		ug/kg	112%	70 - 130	11H0292	08/07/11 09:02
1,2,4-Trimethylbenzene	50.0	55.9		ug/kg	112%	70 - 130	11H0292	08/07/11 09:02
Vinyl chloride	50.0	58.7		ug/kg	117%	70 - 130	11H0292	08/07/11 09:02
Xylenes, total	150	157		ug/kg	105%	70 - 130	11H0292	08/07/11 09:02
1,1,2-Trifluorotrichloroethane	50.0	57.4		ug/kg	115%	61 - 134	11H0292	08/07/11 09:02
Surrogate: 1,2-Dichloroethane-d4	25.0	24.6			98%	70 - 130	11H0292	08/07/11 09:02
Surrogate: Dibromofluoromethane	25.0	25.5			102%	70 - 130	11H0292	08/07/11 09:02
Surrogate: Toluene-d8	25.0	24.1			96%	70 - 130	11H0292	08/07/11 09:02
Surrogate: 4-Bromofluorobenzene	25.0	24.8			99%	70 - 130	11H0292	08/07/11 09:02

11H2363-BS1

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11H2363-BS1								
Acetone	250	337	L	ug/kg	135%	70 - 130	11H2363	08/08/11 13:52
Tert-Amyl Methyl Ether	50.0	59.5		ug/kg	119%	70 - 130	11H2363	08/08/11 13:52
Benzene	50.0	53.0		ug/kg	106%	70 - 130	11H2363	08/08/11 13:52
Bromobenzene	50.0	48.0		ug/kg	96%	70 - 130	11H2363	08/08/11 13:52
Bromochloromethane	50.0	51.7		ug/kg	103%	70 - 130	11H2363	08/08/11 13:52
Bromodichloromethane	50.0	51.7		ug/kg	103%	70 - 130	11H2363	08/08/11 13:52
Bromoform	50.0	51.8		ug/kg	104%	70 - 130	11H2363	08/08/11 13:52
Bromomethane	50.0	53.0		ug/kg	106%	70 - 130	11H2363	08/08/11 13:52
2-Butanone	250	287		ug/kg	115%	70 - 130	11H2363	08/08/11 13:52
tert-Butylbenzene	50.0	57.4		ug/kg	115%	70 - 130	11H2363	08/08/11 13:52
n-Butylbenzene	50.0	50.8		ug/kg	102%	70 - 130	11H2363	08/08/11 13:52
sec-Butylbenzene	50.0	58.0		ug/kg	116%	70 - 130	11H2363	08/08/11 13:52
Carbon disulfide	50.0	52.4		ug/kg	105%	70 - 130	11H2363	08/08/11 13:52
Carbon Tetrachloride	50.0	59.0		ug/kg	118%	70 - 130	11H2363	08/08/11 13:52
Chlorobenzene	50.0	53.5		ug/kg	107%	70 - 130	11H2363	08/08/11 13:52
Chlorodibromomethane	50.0	48.9		ug/kg	98%	70 - 130	11H2363	08/08/11 13:52
Chloroethane	50.0	48.7		ug/kg	97%	70 - 130	11H2363	08/08/11 13:52
Chloroform	50.0	52.8		ug/kg	106%	70 - 130	11H2363	08/08/11 13:52
Chloromethane	50.0	39.8		ug/kg	80%	70 - 130	11H2363	08/08/11 13:52
2-Chlorotoluene	50.0	51.5		ug/kg	103%	70 - 130	11H2363	08/08/11 13:52
4-Chlorotoluene	50.0	54.7		ug/kg	109%	70 - 130	11H2363	08/08/11 13:52
1,2-Dibromo-3-chloropropane	50.0	46.2		ug/kg	92%	70 - 130	11H2363	08/08/11 13:52
1,2-Dibromoethane (EDB)	50.0	50.6		ug/kg	101%	70 - 130	11H2363	08/08/11 13:52
Dibromomethane	50.0	47.7		ug/kg	95%	70 - 130	11H2363	08/08/11 13:52
1,2-Dichlorobenzene	50.0	56.3		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52
1,3-Dichlorobenzene	50.0	56.6		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52
1,4-Dichlorobenzene	50.0	56.2		ug/kg	112%	70 - 130	11H2363	08/08/11 13:52
Dichlorodifluoromethane	50.0	49.8		ug/kg	100%	70 - 130	11H2363	08/08/11 13:52
1,2-Dichloroethane	50.0	48.1		ug/kg	96%	70 - 130	11H2363	08/08/11 13:52
1,1-Dichloroethane	50.0	51.5		ug/kg	103%	70 - 130	11H2363	08/08/11 13:52
1,1-Dichloroethene	50.0	52.5		ug/kg	105%	70 - 130	11H2363	08/08/11 13:52
trans-1,2-Dichloroethene	50.0	51.2		ug/kg	102%	70 - 130	11H2363	08/08/11 13:52
cis-1,2-Dichloroethene	50.0	51.8		ug/kg	104%	70 - 130	11H2363	08/08/11 13:52
1,3-Dichloropropane	50.0	47.2		ug/kg	94%	70 - 130	11H2363	08/08/11 13:52
2,2-Dichloropropane	50.0	68.3	L	ug/kg	137%	70 - 130	11H2363	08/08/11 13:52
1,2-Dichloropropane	50.0	47.1		ug/kg	94%	70 - 130	11H2363	08/08/11 13:52
trans-1,3-Dichloropropene	50.0	46.6		ug/kg	93%	70 - 130	11H2363	08/08/11 13:52
1,1-Dichloropropene	50.0	53.2		ug/kg	106%	70 - 130	11H2363	08/08/11 13:52
cis-1,3-Dichloropropene	50.0	60.3		ug/kg	121%	70 - 130	11H2363	08/08/11 13:52
Diethyl ether	50.0	49.4		ug/kg	99%	70 - 130	11H2363	08/08/11 13:52
1,4-Dioxane	5000	3490		ug/kg	70%	70 - 130	11H2363	08/08/11 13:52

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11H2363-BS1								
Ethylbenzene	50.0	55.2		ug/kg	110%	70 - 130	11H2363	08/08/11 13:52
Ethyl tert-Butyl Ether	50.0	53.4		ug/kg	107%	70 - 130	11H2363	08/08/11 13:52
Hexachlorobutadiene	50.0	58.4		ug/kg	117%	70 - 130	11H2363	08/08/11 13:52
2-Hexanone	250	274		ug/kg	109%	70 - 130	11H2363	08/08/11 13:52
Isopropylbenzene	50.0	65.9	L1	ug/kg	132%	70 - 130	11H2363	08/08/11 13:52
Diisopropyl Ether	50.0	48.8		ug/kg	98%	70 - 130	11H2363	08/08/11 13:52
p-Isopropyltoluene	50.0	58.4		ug/kg	117%	70 - 130	11H2363	08/08/11 13:52
Methyl tert-Butyl Ether	50.0	56.1		ug/kg	112%	70 - 130	11H2363	08/08/11 13:52
Methylene Chloride	50.0	51.0		ug/kg	102%	70 - 130	11H2363	08/08/11 13:52
4-Methyl-2-pentanone	250	223		ug/kg	89%	70 - 130	11H2363	08/08/11 13:52
Naphthalene	50.0	50.5		ug/kg	101%	70 - 130	11H2363	08/08/11 13:52
n-Propylbenzene	50.0	54.2		ug/kg	108%	70 - 130	11H2363	08/08/11 13:52
Styrene	50.0	60.3		ug/kg	121%	70 - 130	11H2363	08/08/11 13:52
1,1,2,2-Tetrachloroethane	50.0	43.8		ug/kg	88%	70 - 130	11H2363	08/08/11 13:52
1,1,1,2-Tetrachloroethane	50.0	58.6		ug/kg	117%	70 - 130	11H2363	08/08/11 13:52
Tetrachloroethene	50.0	54.2		ug/kg	108%	70 - 130	11H2363	08/08/11 13:52
Tetrahydrofuran	500	458		ug/kg	92%	70 - 130	11H2363	08/08/11 13:52
Toluene	50.0	48.1		ug/kg	96%	70 - 130	11H2363	08/08/11 13:52
1,2,4-Trichlorobenzene	50.0	56.6		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52
1,2,3-Trichlorobenzene	50.0	51.1		ug/kg	102%	70 - 130	11H2363	08/08/11 13:52
1,1,1-Trichloroethane	50.0	58.0		ug/kg	116%	70 - 130	11H2363	08/08/11 13:52
1,1,2-Trichloroethane	50.0	49.8		ug/kg	100%	70 - 130	11H2363	08/08/11 13:52
Trichloroethene	50.0	53.6		ug/kg	107%	70 - 130	11H2363	08/08/11 13:52
Trichlorofluoromethane	50.0	49.2		ug/kg	98%	70 - 130	11H2363	08/08/11 13:52
1,2,3-Trichloropropane	50.0	47.1		ug/kg	94%	70 - 130	11H2363	08/08/11 13:52
1,3,5-Trimethylbenzene	50.0	56.6		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52
1,2,4-Trimethylbenzene	50.0	56.4		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52
Vinyl chloride	50.0	47.1		ug/kg	94%	70 - 130	11H2363	08/08/11 13:52
Xylenes, total	150	170		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52
Surrogate: 1,2-Dichloroethane-d4	25.0	22.5			90%	70 - 130	11H2363	08/08/11 13:52
Surrogate: Dibromofluoromethane	25.0	24.0			96%	70 - 130	11H2363	08/08/11 13:52
Surrogate: Toluene-d8	25.0	21.4			86%	70 - 130	11H2363	08/08/11 13:52
Surrogate: 4-Bromofluorobenzene	25.0	23.9			95%	70 - 130	11H2363	08/08/11 13:52
11H2828-BS1								
Acetone	250	300		ug/kg	120%	70 - 130	11H2828	08/09/11 21:59
Tert-Amyl Methyl Ether	50.0	48.4		ug/kg	97%	70 - 130	11H2828	08/09/11 21:59
Benzene	50.0	50.7		ug/kg	101%	70 - 130	11H2828	08/09/11 21:59
Bromobenzene	50.0	45.0		ug/kg	90%	70 - 130	11H2828	08/09/11 21:59
Bromochloromethane	50.0	48.1		ug/kg	96%	70 - 130	11H2828	08/09/11 21:59
Bromodichloromethane	50.0	46.2		ug/kg	92%	70 - 130	11H2828	08/09/11 21:59

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11H2828-BS1								
Bromoform	50.0	41.7		ug/kg	83%	70 - 130	11H2828	08/09/11 21:59
Bromomethane	50.0	52.0		ug/kg	104%	70 - 130	11H2828	08/09/11 21:59
2-Butanone	250	245		ug/kg	98%	70 - 130	11H2828	08/09/11 21:59
tert-Butylbenzene	50.0	54.6		ug/kg	109%	70 - 130	11H2828	08/09/11 21:59
n-Butylbenzene	50.0	46.2		ug/kg	92%	70 - 130	11H2828	08/09/11 21:59
sec-Butylbenzene	50.0	54.7		ug/kg	109%	70 - 130	11H2828	08/09/11 21:59
Carbon disulfide	50.0	48.2		ug/kg	96%	70 - 130	11H2828	08/09/11 21:59
Carbon Tetrachloride	50.0	52.9		ug/kg	106%	70 - 130	11H2828	08/09/11 21:59
Chlorobenzene	50.0	50.8		ug/kg	102%	70 - 130	11H2828	08/09/11 21:59
Chlorodibromomethane	50.0	43.1		ug/kg	86%	70 - 130	11H2828	08/09/11 21:59
Chloroethane	50.0	46.5		ug/kg	93%	70 - 130	11H2828	08/09/11 21:59
Chloroform	50.0	48.6		ug/kg	97%	70 - 130	11H2828	08/09/11 21:59
Chloromethane	50.0	39.0		ug/kg	78%	70 - 130	11H2828	08/09/11 21:59
2-Chlorotoluene	50.0	48.5		ug/kg	97%	70 - 130	11H2828	08/09/11 21:59
4-Chlorotoluene	50.0	50.5		ug/kg	101%	70 - 130	11H2828	08/09/11 21:59
1,2-Dibromo-3-chloropropane	50.0	38.0		ug/kg	76%	70 - 130	11H2828	08/09/11 21:59
1,2-Dibromoethane (EDB)	50.0	47.7		ug/kg	95%	70 - 130	11H2828	08/09/11 21:59
Dibromomethane	50.0	43.1		ug/kg	86%	70 - 130	11H2828	08/09/11 21:59
1,2-Dichlorobenzene	50.0	51.3		ug/kg	103%	70 - 130	11H2828	08/09/11 21:59
1,3-Dichlorobenzene	50.0	53.7		ug/kg	107%	70 - 130	11H2828	08/09/11 21:59
1,4-Dichlorobenzene	50.0	52.3		ug/kg	105%	70 - 130	11H2828	08/09/11 21:59
Dichlorodifluoromethane	50.0	45.4		ug/kg	91%	70 - 130	11H2828	08/09/11 21:59
1,2-Dichloroethane	50.0	42.3		ug/kg	85%	70 - 130	11H2828	08/09/11 21:59
1,1-Dichloroethane	50.0	47.6		ug/kg	95%	70 - 130	11H2828	08/09/11 21:59
1,1-Dichloroethene	50.0	50.2		ug/kg	100%	70 - 130	11H2828	08/09/11 21:59
trans-1,2-Dichloroethene	50.0	46.7		ug/kg	93%	70 - 130	11H2828	08/09/11 21:59
cis-1,2-Dichloroethene	50.0	46.7		ug/kg	93%	70 - 130	11H2828	08/09/11 21:59
1,3-Dichloropropane	50.0	43.7		ug/kg	87%	70 - 130	11H2828	08/09/11 21:59
2,2-Dichloropropane	50.0	57.3		ug/kg	115%	70 - 130	11H2828	08/09/11 21:59
1,2-Dichloropropane	50.0	44.5		ug/kg	89%	70 - 130	11H2828	08/09/11 21:59
trans-1,3-Dichloropropene	50.0	39.7		ug/kg	79%	70 - 130	11H2828	08/09/11 21:59
1,1-Dichloropropene	50.0	48.9		ug/kg	98%	70 - 130	11H2828	08/09/11 21:59
cis-1,3-Dichloropropene	50.0	51.8		ug/kg	104%	70 - 130	11H2828	08/09/11 21:59
Diethyl ether	50.0	44.6		ug/kg	89%	70 - 130	11H2828	08/09/11 21:59
1,4-Dioxane	5000	4450		ug/kg	89%	70 - 130	11H2828	08/09/11 21:59
Ethylbenzene	50.0	52.0		ug/kg	104%	70 - 130	11H2828	08/09/11 21:59
Ethyl tert-Butyl Ether	50.0	44.3		ug/kg	89%	70 - 130	11H2828	08/09/11 21:59
Hexachlorobutadiene	50.0	56.2		ug/kg	112%	70 - 130	11H2828	08/09/11 21:59
2-Hexanone	250	228		ug/kg	91%	70 - 130	11H2828	08/09/11 21:59
Isopropylbenzene	50.0	60.8		ug/kg	122%	70 - 130	11H2828	08/09/11 21:59
Diisopropyl Ether	50.0	42.6		ug/kg	85%	70 - 130	11H2828	08/09/11 21:59

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11H2828-BS1								
p-Isopropyltoluene	50.0	54.7		ug/kg	109%	70 - 130	11H2828	08/09/11 21:59
Methyl tert-Butyl Ether	50.0	47.7		ug/kg	95%	70 - 130	11H2828	08/09/11 21:59
Methylene Chloride	50.0	49.1		ug/kg	98%	70 - 130	11H2828	08/09/11 21:59
4-Methyl-2-pentanone	250	177		ug/kg	71%	70 - 130	11H2828	08/09/11 21:59
Naphthalene	50.0	44.0		ug/kg	88%	70 - 130	11H2828	08/09/11 21:59
n-Propylbenzene	50.0	50.9		ug/kg	102%	70 - 130	11H2828	08/09/11 21:59
Styrene	50.0	55.8		ug/kg	112%	70 - 130	11H2828	08/09/11 21:59
1,1,2,2-Tetrachloroethane	50.0	39.5		ug/kg	79%	70 - 130	11H2828	08/09/11 21:59
1,1,1,2-Tetrachloroethane	50.0	53.0		ug/kg	106%	70 - 130	11H2828	08/09/11 21:59
Tetrachloroethene	50.0	51.7		ug/kg	103%	70 - 130	11H2828	08/09/11 21:59
Tetrahydrofuran	500	388		ug/kg	78%	70 - 130	11H2828	08/09/11 21:59
Toluene	50.0	46.4		ug/kg	93%	70 - 130	11H2828	08/09/11 21:59
1,2,4-Trichlorobenzene	50.0	51.6		ug/kg	103%	70 - 130	11H2828	08/09/11 21:59
1,2,3-Trichlorobenzene	50.0	44.2		ug/kg	88%	70 - 130	11H2828	08/09/11 21:59
1,1,1-Trichloroethane	50.0	52.3		ug/kg	105%	70 - 130	11H2828	08/09/11 21:59
1,1,2-Trichloroethane	50.0	45.6		ug/kg	91%	70 - 130	11H2828	08/09/11 21:59
Trichloroethene	50.0	51.2		ug/kg	102%	70 - 130	11H2828	08/09/11 21:59
Trichlorofluoromethane	50.0	45.2		ug/kg	90%	70 - 130	11H2828	08/09/11 21:59
1,2,3-Trichloropropane	50.0	42.5		ug/kg	85%	70 - 130	11H2828	08/09/11 21:59
1,3,5-Trimethylbenzene	50.0	53.2		ug/kg	106%	70 - 130	11H2828	08/09/11 21:59
1,2,4-Trimethylbenzene	50.0	52.6		ug/kg	105%	70 - 130	11H2828	08/09/11 21:59
Vinyl chloride	50.0	45.1		ug/kg	90%	70 - 130	11H2828	08/09/11 21:59
Xylenes, total	150	155		ug/kg	103%	70 - 130	11H2828	08/09/11 21:59
1,1,2-Trifluorotrichloroethane	50.0	52.7		ug/kg	105%	61 - 134	11H2828	08/09/11 21:59
Surrogate: 1,2-Dichloroethane-d4	25.0	20.4			82%	70 - 130	11H2828	08/09/11 21:59
Surrogate: Dibromofluoromethane	25.0	23.2			93%	70 - 130	11H2828	08/09/11 21:59
Surrogate: Toluene-d8	25.0	21.6			87%	70 - 130	11H2828	08/09/11 21:59
Surrogate: 4-Bromofluorobenzene	25.0	23.4			93%	70 - 130	11H2828	08/09/11 21:59
Total Metals by EPA 6010C								
11H1701-BS1								
Iron	382	405		mg/kg	106%	80 - 120	11H1701	08/12/11 12:26
Manganese	191	197		mg/kg	103%	80 - 120	11H1701	08/12/11 12:26
Semivolatile Organic Compounds by EPA Method 8270D								
11H1277-BS1								
Acenaphthene	3.33	2.70		mg/kg wet	81%	40 - 140	11H1277	08/13/11 20:08
Acenaphthylene	3.33	2.85		mg/kg wet	86%	40 - 140	11H1277	08/13/11 20:08
Azobenzene	3.33	3.25		mg/kg wet	98%	40 - 140	11H1277	08/13/11 20:08
Aniline	3.33	3.74		mg/kg wet	112%	40 - 140	11H1277	08/13/11 20:08
Anthracene	3.33	2.98		mg/kg wet	89%	40 - 140	11H1277	08/13/11 20:08

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270D								
11H1277-BS1								
Benzo (a) anthracene	3.33	2.83		mg/kg wet	85%	40 - 140	11H1277	08/13/11 20:08
Benzo (a) pyrene	3.33	3.47		mg/kg wet	104%	40 - 140	11H1277	08/13/11 20:08
Benzo (b) fluoranthene	3.33	3.12		mg/kg wet	94%	40 - 140	11H1277	08/13/11 20:08
Benzo (g,h,i) perylene	3.33	3.34		mg/kg wet	100%	40 - 140	11H1277	08/13/11 20:08
Benzo (k) fluoranthene	3.33	3.08		mg/kg wet	92%	40 - 140	11H1277	08/13/11 20:08
Bis(2-chloroethoxy)methane	3.33	2.63		mg/kg wet	79%	40 - 140	11H1277	08/13/11 20:08
Bis(2-chloroethyl)ether	3.33	2.31		mg/kg wet	69%	40 - 140	11H1277	08/13/11 20:08
Bis(2-chloroisopropyl)ether	3.33	2.41		mg/kg wet	72%	40 - 140	11H1277	08/13/11 20:08
Bis(2-ethylhexyl)phthalate	3.33	2.81		mg/kg wet	84%	40 - 140	11H1277	08/13/11 20:08
4-Bromophenyl phenyl ether	3.33	2.86		mg/kg wet	86%	40 - 140	11H1277	08/13/11 20:08
Butyl benzyl phthalate	3.33	2.78		mg/kg wet	84%	40 - 140	11H1277	08/13/11 20:08
4-Chloroaniline	3.33	2.90		mg/kg wet	87%	40 - 140	11H1277	08/13/11 20:08
2-Chloronaphthalene	3.33	2.37		mg/kg wet	71%	40 - 140	11H1277	08/13/11 20:08
2-Chlorophenol	3.33	2.40		mg/kg wet	72%	30 - 130	11H1277	08/13/11 20:08
4-Chlorophenyl phenyl ether	3.33	2.85		mg/kg wet	86%	40 - 140	11H1277	08/13/11 20:08
Chrysene	3.33	2.79		mg/kg wet	84%	40 - 140	11H1277	08/13/11 20:08
Dibenz (a,h) anthracene	3.33	3.39		mg/kg wet	102%	40 - 140	11H1277	08/13/11 20:08
Dibenzofuran	3.33	2.90		mg/kg wet	87%	40 - 140	11H1277	08/13/11 20:08
Di-n-butyl phthalate	3.33	2.95		mg/kg wet	89%	40 - 140	11H1277	08/13/11 20:08
3,3-Dichlorobenzidine	3.33	2.88		mg/kg wet	86%	40 - 140	11H1277	08/13/11 20:08
1,2-Dichlorobenzene	3.33	2.08		mg/kg wet	62%	40 - 140	11H1277	08/13/11 20:08
1,3-Dichlorobenzene	3.33	2.11		mg/kg wet	63%	40 - 140	11H1277	08/13/11 20:08
1,4-Dichlorobenzene	3.33	2.10		mg/kg wet	63%	40 - 140	11H1277	08/13/11 20:08
2,4-Dichlorophenol	3.33	2.49		mg/kg wet	75%	30 - 130	11H1277	08/13/11 20:08
Diethyl phthalate	3.33	3.07		mg/kg wet	92%	40 - 140	11H1277	08/13/11 20:08
2,4-Dimethylphenol	3.33	2.77		mg/kg wet	83%	30 - 130	11H1277	08/13/11 20:08
Dimethyl phthalate	3.33	2.75		mg/kg wet	83%	40 - 140	11H1277	08/13/11 20:08
2,4-Dinitrophenol	3.33	1.80		mg/kg wet	54%	30 - 130	11H1277	08/13/11 20:08
2,4-Dinitrotoluene	3.33	2.57		mg/kg wet	77%	40 - 140	11H1277	08/13/11 20:08
2,6-Dinitrotoluene	3.33	2.67		mg/kg wet	80%	40 - 140	11H1277	08/13/11 20:08
Di-n-octyl phthalate	3.33	2.94		mg/kg wet	88%	40 - 140	11H1277	08/13/11 20:08
Fluoranthene	3.33	2.98		mg/kg wet	89%	40 - 140	11H1277	08/13/11 20:08
Fluorene	3.33	2.96		mg/kg wet	89%	40 - 140	11H1277	08/13/11 20:08
Hexachlorobenzene	3.33	3.01		mg/kg wet	90%	40 - 140	11H1277	08/13/11 20:08
Hexachlorobutadiene	3.33	3.30		mg/kg wet	99%	40 - 140	11H1277	08/13/11 20:08
Hexachloroethane	3.33	2.56		mg/kg wet	77%	40 - 140	11H1277	08/13/11 20:08
Indeno (1,2,3-cd) pyrene	3.33	3.38		mg/kg wet	101%	40 - 140	11H1277	08/13/11 20:08
Isophorone	3.33	2.47		mg/kg wet	74%	40 - 140	11H1277	08/13/11 20:08
2-Methylnaphthalene	3.33	2.63		mg/kg wet	79%	40 - 140	11H1277	08/13/11 20:08
2-Methylphenol	3.33	2.22		mg/kg wet	67%	30 - 130	11H1277	08/13/11 20:08
3/4-Methylphenol	3.33	2.08		mg/kg wet	63%	30 - 130	11H1277	08/13/11 20:08

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270D								
11H1277-BS1								
Naphthalene	3.33	2.89		mg/kg wet	87%	40 - 140	11H1277	08/13/11 20:08
Nitrobenzene	3.33	2.41		mg/kg wet	72%	40 - 140	11H1277	08/13/11 20:08
2-Nitrophenol	3.33	2.55		mg/kg wet	76%	30 - 130	11H1277	08/13/11 20:08
4-Nitrophenol	3.33	3.11		mg/kg wet	93%	30 - 130	11H1277	08/13/11 20:08
Pentachlorophenol	3.33	3.22		mg/kg wet	97%	30 - 130	11H1277	08/13/11 20:08
Phenanthrene	3.33	2.92		mg/kg wet	88%	40 - 140	11H1277	08/13/11 20:08
Phenol	3.33	2.24		mg/kg wet	67%	30 - 130	11H1277	08/13/11 20:08
Pyrene	3.33	2.67		mg/kg wet	80%	40 - 140	11H1277	08/13/11 20:08
1,2,4-Trichlorobenzene	3.33	2.21		mg/kg wet	66%	40 - 140	11H1277	08/13/11 20:08
2,4,5-Trichlorophenol	3.33	2.54		mg/kg wet	76%	30 - 130	11H1277	08/13/11 20:08
2,4,6-Trichlorophenol	3.33	2.94		mg/kg wet	88%	30 - 130	11H1277	08/13/11 20:08
Surrogate: 2-Fluorophenol	3.33	1.98			59%	30 - 130	11H1277	08/13/11 20:08
Surrogate: Phenol-d5	3.33	2.15			64%	30 - 130	11H1277	08/13/11 20:08
Surrogate: 2-Fluorobiphenyl	3.33	2.46			74%	30 - 130	11H1277	08/13/11 20:08
Surrogate: Nitrobenzene-d5	3.33	2.35			71%	30 - 130	11H1277	08/13/11 20:08
Surrogate: Terphenyl-d14	3.33	2.78			83%	30 - 130	11H1277	08/13/11 20:08
Surrogate: 2,4,6-Tribromophenol	3.33	2.53			76%	30 - 130	11H1277	08/13/11 20:08

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS Dup

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
MADEP VPH												
11H1301-BSD1												
Methyl tert-Butyl Ether		0.0965		mg/kg wet	0.100	97%	70 - 130	1	25	11H1301		08/05/11 11:34
Benzene		0.0983		mg/kg wet	0.100	98%	70 - 130	5	25	11H1301		08/05/11 11:34
Toluene		0.0957		mg/kg wet	0.100	96%	70 - 130	6	25	11H1301		08/05/11 11:34
Ethylbenzene		0.0982		mg/kg wet	0.100	98%	70 - 130	6	25	11H1301		08/05/11 11:34
m,p-Xylene		0.198		mg/kg wet	0.200	99%	70 - 130	6	25	11H1301		08/05/11 11:34
o-Xylene		0.0976		mg/kg wet	0.100	98%	70 - 130	6	25	11H1301		08/05/11 11:34
Naphthalene		0.0954		mg/kg wet	0.100	95%	70 - 130	2	25	11H1301		08/05/11 11:34
C5 - C8 Aliphatic Hydrocarbons, Unadjusted		0.300		mg/kg wet	0.300	100%	70 - 130	6	25	11H1301		08/05/11 11:34
C9 - C12 Aliphatic Hydrocarbons, Unadjusted		0.204		mg/kg wet	0.200	102%	70 - 130	4	25	11H1301		08/05/11 11:34
C9 - C10 Aromatic Hydrocarbons		0.0986		mg/kg wet	0.100	99%	70 - 130	5	25	11H1301		08/05/11 11:34
Surrogate: 2,5-Dibromotoluene (FID)		37.4		ug/L	40.0	94%	70 - 130			11H1301		08/05/11 11:34
Surrogate: 2,5-Dibromotoluene (PID)		38.4		ug/L	40.0	96%	70 - 130			11H1301		08/05/11 11:34
MADEP EPH												
11H1275-BSD1												
C9 - C18 Aliphatic Hydrocarbons		13.1		mg/kg wet	15.0	88%	40 - 140	9	25	11H1275		08/13/11 13:11
C19 - C36 Aliphatic Hydrocarbons		18.4		mg/kg wet	20.0	92%	40 - 140	8	25	11H1275		08/13/11 13:11
C11 - C22 Aromatic Hydrocarbons, Unadjuste		38.3		mg/kg wet	42.5	90%	40 - 140	2	25	11H1275		08/13/11 13:42
2-Methylnaphthalene		2.32		mg/kg wet	2.50	93%	40 - 140	0.3	25	11H1275		08/13/11 13:42
Acenaphthene		2.37		mg/kg wet	2.50	95%	40 - 140	0.2	25	11H1275		08/13/11 13:42
Acenaphthylene		2.34		mg/kg wet	2.50	94%	40 - 140	0.2	25	11H1275		08/13/11 13:42
Anthracene		2.20		mg/kg wet	2.50	88%	40 - 140	1	25	11H1275		08/13/11 13:42
Benzo (a) anthracene		2.17		mg/kg wet	2.50	87%	40 - 140	0.4	25	11H1275		08/13/11 13:42
Benzo (a) pyrene		2.24		mg/kg wet	2.50	90%	40 - 140	2	25	11H1275		08/13/11 13:42
Benzo (b) fluoranthene		2.13		mg/kg wet	2.50	85%	40 - 140	2	25	11H1275		08/13/11 13:42
Benzo (g,h,i) perylene		2.21		mg/kg wet	2.50	88%	40 - 140	3	25	11H1275		08/13/11 13:42
Benzo (k) fluoranthene		2.17		mg/kg wet	2.50	87%	40 - 140	2	25	11H1275		08/13/11 13:42
Chrysene		2.18		mg/kg wet	2.50	87%	40 - 140	3	25	11H1275		08/13/11 13:42
Dibenz (a,h) anthracene		2.22		mg/kg wet	2.50	89%	40 - 140	3	25	11H1275		08/13/11 13:42
Fluoranthene		2.31		mg/kg wet	2.50	92%	40 - 140	2	25	11H1275		08/13/11 13:42
Fluorene		2.38		mg/kg wet	2.50	95%	40 - 140	1	25	11H1275		08/13/11 13:42
Indeno (1,2,3-cd) pyrene		2.12		mg/kg wet	2.50	85%	40 - 140	2	25	11H1275		08/13/11 13:42
Naphthalene		2.44		mg/kg wet	2.50	98%	40 - 140	0.7	25	11H1275		08/13/11 13:42
Phenanthrene		2.32		mg/kg wet	2.50	93%	40 - 140	3	25	11H1275		08/13/11 13:42
Pyrene		2.27		mg/kg wet	2.50	91%	40 - 140	1	25	11H1275		08/13/11 13:42
Surrogate: 1-Chlorooctadecane		3.63		mg/kg wet	4.00	91%	40 - 140			11H1275		08/13/11 13:11
Surrogate: o-Terphenyl		3.70		mg/kg wet	4.00	93%	40 - 140			11H1275		08/13/11 13:42
Surrogate: 2-Fluorobiphenyl		4.23		mg/kg wet	4.00	106%	40 - 140			11H1275		08/13/11 13:42
Surrogate: 2-Bromonaphthalene		4.39		mg/kg wet	4.00	110%	40 - 140			11H1275		08/13/11 13:42

Volatile Organic - MCP CAM Method 8260

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11H0292-BSD1												
Acetone		306	B	ug/kg	250	122%	70 - 130	7	25	11H0292		08/07/11 09:30
Tert-Amyl Methyl Ether		47.9		ug/kg	50.0	96%	70 - 130	2	25	11H0292		08/07/11 09:30
Benzene		53.0		ug/kg	50.0	106%	70 - 130	3	25	11H0292		08/07/11 09:30
Bromobenzene		50.9		ug/kg	50.0	102%	70 - 130	0.7	25	11H0292		08/07/11 09:30
Bromochloromethane		53.0		ug/kg	50.0	106%	70 - 130	0.1	25	11H0292		08/07/11 09:30
Bromodichloromethane		51.9		ug/kg	50.0	104%	70 - 130	3	25	11H0292		08/07/11 09:30
Bromoform		46.8		ug/kg	50.0	94%	70 - 130	15	25	11H0292		08/07/11 09:30
Bromomethane		54.5		ug/kg	50.0	109%	70 - 130	3	25	11H0292		08/07/11 09:30
2-Butanone		265	B	ug/kg	250	106%	70 - 130	0.2	25	11H0292		08/07/11 09:30
tert-Butylbenzene		54.2		ug/kg	50.0	108%	70 - 130	2	25	11H0292		08/07/11 09:30
n-Butylbenzene		48.6		ug/kg	50.0	97%	70 - 130	0.7	25	11H0292		08/07/11 09:30
sec-Butylbenzene		55.2		ug/kg	50.0	110%	70 - 130	1	25	11H0292		08/07/11 09:30
Carbon disulfide		51.6		ug/kg	50.0	103%	70 - 130	4	25	11H0292		08/07/11 09:30
Carbon Tetrachloride		56.3		ug/kg	50.0	113%	70 - 130	4	25	11H0292		08/07/11 09:30
Chlorobenzene		52.6		ug/kg	50.0	105%	70 - 130	1	25	11H0292		08/07/11 09:30
Chlorodibromomethane		49.7		ug/kg	50.0	99%	70 - 130	1	25	11H0292		08/07/11 09:30
Chloroethane		50.4		ug/kg	50.0	101%	70 - 130	4	25	11H0292		08/07/11 09:30
Chloroform		53.7		ug/kg	50.0	107%	70 - 130	0.5	25	11H0292		08/07/11 09:30
Chloromethane		52.8		ug/kg	50.0	106%	70 - 130	3	25	11H0292		08/07/11 09:30
2-Chlorotoluene		52.5		ug/kg	50.0	105%	70 - 130	2	25	11H0292		08/07/11 09:30
4-Chlorotoluene		54.7		ug/kg	50.0	109%	70 - 130	3	25	11H0292		08/07/11 09:30
1,2-Dibromo-3-chloropropane		41.6		ug/kg	50.0	83%	70 - 130	6	25	11H0292		08/07/11 09:30
1,2-Dibromoethane (EDB)		54.2		ug/kg	50.0	108%	70 - 130	0.2	25	11H0292		08/07/11 09:30
Dibromomethane		49.8		ug/kg	50.0	100%	70 - 130	0.5	25	11H0292		08/07/11 09:30
1,2-Dichlorobenzene		52.8		ug/kg	50.0	106%	70 - 130	3	25	11H0292		08/07/11 09:30
1,3-Dichlorobenzene		54.4		ug/kg	50.0	109%	70 - 130	2	25	11H0292		08/07/11 09:30
1,4-Dichlorobenzene		52.8		ug/kg	50.0	106%	70 - 130	2	25	11H0292		08/07/11 09:30
Dichlorodifluoromethane		63.4		ug/kg	50.0	127%	70 - 130	3	25	11H0292		08/07/11 09:30
1,2-Dichloroethane		50.7		ug/kg	50.0	101%	70 - 130	3	25	11H0292		08/07/11 09:30
1,1-Dichloroethane		52.8		ug/kg	50.0	106%	70 - 130	0.2	25	11H0292		08/07/11 09:30
1,1-Dichloroethene		52.0		ug/kg	50.0	104%	70 - 130	2	25	11H0292		08/07/11 09:30
trans-1,2-Dichloroethene		52.2		ug/kg	50.0	104%	70 - 130	4	25	11H0292		08/07/11 09:30
cis-1,2-Dichloroethene		53.7		ug/kg	50.0	107%	70 - 130	3	25	11H0292		08/07/11 09:30
1,3-Dichloropropane		51.6		ug/kg	50.0	103%	70 - 130	3	25	11H0292		08/07/11 09:30
2,2-Dichloropropane		63.8		ug/kg	50.0	128%	70 - 130	4	25	11H0292		08/07/11 09:30
1,2-Dichloropropane		50.0		ug/kg	50.0	100%	70 - 130	0.8	25	11H0292		08/07/11 09:30
trans-1,3-Dichloropropene		49.3		ug/kg	50.0	99%	70 - 130	2	25	11H0292		08/07/11 09:30
1,1-Dichloropropene		53.1		ug/kg	50.0	106%	70 - 130	4	25	11H0292		08/07/11 09:30
cis-1,3-Dichloropropene		58.3		ug/kg	50.0	117%	70 - 130	3	25	11H0292		08/07/11 09:30
Diethyl ether		50.4		ug/kg	50.0	101%	70 - 130	1	25	11H0292		08/07/11 09:30
1,4-Dioxane		2960	L2, R2	ug/kg	5000	59%	70 - 130	28	25	11H0292		08/07/11 09:30

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11H0292-BSD1												
Ethylbenzene		54.9		ug/kg	50.0	110%	70 - 130	0.9	25	11H0292		08/07/11 09:30
Ethyl tert-Butyl Ether		46.7		ug/kg	50.0	93%	70 - 130	3	25	11H0292		08/07/11 09:30
Hexachlorobutadiene		54.6		ug/kg	50.0	109%	70 - 130	11	25	11H0292		08/07/11 09:30
2-Hexanone		286		ug/kg	250	114%	70 - 130	0.5	25	11H0292		08/07/11 09:30
Isopropylbenzene		59.6	R2	ug/kg	50.0	119%	70 - 130	35	25	11H0292		08/07/11 09:30
Diisopropyl Ether		50.4		ug/kg	50.0	101%	70 - 130	1	25	11H0292		08/07/11 09:30
p-Isopropyltoluene		55.1		ug/kg	50.0	110%	70 - 130	0.1	25	11H0292		08/07/11 09:30
Methyl tert-Butyl Ether		49.2		ug/kg	50.0	98%	70 - 130	2	25	11H0292		08/07/11 09:30
Methylene Chloride		53.0		ug/kg	50.0	106%	70 - 130	2	25	11H0292		08/07/11 09:30
4-Methyl-2-pentanone		225		ug/kg	250	90%	70 - 130	3	25	11H0292		08/07/11 09:30
Naphthalene		44.2		ug/kg	50.0	88%	70 - 130	4	25	11H0292		08/07/11 09:30
n-Propylbenzene		54.8		ug/kg	50.0	110%	70 - 130	0.8	25	11H0292		08/07/11 09:30
Styrene		55.4		ug/kg	50.0	111%	70 - 130	13	25	11H0292		08/07/11 09:30
1,1,2,2-Tetrachloroethane		49.0		ug/kg	50.0	98%	70 - 130	4	25	11H0292		08/07/11 09:30
1,1,1,2-Tetrachloroethane		56.8		ug/kg	50.0	114%	70 - 130	0.7	25	11H0292		08/07/11 09:30
Tetrachloroethene		54.9		ug/kg	50.0	110%	70 - 130	3	25	11H0292		08/07/11 09:30
Tetrahydrofuran		453	B	ug/kg	500	91%	70 - 130	4	25	11H0292		08/07/11 09:30
Toluene		51.6		ug/kg	50.0	103%	70 - 130	0.4	25	11H0292		08/07/11 09:30
1,2,4-Trichlorobenzene		51.4		ug/kg	50.0	103%	70 - 130	6	25	11H0292		08/07/11 09:30
1,2,3-Trichlorobenzene		44.4		ug/kg	50.0	89%	70 - 130	6	25	11H0292		08/07/11 09:30
1,1,1-Trichloroethane		55.5		ug/kg	50.0	111%	70 - 130	2	25	11H0292		08/07/11 09:30
1,1,2-Trichloroethane		52.2		ug/kg	50.0	104%	70 - 130	3	25	11H0292		08/07/11 09:30
Trichloroethene		52.2		ug/kg	50.0	104%	70 - 130	2	25	11H0292		08/07/11 09:30
Trichlorofluoromethane		52.3		ug/kg	50.0	105%	70 - 130	4	25	11H0292		08/07/11 09:30
1,2,3-Trichloropropane		48.2		ug/kg	50.0	96%	70 - 130	0.8	25	11H0292		08/07/11 09:30
1,3,5-Trimethylbenzene		54.9		ug/kg	50.0	110%	70 - 130	2	25	11H0292		08/07/11 09:30
1,2,4-Trimethylbenzene		55.2		ug/kg	50.0	110%	70 - 130	1	25	11H0292		08/07/11 09:30
Vinyl chloride		56.1		ug/kg	50.0	112%	70 - 130	4	25	11H0292		08/07/11 09:30
Xylenes, total		165		ug/kg	150	110%	70 - 130	5	25	11H0292		08/07/11 09:30
1,1,2-Trifluorotrichloroethane		56.1		ug/kg	50.0	112%	61 - 134	2	46	11H0292		08/07/11 09:30
Surrogate: 1,2-Dichloroethane-d4		24.6		ug/kg	25.0	98%	70 - 130			11H0292		08/07/11 09:30
Surrogate: Dibromofluoromethane		24.7		ug/kg	25.0	99%	70 - 130			11H0292		08/07/11 09:30
Surrogate: Toluene-d8		24.0		ug/kg	25.0	96%	70 - 130			11H0292		08/07/11 09:30
Surrogate: 4-Bromofluorobenzene		24.9		ug/kg	25.0	100%	70 - 130			11H0292		08/07/11 09:30
11H2363-BSD1												
Acetone		343	L	ug/kg	250	137%	70 - 130	2	25	11H2363		08/08/11 14:21
Tert-Amyl Methyl Ether		58.0		ug/kg	50.0	116%	70 - 130	2	25	11H2363		08/08/11 14:21
Benzene		52.4		ug/kg	50.0	105%	70 - 130	1	25	11H2363		08/08/11 14:21
Bromobenzene		46.8		ug/kg	50.0	94%	70 - 130	2	25	11H2363		08/08/11 14:21
Bromochloromethane		51.4		ug/kg	50.0	103%	70 - 130	0.7	25	11H2363		08/08/11 14:21

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11H2363-BSD1												
Bromodichloromethane		50.9		ug/kg	50.0	102%	70 - 130	2	25	11H2363		08/08/11 14:21
Bromoform		51.6		ug/kg	50.0	103%	70 - 130	0.5	25	11H2363		08/08/11 14:21
Bromomethane		53.0		ug/kg	50.0	106%	70 - 130	0.02	25	11H2363		08/08/11 14:21
2-Butanone		286		ug/kg	250	114%	70 - 130	0.4	25	11H2363		08/08/11 14:21
tert-Butylbenzene		56.6		ug/kg	50.0	113%	70 - 130	1	25	11H2363		08/08/11 14:21
n-Butylbenzene		48.7		ug/kg	50.0	97%	70 - 130	4	25	11H2363		08/08/11 14:21
sec-Butylbenzene		57.1		ug/kg	50.0	114%	70 - 130	1	25	11H2363		08/08/11 14:21
Carbon disulfide		51.4		ug/kg	50.0	103%	70 - 130	2	25	11H2363		08/08/11 14:21
Carbon Tetrachloride		57.0		ug/kg	50.0	114%	70 - 130	3	25	11H2363		08/08/11 14:21
Chlorobenzene		53.2		ug/kg	50.0	106%	70 - 130	0.5	25	11H2363		08/08/11 14:21
Chlorodibromomethane		48.5		ug/kg	50.0	97%	70 - 130	0.8	25	11H2363		08/08/11 14:21
Chloroethane		47.2		ug/kg	50.0	94%	70 - 130	3	25	11H2363		08/08/11 14:21
Chloroform		51.9		ug/kg	50.0	104%	70 - 130	2	25	11H2363		08/08/11 14:21
Chloromethane		39.0		ug/kg	50.0	78%	70 - 130	2	25	11H2363		08/08/11 14:21
2-Chlorotoluene		50.6		ug/kg	50.0	101%	70 - 130	2	25	11H2363		08/08/11 14:21
4-Chlorotoluene		53.6		ug/kg	50.0	107%	70 - 130	2	25	11H2363		08/08/11 14:21
1,2-Dibromo-3-chloropropane		44.3		ug/kg	50.0	89%	70 - 130	4	25	11H2363		08/08/11 14:21
1,2-Dibromoethane (EDB)		50.9		ug/kg	50.0	102%	70 - 130	0.6	25	11H2363		08/08/11 14:21
Dibromomethane		46.3		ug/kg	50.0	93%	70 - 130	3	25	11H2363		08/08/11 14:21
1,2-Dichlorobenzene		54.4		ug/kg	50.0	109%	70 - 130	3	25	11H2363		08/08/11 14:21
1,3-Dichlorobenzene		55.4		ug/kg	50.0	111%	70 - 130	2	25	11H2363		08/08/11 14:21
1,4-Dichlorobenzene		54.3		ug/kg	50.0	109%	70 - 130	3	25	11H2363		08/08/11 14:21
Dichlorodifluoromethane		48.6		ug/kg	50.0	97%	70 - 130	2	25	11H2363		08/08/11 14:21
1,2-Dichloroethane		47.7		ug/kg	50.0	95%	70 - 130	0.9	25	11H2363		08/08/11 14:21
1,1-Dichloroethane		50.2		ug/kg	50.0	100%	70 - 130	3	25	11H2363		08/08/11 14:21
1,1-Dichloroethene		52.3		ug/kg	50.0	105%	70 - 130	0.4	25	11H2363		08/08/11 14:21
trans-1,2-Dichloroethene		50.2		ug/kg	50.0	100%	70 - 130	2	25	11H2363		08/08/11 14:21
cis-1,2-Dichloroethene		50.8		ug/kg	50.0	102%	70 - 130	2	25	11H2363		08/08/11 14:21
1,3-Dichloropropane		47.2		ug/kg	50.0	94%	70 - 130	0.2	25	11H2363		08/08/11 14:21
2,2-Dichloropropane		66.0	L	ug/kg	50.0	132%	70 - 130	3	25	11H2363		08/08/11 14:21
1,2-Dichloropropane		46.6		ug/kg	50.0	93%	70 - 130	1	25	11H2363		08/08/11 14:21
trans-1,3-Dichloropropene		46.1		ug/kg	50.0	92%	70 - 130	1	25	11H2363		08/08/11 14:21
1,1-Dichloropropene		51.8		ug/kg	50.0	104%	70 - 130	3	25	11H2363		08/08/11 14:21
cis-1,3-Dichloropropene		59.4		ug/kg	50.0	119%	70 - 130	1	25	11H2363		08/08/11 14:21
Diethyl ether		50.3		ug/kg	50.0	101%	70 - 130	2	25	11H2363		08/08/11 14:21
1,4-Dioxane		3760		ug/kg	5000	75%	70 - 130	7	25	11H2363		08/08/11 14:21
Ethylbenzene		54.9		ug/kg	50.0	110%	70 - 130	0.6	25	11H2363		08/08/11 14:21
Ethyl tert-Butyl Ether		52.7		ug/kg	50.0	105%	70 - 130	1	25	11H2363		08/08/11 14:21
Hexachlorobutadiene		57.5		ug/kg	50.0	115%	70 - 130	2	25	11H2363		08/08/11 14:21
2-Hexanone		277		ug/kg	250	111%	70 - 130	1	25	11H2363		08/08/11 14:21
Isopropylbenzene		65.8	L1	ug/kg	50.0	132%	70 - 130	0.2	25	11H2363		08/08/11 14:21

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11H2363-BSD1												
Diisopropyl Ether		48.2		ug/kg	50.0	96%	70 - 130	1	25	11H2363		08/08/11 14:21
p-Isopropyltoluene		57.8		ug/kg	50.0	116%	70 - 130	1	25	11H2363		08/08/11 14:21
Methyl tert-Butyl Ether		55.5		ug/kg	50.0	111%	70 - 130	1	25	11H2363		08/08/11 14:21
Methylene Chloride		50.6		ug/kg	50.0	101%	70 - 130	0.9	25	11H2363		08/08/11 14:21
4-Methyl-2-pentanone		201		ug/kg	250	80%	70 - 130	10	25	11H2363		08/08/11 14:21
Naphthalene		49.7		ug/kg	50.0	99%	70 - 130	2	25	11H2363		08/08/11 14:21
n-Propylbenzene		52.6		ug/kg	50.0	105%	70 - 130	3	25	11H2363		08/08/11 14:21
Styrene		60.2		ug/kg	50.0	120%	70 - 130	0.1	25	11H2363		08/08/11 14:21
1,1,2,2-Tetrachloroethane		43.7		ug/kg	50.0	87%	70 - 130	0.3	25	11H2363		08/08/11 14:21
1,1,1,2-Tetrachloroethane		57.5		ug/kg	50.0	115%	70 - 130	2	25	11H2363		08/08/11 14:21
Tetrachloroethene		53.8		ug/kg	50.0	108%	70 - 130	0.7	25	11H2363		08/08/11 14:21
Tetrahydrofuran		456		ug/kg	500	91%	70 - 130	0.5	25	11H2363		08/08/11 14:21
Toluene		47.5		ug/kg	50.0	95%	70 - 130	1	25	11H2363		08/08/11 14:21
1,2,4-Trichlorobenzene		55.4		ug/kg	50.0	111%	70 - 130	2	25	11H2363		08/08/11 14:21
1,2,3-Trichlorobenzene		49.2		ug/kg	50.0	98%	70 - 130	4	25	11H2363		08/08/11 14:21
1,1,1-Trichloroethane		56.8		ug/kg	50.0	114%	70 - 130	2	25	11H2363		08/08/11 14:21
1,1,2-Trichloroethane		49.3		ug/kg	50.0	99%	70 - 130	1	25	11H2363		08/08/11 14:21
Trichloroethene		52.2		ug/kg	50.0	104%	70 - 130	3	25	11H2363		08/08/11 14:21
Trichlorofluoromethane		48.9		ug/kg	50.0	98%	70 - 130	0.7	25	11H2363		08/08/11 14:21
1,2,3-Trichloropropane		46.2		ug/kg	50.0	92%	70 - 130	2	25	11H2363		08/08/11 14:21
1,3,5-Trimethylbenzene		55.2		ug/kg	50.0	110%	70 - 130	2	25	11H2363		08/08/11 14:21
1,2,4-Trimethylbenzene		54.7		ug/kg	50.0	109%	70 - 130	3	25	11H2363		08/08/11 14:21
Vinyl chloride		45.8		ug/kg	50.0	92%	70 - 130	3	25	11H2363		08/08/11 14:21
Xylenes, total		168		ug/kg	150	112%	70 - 130	0.7	25	11H2363		08/08/11 14:21
Surrogate: 1,2-Dichloroethane-d4		22.8		ug/kg	25.0	91%	70 - 130			11H2363		08/08/11 14:21
Surrogate: Dibromofluoromethane		23.6		ug/kg	25.0	95%	70 - 130			11H2363		08/08/11 14:21
Surrogate: Toluene-d8		21.4		ug/kg	25.0	86%	70 - 130			11H2363		08/08/11 14:21
Surrogate: 4-Bromofluorobenzene		23.6		ug/kg	25.0	94%	70 - 130			11H2363		08/08/11 14:21
11H2828-BSD1												
Acetone		310		ug/kg	250	124%	70 - 130	3	25	11H2828		08/09/11 22:27
Tert-Amyl Methyl Ether		49.2		ug/kg	50.0	98%	70 - 130	2	25	11H2828		08/09/11 22:27
Benzene		52.2		ug/kg	50.0	104%	70 - 130	3	25	11H2828		08/09/11 22:27
Bromobenzene		45.6		ug/kg	50.0	91%	70 - 130	1	25	11H2828		08/09/11 22:27
Bromochloromethane		49.9		ug/kg	50.0	100%	70 - 130	4	25	11H2828		08/09/11 22:27
Bromodichloromethane		47.4		ug/kg	50.0	95%	70 - 130	3	25	11H2828		08/09/11 22:27
Bromoform		42.1		ug/kg	50.0	84%	70 - 130	1	25	11H2828		08/09/11 22:27
Bromomethane		53.5		ug/kg	50.0	107%	70 - 130	3	25	11H2828		08/09/11 22:27
2-Butanone		245		ug/kg	250	98%	70 - 130	0.02	25	11H2828		08/09/11 22:27
tert-Butylbenzene		56.4		ug/kg	50.0	113%	70 - 130	3	25	11H2828		08/09/11 22:27
n-Butylbenzene		47.3		ug/kg	50.0	95%	70 - 130	2	25	11H2828		08/09/11 22:27

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11H2828-BSD1												
sec-Butylbenzene		55.9		ug/kg	50.0	112%	70 - 130	2	25	11H2828		08/09/11 22:27
Carbon disulfide		50.2		ug/kg	50.0	100%	70 - 130	4	25	11H2828		08/09/11 22:27
Carbon Tetrachloride		54.6		ug/kg	50.0	109%	70 - 130	3	25	11H2828		08/09/11 22:27
Chlorobenzene		52.4		ug/kg	50.0	105%	70 - 130	3	25	11H2828		08/09/11 22:27
Chlorodibromomethane		42.8		ug/kg	50.0	86%	70 - 130	0.6	25	11H2828		08/09/11 22:27
Chloroethane		47.8		ug/kg	50.0	96%	70 - 130	3	25	11H2828		08/09/11 22:27
Chloroform		49.6		ug/kg	50.0	99%	70 - 130	2	25	11H2828		08/09/11 22:27
Chloromethane		41.7		ug/kg	50.0	83%	70 - 130	7	25	11H2828		08/09/11 22:27
2-Chlorotoluene		50.0		ug/kg	50.0	100%	70 - 130	3	25	11H2828		08/09/11 22:27
4-Chlorotoluene		52.3		ug/kg	50.0	105%	70 - 130	3	25	11H2828		08/09/11 22:27
1,2-Dibromo-3-chloropropane		37.1		ug/kg	50.0	74%	70 - 130	2	25	11H2828		08/09/11 22:27
1,2-Dibromoethane (EDB)		47.5		ug/kg	50.0	95%	70 - 130	0.5	25	11H2828		08/09/11 22:27
Dibromomethane		43.3		ug/kg	50.0	87%	70 - 130	0.5	25	11H2828		08/09/11 22:27
1,2-Dichlorobenzene		52.8		ug/kg	50.0	106%	70 - 130	3	25	11H2828		08/09/11 22:27
1,3-Dichlorobenzene		54.4		ug/kg	50.0	109%	70 - 130	1	25	11H2828		08/09/11 22:27
1,4-Dichlorobenzene		53.7		ug/kg	50.0	107%	70 - 130	3	25	11H2828		08/09/11 22:27
Dichlorodifluoromethane		46.1		ug/kg	50.0	92%	70 - 130	2	25	11H2828		08/09/11 22:27
1,2-Dichloroethane		43.2		ug/kg	50.0	86%	70 - 130	2	25	11H2828		08/09/11 22:27
1,1-Dichloroethane		48.8		ug/kg	50.0	98%	70 - 130	2	25	11H2828		08/09/11 22:27
1,1-Dichloroethene		51.4		ug/kg	50.0	103%	70 - 130	2	25	11H2828		08/09/11 22:27
trans-1,2-Dichloroethene		48.5		ug/kg	50.0	97%	70 - 130	4	25	11H2828		08/09/11 22:27
cis-1,2-Dichloroethene		48.0		ug/kg	50.0	96%	70 - 130	3	25	11H2828		08/09/11 22:27
1,3-Dichloropropane		44.0		ug/kg	50.0	88%	70 - 130	0.7	25	11H2828		08/09/11 22:27
2,2-Dichloropropane		57.8		ug/kg	50.0	116%	70 - 130	0.8	25	11H2828		08/09/11 22:27
1,2-Dichloropropane		45.0		ug/kg	50.0	90%	70 - 130	1	25	11H2828		08/09/11 22:27
trans-1,3-Dichloropropene		41.2		ug/kg	50.0	82%	70 - 130	4	25	11H2828		08/09/11 22:27
1,1-Dichloropropene		51.0		ug/kg	50.0	102%	70 - 130	4	25	11H2828		08/09/11 22:27
cis-1,3-Dichloropropene		52.3		ug/kg	50.0	105%	70 - 130	0.8	25	11H2828		08/09/11 22:27
Diethyl ether		44.8		ug/kg	50.0	90%	70 - 130	0.5	25	11H2828		08/09/11 22:27
1,4-Dioxane		4390		ug/kg	5000	88%	70 - 130	1	25	11H2828		08/09/11 22:27
Ethylbenzene		53.3		ug/kg	50.0	107%	70 - 130	3	25	11H2828		08/09/11 22:27
Ethyl tert-Butyl Ether		44.9		ug/kg	50.0	90%	70 - 130	1	25	11H2828		08/09/11 22:27
Hexachlorobutadiene		57.6		ug/kg	50.0	115%	70 - 130	2	25	11H2828		08/09/11 22:27
2-Hexanone		231		ug/kg	250	92%	70 - 130	1	25	11H2828		08/09/11 22:27
Isopropylbenzene		62.2		ug/kg	50.0	124%	70 - 130	2	25	11H2828		08/09/11 22:27
Diisopropyl Ether		43.1		ug/kg	50.0	86%	70 - 130	1	25	11H2828		08/09/11 22:27
p-Isopropyltoluene		56.3		ug/kg	50.0	113%	70 - 130	3	25	11H2828		08/09/11 22:27
Methyl tert-Butyl Ether		47.4		ug/kg	50.0	95%	70 - 130	0.8	25	11H2828		08/09/11 22:27
Methylene Chloride		49.5		ug/kg	50.0	99%	70 - 130	0.9	25	11H2828		08/09/11 22:27
4-Methyl-2-pentanone		173	L2	ug/kg	250	69%	70 - 130	2	25	11H2828		08/09/11 22:27
Naphthalene		43.2		ug/kg	50.0	86%	70 - 130	2	25	11H2828		08/09/11 22:27

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11H2828-BSD1												
n-Propylbenzene		52.7		ug/kg	50.0	105%	70 - 130	4	25	11H2828		08/09/11 22:27
Styrene		56.9		ug/kg	50.0	114%	70 - 130	2	25	11H2828		08/09/11 22:27
1,1,2,2-Tetrachloroethane		40.2		ug/kg	50.0	80%	70 - 130	2	25	11H2828		08/09/11 22:27
1,1,1,2-Tetrachloroethane		54.3		ug/kg	50.0	109%	70 - 130	2	25	11H2828		08/09/11 22:27
Tetrachloroethene		53.7		ug/kg	50.0	107%	70 - 130	4	25	11H2828		08/09/11 22:27
Tetrahydrofuran		381		ug/kg	500	76%	70 - 130	2	25	11H2828		08/09/11 22:27
Toluene		47.6		ug/kg	50.0	95%	70 - 130	3	25	11H2828		08/09/11 22:27
1,2,4-Trichlorobenzene		51.3		ug/kg	50.0	103%	70 - 130	0.7	25	11H2828		08/09/11 22:27
1,2,3-Trichlorobenzene		44.7		ug/kg	50.0	89%	70 - 130	1	25	11H2828		08/09/11 22:27
1,1,1-Trichloroethane		53.6		ug/kg	50.0	107%	70 - 130	3	25	11H2828		08/09/11 22:27
1,1,2-Trichloroethane		46.5		ug/kg	50.0	93%	70 - 130	2	25	11H2828		08/09/11 22:27
Trichloroethene		51.9		ug/kg	50.0	104%	70 - 130	2	25	11H2828		08/09/11 22:27
Trichlorofluoromethane		46.6		ug/kg	50.0	93%	70 - 130	3	25	11H2828		08/09/11 22:27
1,2,3-Trichloropropane		42.7		ug/kg	50.0	85%	70 - 130	0.6	25	11H2828		08/09/11 22:27
1,3,5-Trimethylbenzene		54.5		ug/kg	50.0	109%	70 - 130	2	25	11H2828		08/09/11 22:27
1,2,4-Trimethylbenzene		54.3		ug/kg	50.0	109%	70 - 130	3	25	11H2828		08/09/11 22:27
Vinyl chloride		46.3		ug/kg	50.0	93%	70 - 130	2	25	11H2828		08/09/11 22:27
Xylenes, total		160		ug/kg	150	107%	70 - 130	3	25	11H2828		08/09/11 22:27
1,1,2-Trifluorotrichloroethane		54.4		ug/kg	50.0	109%	61 - 134	3	46	11H2828		08/09/11 22:27
Surrogate: 1,2-Dichloroethane-d4		20.9		ug/kg	25.0	83%	70 - 130			11H2828		08/09/11 22:27
Surrogate: Dibromofluoromethane		23.2		ug/kg	25.0	93%	70 - 130			11H2828		08/09/11 22:27
Surrogate: Toluene-d8		21.7		ug/kg	25.0	87%	70 - 130			11H2828		08/09/11 22:27
Surrogate: 4-Bromofluorobenzene		24.0		ug/kg	25.0	96%	70 - 130			11H2828		08/09/11 22:27
Total Metals by EPA 6010C												
11H1701-BSD1												
Iron		402		mg/kg	391	103%	80 - 120	0.8	20	11H1701		08/12/11 12:29
Manganese		194		mg/kg	196	99%	80 - 120	1	20	11H1701		08/12/11 12:29

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0582
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

DATA QUALIFIERS AND DEFINITIONS

B	Analyte was detected in the associated Method Blank.
L	Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was above the acceptance limits. Analyte not detected, data not impacted.
L1	Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was above acceptance limits.
L2	Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was below acceptance limits.
R2	The RPD exceeded the acceptance limit.
YES	Yes
ND	Not detected at the reporting limit (or method detection limit if shown)

METHOD MODIFICATION NOTES

TOC in soil 9060 M - M = Modified for soil analysis

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Nashville, TN

COOLER RECI

NUH0582

Cooler Received/Opened On_08/03/11 @ 08:30

1. Tracking #_____6041_____(last 4 digits, i

Courier: ___FED-EX IR-GUN-97310166

2. Temperature of rep. sample or temp blank when opened: 1.2 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1-FRONT

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) _____

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) J.G.

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) J.G.

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) J.G.

I certify that I attached a label with the unique LIMS number to each container (intial) J.G.

21. Were there Non-Conformance issues at login? YES...NO Was a PIPE generated? YES...NO...#_____

BIS = Broken in shipment

Cooler Receipt Form.doc

LF-1

End of Form

Revised 9/6/07

General Chemical

NUH0582

08/17/11 23:59

TestAmerica INCORPORATED

Nashville Division
2960 Foster Creighton
Nashville, TN 37204

Phone: 615-726-0177
Toll Free: 800-765-0980
Fax: 615-726-3404

Consultant Name: GES
Address: 364 Littleton Road
City/State/Zip: Westford, MA 01886
Project Mgr: Stefan SOKOL
Consultant Project Mgr:
Consultant Telephone Number: 800-221-6119 Fax No.: 978-392-8583
Sampler Name: (Print) Mary Cathey
Sampler Signature: Mary Cathey

TA Account #:
Invoice To:
Report To: Stefan SOKOL
PO #:
PROJECT #: 1603972
Facility ID # General Chemical
Site Address 133 Leland St
City, State, Zip Framingham, MA
Regulatory District (CA)

Sample ID or Field ID	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative: Methanol	Sodium Bisulfate	HCl (Blue Label)	NaOH (Orange Label)	H_2SO_4 Plastic (Yellow Label)	H_2SO_4 Glass(Yellow Label)	HNO_3 (Red Label)	None (Black Label)	Matrix: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	Analyze For: VOCs	VPH	SVOCs	EPH	TOC	total Fe & Mn	% solids					RUSH TAT (Pre-Schedule)*	TAT request (in Bus. Days)	Fax Results (yes or no)	Due Date of Report
MW-22 (24-26')	7/28/11	0950	5	X			4							1					X		X	X	X	X	X	X	X								
MW-22 (26-28')	7/28/11	1000	5	X			4							1					X		X	X	X	X	X	X	X								
trip Blank	7/28/11	0800	1				1													X	X														

Comments/Special Instructions:

Laboratory Comments:
Temperature Upon Receipt: 1.2
Sample Containers Intact? Y N
VOCs Free of Headspace? Y N
QC Deliverables (please circle one)
Level 2 Level 3 Level 4 Other

Relinquished by:	Date	Time	Received by:	Date	Time
Mary Cathey	7/29/11	1635	GES Stock	7/29/11	1635
J. [illegible]	8/2/11	1130	[illegible]	8/2/11	11:30
			[illegible]	8/3/11	~~8/3~~ 830
					JG 8/3/11

TestAmerica
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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

August 23, 2011 10:11:00AM

Client: GES Westford (10650)
364 Littleton Road, Suite 4
Westford, MA 01886
Attn: Stefan Sokol

Work Order: NUH0587
Project Name: General Chemical
Project Nbr: Framingham, MA
P/O Nbr: 1603978
Date Received: 08/03/11

SAMPLE IDENTIFICATION	LAB NUMBER	COLLECTION DATE AND TIME
MW-17 (18-20')	NUH0587-01	07/29/11 08:00
Trip Blank	NUH0587-02	07/29/11 08:00

An executed copy of the chain of custody, the project quality control data, and the sample receipt form are also included as an addendum to this report. If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-800-765-0980. These results relate only to the items tested, and this report may not be reproduced except in full and with the permission of the Laboratory. Any opinions, if expressed, are outside the scope of the Laboratory's accredidation.

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Certification Number: M-TN032

EPH/VPH Qualifications

*C11-C22 Aromatic hydrocarbons exclude concentration of PAH's.

*HydroCarbon Range data exclude area counts of any surrogate(s) and/or internal standards eluting in that range.
*VPH C5-C8 Aliphatic Hydrocarbons exclude the concentration of Target Analytes eluting in that range.
*Adjusted C5-C8 Aliphatic Hydrocarbons range excluded the concentrations of MTBE, Benzene and Toluene.
*VPH C9-C12 Aliphatic Hydrocarbons exclude target analytes eluting in that range AND concentration of C9-C10 Aromatic Hydrocarbons.
*Adjusted C9-C12 Aliphatic Hydrocarbon range excludes the concentration of Ethylbenzene, m-, p-, and o- Xylene and the C9-C10 Aromatic Hydrocarbon values.

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0587
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

Additional Laboratory Comments:
All samples were received in good condition, properly preserved, and properly labeled. All analyses were completed within holding times.

All no responses from the attached "MCP Response Action Analytical Report Certification Form" are addressed below.

G. The EPH reporting limits for the PAHs were above the MADEP CAM limits. There were no other reporting limits specified to meet.

The volatile reporting limit for 1,4-Dioxane was above the MADEP CAM limits. There were no other reporting limits specified to meet.

The semi-volatile reporting limits for azobenzene, aniline, 3,3-dichlorobenzidine, 2,4-dinitrophenol, 4-nitrophenol, Pentachlorophenol and 2,4,5-trichlorophenol were above the MADEP CAM limits. There were no other reporting limits specified to meet.

H. The Volatile surrogate recovery 4-Bromofluorobenzene in sample Trip Blank (NUH0587-02) was outside QC limits. The recovery was elevated and the sample was non-detect at the reporting limit; therefore the data was accepted without further analysis.

The Volatile method blank for batch 11H0292 was positive above the reporting limits for Acetone, 2-Butanone, and Tetrahydrofuran. The associated samples were non-detect at the reporting limits; therefore the data was accepted without further analysis.

The volatile blank spike and/or blank spike duplicate (LCS/LCSD) recoveries for Acetone, 2,2-Dichloropropane and 1,4-Dioxane in batch 11H0292 and Acetone, 2,2-Dichloropropane and Isopropylbenzene in batch 11H2363 were outside QC limits. Batch 11H2363 was a batch used for dilutions or confirmations and none of the listed compounds were reported from this batch in this work order. Also, less than 10% of the analytes were outside criteria and the recoveries were within greater than 10%; therefore the data was accepted without further analysis.

The volatile blank spike duplicate (LCSD) RPD for 1,4-Dioxane and Isopropylbenzene in batch 11H0292 were outside QC limits.

For Semivolatiles, the initial run for batch 11H1277 did not include a blank spike duplicate (LCSD) due to laboratory error; therefore the sample was re-analyzed. The re-extraction was past holding time, but confirms the original analysis; therefore only the initial analysis is reported.

A sample was not submitted for MS/MSD for the metals analysis.

I. The full MCP Metals CAM analyte list was not reported. Only those analytes requested on the chain of custody by the client were reported.

The Chain(s) of Custody, 2 pages, are included and are an integral part of this report.

These results relate only to the items tested. This report shall not be reproduced except in full and with permission of the laboratory.

All solids results are reported in wet weight unless specifically stated.
Estimated uncertainty is available upon request.
This report has been electronically signed.
Report Approved By:

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650) 364 Littleton Road, Suite 4 Westford, MA 01886	Work Order:	NUH0587
		Project Name:	General Chemical
		Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

Jennifer Huckaba

Jennifer Huckaba

Senior Project Manager

TestAmerica
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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0587
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

Sample Cooler Information

Lab ID	Cooler ID	Temp	Seals	Containers Intact	Preservation Confirmed	On Ice
	6041	1.2C	Yes	Yes	No	Yes

MassDEP Analytical Protocol Certification Form

Laboratory Name: TestAmerica Analytical Testing Corporation | Project #: Framingham, MA

Project Location: General Chemical | RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):

NUH0587

Matrices: Groundwater/Surface Water (Soil/Sediment) Drinking Water Air Other:

CAM Protocol (check all that apply below):

8260 VOC CAM II A X	7470/7471 Hg CAM III B	MassDEP VPH CAM IV A X	8081 Pesticides CAM V B	7196 Hex Cr CAM VI B	MassDEP APH CAM IX A
8270 SVOC CAM II B X	7010 Metals CAM III C	MassDEP EPH CAM IV B X	8151 Herbicides CAM V C	8330 Explosives CAM VIII A	TO-15 VOC CAM IX B
6010 Metals CAM III A X	6020 Metals CAM III D	8082 PCB CAM V A	9014 Total Cyanide/PAC CAM VI A	6860 Perchlorate CAM VIII B	

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	(Yes) No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	(Yes) No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	(Yes) No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	(Yes) No
E	VPH, EPH, APH, and TO-15 only: a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	(Yes) No Yes No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	(Yes) No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	Yes (No[1])

***Data User Note:** Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.*

H	Were all QC performance standards specified in the CAM protocol(s) achieved?	Yes (No[1])
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	Yes (No[1])

[1] *All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Jennifer Huckaba **Position:** Sr Proj Mgr.

Printed Name: Jennifer Huckaba **Date:** 8-23-11

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0587
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUH0587-01 (MW-17 (18-20') - Soil) Sampled: 07/29/11 08:00										
General Chemistry Parameters										
% Dry Solids	**81.9**	%		0.500	1	08/12/11 11:53	08/15/11 12:22	RRS	SW-846	11H2928
Total Organic Carbon	ND	mg/kg dry		1000	1	08/16/11 16:06	08/18/11 14:13	SHJ	SW846 9060M	11H3859

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0587
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUH0587-01 (MW-17 (18-20') - Soil) - cont. Sampled: 07/29/11 08:00										
MADEP VPH										
Received on MeOH	Yes									
MeOH Covers Soil	Yes									
Methyl tert-Butyl Ether	ND	mg/kg dry		0.0905	50	07/29/11 08:00	08/05/11 17:06	KAR2	MADEP VPH	11H1301
Benzene	ND	mg/kg dry		0.0905	50	07/29/11 08:00	08/05/11 17:06	KAR2	MADEP VPH	11H1301
Toluene	ND	mg/kg dry		0.272	50	07/29/11 08:00	08/05/11 17:06	KAR2	MADEP VPH	11H1301
Ethylbenzene	ND	mg/kg dry		0.0905	50	07/29/11 08:00	08/05/11 17:06	KAR2	MADEP VPH	11H1301
m,p-Xylene	ND	mg/kg dry		0.362	50	07/29/11 08:00	08/05/11 17:06	KAR2	MADEP VPH	11H1301
o-Xylene	ND	mg/kg dry		0.181	50	07/29/11 08:00	08/05/11 17:06	KAR2	MADEP VPH	11H1301
Naphthalene	ND	mg/kg dry		0.453	50	07/29/11 08:00	08/05/11 17:06	KAR2	MADEP VPH	11H1301
C5 - C8 Aliphatic Hydrocarbons, Unadjuste	ND	mg/kg dry		9.05	50	07/29/11 08:00	08/05/11 17:06	KAR2	MADEP VPH	11H1301
C9 - C12 Aliphatic Hydrocarbons, Unadjust	ND	mg/kg dry		9.05	50	07/29/11 08:00	08/05/11 17:06	KAR2	MADEP VPH	11H1301
C5 - C8 Aliphatic Hydrocarbons	ND	mg/kg dry		9.05	50	07/29/11 08:00	08/05/11 17:06	KAR2	MADEP VPH	11H1301
C9 - C12 Aliphatic Hydrocarbons	ND	mg/kg dry		9.05	50	07/29/11 08:00	08/05/11 17:06	KAR2	MADEP VPH	11H1301
C9 - C10 Aromatic Hydrocarbons	ND	mg/kg dry		9.05	50	07/29/11 08:00	08/05/11 17:06	KAR2	MADEP VPH	11H1301
Surr: 2,5-Dibromotoluene (FID) (70-130%)	*91 %*						08/05/11 17:06	KAR2	MADEP VPH	11H1301
Surr: 2,5-Dibromotoluene (PID) (70-130%)	*90 %*						08/05/11 17:06	KAR2	MADEP VPH	11H1301

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Client	GES Westford (10650)	Work Order:	NUH0587
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUH0587-01 (MW-17 (18-20') - Soil) - cont. Sampled: 07/29/11 08:00										
MADEP EPH										
C9 - C18 Aliphatic Hydrocarbons	ND	mg/kg dry		12.1	1	08/10/11 06:45	08/13/11 16:15	jlf	MADEP EPH	11H1275
C19 - C36 Aliphatic Hydrocarbons	ND	mg/kg dry		12.1	1	08/10/11 06:45	08/13/11 16:15	jlf	MADEP EPH	11H1275
C11 - C22 Aromatic Hydrocarbons	ND	mg/kg dry		12.1	1	08/10/11 06:45	08/13/11 16:15	jlf	MADEP EPH	11H1275
C11 - C22 Aromatic Hydrocarbons, Unadjus	ND	mg/kg dry		12.1	1	08/10/11 06:45	08/13/11 16:46	jlf	MADEP EPH	11H1275
2-Methylnaphthalene	ND	mg/kg dry		0.723	1	08/10/11 06:45	08/13/11 16:46	jlf	MADEP EPH	11H1275
Acenaphthene	ND	mg/kg dry		1.21	1	08/10/11 06:45	08/13/11 16:46	jlf	MADEP EPH	11H1275
Acenaphthylene	ND	mg/kg dry		1.21	1	08/10/11 06:45	08/13/11 16:46	jlf	MADEP EPH	11H1275
Anthracene	ND	mg/kg dry		1.21	1	08/10/11 06:45	08/13/11 16:46	jlf	MADEP EPH	11H1275
Benzo (a) anthracene	ND	mg/kg dry		0.723	1	08/10/11 06:45	08/13/11 16:46	jlf	MADEP EPH	11H1275
Benzo (a) pyrene	ND	mg/kg dry		0.723	1	08/10/11 06:45	08/13/11 16:46	jlf	MADEP EPH	11H1275
Benzo (b) fluoranthene	ND	mg/kg dry		0.723	1	08/10/11 06:45	08/13/11 16:46	jlf	MADEP EPH	11H1275
Benzo (g,h,i) perylene	ND	mg/kg dry		1.21	1	08/10/11 06:45	08/13/11 16:46	jlf	MADEP EPH	11H1275
Benzo (k) fluoranthene	ND	mg/kg dry		1.21	1	08/10/11 06:45	08/13/11 16:46	jlf	MADEP EPH	11H1275
Chrysene	ND	mg/kg dry		1.21	1	08/10/11 06:45	08/13/11 16:46	jlf	MADEP EPH	11H1275
Dibenz (a,h) anthracene	ND	mg/kg dry		0.723	1	08/10/11 06:45	08/13/11 16:46	jlf	MADEP EPH	11H1275
Fluoranthene	ND	mg/kg dry		1.21	1	08/10/11 06:45	08/13/11 16:46	jlf	MADEP EPH	11H1275
Fluorene	ND	mg/kg dry		1.21	1	08/10/11 06:45	08/13/11 16:46	jlf	MADEP EPH	11H1275
Indeno (1,2,3-cd) pyrene	ND	mg/kg dry		0.723	1	08/10/11 06:45	08/13/11 16:46	jlf	MADEP EPH	11H1275
Naphthalene	ND	mg/kg dry		1.21	1	08/10/11 06:45	08/13/11 16:46	jlf	MADEP EPH	11H1275
Phenanthrene	ND	mg/kg dry		1.21	1	08/10/11 06:45	08/13/11 16:46	jlf	MADEP EPH	11H1275
Pyrene	ND	mg/kg dry		1.21	1	08/10/11 06:45	08/13/11 16:46	jlf	MADEP EPH	11H1275
Surr: 1-Chlorooctadecane (40-140%)	*74 %*						08/13/11 16:15	jlf	MADEP EPH	11H1275
Surr: o-Terphenyl (40-140%)	*84 %*						08/13/11 16:46	jlf	MADEP EPH	11H1275
Surr: 2-Fluorobiphenyl (40-140%)	*105 %*						08/13/11 16:46	jlf	MADEP EPH	11H1275
Surr: 2-Bromonaphthalene (40-140%)	*112 %*						08/13/11 16:46	jlf	MADEP EPH	11H1275

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	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Sample ID: NUH0587-01 (MW-17 (18-20') - Soil) - cont. Sampled: 07/29/11 08:00

Volatile Organic - MCP CAM Method 8260

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acetone	ND	mg/kg dry	L	1.70	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Tert-Amyl Methyl Ether	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Benzene	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Bromobenzene	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Bromochloromethane	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Bromodichloromethane	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Bromoform	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Bromomethane	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
2-Butanone	ND	mg/kg dry		1.70	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
tert-Butylbenzene	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
n-Butylbenzene	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
sec-Butylbenzene	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Carbon disulfide	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Carbon Tetrachloride	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Chlorobenzene	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Chlorodibromomethane	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Chloroethane	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Chloroform	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Chloromethane	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
2-Chlorotoluene	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
4-Chlorotoluene	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
1,2-Dibromo-3-chloropropane	ND	mg/kg dry		0.170	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
1,2-Dibromoethane (EDB)	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Dibromomethane	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
1,2-Dichlorobenzene	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
1,3-Dichlorobenzene	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
1,4-Dichlorobenzene	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Dichlorodifluoromethane	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
1,2-Dichloroethane	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
1,1-Dichloroethane	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
1,1-Dichloroethene	**0.104**	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
trans-1,2-Dichloroethene	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
cis-1,2-Dichloroethene	**1.84**	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
1,3-Dichloropropane	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
2,2-Dichloropropane	ND	mg/kg dry	L	0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
1,2-Dichloropropane	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
trans-1,3-Dichloropropene	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
1,1-Dichloropropene	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
cis-1,3-Dichloropropene	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Diethyl ether	ND	mg/kg dry		0.170	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292

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Client	GES Westford (10650)	Work Order:	NUH0587
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Sample ID: NUH0587-01 (MW-17 (18-20') - Soil) - cont. Sampled: 07/29/11 08:00

Volatile Organic - MCP CAM Method 8260 - cont.

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
1,4-Dioxane	ND	mg/kg dry	L2	17.0	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Ethylbenzene	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Ethyl tert-Butyl Ether	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Hexachlorobutadiene	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
2-Hexanone	ND	mg/kg dry		1.70	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Isopropylbenzene	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Diisopropyl Ether	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
p-Isopropyltoluene	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Methyl tert-Butyl Ether	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Methylene Chloride	ND	mg/kg dry		0.170	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
4-Methyl-2-pentanone	ND	mg/kg dry		1.70	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Naphthalene	ND	mg/kg dry		0.170	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
n-Propylbenzene	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Styrene	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
1,1,2,2-Tetrachloroethane	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
1,1,1,2-Tetrachloroethane	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Tetrachloroethene	**0.342**	mg/kg dry		0.0850	50	07/29/11 08:00	08/08/11 23:44	EML	SW846 8260B	11H2363
Tetrahydrofuran	ND	mg/kg dry		0.170	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Toluene	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.170	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
1,2,3-Trichlorobenzene	ND	mg/kg dry		0.170	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
1,1,1-Trichloroethane	**0.693**	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
1,1,2-Trichloroethane	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Trichloroethene	**0.303**	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Trichlorofluoromethane	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
1,2,3-Trichloropropane	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
1,3,5-Trimethylbenzene	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
1,2,4-Trimethylbenzene	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Vinyl chloride	ND	mg/kg dry		0.0850	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Xylenes, total	ND	mg/kg dry		0.255	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
1,1,2-Trifluorotrichloroethane	ND	mg/kg dry		0.170	50	07/29/11 08:00	08/07/11 17:28	EML	SW846 8260B	11H0292
Surr: 1,2-Dichloroethane-d4 (70-130%)	*104 %*						08/07/11 17:28	EML	SW846 8260B	11H0292
Surr: 1,2-Dichloroethane-d4 (70-130%)	*90 %*						08/08/11 23:44	EML	SW846 8260B	11H2363
Surr: Dibromofluoromethane (70-130%)	*96 %*						08/07/11 17:28	EML	SW846 8260B	11H0292
Surr: Dibromofluoromethane (70-130%)	*91 %*						08/08/11 23:44	EML	SW846 8260B	11H2363
Surr: Toluene-d8 (70-130%)	*92 %*						08/07/11 17:28	EML	SW846 8260B	11H0292
Surr: Toluene-d8 (70-130%)	*87 %*						08/08/11 23:44	EML	SW846 8260B	11H2363
Surr: 4-Bromofluorobenzene (70-130%)	*100 %*						08/07/11 17:28	EML	SW846 8260B	11H0292
Surr: 4-Bromofluorobenzene (70-130%)	*96 %*						08/08/11 23:44	EML	SW846 8260B	11H2363

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	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
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ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUH0587-01 (MW-17 (18-20') - Soil) - cont. Sampled: 07/29/11 08:00										
Total Metals by EPA 6010C										
Iron	**6550**	mg/kg		10.0	1	08/11/11 07:05	08/12/11 13:57	AVR	SW846 6010C	11H1701
Manganese	**66.4**	mg/kg		3.01	1	08/11/11 07:05	08/12/11 13:57	AVR	SW846 6010C	11H1701

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	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Sample ID: NUH0587-01 (MW-17 (18-20') - Soil) - cont. Sampled: 07/29/11 08:00

Semivolatile Organic Compounds by EPA Method 8270D

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acenaphthene	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Acenaphthylene	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Azobenzene	ND	mg/kg dry		1.95	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Aniline	ND	mg/kg dry		0.779	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Anthracene	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Benzo (a) anthracene	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Benzo (a) pyrene	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Benzo (b) fluoranthene	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Benzo (g,h,i) perylene	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Benzo (k) fluoranthene	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Bis(2-chloroethoxy)methane	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Bis(2-chloroethyl)ether	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Bis(2-chloroisopropyl)ether	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Bis(2-ethylhexyl)phthalate	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
4-Bromophenyl phenyl ether	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Butyl benzyl phthalate	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
4-Chloroaniline	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
2-Chloronaphthalene	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
2-Chlorophenol	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
4-Chlorophenyl phenyl ether	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Chrysene	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Dibenz (a,h) anthracene	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Dibenzofuran	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Di-n-butyl phthalate	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
3,3-Dichlorobenzidine	ND	mg/kg dry		0.779	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
1,2-Dichlorobenzene	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
1,3-Dichlorobenzene	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
1,4-Dichlorobenzene	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
2,4-Dichlorophenol	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Diethyl phthalate	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
2,4-Dimethylphenol	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Dimethyl phthalate	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
2,4-Dinitrophenol	ND	mg/kg dry		0.973	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
2,4-Dinitrotoluene	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
2,6-Dinitrotoluene	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Di-n-octyl phthalate	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Fluoranthene	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Fluorene	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Hexachlorobenzene	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Hexachlorobutadiene	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0587
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUH0587-01 (MW-17 (18-20') - Soil) - cont. Sampled: 07/29/11 08:00										
Semivolatile Organic Compounds by EPA Method 8270D - cont.										
Hexachloroethane	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Indeno (1,2,3-cd) pyrene	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Isophorone	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
2-Methylnaphthalene	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
2-Methylphenol	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
3/4-Methylphenol	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Naphthalene	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Nitrobenzene	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
2-Nitrophenol	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
4-Nitrophenol	ND	mg/kg dry		0.973	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Pentachlorophenol	ND	mg/kg dry		0.973	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Phenanthrene	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Phenol	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Pyrene	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
2,4,5-Trichlorophenol	ND	mg/kg dry		0.973	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
2,4,6-Trichlorophenol	ND	mg/kg dry		0.389	1	08/09/11 11:55	08/14/11 03:06	BES	SW846 8270D	11H1277
Surr: 2-Fluorophenol (30-130%)	*66 %*						08/14/11 03:06	BES	SW846 8270D	11H1277
Surr: Phenol-d5 (30-130%)	*68 %*						08/14/11 03:06	BES	SW846 8270D	11H1277
Surr: 2-Fluorobiphenyl (30-130%)	*72 %*						08/14/11 03:06	BES	SW846 8270D	11H1277
Surr: Nitrobenzene-d5 (30-130%)	*76 %*						08/14/11 03:06	BES	SW846 8270D	11H1277
Surr: Terphenyl-d14 (30-130%)	*96 %*						08/14/11 03:06	BES	SW846 8270D	11H1277
Surr: 2,4,6-Tribromophenol (30-130%)	*80 %*						08/14/11 03:06	BES	SW846 8270D	11H1277

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0587
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUH0587-02 (Trip Blank - Soil) Sampled: 07/29/11 08:00										
Volatile Organic - MCP CAM Method 8260										
Acetone	ND	mg/kg wet	L	1.00	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Tert-Amyl Methyl Ether	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Benzene	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Bromobenzene	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Bromochloromethane	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Bromodichloromethane	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Bromoform	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Bromomethane	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
2-Butanone	ND	mg/kg wet		1.00	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
tert-Butylbenzene	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
n-Butylbenzene	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
sec-Butylbenzene	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Carbon disulfide	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Carbon Tetrachloride	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Chlorobenzene	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Chlorodibromomethane	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Chloroethane	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Chloroform	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Chloromethane	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
2-Chlorotoluene	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
4-Chlorotoluene	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
1,2-Dibromo-3-chloropropane	ND	mg/kg wet		0.100	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
1,2-Dibromoethane (EDB)	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Dibromomethane	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
1,2-Dichlorobenzene	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
1,3-Dichlorobenzene	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
1,4-Dichlorobenzene	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Dichlorodifluoromethane	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
1,2-Dichloroethane	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
1,1-Dichloroethane	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
1,1-Dichloroethene	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
trans-1,2-Dichloroethene	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
cis-1,2-Dichloroethene	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
1,3-Dichloropropane	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
2,2-Dichloropropane	ND	mg/kg wet	L	0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
1,2-Dichloropropane	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
trans-1,3-Dichloropropene	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
1,1-Dichloropropene	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
cis-1,3-Dichloropropene	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Diethyl ether	ND	mg/kg wet		0.100	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292

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Client	GES Westford (10650)	Work Order:	NUH0587
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUH0587-02 (Trip Blank - Soil) - cont. Sampled: 07/29/11 08:00										
Volatile Organic - MCP CAM Method 8260 - cont.										
1,4-Dioxane	ND	mg/kg wet	L2	10.0	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Ethylbenzene	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Ethyl tert-Butyl Ether	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Hexachlorobutadiene	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
2-Hexanone	ND	mg/kg wet		1.00	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Isopropylbenzene	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Diisopropyl Ether	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
p-Isopropyltoluene	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Methyl tert-Butyl Ether	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Methylene Chloride	ND	mg/kg wet		0.100	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
4-Methyl-2-pentanone	ND	mg/kg wet		1.00	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Naphthalene	ND	mg/kg wet		0.100	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
n-Propylbenzene	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Styrene	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
1,1,2,2-Tetrachloroethane	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
1,1,1,2-Tetrachloroethane	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Tetrachloroethene	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Tetrahydrofuran	ND	mg/kg wet		0.100	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Toluene	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
1,2,4-Trichlorobenzene	ND	mg/kg wet		0.100	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
1,2,3-Trichlorobenzene	ND	mg/kg wet		0.100	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
1,1,1-Trichloroethane	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
1,1,2-Trichloroethane	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Trichloroethene	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Trichlorofluoromethane	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
1,2,3-Trichloropropane	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
1,3,5-Trimethylbenzene	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
1,2,4-Trimethylbenzene	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Vinyl chloride	ND	mg/kg wet		0.0500	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Xylenes, total	ND	mg/kg wet		0.150	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
1,1,2-Trifluorotrichloroethane	ND	mg/kg wet		0.100	50	07/29/11 08:00	08/07/11 13:14	EML	SW846 8260B	11H0292
Surr: 1,2-Dichloroethane-d4 (70-130%)	*94 %*						08/07/11 13:14	EML	SW846 8260B	11H0292
Surr: Dibromofluoromethane (70-130%)	*93 %*						08/07/11 13:14	EML	SW846 8260B	11H0292
Surr: Toluene-d8 (70-130%)	*89 %*						08/07/11 13:14	EML	SW846 8260B	11H0292
Surr: 4-Bromofluorobenzene (70-130%)	*138 %*		*Z2*				08/07/11 13:14	EML	SW846 8260B	11H0292

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0587
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

SAMPLE EXTRACTION DATA

Parameter	Batch	Lab Number	Wt/Vol Extracted	Extract Vol	Date	Analyst	Extraction Method
MADEP EPH							
MADEP EPH	11H1275	NUH0587-01	10.13	1.00	08/10/11 06:45	JJR	MADEP soil
MADEP VPH							
MADEP VPH	11H1301	NUH0587-01	11.52	15.00	07/29/11 08:00	KAR2	MADEP
Semivolatile Organic Compounds by EPA Method 8270D							
SW846 8270D	11H1277	NUH0587-01	15.68	1.00	08/09/11 11:55	RCH2	EPA 3541
SW846 8270D	11H3478	NUH0587-01RE1	15.27	1.00	08/15/11 10:00	AMS	EPA 3541
Total Metals by EPA 6010C							
SW846 6010C	11H1701	NUH0587-01	0.50	100.00	08/11/11 07:05	RDS	EPA 3051A/6010
SW846 6010C	11H1701	NUH0587-01	0.50	100.00	08/11/11 07:05	RDS	EPA 3051A/6010
Volatile Organic - MCP CAM Method 8260							
SW846 8260B	11H0292	NUH0587-01	7.18	10.00	07/29/11 08:00	AAN	EPA 5035
SW846 8260B	11H2363	NUH0587-01RE1	7.18	10.00	07/29/11 08:00	AAN	EPA 5035
SW846 8260B	11H0292	NUH0587-02	10.00	10.00	07/29/11 08:00	AAN	EPA 5035

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	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
Blank

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
General Chemistry Parameters						
11H3859-BLK1						
Total Organic Carbon	798		mg/kg wet	11H3859	11H3859-BLK1	08/18/11 14:13
MADEP VPH						
11H1301-BLK1						
Methyl tert-Butyl Ether	<0.0350		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
Benzene	<0.0200		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
Toluene	<0.0250		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
Ethylbenzene	<0.0250		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
m,p-Xylene	<0.0650		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
o-Xylene	<0.0300		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
Naphthalene	0.134		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
C5 - C8 Aliphatic Hydrocarbons, Unadjustec	<2.50		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
C9 - C12 Aliphatic Hydrocarbons, Unadjuste	<2.50		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
C5 - C8 Aliphatic Hydrocarbons	<2.50		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
C9 - C12 Aliphatic Hydrocarbons	<2.50		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
C9 - C10 Aromatic Hydrocarbons	<2.50		mg/kg wet	11H1301	11H1301-BLK1	08/05/11 15:35
Surrogate: 2,5-Dibromotoluene (FID)	99%			11H1301	11H1301-BLK1	08/05/11 15:35
Surrogate: 2,5-Dibromotoluene (PID)	97%			11H1301	11H1301-BLK1	08/05/11 15:35
MADEP EPH						
11H1275-BLK1						
C9 - C18 Aliphatic Hydrocarbons	<1.90		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:09
C19 - C36 Aliphatic Hydrocarbons	<1.90		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:09
C11 - C22 Aromatic Hydrocarbons, Unadjus	<1.40		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
2-Methylnaphthalene	<0.0210		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Acenaphthene	<0.0140		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Acenaphthylene	<0.0200		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Anthracene	<0.00900		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Benzo (a) anthracene	<0.0110		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Benzo (a) pyrene	<0.00800		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Benzo (b) fluoranthene	<0.0380		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Benzo (g,h,i) perylene	<0.00900		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Benzo (k) fluoranthene	<0.0370		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Chrysene	<0.0310		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Dibenz (a,h) anthracene	<0.0150		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Fluoranthene	<0.0110		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Fluorene	<0.0200		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Indeno (1,2,3-cd) pyrene	<0.0310		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Naphthalene	0.117		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Phenanthrene	<0.0100		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40
Pyrene	<0.0230		mg/kg wet	11H1275	11H1275-BLK1	08/13/11 11:40

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Client	GES Westford (10650)	Work Order:	NUH0587
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
MADEP EPH						
11H1275-BLK1						
Surrogate: 1-Chlorooctadecane	71%			11H1275	11H1275-BLK1	08/13/11 11:09
Surrogate: o-Terphenyl	83%			11H1275	11H1275-BLK1	08/13/11 11:40
Surrogate: 2-Fluorobiphenyl	105%			11H1275	11H1275-BLK1	08/13/11 11:40
Surrogate: 2-Bromonaphthalene	105%			11H1275	11H1275-BLK1	08/13/11 11:40
Volatile Organic - MCP CAM Method 8260						
11H0292-BLK1						
Acetone	1.23		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Tert-Amyl Methyl Ether	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Benzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromobenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromochloromethane	<0.0120		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromodichloromethane	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromoform	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Bromomethane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
2-Butanone	2.92		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
tert-Butylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
n-Butylbenzene	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
sec-Butylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Carbon disulfide	<0.00650		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Carbon Tetrachloride	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Chlorobenzene	<0.00950		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Chlorodibromomethane	<0.0105		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Chloroethane	<0.0105		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Chloroform	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Chloromethane	<0.0150		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
2-Chlorotoluene	<0.00700		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
4-Chlorotoluene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dibromo-3-chloropropane	<0.0135		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dibromoethane (EDB)	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Dibromomethane	<0.00800		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dichlorobenzene	<0.00650		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,3-Dichlorobenzene	<0.00700		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,4-Dichlorobenzene	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Dichlorodifluoromethane	<0.00700		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dichloroethane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1-Dichloroethane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1-Dichloroethene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
trans-1,2-Dichloroethene	<0.00800		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
cis-1,2-Dichloroethene	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,3-Dichloropropane	<0.00550		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50

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	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11H0292-BLK1						
2,2-Dichloropropane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2-Dichloropropane	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
trans-1,3-Dichloropropene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1-Dichloropropene	<0.00550		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
cis-1,3-Dichloropropene	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Diethyl ether	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,4-Dioxane	<0.900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Ethylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Ethyl tert-Butyl Ether	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Hexachlorobutadiene	<0.0130		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
2-Hexanone	<0.0355		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Isopropylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Diisopropyl Ether	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
p-Isopropyltoluene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Methyl tert-Butyl Ether	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Methylene Chloride	<0.0835		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
4-Methyl-2-pentanone	<0.165		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Naphthalene	<0.0850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
n-Propylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Styrene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,2,2-Tetrachloroethane	<0.00700		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,1,2-Tetrachloroethane	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Tetrachloroethene	<0.00950		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Tetrahydrofuran	0.201		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Toluene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2,4-Trichlorobenzene	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2,3-Trichlorobenzene	0.0125		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,1-Trichloroethane	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,2-Trichloroethane	<0.00750		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Trichloroethene	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Trichlorofluoromethane	<0.00900		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2,3-Trichloropropane	<0.0135		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,3,5-Trimethylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,2,4-Trimethylbenzene	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Vinyl chloride	<0.00850		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Xylenes, total	<0.0195		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
1,1,2-Trifluorotrichloroethane	<0.0380		mg/kg wet	11H0292	11H0292-BLK1	08/07/11 11:50
Surrogate: 1,2-Dichloroethane-d4	101%			11H0292	11H0292-BLK1	08/07/11 11:50
Surrogate: Dibromofluoromethane	97%			11H0292	11H0292-BLK1	08/07/11 11:50
Surrogate: Toluene-d8	89%			11H0292	11H0292-BLK1	08/07/11 11:50
Surrogate: 4-Bromofluorobenzene	101%			11H0292	11H0292-BLK1	08/07/11 11:50

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	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11H2363-BLK1						
Acetone	<0.250		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Tert-Amyl Methyl Ether	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Benzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Bromobenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Bromochloromethane	<0.0120		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Bromodichloromethane	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Bromoform	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Bromomethane	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
2-Butanone	0.306		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
tert-Butylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
n-Butylbenzene	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
sec-Butylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Carbon disulfide	<0.00650		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Carbon Tetrachloride	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Chlorobenzene	<0.00950		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Chlorodibromomethane	<0.0105		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Chloroethane	<0.0105		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Chloroform	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Chloromethane	<0.0150		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
2-Chlorotoluene	<0.00700		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
4-Chlorotoluene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2-Dibromo-3-chloropropane	<0.0135		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2-Dibromoethane (EDB)	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Dibromomethane	<0.00800		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2-Dichlorobenzene	<0.00650		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,3-Dichlorobenzene	<0.00700		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,4-Dichlorobenzene	<0.00750		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Dichlorodifluoromethane	<0.00700		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2-Dichloroethane	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1-Dichloroethane	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1-Dichloroethene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
trans-1,2-Dichloroethene	<0.00800		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
cis-1,2-Dichloroethene	<0.00750		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,3-Dichloropropane	<0.00550		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
2,2-Dichloropropane	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2-Dichloropropane	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
trans-1,3-Dichloropropene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1-Dichloropropene	<0.00550		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
cis-1,3-Dichloropropene	<0.00750		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Diethyl ether	<0.00750		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,4-Dioxane	<0.900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0587
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11H2363-BLK1						
Ethylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Ethyl tert-Butyl Ether	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Hexachlorobutadiene	<0.0130		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
2-Hexanone	<0.0355		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Isopropylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Diisopropyl Ether	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
p-Isopropyltoluene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Methyl tert-Butyl Ether	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Methylene Chloride	<0.0835		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
4-Methyl-2-pentanone	<0.165		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Naphthalene	<0.0850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
n-Propylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Styrene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1,2,2-Tetrachloroethane	<0.00700		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1,1,2-Tetrachloroethane	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Tetrachloroethene	<0.00950		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Tetrahydrofuran	<0.0730		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Toluene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2,4-Trichlorobenzene	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2,3-Trichlorobenzene	<0.0125		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1,1-Trichloroethane	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,1,2-Trichloroethane	<0.00750		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Trichloroethene	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Trichlorofluoromethane	<0.00900		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2,3-Trichloropropane	<0.0135		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,3,5-Trimethylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
1,2,4-Trimethylbenzene	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Vinyl chloride	<0.00850		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Xylenes, total	<0.0195		mg/kg wet	11H2363	11H2363-BLK1	08/08/11 16:14
Surrogate: 1,2-Dichloroethane-d4	94%			11H2363	11H2363-BLK1	08/08/11 16:14
Surrogate: Dibromofluoromethane	92%			11H2363	11H2363-BLK1	08/08/11 16:14
Surrogate: Toluene-d8	85%			11H2363	11H2363-BLK1	08/08/11 16:14
Surrogate: 4-Bromofluorobenzene	95%			11H2363	11H2363-BLK1	08/08/11 16:14
Total Metals by EPA 6010C						
11H1701-BLK1						
Iron	<4.84		mg/kg	11H1701	11H1701-BLK1	08/12/11 12:13
Manganese	0.251		mg/kg	11H1701	11H1701-BLK1	08/12/11 12:13
Semivolatile Organic Compounds by EPA Method 8270D						
11H1277-BLK1						

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Client	GES Westford (10650)	Work Order:	NUH0587
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270D						
11H1277-BLK1						
Acenaphthene	<0.0140		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Acenaphthylene	<0.0200		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Azobenzene	<0.173		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Aniline	<0.122		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Anthracene	<0.00900		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Benzo (a) anthracene	<0.0110		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Benzo (a) pyrene	<0.00800		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Benzo (b) fluoranthene	<0.0380		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Benzo (g,h,i) perylene	<0.00900		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Benzo (k) fluoranthene	<0.0370		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Bis(2-chloroethoxy)methane	<0.128		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Bis(2-chloroethyl)ether	<0.151		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Bis(2-chloroisopropyl)ether	<0.158		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Bis(2-ethylhexyl)phthalate	<0.126		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
4-Bromophenyl phenyl ether	<0.150		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Butyl benzyl phthalate	<0.125		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
4-Chloroaniline	<0.103		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
2-Chloronaphthalene	<0.150		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
2-Chlorophenol	<0.149		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
4-Chlorophenyl phenyl ether	<0.148		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Chrysene	<0.0310		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Dibenz (a,h) anthracene	<0.0150		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Dibenzofuran	<0.0140		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Di-n-butyl phthalate	<0.141		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
3,3-Dichlorobenzidine	<0.0480		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
1,2-Dichlorobenzene	<0.154		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
1,3-Dichlorobenzene	<0.143		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
1,4-Dichlorobenzene	<0.147		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
2,4-Dichlorophenol	<0.131		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Diethyl phthalate	<0.148		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
2,4-Dimethylphenol	<0.137		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Dimethyl phthalate	<0.157		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
2,4-Dinitrophenol	<0.0990		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
2,4-Dinitrotoluene	<0.140		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
2,6-Dinitrotoluene	<0.150		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Di-n-octyl phthalate	<0.135		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Fluoranthene	<0.0110		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Fluorene	<0.0200		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Hexachlorobenzene	<0.153		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Hexachlorobutadiene	<0.174		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Hexachloroethane	<0.150		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0587
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270D						
11H1277-BLK1						
Indeno (1,2,3-cd) pyrene	<0.0310		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Isophorone	<0.135		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
2-Methylnaphthalene	<0.0210		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
2-Methylphenol	<0.189		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
3/4-Methylphenol	<0.166		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Naphthalene	<0.0140		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Nitrobenzene	<0.159		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
2-Nitrophenol	<0.196		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
4-Nitrophenol	<0.153		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Pentachlorophenol	<0.123		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Phenanthrene	<0.0100		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Phenol	<0.131		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Pyrene	<0.0230		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
1,2,4-Trichlorobenzene	<0.144		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
2,4,5-Trichlorophenol	<0.148		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
2,4,6-Trichlorophenol	<0.149		mg/kg wet	11H1277	11H1277-BLK1	08/14/11 01:31
Surrogate: 2-Fluorophenol	71%			11H1277	11H1277-BLK1	08/14/11 01:31
Surrogate: Phenol-d5	74%			11H1277	11H1277-BLK1	08/14/11 01:31
Surrogate: 2-Fluorobiphenyl	82%			11H1277	11H1277-BLK1	08/14/11 01:31
Surrogate: Nitrobenzene-d5	82%			11H1277	11H1277-BLK1	08/14/11 01:31
Surrogate: Terphenyl-d14	104%			11H1277	11H1277-BLK1	08/14/11 01:31
Surrogate: 2,4,6-Tribromophenol	87%			11H1277	11H1277-BLK1	08/14/11 01:31

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Client	GES Westford (10650)	Work Order:	NUH0587
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
General Chemistry Parameters								
11H3859-BS1								
Total Organic Carbon	29900	32400		mg/kg wet	108%	80 - 120	11H3859	08/18/11 14:13
MADEP VPH								
11H1301-BS1								
Methyl tert-Butyl Ether	0.100	0.0977		mg/kg wet	98%	70 - 130	11H1301	08/05/11 11:04
Benzene	0.100	0.104		mg/kg wet	104%	70 - 130	11H1301	08/05/11 11:04
Toluene	0.100	0.102		mg/kg wet	102%	70 - 130	11H1301	08/05/11 11:04
Ethylbenzene	0.100	0.104		mg/kg wet	104%	70 - 130	11H1301	08/05/11 11:04
m,p-Xylene	0.200	0.210		mg/kg wet	105%	70 - 130	11H1301	08/05/11 11:04
o-Xylene	0.100	0.103		mg/kg wet	103%	70 - 130	11H1301	08/05/11 11:04
Naphthalene	0.100	0.0973		mg/kg wet	97%	70 - 130	11H1301	08/05/11 11:04
C5 - C8 Aliphatic Hydrocarbons, Unadjusted	0.300	0.320		mg/kg wet	107%	70 - 130	11H1301	08/05/11 11:04
C9 - C12 Aliphatic Hydrocarbons, Unadjusted	0.200	0.197		mg/kg wet	98%	70 - 130	11H1301	08/05/11 11:04
C9 - C10 Aromatic Hydrocarbons	0.100	0.104		mg/kg wet	104%	70 - 130	11H1301	08/05/11 11:04
Surrogate: 2,5-Dibromotoluene (FID)	40.0	38.5			96%	70 - 130	11H1301	08/05/11 11:04
Surrogate: 2,5-Dibromotoluene (PID)	40.0	39.4			98%	70 - 130	11H1301	08/05/11 11:04
MADEP EPH								
11H1275-BS1								
C9 - C18 Aliphatic Hydrocarbons	15.0	12.0		mg/kg wet	80%	40 - 140	11H1275	08/13/11 12:10
C19 - C36 Aliphatic Hydrocarbons	20.0	17.0		mg/kg wet	85%	40 - 140	11H1275	08/13/11 12:10
C11 - C22 Aromatic Hydrocarbons, Unadjustec	42.5	39.0		mg/kg wet	92%	40 - 140	11H1275	08/13/11 12:41
2-Methylnaphthalene	2.50	2.33		mg/kg wet	93%	40 - 140	11H1275	08/13/11 12:41
Acenaphthene	2.50	2.37		mg/kg wet	95%	40 - 140	11H1275	08/13/11 12:41
Acenaphthylene	2.50	2.33		mg/kg wet	93%	40 - 140	11H1275	08/13/11 12:41
Anthracene	2.50	2.22		mg/kg wet	89%	40 - 140	11H1275	08/13/11 12:41
Benzo (a) anthracene	2.50	2.18		mg/kg wet	87%	40 - 140	11H1275	08/13/11 12:41
Benzo (a) pyrene	2.50	2.30		mg/kg wet	92%	40 - 140	11H1275	08/13/11 12:41
Benzo (b) fluoranthene	2.50	2.17		mg/kg wet	87%	40 - 140	11H1275	08/13/11 12:41
Benzo (g,h,i) perylene	2.50	2.27		mg/kg wet	91%	40 - 140	11H1275	08/13/11 12:41
Benzo (k) fluoranthene	2.50	2.22		mg/kg wet	89%	40 - 140	11H1275	08/13/11 12:41
Chrysene	2.50	2.24		mg/kg wet	90%	40 - 140	11H1275	08/13/11 12:41
Dibenz (a,h) anthracene	2.50	2.28		mg/kg wet	91%	40 - 140	11H1275	08/13/11 12:41
Fluoranthene	2.50	2.35		mg/kg wet	94%	40 - 140	11H1275	08/13/11 12:41
Fluorene	2.50	2.40		mg/kg wet	96%	40 - 140	11H1275	08/13/11 12:41
Indeno (1,2,3-cd) pyrene	2.50	2.17		mg/kg wet	87%	40 - 140	11H1275	08/13/11 12:41
Naphthalene	2.50	2.42		mg/kg wet	97%	40 - 140	11H1275	08/13/11 12:41
Phenanthrene	2.50	2.38		mg/kg wet	95%	40 - 140	11H1275	08/13/11 12:41
Pyrene	2.50	2.30		mg/kg wet	92%	40 - 140	11H1275	08/13/11 12:41
Surrogate: 1-Chlorooctadecane	4.00	3.40			85%	40 - 140	11H1275	08/13/11 12:10
Surrogate: o-Terphenyl	4.00	3.76			94%	40 - 140	11H1275	08/13/11 12:41

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Client	GES Westford (10650)	Work Order:	NUH0587
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
MADEP EPH								
11H1275-BS1								
Surrogate: 2-Fluorobiphenyl	4.00	4.36			109%	40 - 140	11H1275	08/13/11 12:41
Surrogate: 2-Bromonaphthalene	4.00	4.62			116%	40 - 140	11H1275	08/13/11 12:41
Volatile Organic - MCP CAM Method 8260								
11H0292-BS1								
Acetone	250	327	L, B	ug/kg	131%	70 - 130	11H0292	08/07/11 09:02
Tert-Amyl Methyl Ether	50.0	48.9		ug/kg	98%	70 - 130	11H0292	08/07/11 09:02
Benzene	50.0	54.6		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
Bromobenzene	50.0	50.6		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02
Bromochloromethane	50.0	52.9		ug/kg	106%	70 - 130	11H0292	08/07/11 09:02
Bromodichloromethane	50.0	53.5		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Bromoform	50.0	40.4		ug/kg	81%	70 - 130	11H0292	08/07/11 09:02
Bromomethane	50.0	56.4		ug/kg	113%	70 - 130	11H0292	08/07/11 09:02
2-Butanone	250	266	B	ug/kg	106%	70 - 130	11H0292	08/07/11 09:02
tert-Butylbenzene	50.0	55.4		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
n-Butylbenzene	50.0	48.9		ug/kg	98%	70 - 130	11H0292	08/07/11 09:02
sec-Butylbenzene	50.0	55.8		ug/kg	112%	70 - 130	11H0292	08/07/11 09:02
Carbon disulfide	50.0	53.6		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Carbon Tetrachloride	50.0	58.7		ug/kg	117%	70 - 130	11H0292	08/07/11 09:02
Chlorobenzene	50.0	53.3		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Chlorodibromomethane	50.0	50.4		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02
Chloroethane	50.0	52.4		ug/kg	105%	70 - 130	11H0292	08/07/11 09:02
Chloroform	50.0	53.9		ug/kg	108%	70 - 130	11H0292	08/07/11 09:02
Chloromethane	50.0	54.5		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
2-Chlorotoluene	50.0	53.5		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
4-Chlorotoluene	50.0	56.1		ug/kg	112%	70 - 130	11H0292	08/07/11 09:02
1,2-Dibromo-3-chloropropane	50.0	44.2		ug/kg	88%	70 - 130	11H0292	08/07/11 09:02
1,2-Dibromoethane (EDB)	50.0	54.3		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
Dibromomethane	50.0	50.0		ug/kg	100%	70 - 130	11H0292	08/07/11 09:02
1,2-Dichlorobenzene	50.0	54.2		ug/kg	108%	70 - 130	11H0292	08/07/11 09:02
1,3-Dichlorobenzene	50.0	55.4		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
1,4-Dichlorobenzene	50.0	53.7		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Dichlorodifluoromethane	50.0	61.7		ug/kg	123%	70 - 130	11H0292	08/07/11 09:02
1,2-Dichloroethane	50.0	52.2		ug/kg	104%	70 - 130	11H0292	08/07/11 09:02
1,1-Dichloroethane	50.0	52.9		ug/kg	106%	70 - 130	11H0292	08/07/11 09:02
1,1-Dichloroethene	50.0	53.3		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
trans-1,2-Dichloroethene	50.0	54.2		ug/kg	108%	70 - 130	11H0292	08/07/11 09:02
cis-1,2-Dichloroethene	50.0	55.5		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
1,3-Dichloropropane	50.0	53.0		ug/kg	106%	70 - 130	11H0292	08/07/11 09:02
2,2-Dichloropropane	50.0	66.4	L	ug/kg	133%	70 - 130	11H0292	08/07/11 09:02
1,2-Dichloropropane	50.0	50.4		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0587
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11H0292-BS1								
trans-1,3-Dichloropropene	50.0	50.3		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02
1,1-Dichloropropene	50.0	55.3		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
cis-1,3-Dichloropropene	50.0	60.1		ug/kg	120%	70 - 130	11H0292	08/07/11 09:02
Diethyl ether	50.0	51.1		ug/kg	102%	70 - 130	11H0292	08/07/11 09:02
1,4-Dioxane	5000	3910		ug/kg	78%	70 - 130	11H0292	08/07/11 09:02
Ethylbenzene	50.0	55.4		ug/kg	111%	70 - 130	11H0292	08/07/11 09:02
Ethyl tert-Butyl Ether	50.0	48.0		ug/kg	96%	70 - 130	11H0292	08/07/11 09:02
Hexachlorobutadiene	50.0	60.6		ug/kg	121%	70 - 130	11H0292	08/07/11 09:02
2-Hexanone	250	284		ug/kg	114%	70 - 130	11H0292	08/07/11 09:02
Isopropylbenzene	50.0	42.0		ug/kg	84%	70 - 130	11H0292	08/07/11 09:02
Diisopropyl Ether	50.0	50.9		ug/kg	102%	70 - 130	11H0292	08/07/11 09:02
p-Isopropyltoluene	50.0	55.0		ug/kg	110%	70 - 130	11H0292	08/07/11 09:02
Methyl tert-Butyl Ether	50.0	50.4		ug/kg	101%	70 - 130	11H0292	08/07/11 09:02
Methylene Chloride	50.0	54.0		ug/kg	108%	70 - 130	11H0292	08/07/11 09:02
4-Methyl-2-pentanone	250	232		ug/kg	93%	70 - 130	11H0292	08/07/11 09:02
Naphthalene	50.0	45.8		ug/kg	92%	70 - 130	11H0292	08/07/11 09:02
n-Propylbenzene	50.0	54.4		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
Styrene	50.0	48.4		ug/kg	97%	70 - 130	11H0292	08/07/11 09:02
1,1,2,2-Tetrachloroethane	50.0	47.2		ug/kg	94%	70 - 130	11H0292	08/07/11 09:02
1,1,1,2-Tetrachloroethane	50.0	56.4		ug/kg	113%	70 - 130	11H0292	08/07/11 09:02
Tetrachloroethene	50.0	56.3		ug/kg	113%	70 - 130	11H0292	08/07/11 09:02
Tetrahydrofuran	500	471	B	ug/kg	94%	70 - 130	11H0292	08/07/11 09:02
Toluene	50.0	51.8		ug/kg	104%	70 - 130	11H0292	08/07/11 09:02
1,2,4-Trichlorobenzene	50.0	54.7		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
1,2,3-Trichlorobenzene	50.0	47.1		ug/kg	94%	70 - 130	11H0292	08/07/11 09:02
1,1,1-Trichloroethane	50.0	56.8		ug/kg	114%	70 - 130	11H0292	08/07/11 09:02
1,1,2-Trichloroethane	50.0	53.7		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Trichloroethene	50.0	53.4		ug/kg	107%	70 - 130	11H0292	08/07/11 09:02
Trichlorofluoromethane	50.0	54.7		ug/kg	109%	70 - 130	11H0292	08/07/11 09:02
1,2,3-Trichloropropane	50.0	47.8		ug/kg	96%	70 - 130	11H0292	08/07/11 09:02
1,3,5-Trimethylbenzene	50.0	56.2		ug/kg	112%	70 - 130	11H0292	08/07/11 09:02
1,2,4-Trimethylbenzene	50.0	55.9		ug/kg	112%	70 - 130	11H0292	08/07/11 09:02
Vinyl chloride	50.0	58.7		ug/kg	117%	70 - 130	11H0292	08/07/11 09:02
Xylenes, total	150	157		ug/kg	105%	70 - 130	11H0292	08/07/11 09:02
1,1,2-Trifluorotrichloroethane	50.0	57.4		ug/kg	115%	61 - 134	11H0292	08/07/11 09:02
Surrogate: 1,2-Dichloroethane-d4	25.0	24.6			98%	70 - 130	11H0292	08/07/11 09:02
Surrogate: Dibromofluoromethane	25.0	25.5			102%	70 - 130	11H0292	08/07/11 09:02
Surrogate: Toluene-d8	25.0	24.1			96%	70 - 130	11H0292	08/07/11 09:02
Surrogate: 4-Bromofluorobenzene	25.0	24.8			99%	70 - 130	11H0292	08/07/11 09:02

11H2363-BS1

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Client	GES Westford (10650)	Work Order:	NUH0587
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11H2363-BS1								
Acetone	250	337	L	ug/kg	135%	70 - 130	11H2363	08/08/11 13:52
Tert-Amyl Methyl Ether	50.0	59.5		ug/kg	119%	70 - 130	11H2363	08/08/11 13:52
Benzene	50.0	53.0		ug/kg	106%	70 - 130	11H2363	08/08/11 13:52
Bromobenzene	50.0	48.0		ug/kg	96%	70 - 130	11H2363	08/08/11 13:52
Bromochloromethane	50.0	51.7		ug/kg	103%	70 - 130	11H2363	08/08/11 13:52
Bromodichloromethane	50.0	51.7		ug/kg	103%	70 - 130	11H2363	08/08/11 13:52
Bromoform	50.0	51.8		ug/kg	104%	70 - 130	11H2363	08/08/11 13:52
Bromomethane	50.0	53.0		ug/kg	106%	70 - 130	11H2363	08/08/11 13:52
2-Butanone	250	287		ug/kg	115%	70 - 130	11H2363	08/08/11 13:52
tert-Butylbenzene	50.0	57.4		ug/kg	115%	70 - 130	11H2363	08/08/11 13:52
n-Butylbenzene	50.0	50.8		ug/kg	102%	70 - 130	11H2363	08/08/11 13:52
sec-Butylbenzene	50.0	58.0		ug/kg	116%	70 - 130	11H2363	08/08/11 13:52
Carbon disulfide	50.0	52.4		ug/kg	105%	70 - 130	11H2363	08/08/11 13:52
Carbon Tetrachloride	50.0	59.0		ug/kg	118%	70 - 130	11H2363	08/08/11 13:52
Chlorobenzene	50.0	53.5		ug/kg	107%	70 - 130	11H2363	08/08/11 13:52
Chlorodibromomethane	50.0	48.9		ug/kg	98%	70 - 130	11H2363	08/08/11 13:52
Chloroethane	50.0	48.7		ug/kg	97%	70 - 130	11H2363	08/08/11 13:52
Chloroform	50.0	52.8		ug/kg	106%	70 - 130	11H2363	08/08/11 13:52
Chloromethane	50.0	39.8		ug/kg	80%	70 - 130	11H2363	08/08/11 13:52
2-Chlorotoluene	50.0	51.5		ug/kg	103%	70 - 130	11H2363	08/08/11 13:52
4-Chlorotoluene	50.0	54.7		ug/kg	109%	70 - 130	11H2363	08/08/11 13:52
1,2-Dibromo-3-chloropropane	50.0	46.2		ug/kg	92%	70 - 130	11H2363	08/08/11 13:52
1,2-Dibromoethane (EDB)	50.0	50.6		ug/kg	101%	70 - 130	11H2363	08/08/11 13:52
Dibromomethane	50.0	47.7		ug/kg	95%	70 - 130	11H2363	08/08/11 13:52
1,2-Dichlorobenzene	50.0	56.3		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52
1,3-Dichlorobenzene	50.0	56.6		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52
1,4-Dichlorobenzene	50.0	56.2		ug/kg	112%	70 - 130	11H2363	08/08/11 13:52
Dichlorodifluoromethane	50.0	49.8		ug/kg	100%	70 - 130	11H2363	08/08/11 13:52
1,2-Dichloroethane	50.0	48.1		ug/kg	96%	70 - 130	11H2363	08/08/11 13:52
1,1-Dichloroethane	50.0	51.5		ug/kg	103%	70 - 130	11H2363	08/08/11 13:52
1,1-Dichloroethene	50.0	52.5		ug/kg	105%	70 - 130	11H2363	08/08/11 13:52
trans-1,2-Dichloroethene	50.0	51.2		ug/kg	102%	70 - 130	11H2363	08/08/11 13:52
cis-1,2-Dichloroethene	50.0	51.8		ug/kg	104%	70 - 130	11H2363	08/08/11 13:52
1,3-Dichloropropane	50.0	47.2		ug/kg	94%	70 - 130	11H2363	08/08/11 13:52
2,2-Dichloropropane	50.0	68.3	L	ug/kg	137%	70 - 130	11H2363	08/08/11 13:52
1,2-Dichloropropane	50.0	47.1		ug/kg	94%	70 - 130	11H2363	08/08/11 13:52
trans-1,3-Dichloropropene	50.0	46.6		ug/kg	93%	70 - 130	11H2363	08/08/11 13:52
1,1-Dichloropropene	50.0	53.2		ug/kg	106%	70 - 130	11H2363	08/08/11 13:52
cis-1,3-Dichloropropene	50.0	60.3		ug/kg	121%	70 - 130	11H2363	08/08/11 13:52
Diethyl ether	50.0	49.4		ug/kg	99%	70 - 130	11H2363	08/08/11 13:52
1,4-Dioxane	5000	3490		ug/kg	70%	70 - 130	11H2363	08/08/11 13:52

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Client	GES Westford (10650)	Work Order:	NUH0587
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11H2363-BS1								
Ethylbenzene	50.0	55.2		ug/kg	110%	70 - 130	11H2363	08/08/11 13:52
Ethyl tert-Butyl Ether	50.0	53.4		ug/kg	107%	70 - 130	11H2363	08/08/11 13:52
Hexachlorobutadiene	50.0	58.4		ug/kg	117%	70 - 130	11H2363	08/08/11 13:52
2-Hexanone	250	274		ug/kg	109%	70 - 130	11H2363	08/08/11 13:52
Isopropylbenzene	50.0	65.9	L1	ug/kg	132%	70 - 130	11H2363	08/08/11 13:52
Diisopropyl Ether	50.0	48.8		ug/kg	98%	70 - 130	11H2363	08/08/11 13:52
p-Isopropyltoluene	50.0	58.4		ug/kg	117%	70 - 130	11H2363	08/08/11 13:52
Methyl tert-Butyl Ether	50.0	56.1		ug/kg	112%	70 - 130	11H2363	08/08/11 13:52
Methylene Chloride	50.0	51.0		ug/kg	102%	70 - 130	11H2363	08/08/11 13:52
4-Methyl-2-pentanone	250	223		ug/kg	89%	70 - 130	11H2363	08/08/11 13:52
Naphthalene	50.0	50.5		ug/kg	101%	70 - 130	11H2363	08/08/11 13:52
n-Propylbenzene	50.0	54.2		ug/kg	108%	70 - 130	11H2363	08/08/11 13:52
Styrene	50.0	60.3		ug/kg	121%	70 - 130	11H2363	08/08/11 13:52
1,1,2,2-Tetrachloroethane	50.0	43.8		ug/kg	88%	70 - 130	11H2363	08/08/11 13:52
1,1,1,2-Tetrachloroethane	50.0	58.6		ug/kg	117%	70 - 130	11H2363	08/08/11 13:52
Tetrachloroethene	50.0	54.2		ug/kg	108%	70 - 130	11H2363	08/08/11 13:52
Tetrahydrofuran	500	458		ug/kg	92%	70 - 130	11H2363	08/08/11 13:52
Toluene	50.0	48.1		ug/kg	96%	70 - 130	11H2363	08/08/11 13:52
1,2,4-Trichlorobenzene	50.0	56.6		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52
1,2,3-Trichlorobenzene	50.0	51.1		ug/kg	102%	70 - 130	11H2363	08/08/11 13:52
1,1,1-Trichloroethane	50.0	58.0		ug/kg	116%	70 - 130	11H2363	08/08/11 13:52
1,1,2-Trichloroethane	50.0	49.8		ug/kg	100%	70 - 130	11H2363	08/08/11 13:52
Trichloroethene	50.0	53.6		ug/kg	107%	70 - 130	11H2363	08/08/11 13:52
Trichlorofluoromethane	50.0	49.2		ug/kg	98%	70 - 130	11H2363	08/08/11 13:52
1,2,3-Trichloropropane	50.0	47.1		ug/kg	94%	70 - 130	11H2363	08/08/11 13:52
1,3,5-Trimethylbenzene	50.0	56.6		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52
1,2,4-Trimethylbenzene	50.0	56.4		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52
Vinyl chloride	50.0	47.1		ug/kg	94%	70 - 130	11H2363	08/08/11 13:52
Xylenes, total	150	170		ug/kg	113%	70 - 130	11H2363	08/08/11 13:52
Surrogate: 1,2-Dichloroethane-d4	25.0	22.5			90%	70 - 130	11H2363	08/08/11 13:52
Surrogate: Dibromofluoromethane	25.0	24.0			96%	70 - 130	11H2363	08/08/11 13:52
Surrogate: Toluene-d8	25.0	21.4			86%	70 - 130	11H2363	08/08/11 13:52
Surrogate: 4-Bromofluorobenzene	25.0	23.9			95%	70 - 130	11H2363	08/08/11 13:52
Total Metals by EPA 6010C								
11H1701-BS1								
Iron	382	405		mg/kg	106%	80 - 120	11H1701	08/12/11 12:26
Manganese	191	197		mg/kg	103%	80 - 120	11H1701	08/12/11 12:26
Semivolatile Organic Compounds by EPA Method 8270D								
11H1277-BS1								

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Client	GES Westford (10650)	Work Order:	NUH0587
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270D								
11H1277-BS1								
Acenaphthene	3.33	2.70		mg/kg wet	81%	40 - 140	11H1277	08/13/11 20:08
Acenaphthylene	3.33	2.85		mg/kg wet	86%	40 - 140	11H1277	08/13/11 20:08
Azobenzene	3.33	3.25		mg/kg wet	98%	40 - 140	11H1277	08/13/11 20:08
Aniline	3.33	3.74		mg/kg wet	112%	40 - 140	11H1277	08/13/11 20:08
Anthracene	3.33	2.98		mg/kg wet	89%	40 - 140	11H1277	08/13/11 20:08
Benzo (a) anthracene	3.33	2.83		mg/kg wet	85%	40 - 140	11H1277	08/13/11 20:08
Benzo (a) pyrene	3.33	3.47		mg/kg wet	104%	40 - 140	11H1277	08/13/11 20:08
Benzo (b) fluoranthene	3.33	3.12		mg/kg wet	94%	40 - 140	11H1277	08/13/11 20:08
Benzo (g,h,i) perylene	3.33	3.34		mg/kg wet	100%	40 - 140	11H1277	08/13/11 20:08
Benzo (k) fluoranthene	3.33	3.08		mg/kg wet	92%	40 - 140	11H1277	08/13/11 20:08
Bis(2-chloroethoxy)methane	3.33	2.63		mg/kg wet	79%	40 - 140	11H1277	08/13/11 20:08
Bis(2-chloroethyl)ether	3.33	2.31		mg/kg wet	69%	40 - 140	11H1277	08/13/11 20:08
Bis(2-chloroisopropyl)ether	3.33	2.41		mg/kg wet	72%	40 - 140	11H1277	08/13/11 20:08
Bis(2-ethylhexyl)phthalate	3.33	2.81		mg/kg wet	84%	40 - 140	11H1277	08/13/11 20:08
4-Bromophenyl phenyl ether	3.33	2.86		mg/kg wet	86%	40 - 140	11H1277	08/13/11 20:08
Butyl benzyl phthalate	3.33	2.78		mg/kg wet	84%	40 - 140	11H1277	08/13/11 20:08
4-Chloroaniline	3.33	2.90		mg/kg wet	87%	40 - 140	11H1277	08/13/11 20:08
2-Chloronaphthalene	3.33	2.37		mg/kg wet	71%	40 - 140	11H1277	08/13/11 20:08
2-Chlorophenol	3.33	2.40		mg/kg wet	72%	30 - 130	11H1277	08/13/11 20:08
4-Chlorophenyl phenyl ether	3.33	2.85		mg/kg wet	86%	40 - 140	11H1277	08/13/11 20:08
Chrysene	3.33	2.79		mg/kg wet	84%	40 - 140	11H1277	08/13/11 20:08
Dibenz (a,h) anthracene	3.33	3.39		mg/kg wet	102%	40 - 140	11H1277	08/13/11 20:08
Dibenzofuran	3.33	2.90		mg/kg wet	87%	40 - 140	11H1277	08/13/11 20:08
Di-n-butyl phthalate	3.33	2.95		mg/kg wet	89%	40 - 140	11H1277	08/13/11 20:08
3,3-Dichlorobenzidine	3.33	2.88		mg/kg wet	86%	40 - 140	11H1277	08/13/11 20:08
1,2-Dichlorobenzene	3.33	2.08		mg/kg wet	62%	40 - 140	11H1277	08/13/11 20:08
1,3-Dichlorobenzene	3.33	2.11		mg/kg wet	63%	40 - 140	11H1277	08/13/11 20:08
1,4-Dichlorobenzene	3.33	2.10		mg/kg wet	63%	40 - 140	11H1277	08/13/11 20:08
2,4-Dichlorophenol	3.33	2.49		mg/kg wet	75%	30 - 130	11H1277	08/13/11 20:08
Diethyl phthalate	3.33	3.07		mg/kg wet	92%	40 - 140	11H1277	08/13/11 20:08
2,4-Dimethylphenol	3.33	2.77		mg/kg wet	83%	30 - 130	11H1277	08/13/11 20:08
Dimethyl phthalate	3.33	2.75		mg/kg wet	83%	40 - 140	11H1277	08/13/11 20:08
2,4-Dinitrophenol	3.33	1.80		mg/kg wet	54%	30 - 130	11H1277	08/13/11 20:08
2,4-Dinitrotoluene	3.33	2.57		mg/kg wet	77%	40 - 140	11H1277	08/13/11 20:08
2,6-Dinitrotoluene	3.33	2.67		mg/kg wet	80%	40 - 140	11H1277	08/13/11 20:08
Di-n-octyl phthalate	3.33	2.94		mg/kg wet	88%	40 - 140	11H1277	08/13/11 20:08
Fluoranthene	3.33	2.98		mg/kg wet	89%	40 - 140	11H1277	08/13/11 20:08
Fluorene	3.33	2.96		mg/kg wet	89%	40 - 140	11H1277	08/13/11 20:08
Hexachlorobenzene	3.33	3.01		mg/kg wet	90%	40 - 140	11H1277	08/13/11 20:08
Hexachlorobutadiene	3.33	3.30		mg/kg wet	99%	40 - 140	11H1277	08/13/11 20:08
Hexachloroethane	3.33	2.56		mg/kg wet	77%	40 - 140	11H1277	08/13/11 20:08

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0587
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270D								
11H1277-BS1								
Indeno (1,2,3-cd) pyrene	3.33	3.38		mg/kg wet	101%	40 - 140	11H1277	08/13/11 20:08
Isophorone	3.33	2.47		mg/kg wet	74%	40 - 140	11H1277	08/13/11 20:08
2-Methylnaphthalene	3.33	2.63		mg/kg wet	79%	40 - 140	11H1277	08/13/11 20:08
2-Methylphenol	3.33	2.22		mg/kg wet	67%	30 - 130	11H1277	08/13/11 20:08
3/4-Methylphenol	3.33	2.08		mg/kg wet	63%	30 - 130	11H1277	08/13/11 20:08
Naphthalene	3.33	2.89		mg/kg wet	87%	40 - 140	11H1277	08/13/11 20:08
Nitrobenzene	3.33	2.41		mg/kg wet	72%	40 - 140	11H1277	08/13/11 20:08
2-Nitrophenol	3.33	2.55		mg/kg wet	76%	30 - 130	11H1277	08/13/11 20:08
4-Nitrophenol	3.33	3.11		mg/kg wet	93%	30 - 130	11H1277	08/13/11 20:08
Pentachlorophenol	3.33	3.22		mg/kg wet	97%	30 - 130	11H1277	08/13/11 20:08
Phenanthrene	3.33	2.92		mg/kg wet	88%	40 - 140	11H1277	08/13/11 20:08
Phenol	3.33	2.24		mg/kg wet	67%	30 - 130	11H1277	08/13/11 20:08
Pyrene	3.33	2.67		mg/kg wet	80%	40 - 140	11H1277	08/13/11 20:08
1,2,4-Trichlorobenzene	3.33	2.21		mg/kg wet	66%	40 - 140	11H1277	08/13/11 20:08
2,4,5-Trichlorophenol	3.33	2.54		mg/kg wet	76%	30 - 130	11H1277	08/13/11 20:08
2,4,6-Trichlorophenol	3.33	2.94		mg/kg wet	88%	30 - 130	11H1277	08/13/11 20:08
Surrogate: 2-Fluorophenol	3.33	1.98			59%	30 - 130	11H1277	08/13/11 20:08
Surrogate: Phenol-d5	3.33	2.15			64%	30 - 130	11H1277	08/13/11 20:08
Surrogate: 2-Fluorobiphenyl	3.33	2.46			74%	30 - 130	11H1277	08/13/11 20:08
Surrogate: Nitrobenzene-d5	3.33	2.35			71%	30 - 130	11H1277	08/13/11 20:08
Surrogate: Terphenyl-d14	3.33	2.78			83%	30 - 130	11H1277	08/13/11 20:08
Surrogate: 2,4,6-Tribromophenol	3.33	2.53			76%	30 - 130	11H1277	08/13/11 20:08

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0587
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS Dup

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
MADEP VPH												
11H1301-BSD1												
Methyl tert-Butyl Ether		0.0965		mg/kg wet	0.100	97%	70 - 130	1	25	11H1301		08/05/11 11:34
Benzene		0.0983		mg/kg wet	0.100	98%	70 - 130	5	25	11H1301		08/05/11 11:34
Toluene		0.0957		mg/kg wet	0.100	96%	70 - 130	6	25	11H1301		08/05/11 11:34
Ethylbenzene		0.0982		mg/kg wet	0.100	98%	70 - 130	6	25	11H1301		08/05/11 11:34
m,p-Xylene		0.198		mg/kg wet	0.200	99%	70 - 130	6	25	11H1301		08/05/11 11:34
o-Xylene		0.0976		mg/kg wet	0.100	98%	70 - 130	6	25	11H1301		08/05/11 11:34
Naphthalene		0.0954		mg/kg wet	0.100	95%	70 - 130	2	25	11H1301		08/05/11 11:34
C5 - C8 Aliphatic Hydrocarbons, Unadjusted		0.300		mg/kg wet	0.300	100%	70 - 130	6	25	11H1301		08/05/11 11:34
C9 - C12 Aliphatic Hydrocarbons, Unadjusted		0.204		mg/kg wet	0.200	102%	70 - 130	4	25	11H1301		08/05/11 11:34
C9 - C10 Aromatic Hydrocarbons		0.0986		mg/kg wet	0.100	99%	70 - 130	5	25	11H1301		08/05/11 11:34
Surrogate: 2,5-Dibromotoluene (FID)		37.4		ug/L	40.0	94%	70 - 130			11H1301		08/05/11 11:34
Surrogate: 2,5-Dibromotoluene (PID)		38.4		ug/L	40.0	96%	70 - 130			11H1301		08/05/11 11:34
MADEP EPH												
11H1275-BSD1												
C9 - C18 Aliphatic Hydrocarbons		13.1		mg/kg wet	15.0	88%	40 - 140	9	25	11H1275		08/13/11 13:11
C19 - C36 Aliphatic Hydrocarbons		18.4		mg/kg wet	20.0	92%	40 - 140	8	25	11H1275		08/13/11 13:11
C11 - C22 Aromatic Hydrocarbons, Unadjuste		38.3		mg/kg wet	42.5	90%	40 - 140	2	25	11H1275		08/13/11 13:42
2-Methylnaphthalene		2.32		mg/kg wet	2.50	93%	40 - 140	0.3	25	11H1275		08/13/11 13:42
Acenaphthene		2.37		mg/kg wet	2.50	95%	40 - 140	0.2	25	11H1275		08/13/11 13:42
Acenaphthylene		2.34		mg/kg wet	2.50	94%	40 - 140	0.2	25	11H1275		08/13/11 13:42
Anthracene		2.20		mg/kg wet	2.50	88%	40 - 140	1	25	11H1275		08/13/11 13:42
Benzo (a) anthracene		2.17		mg/kg wet	2.50	87%	40 - 140	0.4	25	11H1275		08/13/11 13:42
Benzo (a) pyrene		2.24		mg/kg wet	2.50	90%	40 - 140	2	25	11H1275		08/13/11 13:42
Benzo (b) fluoranthene		2.13		mg/kg wet	2.50	85%	40 - 140	2	25	11H1275		08/13/11 13:42
Benzo (g,h,i) perylene		2.21		mg/kg wet	2.50	88%	40 - 140	3	25	11H1275		08/13/11 13:42
Benzo (k) fluoranthene		2.17		mg/kg wet	2.50	87%	40 - 140	2	25	11H1275		08/13/11 13:42
Chrysene		2.18		mg/kg wet	2.50	87%	40 - 140	3	25	11H1275		08/13/11 13:42
Dibenz (a,h) anthracene		2.22		mg/kg wet	2.50	89%	40 - 140	3	25	11H1275		08/13/11 13:42
Fluoranthene		2.31		mg/kg wet	2.50	92%	40 - 140	2	25	11H1275		08/13/11 13:42
Fluorene		2.38		mg/kg wet	2.50	95%	40 - 140	1	25	11H1275		08/13/11 13:42
Indeno (1,2,3-cd) pyrene		2.12		mg/kg wet	2.50	85%	40 - 140	2	25	11H1275		08/13/11 13:42
Naphthalene		2.44		mg/kg wet	2.50	98%	40 - 140	0.7	25	11H1275		08/13/11 13:42
Phenanthrene		2.32		mg/kg wet	2.50	93%	40 - 140	3	25	11H1275		08/13/11 13:42
Pyrene		2.27		mg/kg wet	2.50	91%	40 - 140	1	25	11H1275		08/13/11 13:42
Surrogate: 1-Chlorooctadecane		3.63		mg/kg wet	4.00	91%	40 - 140			11H1275		08/13/11 13:11
Surrogate: o-Terphenyl		3.70		mg/kg wet	4.00	93%	40 - 140			11H1275		08/13/11 13:42
Surrogate: 2-Fluorobiphenyl		4.23		mg/kg wet	4.00	106%	40 - 140			11H1275		08/13/11 13:42
Surrogate: 2-Bromonaphthalene		4.39		mg/kg wet	4.00	110%	40 - 140			11H1275		08/13/11 13:42

Volatile Organic - MCP CAM Method 8260

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0587
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11H0292-BSD1												
Acetone		306	B	ug/kg	250	122%	70 - 130	7	25	11H0292		08/07/11 09:30
Tert-Amyl Methyl Ether		47.9		ug/kg	50.0	96%	70 - 130	2	25	11H0292		08/07/11 09:30
Benzene		53.0		ug/kg	50.0	106%	70 - 130	3	25	11H0292		08/07/11 09:30
Bromobenzene		50.9		ug/kg	50.0	102%	70 - 130	0.7	25	11H0292		08/07/11 09:30
Bromochloromethane		53.0		ug/kg	50.0	106%	70 - 130	0.1	25	11H0292		08/07/11 09:30
Bromodichloromethane		51.9		ug/kg	50.0	104%	70 - 130	3	25	11H0292		08/07/11 09:30
Bromoform		46.8		ug/kg	50.0	94%	70 - 130	15	25	11H0292		08/07/11 09:30
Bromomethane		54.5		ug/kg	50.0	109%	70 - 130	3	25	11H0292		08/07/11 09:30
2-Butanone		265	B	ug/kg	250	106%	70 - 130	0.2	25	11H0292		08/07/11 09:30
tert-Butylbenzene		54.2		ug/kg	50.0	108%	70 - 130	2	25	11H0292		08/07/11 09:30
n-Butylbenzene		48.6		ug/kg	50.0	97%	70 - 130	0.7	25	11H0292		08/07/11 09:30
sec-Butylbenzene		55.2		ug/kg	50.0	110%	70 - 130	1	25	11H0292		08/07/11 09:30
Carbon disulfide		51.6		ug/kg	50.0	103%	70 - 130	4	25	11H0292		08/07/11 09:30
Carbon Tetrachloride		56.3		ug/kg	50.0	113%	70 - 130	4	25	11H0292		08/07/11 09:30
Chlorobenzene		52.6		ug/kg	50.0	105%	70 - 130	1	25	11H0292		08/07/11 09:30
Chlorodibromomethane		49.7		ug/kg	50.0	99%	70 - 130	1	25	11H0292		08/07/11 09:30
Chloroethane		50.4		ug/kg	50.0	101%	70 - 130	4	25	11H0292		08/07/11 09:30
Chloroform		53.7		ug/kg	50.0	107%	70 - 130	0.5	25	11H0292		08/07/11 09:30
Chloromethane		52.8		ug/kg	50.0	106%	70 - 130	3	25	11H0292		08/07/11 09:30
2-Chlorotoluene		52.5		ug/kg	50.0	105%	70 - 130	2	25	11H0292		08/07/11 09:30
4-Chlorotoluene		54.7		ug/kg	50.0	109%	70 - 130	3	25	11H0292		08/07/11 09:30
1,2-Dibromo-3-chloropropane		41.6		ug/kg	50.0	83%	70 - 130	6	25	11H0292		08/07/11 09:30
1,2-Dibromoethane (EDB)		54.2		ug/kg	50.0	108%	70 - 130	0.2	25	11H0292		08/07/11 09:30
Dibromomethane		49.8		ug/kg	50.0	100%	70 - 130	0.5	25	11H0292		08/07/11 09:30
1,2-Dichlorobenzene		52.8		ug/kg	50.0	106%	70 - 130	3	25	11H0292		08/07/11 09:30
1,3-Dichlorobenzene		54.4		ug/kg	50.0	109%	70 - 130	2	25	11H0292		08/07/11 09:30
1,4-Dichlorobenzene		52.8		ug/kg	50.0	106%	70 - 130	2	25	11H0292		08/07/11 09:30
Dichlorodifluoromethane		63.4		ug/kg	50.0	127%	70 - 130	3	25	11H0292		08/07/11 09:30
1,2-Dichloroethane		50.7		ug/kg	50.0	101%	70 - 130	3	25	11H0292		08/07/11 09:30
1,1-Dichloroethane		52.8		ug/kg	50.0	106%	70 - 130	0.2	25	11H0292		08/07/11 09:30
1,1-Dichloroethene		52.0		ug/kg	50.0	104%	70 - 130	2	25	11H0292		08/07/11 09:30
trans-1,2-Dichloroethene		52.2		ug/kg	50.0	104%	70 - 130	4	25	11H0292		08/07/11 09:30
cis-1,2-Dichloroethene		53.7		ug/kg	50.0	107%	70 - 130	3	25	11H0292		08/07/11 09:30
1,3-Dichloropropane		51.6		ug/kg	50.0	103%	70 - 130	3	25	11H0292		08/07/11 09:30
2,2-Dichloropropane		63.8		ug/kg	50.0	128%	70 - 130	4	25	11H0292		08/07/11 09:30
1,2-Dichloropropane		50.0		ug/kg	50.0	100%	70 - 130	0.8	25	11H0292		08/07/11 09:30
trans-1,3-Dichloropropene		49.3		ug/kg	50.0	99%	70 - 130	2	25	11H0292		08/07/11 09:30
1,1-Dichloropropene		53.1		ug/kg	50.0	106%	70 - 130	4	25	11H0292		08/07/11 09:30
cis-1,3-Dichloropropene		58.3		ug/kg	50.0	117%	70 - 130	3	25	11H0292		08/07/11 09:30
Diethyl ether		50.4		ug/kg	50.0	101%	70 - 130	1	25	11H0292		08/07/11 09:30
1,4-Dioxane		2960	L2, R2	ug/kg	5000	59%	70 - 130	28	25	11H0292		08/07/11 09:30

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0587
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11H0292-BSD1												
Ethylbenzene		54.9		ug/kg	50.0	110%	70 - 130	0.9	25	11H0292		08/07/11 09:30
Ethyl tert-Butyl Ether		46.7		ug/kg	50.0	93%	70 - 130	3	25	11H0292		08/07/11 09:30
Hexachlorobutadiene		54.6		ug/kg	50.0	109%	70 - 130	11	25	11H0292		08/07/11 09:30
2-Hexanone		286		ug/kg	250	114%	70 - 130	0.5	25	11H0292		08/07/11 09:30
Isopropylbenzene		59.6	R2	ug/kg	50.0	119%	70 - 130	35	25	11H0292		08/07/11 09:30
Diisopropyl Ether		50.4		ug/kg	50.0	101%	70 - 130	1	25	11H0292		08/07/11 09:30
p-Isopropyltoluene		55.1		ug/kg	50.0	110%	70 - 130	0.1	25	11H0292		08/07/11 09:30
Methyl tert-Butyl Ether		49.2		ug/kg	50.0	98%	70 - 130	2	25	11H0292		08/07/11 09:30
Methylene Chloride		53.0		ug/kg	50.0	106%	70 - 130	2	25	11H0292		08/07/11 09:30
4-Methyl-2-pentanone		225		ug/kg	250	90%	70 - 130	3	25	11H0292		08/07/11 09:30
Naphthalene		44.2		ug/kg	50.0	88%	70 - 130	4	25	11H0292		08/07/11 09:30
n-Propylbenzene		54.8		ug/kg	50.0	110%	70 - 130	0.8	25	11H0292		08/07/11 09:30
Styrene		55.4		ug/kg	50.0	111%	70 - 130	13	25	11H0292		08/07/11 09:30
1,1,2,2-Tetrachloroethane		49.0		ug/kg	50.0	98%	70 - 130	4	25	11H0292		08/07/11 09:30
1,1,1,2-Tetrachloroethane		56.8		ug/kg	50.0	114%	70 - 130	0.7	25	11H0292		08/07/11 09:30
Tetrachloroethene		54.9		ug/kg	50.0	110%	70 - 130	3	25	11H0292		08/07/11 09:30
Tetrahydrofuran		453	B	ug/kg	500	91%	70 - 130	4	25	11H0292		08/07/11 09:30
Toluene		51.6		ug/kg	50.0	103%	70 - 130	0.4	25	11H0292		08/07/11 09:30
1,2,4-Trichlorobenzene		51.4		ug/kg	50.0	103%	70 - 130	6	25	11H0292		08/07/11 09:30
1,2,3-Trichlorobenzene		44.4		ug/kg	50.0	89%	70 - 130	6	25	11H0292		08/07/11 09:30
1,1,1-Trichloroethane		55.5		ug/kg	50.0	111%	70 - 130	2	25	11H0292		08/07/11 09:30
1,1,2-Trichloroethane		52.2		ug/kg	50.0	104%	70 - 130	3	25	11H0292		08/07/11 09:30
Trichloroethene		52.2		ug/kg	50.0	104%	70 - 130	2	25	11H0292		08/07/11 09:30
Trichlorofluoromethane		52.3		ug/kg	50.0	105%	70 - 130	4	25	11H0292		08/07/11 09:30
1,2,3-Trichloropropane		48.2		ug/kg	50.0	96%	70 - 130	0.8	25	11H0292		08/07/11 09:30
1,3,5-Trimethylbenzene		54.9		ug/kg	50.0	110%	70 - 130	2	25	11H0292		08/07/11 09:30
1,2,4-Trimethylbenzene		55.2		ug/kg	50.0	110%	70 - 130	1	25	11H0292		08/07/11 09:30
Vinyl chloride		56.1		ug/kg	50.0	112%	70 - 130	4	25	11H0292		08/07/11 09:30
Xylenes, total		165		ug/kg	150	110%	70 - 130	5	25	11H0292		08/07/11 09:30
1,1,2-Trifluorotrichloroethane		56.1		ug/kg	50.0	112%	61 - 134	2	46	11H0292		08/07/11 09:30
Surrogate: 1,2-Dichloroethane-d4		24.6		ug/kg	25.0	98%	70 - 130			11H0292		08/07/11 09:30
Surrogate: Dibromofluoromethane		24.7		ug/kg	25.0	99%	70 - 130			11H0292		08/07/11 09:30
Surrogate: Toluene-d8		24.0		ug/kg	25.0	96%	70 - 130			11H0292		08/07/11 09:30
Surrogate: 4-Bromofluorobenzene		24.9		ug/kg	25.0	100%	70 - 130			11H0292		08/07/11 09:30
11H2363-BSD1												
Acetone		343	L	ug/kg	250	137%	70 - 130	2	25	11H2363		08/08/11 14:21
Tert-Amyl Methyl Ether		58.0		ug/kg	50.0	116%	70 - 130	2	25	11H2363		08/08/11 14:21
Benzene		52.4		ug/kg	50.0	105%	70 - 130	1	25	11H2363		08/08/11 14:21
Bromobenzene		46.8		ug/kg	50.0	94%	70 - 130	2	25	11H2363		08/08/11 14:21
Bromochloromethane		51.4		ug/kg	50.0	103%	70 - 130	0.7	25	11H2363		08/08/11 14:21

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0587
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11H2363-BSD1												
Bromodichloromethane		50.9		ug/kg	50.0	102%	70 - 130	2	25	11H2363		08/08/11 14:21
Bromoform		51.6		ug/kg	50.0	103%	70 - 130	0.5	25	11H2363		08/08/11 14:21
Bromomethane		53.0		ug/kg	50.0	106%	70 - 130	0.02	25	11H2363		08/08/11 14:21
2-Butanone		286		ug/kg	250	114%	70 - 130	0.4	25	11H2363		08/08/11 14:21
tert-Butylbenzene		56.6		ug/kg	50.0	113%	70 - 130	1	25	11H2363		08/08/11 14:21
n-Butylbenzene		48.7		ug/kg	50.0	97%	70 - 130	4	25	11H2363		08/08/11 14:21
sec-Butylbenzene		57.1		ug/kg	50.0	114%	70 - 130	1	25	11H2363		08/08/11 14:21
Carbon disulfide		51.4		ug/kg	50.0	103%	70 - 130	2	25	11H2363		08/08/11 14:21
Carbon Tetrachloride		57.0		ug/kg	50.0	114%	70 - 130	3	25	11H2363		08/08/11 14:21
Chlorobenzene		53.2		ug/kg	50.0	106%	70 - 130	0.5	25	11H2363		08/08/11 14:21
Chlorodibromomethane		48.5		ug/kg	50.0	97%	70 - 130	0.8	25	11H2363		08/08/11 14:21
Chloroethane		47.2		ug/kg	50.0	94%	70 - 130	3	25	11H2363		08/08/11 14:21
Chloroform		51.9		ug/kg	50.0	104%	70 - 130	2	25	11H2363		08/08/11 14:21
Chloromethane		39.0		ug/kg	50.0	78%	70 - 130	2	25	11H2363		08/08/11 14:21
2-Chlorotoluene		50.6		ug/kg	50.0	101%	70 - 130	2	25	11H2363		08/08/11 14:21
4-Chlorotoluene		53.6		ug/kg	50.0	107%	70 - 130	2	25	11H2363		08/08/11 14:21
1,2-Dibromo-3-chloropropane		44.3		ug/kg	50.0	89%	70 - 130	4	25	11H2363		08/08/11 14:21
1,2-Dibromoethane (EDB)		50.9		ug/kg	50.0	102%	70 - 130	0.6	25	11H2363		08/08/11 14:21
Dibromomethane		46.3		ug/kg	50.0	93%	70 - 130	3	25	11H2363		08/08/11 14:21
1,2-Dichlorobenzene		54.4		ug/kg	50.0	109%	70 - 130	3	25	11H2363		08/08/11 14:21
1,3-Dichlorobenzene		55.4		ug/kg	50.0	111%	70 - 130	2	25	11H2363		08/08/11 14:21
1,4-Dichlorobenzene		54.3		ug/kg	50.0	109%	70 - 130	3	25	11H2363		08/08/11 14:21
Dichlorodifluoromethane		48.6		ug/kg	50.0	97%	70 - 130	2	25	11H2363		08/08/11 14:21
1,2-Dichloroethane		47.7		ug/kg	50.0	95%	70 - 130	0.9	25	11H2363		08/08/11 14:21
1,1-Dichloroethane		50.2		ug/kg	50.0	100%	70 - 130	3	25	11H2363		08/08/11 14:21
1,1-Dichloroethene		52.3		ug/kg	50.0	105%	70 - 130	0.4	25	11H2363		08/08/11 14:21
trans-1,2-Dichloroethene		50.2		ug/kg	50.0	100%	70 - 130	2	25	11H2363		08/08/11 14:21
cis-1,2-Dichloroethene		50.8		ug/kg	50.0	102%	70 - 130	2	25	11H2363		08/08/11 14:21
1,3-Dichloropropane		47.2		ug/kg	50.0	94%	70 - 130	0.2	25	11H2363		08/08/11 14:21
2,2-Dichloropropane		66.0	L	ug/kg	50.0	132%	70 - 130	3	25	11H2363		08/08/11 14:21
1,2-Dichloropropane		46.6		ug/kg	50.0	93%	70 - 130	1	25	11H2363		08/08/11 14:21
trans-1,3-Dichloropropene		46.1		ug/kg	50.0	92%	70 - 130	1	25	11H2363		08/08/11 14:21
1,1-Dichloropropene		51.8		ug/kg	50.0	104%	70 - 130	3	25	11H2363		08/08/11 14:21
cis-1,3-Dichloropropene		59.4		ug/kg	50.0	119%	70 - 130	1	25	11H2363		08/08/11 14:21
Diethyl ether		50.3		ug/kg	50.0	101%	70 - 130	2	25	11H2363		08/08/11 14:21
1,4-Dioxane		3760		ug/kg	5000	75%	70 - 130	7	25	11H2363		08/08/11 14:21
Ethylbenzene		54.9		ug/kg	50.0	110%	70 - 130	0.6	25	11H2363		08/08/11 14:21
Ethyl tert-Butyl Ether		52.7		ug/kg	50.0	105%	70 - 130	1	25	11H2363		08/08/11 14:21
Hexachlorobutadiene		57.5		ug/kg	50.0	115%	70 - 130	2	25	11H2363		08/08/11 14:21
2-Hexanone		277		ug/kg	250	111%	70 - 130	1	25	11H2363		08/08/11 14:21
Isopropylbenzene		65.8	L1	ug/kg	50.0	132%	70 - 130	0.2	25	11H2363		08/08/11 14:21

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0587
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11H2363-BSD1												
Diisopropyl Ether		48.2		ug/kg	50.0	96%	70 - 130	1	25	11H2363		08/08/11 14:21
p-Isopropyltoluene		57.8		ug/kg	50.0	116%	70 - 130	1	25	11H2363		08/08/11 14:21
Methyl tert-Butyl Ether		55.5		ug/kg	50.0	111%	70 - 130	1	25	11H2363		08/08/11 14:21
Methylene Chloride		50.6		ug/kg	50.0	101%	70 - 130	0.9	25	11H2363		08/08/11 14:21
4-Methyl-2-pentanone		201		ug/kg	250	80%	70 - 130	10	25	11H2363		08/08/11 14:21
Naphthalene		49.7		ug/kg	50.0	99%	70 - 130	2	25	11H2363		08/08/11 14:21
n-Propylbenzene		52.6		ug/kg	50.0	105%	70 - 130	3	25	11H2363		08/08/11 14:21
Styrene		60.2		ug/kg	50.0	120%	70 - 130	0.1	25	11H2363		08/08/11 14:21
1,1,2,2-Tetrachloroethane		43.7		ug/kg	50.0	87%	70 - 130	0.3	25	11H2363		08/08/11 14:21
1,1,1,2-Tetrachloroethane		57.5		ug/kg	50.0	115%	70 - 130	2	25	11H2363		08/08/11 14:21
Tetrachloroethene		53.8		ug/kg	50.0	108%	70 - 130	0.7	25	11H2363		08/08/11 14:21
Tetrahydrofuran		456		ug/kg	500	91%	70 - 130	0.5	25	11H2363		08/08/11 14:21
Toluene		47.5		ug/kg	50.0	95%	70 - 130	1	25	11H2363		08/08/11 14:21
1,2,4-Trichlorobenzene		55.4		ug/kg	50.0	111%	70 - 130	2	25	11H2363		08/08/11 14:21
1,2,3-Trichlorobenzene		49.2		ug/kg	50.0	98%	70 - 130	4	25	11H2363		08/08/11 14:21
1,1,1-Trichloroethane		56.8		ug/kg	50.0	114%	70 - 130	2	25	11H2363		08/08/11 14:21
1,1,2-Trichloroethane		49.3		ug/kg	50.0	99%	70 - 130	1	25	11H2363		08/08/11 14:21
Trichloroethene		52.2		ug/kg	50.0	104%	70 - 130	3	25	11H2363		08/08/11 14:21
Trichlorofluoromethane		48.9		ug/kg	50.0	98%	70 - 130	0.7	25	11H2363		08/08/11 14:21
1,2,3-Trichloropropane		46.2		ug/kg	50.0	92%	70 - 130	2	25	11H2363		08/08/11 14:21
1,3,5-Trimethylbenzene		55.2		ug/kg	50.0	110%	70 - 130	2	25	11H2363		08/08/11 14:21
1,2,4-Trimethylbenzene		54.7		ug/kg	50.0	109%	70 - 130	3	25	11H2363		08/08/11 14:21
Vinyl chloride		45.8		ug/kg	50.0	92%	70 - 130	3	25	11H2363		08/08/11 14:21
Xylenes, total		168		ug/kg	150	112%	70 - 130	0.7	25	11H2363		08/08/11 14:21
Surrogate: 1,2-Dichloroethane-d4		22.8		ug/kg	25.0	91%	70 - 130			11H2363		08/08/11 14:21
Surrogate: Dibromofluoromethane		23.6		ug/kg	25.0	95%	70 - 130			11H2363		08/08/11 14:21
Surrogate: Toluene-d8		21.4		ug/kg	25.0	86%	70 - 130			11H2363		08/08/11 14:21
Surrogate: 4-Bromofluorobenzene		23.6		ug/kg	25.0	94%	70 - 130			11H2363		08/08/11 14:21
Total Metals by EPA 6010C												
11H1701-BSD1												
Iron		402		mg/kg	391	103%	80 - 120	0.8	20	11H1701		08/12/11 12:29
Manganese		194		mg/kg	196	99%	80 - 120	1	20	11H1701		08/12/11 12:29

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUH0587
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	08/03/11 08:30

DATA QUALIFIERS AND DEFINITIONS

B	Analyte was detected in the associated Method Blank.
L	Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was above the acceptance limits. Analyte not detected, data not impacted.
L1	Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was above acceptance limits.
L2	Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was below acceptance limits.
R2	The RPD exceeded the acceptance limit.
YES	Yes
Z2	Surrogate recovery was above the acceptance limits. Data not impacted.
ND	Not detected at the reporting limit (or method detection limit if shown)

METHOD MODIFICATION NOTES

TOC in soil 9060 M - M = Modified for soil analysis

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Nashville, TN

COOLER RE

NUH0587

Cooler Received/Opened On_08/03/11 @ 08:30

1. Tracking #_____6041_____(last 4 digits, ,

Courier: ___FED-EX IR-GUN-97310166

2. Temperature of rep. sample or temp blank when opened: 1.2 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES ...NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

   If yes, how many and where: 1-FRONT

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) _____

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

   Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

   b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) J.G.

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES..NO..NA

   b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

   16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) J.G.

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) J.G.

I certify that I attached a label with the unique LIMS number to each container (intial) J.G.

21. Were there Non-Conformance issues at login? YES...NO Was a PIPE generated? YES...NO...#_____

BIS = Broken in shipment

Cooler Receipt Form.doc

LF-1

End of Form

Revised 9/6/07

General Chemical

TestAmerica INCORPORATED

Nashville Division
2960 Foster Creighton
Nashville, TN 37204

Phone: 615-726-0177
Toll Free: 800-765-0980
Fax: 615-726-3404

NUH0587
08/17/11 23:59

Consultant Name: GES
Address: 364 Littleton Road
City/State/Zip: Westford, MA 01886
Project Mgr: Stefan Sokol
Consultant Project Mgr:
Consultant Telephone Number: 800-221-6119 Fax No.: 978-392-8583
Sampler Name: (Print) Mary Cathey
Sampler Signature: Mary Cathey

TA Account #:
Invoice To:
Report To: Stefan Sokol ssokol@gesonline.com
PO #:
PROJECT #: 1603978
Facility ID # General Chemical
Site Address 133 Leland St
City, State, Zip Framingham, MA
Regulatory District (CA)

Sample ID or Field ID	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative: Methanol	Sodium Bisulfate	HCl (Blue Label)	NaOH (Orange Label)	H_2SO_4 Plastic (Yellow Label)	H_2SO_4 Glass(Yellow Label)	HNO_3 (Red Label)	None (Black Label)	Matrix: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (Specify):	Analyze For: VOCs	VPH	SVOCs	EPH	TOC	total Fe & Mn	% solids					RUSH TAT (Pre-Schedule) *	TAT request (in Bus. Days)	Fax Results (yes or no)	Due Date of Report
MW-17 (18-20')	7/29/11	0800	5	X			4							1					X		X	X	X	X	X	X	X								
Trip Blank	7/29/11	0000	1				1													X	X														

Comments/Special Instructions:

Laboratory Comments:
Temperature Upon Receipt: 1.2
Sample Containers Intact? Y N
VOCs Free of Headspace? Y N
QC Deliverables (please circle one)
Level 2 Level 3 Level 4 Other

Relinquished by:	Date	Time	Received by:	Date	Time
Mary Cathey	7/29/11	1635	GES Stock	7/29/11	1635
[illegible]	8/2/11	1130	Received by TestAmerica: [illegible]	8/2/11	11:30
[illegible]				8/3/11	530

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

September 28, 2011 10:10:24AM

Client: GES Westford (10650)
364 Littleton Road, Suite 4
Westford, MA 01886
Attn: Stefan Sokol

Work Order: NUI0601
Project Name: General Chemical
Project Nbr: Framingham, MA
P/O Nbr: 1603978
Date Received: 09/03/11

SAMPLE IDENTIFICATION	LAB NUMBER	COLLECTION DATE AND TIME
MW-18 (S) (8-10')	NUI0601-01	08/25/11 10:00
MW-18 (M) (42-44')	NUI0601-02	08/26/11 16:00
MW-18 (M) (46-48')	NUI0601-03	08/26/11 16:30
Trip Blank	NUI0601-04	08/25/11 06:00

An executed copy of the chain of custody, the project quality control data, and the sample receipt form are also included as an addendum to this report. If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-800-765-0980. These results relate only to the items tested, and this report may not be reproduced except in full and with the permission of the Laboratory. Any opinions, if expressed, are outside the scope of the Laboratory's accredidation.

This material is intended only for the use of the individual(s) or entity to whom it is addressed, and may contain information that is privileged and confidential. If you are not the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this material is strictly prohibited. If you have received this material in error, please notify us immediately at 615-726-0177.

Certification Number: M-TN032

Additional Laboratory Comments:
Revised Report:
This report was revised on 9-28-11 to complete the MADEP form which had 2 questions left blank in the original report and also to revise question "G" from No to Yes (had noted that 1,4-Dioxane was above the CAM limits, however, it is not). This final report replaces the final report generated on 9-20-11 at 0755.

All samples were received in good condition, properly preserved, and properly labeled. All analyses were completed within holding times.

All no responses from the attached “MCP Response Action Analytical Report Certification Form” are addressed below.

H. The volatile blank spike and/or blank spike duplicate (LCS/LCSD) recoveries for chloromethane, Dichlorodifluoromethane, and Hexachlorobutadiene in batch 11I1399 were outside QC limits. Less than 10% of the analytes were outside criteria and the recoveries were within greater than 10%; therefore the data was accepted without further analysis.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI0601
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/03/11 08:10

The Chain(s) of Custody, 2 pages, are included and are an integral part of this report.

These results relate only to the items tested. This report shall not be reproduced except in full and with permission of the laboratory.

All solids results are reported in wet weight unless specifically stated.
Estimated uncertainty is available upon request.
This report has been electronically signed.
Report Approved By:

Jennifer Huckaba

Jennifer Huckaba

Senior Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI0601
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/03/11 08:10

Sample Cooler Information

Lab ID	Cooler ID	Temp	Seals	Containers Intact	Preservation Confirmed	On Ice
	4793	3.C	No	Yes	No	Yes

MassDEP Analytical Protocol Certification Form

Laboratory Name: TestAmerica Analytical Testing Corporation | Project #: Framingham, MA

Project Location: General Chemical | RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):
NUI0601

Matrices: Groundwater/Surface Water (Soil/Sediment) Drinking Water Air Other:

CAM Protocol (check all that apply below):

8260 VOC CAM II A X	7470/7471 Hg CAM III B	MassDEP VPH CAM IV A	8081 Pesticides CAM V B	7196 Hex Cr CAM VI B	MassDEP APH CAM IX A
8270 SVOC CAM II B	7010 Metals CAM III C	MassDEP EPH CAM IV B	8151 Herbicides CAM V C	8330 Explosives CAM VIII A	TO-15 VOC CAM IX B
6010 Metals CAM III A	6020 Metals CAM III D	8082 PCB CAM V A	9014 Total Cyanide/PAC CAM VI A	6860 Perchlorate CAM VIII B	

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	(Yes) No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	(Yes) No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	(Yes) No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	(Yes) No
E	VPH, EPH, APH, and TO-15 only: a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). N/A JJH ~~Yes~~ No b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? 9-20-11 Yes No	
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	JJH 9-28-11 (Yes) No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	(Yes) ~~No[1]~~ JJH 9-28-11

Data User Note: *Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.*

H	Were all QC performance standards specified in the CAM protocol(s) achieved?	Yes (No[1])
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)? JJH 9-28-11	(Yes) No[1]

[1]*All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Jennifer Huckaba - JJH 9-28-11 **Position:** Sr Proj Mgr.

Printed Name: Jennifer Huckaba **Date:** ~~9-20-11~~ JJH 9-28-11

(updated 9-28-11)

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THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI0601
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/03/11 08:10

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUI0601-01 (MW-18 (S) (8-10') - Soil) Sampled: 08/25/11 10:00										
General Chemistry Parameters										
% Dry Solids	**74.0**	%		0.500	1	09/08/11 16:15	09/09/11 10:58	RRS	SW-846	11I1333

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI0601
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/03/11 08:10

ANALYTICAL REPORT

Sample ID: NUI0601-01 (MW-18 (S) (8-10') - Soil) - cont. Sampled: 08/25/11 10:00

Volatile Organic - MCP CAM Method 8260

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acetone	ND	mg/kg dry		1.45	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Tert-Amyl Methyl Ether	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Benzene	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Bromobenzene	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Bromochloromethane	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Bromodichloromethane	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Bromoform	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Bromomethane	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
2-Butanone	ND	mg/kg dry		1.45	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
tert-Butylbenzene	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
n-Butylbenzene	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
sec-Butylbenzene	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Carbon disulfide	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Carbon Tetrachloride	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Chlorobenzene	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Chlorodibromomethane	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Chloroethane	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Chloroform	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Chloromethane	ND	mg/kg dry	L2	0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
2-Chlorotoluene	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
4-Chlorotoluene	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
1,2-Dibromo-3-chloropropane	ND	mg/kg dry		0.145	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
1,2-Dibromoethane (EDB)	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Dibromomethane	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
1,2-Dichlorobenzene	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
1,3-Dichlorobenzene	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
1,4-Dichlorobenzene	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Dichlorodifluoromethane	ND	mg/kg dry	L2	0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
1,2-Dichloroethane	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
1,1-Dichloroethane	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
1,1-Dichloroethene	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
trans-1,2-Dichloroethene	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
cis-1,2-Dichloroethene	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
1,3-Dichloropropane	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
2,2-Dichloropropane	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
1,2-Dichloropropane	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
trans-1,3-Dichloropropene	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
1,1-Dichloropropene	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
cis-1,3-Dichloropropene	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Diethyl ether	ND	mg/kg dry		0.145	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399

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Client	GES Westford (10650)	Work Order:	NUI0601
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/03/11 08:10

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUI0601-01 (MW-18 (S) (8-10') - Soil) - cont. Sampled: 08/25/11 10:00										
Volatile Organic - MCP CAM Method 8260 - cont.										
1,4-Dioxane	ND	mg/kg dry		14.5	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Ethylbenzene	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Ethyl tert-Butyl Ether	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Hexachlorobutadiene	ND	mg/kg dry	L2	0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
2-Hexanone	ND	mg/kg dry		1.45	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Isopropylbenzene	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Diisopropyl Ether	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
p-Isopropyltoluene	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Methyl tert-Butyl Ether	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Methylene Chloride	ND	mg/kg dry		0.145	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
4-Methyl-2-pentanone	ND	mg/kg dry		1.45	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Naphthalene	ND	mg/kg dry		0.145	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
n-Propylbenzene	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Styrene	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
1,1,2,2-Tetrachloroethane	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
1,1,1,2-Tetrachloroethane	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Tetrachloroethene	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Tetrahydrofuran	ND	mg/kg dry		0.145	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Toluene	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.145	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
1,2,3-Trichlorobenzene	ND	mg/kg dry		0.145	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
1,1,1-Trichloroethane	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
1,1,2-Trichloroethane	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Trichloroethene	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Trichlorofluoromethane	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
1,2,3-Trichloropropane	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
1,3,5-Trimethylbenzene	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
1,2,4-Trimethylbenzene	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Vinyl chloride	ND	mg/kg dry		0.0725	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Xylenes, total	ND	mg/kg dry		0.217	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
1,1,2-Trifluorotrichloroethane	ND	mg/kg dry		0.145	50	08/25/11 10:00	09/08/11 11:06	CMM	SW846 8260B	11I1399
Surr: 1,2-Dichloroethane-d4 (70-130%)	*99 %*						09/08/11 11:06	CMM	SW846 8260B	11I1399
Surr: Dibromofluoromethane (70-130%)	*98 %*						09/08/11 11:06	CMM	SW846 8260B	11I1399
Surr: Toluene-d8 (70-130%)	*97 %*						09/08/11 11:06	CMM	SW846 8260B	11I1399
Surr: 4-Bromofluorobenzene (70-130%)	*103 %*						09/08/11 11:06	CMM	SW846 8260B	11I1399

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Client	GES Westford (10650)	Work Order:	NUI0601
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/03/11 08:10

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUI0601-02 (MW-18 (M) (42-44') - Soil) Sampled: 08/26/11 16:00										
General Chemistry Parameters										
% Dry Solids	**76.0**	%		0.500	1	09/08/11 16:15	09/09/11 10:58	RRS	SW-846	11I1333

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Client	GES Westford (10650)	Work Order:	NUI0601
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/03/11 08:10

ANALYTICAL REPORT

Sample ID: NUI0601-02 (MW-18 (M) (42-44') - Soil) - cont. Sampled: 08/26/11 16:00

Volatile Organic - MCP CAM Method 8260

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acetone	ND	mg/kg dry		1.37	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Tert-Amyl Methyl Ether	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Benzene	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Bromobenzene	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Bromochloromethane	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Bromodichloromethane	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Bromoform	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Bromomethane	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
2-Butanone	ND	mg/kg dry		1.37	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
tert-Butylbenzene	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
n-Butylbenzene	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
sec-Butylbenzene	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Carbon disulfide	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Carbon Tetrachloride	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Chlorobenzene	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Chlorodibromomethane	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Chloroethane	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Chloroform	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Chloromethane	ND	mg/kg dry	L2	0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
2-Chlorotoluene	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
4-Chlorotoluene	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
1,2-Dibromo-3-chloropropane	ND	mg/kg dry		0.137	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
1,2-Dibromoethane (EDB)	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Dibromomethane	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
1,2-Dichlorobenzene	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
1,3-Dichlorobenzene	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
1,4-Dichlorobenzene	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Dichlorodifluoromethane	ND	mg/kg dry	L2	0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
1,2-Dichloroethane	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
1,1-Dichloroethane	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
1,1-Dichloroethene	**0.0870**	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
trans-1,2-Dichloroethene	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
cis-1,2-Dichloroethene	**0.356**	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
1,3-Dichloropropane	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
2,2-Dichloropropane	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
1,2-Dichloropropane	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
trans-1,3-Dichloropropene	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
1,1-Dichloropropene	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
cis-1,3-Dichloropropene	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Diethyl ether	ND	mg/kg dry		0.137	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399

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Client	GES Westford (10650)	Work Order:	NUI0601
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/03/11 08:10

ANALYTICAL REPORT

Sample ID: NUI0601-02 (MW-18 (M) (42-44') - Soil) - cont. Sampled: 08/26/11 16:00

Volatile Organic - MCP CAM Method 8260 - cont.

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
1,4-Dioxane	ND	mg/kg dry		13.7	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Ethylbenzene	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Ethyl tert-Butyl Ether	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Hexachlorobutadiene	ND	mg/kg dry	L2	0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
2-Hexanone	ND	mg/kg dry		1.37	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Isopropylbenzene	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Diisopropyl Ether	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
p-Isopropyltoluene	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Methyl tert-Butyl Ether	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Methylene Chloride	ND	mg/kg dry		0.137	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
4-Methyl-2-pentanone	ND	mg/kg dry		1.37	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Naphthalene	ND	mg/kg dry		0.137	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
n-Propylbenzene	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Styrene	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
1,1,2,2-Tetrachloroethane	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
1,1,1,2-Tetrachloroethane	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Tetrachloroethene	**8.11**	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Tetrahydrofuran	ND	mg/kg dry		0.137	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Toluene	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.137	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
1,2,3-Trichlorobenzene	ND	mg/kg dry		0.137	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
1,1,1-Trichloroethane	**3.03**	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
1,1,2-Trichloroethane	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Trichloroethene	**1.44**	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Trichlorofluoromethane	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
1,2,3-Trichloropropane	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
1,3,5-Trimethylbenzene	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
1,2,4-Trimethylbenzene	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Vinyl chloride	ND	mg/kg dry		0.0685	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Xylenes, total	ND	mg/kg dry		0.205	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
1,1,2-Trifluorotrichloroethane	ND	mg/kg dry		0.137	50	08/26/11 16:00	09/08/11 11:34	CMM	SW846 8260B	11I1399
Surr: 1,2-Dichloroethane-d4 (70-130%)	*99 %*						09/08/11 11:34	CMM	SW846 8260B	11I1399
Surr: Dibromofluoromethane (70-130%)	*100 %*						09/08/11 11:34	CMM	SW846 8260B	11I1399
Surr: Toluene-d8 (70-130%)	*98 %*						09/08/11 11:34	CMM	SW846 8260B	11I1399
Surr: 4-Bromofluorobenzene (70-130%)	*100 %*						09/08/11 11:34	CMM	SW846 8260B	11I1399

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THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI0601
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/03/11 08:10

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUI0601-03 (MW-18 (M) (46-48') - Soil) Sampled: 08/26/11 16:30										
General Chemistry Parameters										
% Dry Solids	**74.7**	%		0.500	1	09/08/11 16:15	09/09/11 10:58	RRS	SW-846	11I1333

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Client	GES Westford (10650)	Work Order:	NUI0601
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/03/11 08:10

ANALYTICAL REPORT

Sample ID: NUI0601-03 (MW-18 (M) (46-48') - Soil) - cont. Sampled: 08/26/11 16:30

Volatile Organic - MCP CAM Method 8260

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acetone	ND	mg/kg dry		1.26	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Tert-Amyl Methyl Ether	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Benzene	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Bromobenzene	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Bromochloromethane	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Bromodichloromethane	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Bromoform	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Bromomethane	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
2-Butanone	ND	mg/kg dry		1.26	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
tert-Butylbenzene	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
n-Butylbenzene	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
sec-Butylbenzene	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Carbon disulfide	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Carbon Tetrachloride	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Chlorobenzene	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Chlorodibromomethane	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Chloroethane	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Chloroform	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Chloromethane	ND	mg/kg dry	L2	0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
2-Chlorotoluene	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
4-Chlorotoluene	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
1,2-Dibromo-3-chloropropane	ND	mg/kg dry		0.126	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
1,2-Dibromoethane (EDB)	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Dibromomethane	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
1,2-Dichlorobenzene	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
1,3-Dichlorobenzene	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
1,4-Dichlorobenzene	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Dichlorodifluoromethane	ND	mg/kg dry	L2	0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
1,2-Dichloroethane	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
1,1-Dichloroethane	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
1,1-Dichloroethene	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
trans-1,2-Dichloroethene	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
cis-1,2-Dichloroethene	**0.0790**	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
1,3-Dichloropropane	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
2,2-Dichloropropane	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
1,2-Dichloropropane	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
trans-1,3-Dichloropropene	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
1,1-Dichloropropene	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
cis-1,3-Dichloropropene	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Diethyl ether	ND	mg/kg dry		0.126	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399

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Client	GES Westford (10650)	Work Order:	NUI0601
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/03/11 08:10

ANALYTICAL REPORT

Sample ID: NUI0601-03 (MW-18 (M) (46-48') - Soil) - cont. Sampled: 08/26/11 16:30

Volatile Organic - MCP CAM Method 8260 - cont.

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
1,4-Dioxane	ND	mg/kg dry		12.6	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Ethylbenzene	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Ethyl tert-Butyl Ether	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Hexachlorobutadiene	ND	mg/kg dry	L2	0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
2-Hexanone	ND	mg/kg dry		1.26	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Isopropylbenzene	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Diisopropyl Ether	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
p-Isopropyltoluene	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Methyl tert-Butyl Ether	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Methylene Chloride	ND	mg/kg dry		0.126	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
4-Methyl-2-pentanone	ND	mg/kg dry		1.26	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Naphthalene	ND	mg/kg dry		0.126	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
n-Propylbenzene	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Styrene	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
1,1,2,2-Tetrachloroethane	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
1,1,1,2-Tetrachloroethane	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Tetrachloroethene	**0.310**	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Tetrahydrofuran	ND	mg/kg dry		0.126	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Toluene	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.126	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
1,2,3-Trichlorobenzene	ND	mg/kg dry		0.126	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
1,1,1-Trichloroethane	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
1,1,2-Trichloroethane	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Trichloroethene	**0.120**	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Trichlorofluoromethane	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
1,2,3-Trichloropropane	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
1,3,5-Trimethylbenzene	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
1,2,4-Trimethylbenzene	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Vinyl chloride	ND	mg/kg dry		0.0632	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Xylenes, total	ND	mg/kg dry		0.190	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
1,1,2-Trifluorotrichloroethane	ND	mg/kg dry		0.126	50	08/26/11 16:30	09/08/11 12:02	CMM	SW846 8260B	11I1399
Surr: 1,2-Dichloroethane-d4 (70-130%)	*98 %*						09/08/11 12:02	CMM	SW846 8260B	11I1399
Surr: Dibromofluoromethane (70-130%)	*98 %*						09/08/11 12:02	CMM	SW846 8260B	11I1399
Surr: Toluene-d8 (70-130%)	*98 %*						09/08/11 12:02	CMM	SW846 8260B	11I1399
Surr: 4-Bromofluorobenzene (70-130%)	*102 %*						09/08/11 12:02	CMM	SW846 8260B	11I1399

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI0601
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/03/11 08:10

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUI0601-04 (Trip Blank - Soil) Sampled: 08/25/11 06:00										
Volatile Organic - MCP CAM Method 8260										
Acetone	ND	mg/kg wet		1.00	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Tert-Amyl Methyl Ether	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Benzene	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Bromobenzene	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Bromochloromethane	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Bromodichloromethane	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Bromoform	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Bromomethane	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
2-Butanone	ND	mg/kg wet		1.00	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
tert-Butylbenzene	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
n-Butylbenzene	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
sec-Butylbenzene	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Carbon disulfide	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Carbon Tetrachloride	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Chlorobenzene	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Chlorodibromomethane	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Chloroethane	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Chloroform	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Chloromethane	ND	mg/kg wet	L2	0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
2-Chlorotoluene	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
4-Chlorotoluene	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
1,2-Dibromo-3-chloropropane	ND	mg/kg wet		0.100	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
1,2-Dibromoethane (EDB)	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Dibromomethane	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
1,2-Dichlorobenzene	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
1,3-Dichlorobenzene	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
1,4-Dichlorobenzene	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Dichlorodifluoromethane	ND	mg/kg wet	L2	0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
1,2-Dichloroethane	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
1,1-Dichloroethane	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
1,1-Dichloroethene	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
trans-1,2-Dichloroethene	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
cis-1,2-Dichloroethene	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
1,3-Dichloropropane	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
2,2-Dichloropropane	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
1,2-Dichloropropane	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
trans-1,3-Dichloropropene	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
1,1-Dichloropropene	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
cis-1,3-Dichloropropene	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Diethyl ether	ND	mg/kg wet		0.100	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI0601
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/03/11 08:10

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUI0601-04 (Trip Blank - Soil) - cont. Sampled: 08/25/11 06:00										
Volatile Organic - MCP CAM Method 8260 - cont.										
1,4-Dioxane	ND	mg/kg wet		10.0	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Ethylbenzene	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Ethyl tert-Butyl Ether	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Hexachlorobutadiene	ND	mg/kg wet	L2	0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
2-Hexanone	ND	mg/kg wet		1.00	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Isopropylbenzene	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Diisopropyl Ether	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
p-Isopropyltoluene	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Methyl tert-Butyl Ether	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Methylene Chloride	ND	mg/kg wet		0.100	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
4-Methyl-2-pentanone	ND	mg/kg wet		1.00	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Naphthalene	ND	mg/kg wet		0.100	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
n-Propylbenzene	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Styrene	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
1,1,2,2-Tetrachloroethane	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
1,1,1,2-Tetrachloroethane	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Tetrachloroethene	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Tetrahydrofuran	ND	mg/kg wet		0.100	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Toluene	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
1,2,4-Trichlorobenzene	ND	mg/kg wet		0.100	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
1,2,3-Trichlorobenzene	ND	mg/kg wet		0.100	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
1,1,1-Trichloroethane	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
1,1,2-Trichloroethane	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Trichloroethene	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Trichlorofluoromethane	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
1,2,3-Trichloropropane	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
1,3,5-Trimethylbenzene	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
1,2,4-Trimethylbenzene	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Vinyl chloride	ND	mg/kg wet		0.0500	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Xylenes, total	ND	mg/kg wet		0.150	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
1,1,2-Trifluorotrichloroethane	ND	mg/kg wet		0.100	50	08/25/11 06:00	09/08/11 10:38	CMM	SW846 8260B	11I1399
Surr: 1,2-Dichloroethane-d4 (70-130%)	*100 %*						09/08/11 10:38	CMM	SW846 8260B	11I1399
Surr: Dibromofluoromethane (70-130%)	*99 %*						09/08/11 10:38	CMM	SW846 8260B	11I1399
Surr: Toluene-d8 (70-130%)	*97 %*						09/08/11 10:38	CMM	SW846 8260B	11I1399
Surr: 4-Bromofluorobenzene (70-130%)	*104 %*						09/08/11 10:38	CMM	SW846 8260B	11I1399

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI0601
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/03/11 08:10

SAMPLE EXTRACTION DATA

Parameter	Batch	Lab Number	Wt/Vol Extracted	Extract Vol	Date	Analyst	Extraction Method
Volatile Organic - MCP CAM Method 8260							
SW846 8260B	11I1399	NUI0601-01	9.32	10.00	08/25/11 10:00	AAN	EPA 5035
SW846 8260B	11I1399	NUI0601-02	9.61	10.00	08/26/11 16:00	AAN	EPA 5035
SW846 8260B	11I1399	NUI0601-03	10.58	10.00	08/26/11 16:30	AAN	EPA 5035
SW846 8260B	11I1399	NUI0601-04	10.00	10.00	08/25/11 06:00	AAN	EPA 5035

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Client	GES Westford (10650)	Work Order:	NUI0601
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/03/11 08:10

PROJECT QUALITY CONTROL DATA
Blank

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11I1399-BLK1						
Acetone	<1.00		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Tert-Amyl Methyl Ether	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Benzene	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Bromobenzene	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Bromochloromethane	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Bromodichloromethane	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Bromoform	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Bromomethane	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
2-Butanone	<1.00		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
tert-Butylbenzene	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
n-Butylbenzene	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
sec-Butylbenzene	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Carbon disulfide	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Carbon Tetrachloride	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Chlorobenzene	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Chlorodibromomethane	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Chloroethane	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Chloroform	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Chloromethane	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
2-Chlorotoluene	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
4-Chlorotoluene	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
1,2-Dibromo-3-chloropropane	<0.100		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
1,2-Dibromoethane (EDB)	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Dibromomethane	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
1,2-Dichlorobenzene	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
1,3-Dichlorobenzene	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
1,4-Dichlorobenzene	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Dichlorodifluoromethane	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
1,2-Dichloroethane	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
1,1-Dichloroethane	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
1,1-Dichloroethene	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
trans-1,2-Dichloroethene	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
cis-1,2-Dichloroethene	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
1,3-Dichloropropane	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
2,2-Dichloropropane	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
1,2-Dichloropropane	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
trans-1,3-Dichloropropene	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
1,1-Dichloropropene	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
cis-1,3-Dichloropropene	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Diethyl ether	<0.100		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
1,4-Dioxane	<5.00		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47

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Client	GES Westford (10650)	Work Order:	NUI0601
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/03/11 08:10

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11I1399-BLK1						
Ethylbenzene	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Ethyl tert-Butyl Ether	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Hexachlorobutadiene	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
2-Hexanone	<1.00		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Isopropylbenzene	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Diisopropyl Ether	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
p-Isopropyltoluene	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Methyl tert-Butyl Ether	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Methylene Chloride	<0.100		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
4-Methyl-2-pentanone	<1.00		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Naphthalene	<0.100		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
n-Propylbenzene	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Styrene	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
1,1,2,2-Tetrachloroethane	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
1,1,1,2-Tetrachloroethane	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Tetrachloroethene	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Tetrahydrofuran	<0.100		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Toluene	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
1,2,4-Trichlorobenzene	<0.0600		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
1,2,3-Trichlorobenzene	<0.0550		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
1,1,1-Trichloroethane	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
1,1,2-Trichloroethane	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Trichloroethene	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Trichlorofluoromethane	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
1,2,3-Trichloropropane	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
1,3,5-Trimethylbenzene	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
1,2,4-Trimethylbenzene	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Vinyl chloride	<0.0500		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Xylenes, total	<0.125		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
1,1,2-Trifluorotrichloroethane	<0.0550		mg/kg wet	11I1399	11I1399-BLK1	09/08/11 08:47
Surrogate: 1,2-Dichloroethane-d4	101%			11I1399	11I1399-BLK1	09/08/11 08:47
Surrogate: Dibromofluoromethane	103%			11I1399	11I1399-BLK1	09/08/11 08:47
Surrogate: Toluene-d8	100%			11I1399	11I1399-BLK1	09/08/11 08:47
Surrogate: 4-Bromofluorobenzene	103%			11I1399	11I1399-BLK1	09/08/11 08:47

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Client	GES Westford (10650)	Work Order:	NUI0601
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/03/11 08:10

PROJECT QUALITY CONTROL DATA
LCS

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11I1399-BS1								
Acetone	250	273		ug/kg	109%	70 - 130	11I1399	09/08/11 06:27
Tert-Amyl Methyl Ether	50.0	39.6		ug/kg	79%	70 - 130	11I1399	09/08/11 06:27
Benzene	50.0	49.6		ug/kg	99%	70 - 130	11I1399	09/08/11 06:27
Bromobenzene	50.0	52.1		ug/kg	104%	70 - 130	11I1399	09/08/11 06:27
Bromochloromethane	50.0	51.8		ug/kg	104%	70 - 130	11I1399	09/08/11 06:27
Bromodichloromethane	50.0	52.9		ug/kg	106%	70 - 130	11I1399	09/08/11 06:27
Bromoform	50.0	43.3		ug/kg	87%	70 - 130	11I1399	09/08/11 06:27
Bromomethane	50.0	43.8		ug/kg	88%	70 - 130	11I1399	09/08/11 06:27
2-Butanone	250	236		ug/kg	94%	70 - 130	11I1399	09/08/11 06:27
tert-Butylbenzene	50.0	52.3		ug/kg	105%	70 - 130	11I1399	09/08/11 06:27
n-Butylbenzene	50.0	50.4		ug/kg	101%	70 - 130	11I1399	09/08/11 06:27
sec-Butylbenzene	50.0	53.3		ug/kg	107%	70 - 130	11I1399	09/08/11 06:27
Carbon disulfide	50.0	46.3		ug/kg	93%	70 - 130	11I1399	09/08/11 06:27
Carbon Tetrachloride	50.0	57.4		ug/kg	115%	70 - 130	11I1399	09/08/11 06:27
Chlorobenzene	50.0	51.5		ug/kg	103%	70 - 130	11I1399	09/08/11 06:27
Chlorodibromomethane	50.0	57.1		ug/kg	114%	70 - 130	11I1399	09/08/11 06:27
Chloroethane	50.0	42.0		ug/kg	84%	70 - 130	11I1399	09/08/11 06:27
Chloroform	50.0	53.6		ug/kg	107%	70 - 130	11I1399	09/08/11 06:27
Chloromethane	50.0	34.0	L2	ug/kg	68%	70 - 130	11I1399	09/08/11 06:27
2-Chlorotoluene	50.0	52.5		ug/kg	105%	70 - 130	11I1399	09/08/11 06:27
4-Chlorotoluene	50.0	54.2		ug/kg	108%	70 - 130	11I1399	09/08/11 06:27
1,2-Dibromo-3-chloropropane	50.0	42.9		ug/kg	86%	70 - 130	11I1399	09/08/11 06:27
1,2-Dibromoethane (EDB)	50.0	52.0		ug/kg	104%	70 - 130	11I1399	09/08/11 06:27
Dibromomethane	50.0	49.8		ug/kg	100%	70 - 130	11I1399	09/08/11 06:27
1,2-Dichlorobenzene	50.0	51.4		ug/kg	103%	70 - 130	11I1399	09/08/11 06:27
1,3-Dichlorobenzene	50.0	51.8		ug/kg	104%	70 - 130	11I1399	09/08/11 06:27
1,4-Dichlorobenzene	50.0	52.5		ug/kg	105%	70 - 130	11I1399	09/08/11 06:27
Dichlorodifluoromethane	50.0	23.9	L2	ug/kg	48%	70 - 130	11I1399	09/08/11 06:27
1,2-Dichloroethane	50.0	48.5		ug/kg	97%	70 - 130	11I1399	09/08/11 06:27
1,1-Dichloroethane	50.0	50.4		ug/kg	101%	70 - 130	11I1399	09/08/11 06:27
1,1-Dichloroethene	50.0	51.6		ug/kg	103%	70 - 130	11I1399	09/08/11 06:27
trans-1,2-Dichloroethene	50.0	50.6		ug/kg	101%	70 - 130	11I1399	09/08/11 06:27
cis-1,2-Dichloroethene	50.0	48.2		ug/kg	96%	70 - 130	11I1399	09/08/11 06:27
1,3-Dichloropropane	50.0	49.1		ug/kg	98%	70 - 130	11I1399	09/08/11 06:27
2,2-Dichloropropane	50.0	44.7		ug/kg	89%	70 - 130	11I1399	09/08/11 06:27
1,2-Dichloropropane	50.0	45.0		ug/kg	90%	70 - 130	11I1399	09/08/11 06:27
trans-1,3-Dichloropropene	50.0	50.0		ug/kg	100%	70 - 130	11I1399	09/08/11 06:27
1,1-Dichloropropene	50.0	52.6		ug/kg	105%	70 - 130	11I1399	09/08/11 06:27
cis-1,3-Dichloropropene	50.0	52.7		ug/kg	105%	70 - 130	11I1399	09/08/11 06:27
Diethyl ether	50.0	46.6		ug/kg	93%	70 - 130	11I1399	09/08/11 06:27
1,4-Dioxane	5000	5020		ug/kg	100%	70 - 130	11I1399	09/08/11 06:27

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI0601
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/03/11 08:10

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11I1399-BS1								
Ethylbenzene	50.0	51.1		ug/kg	102%	70 - 130	11I1399	09/08/11 06:27
Ethyl tert-Butyl Ether	50.0	39.0		ug/kg	78%	70 - 130	11I1399	09/08/11 06:27
Hexachlorobutadiene	50.0	34.0	L2	ug/kg	68%	70 - 130	11I1399	09/08/11 06:27
2-Hexanone	250	228		ug/kg	91%	70 - 130	11I1399	09/08/11 06:27
Isopropylbenzene	50.0	54.9		ug/kg	110%	70 - 130	11I1399	09/08/11 06:27
Diisopropyl Ether	50.0	40.6		ug/kg	81%	70 - 130	11I1399	09/08/11 06:27
p-Isopropyltoluene	50.0	50.0		ug/kg	100%	70 - 130	11I1399	09/08/11 06:27
Methyl tert-Butyl Ether	50.0	43.1		ug/kg	86%	70 - 130	11I1399	09/08/11 06:27
Methylene Chloride	50.0	51.0		ug/kg	102%	70 - 130	11I1399	09/08/11 06:27
4-Methyl-2-pentanone	250	218		ug/kg	87%	70 - 130	11I1399	09/08/11 06:27
Naphthalene	50.0	43.6		ug/kg	87%	70 - 130	11I1399	09/08/11 06:27
n-Propylbenzene	50.0	53.6		ug/kg	107%	70 - 130	11I1399	09/08/11 06:27
Styrene	50.0	49.4		ug/kg	99%	70 - 130	11I1399	09/08/11 06:27
1,1,2,2-Tetrachloroethane	50.0	50.3		ug/kg	101%	70 - 130	11I1399	09/08/11 06:27
1,1,1,2-Tetrachloroethane	50.0	54.0		ug/kg	108%	70 - 130	11I1399	09/08/11 06:27
Tetrachloroethene	50.0	50.0		ug/kg	100%	70 - 130	11I1399	09/08/11 06:27
Tetrahydrofuran	500	394		ug/kg	79%	70 - 130	11I1399	09/08/11 06:27
Toluene	50.0	51.8		ug/kg	104%	70 - 130	11I1399	09/08/11 06:27
1,2,4-Trichlorobenzene	50.0	41.1		ug/kg	82%	70 - 130	11I1399	09/08/11 06:27
1,2,3-Trichlorobenzene	50.0	40.7		ug/kg	81%	70 - 130	11I1399	09/08/11 06:27
1,1,1-Trichloroethane	50.0	55.2		ug/kg	110%	70 - 130	11I1399	09/08/11 06:27
1,1,2-Trichloroethane	50.0	51.0		ug/kg	102%	70 - 130	11I1399	09/08/11 06:27
Trichloroethene	50.0	53.6		ug/kg	107%	70 - 130	11I1399	09/08/11 06:27
Trichlorofluoromethane	50.0	44.4		ug/kg	89%	70 - 130	11I1399	09/08/11 06:27
1,2,3-Trichloropropane	50.0	52.6		ug/kg	105%	70 - 130	11I1399	09/08/11 06:27
1,3,5-Trimethylbenzene	50.0	53.0		ug/kg	106%	70 - 130	11I1399	09/08/11 06:27
1,2,4-Trimethylbenzene	50.0	51.3		ug/kg	103%	70 - 130	11I1399	09/08/11 06:27
Vinyl chloride	50.0	38.0		ug/kg	76%	70 - 130	11I1399	09/08/11 06:27
Xylenes, total	150	148		ug/kg	99%	70 - 130	11I1399	09/08/11 06:27
1,1,2-Trifluorotrichloroethane	50.0	54.1		ug/kg	108%	61 - 134	11I1399	09/08/11 06:27
Surrogate: 1,2-Dichloroethane-d4	25.0	24.6			98%	70 - 130	11I1399	09/08/11 06:27
Surrogate: Dibromofluoromethane	25.0	26.2			105%	70 - 130	11I1399	09/08/11 06:27
Surrogate: Toluene-d8	25.0	25.2			101%	70 - 130	11I1399	09/08/11 06:27
Surrogate: 4-Bromofluorobenzene	25.0	25.9			104%	70 - 130	11I1399	09/08/11 06:27

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI0601
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/03/11 08:10

PROJECT QUALITY CONTROL DATA
LCS Dup

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11I1399-BSD1												
Acetone		277		ug/kg	250	111%	70 - 130	2	20	11I1399		09/08/11 06:55
Tert-Amyl Methyl Ether		39.9		ug/kg	50.0	80%	70 - 130	0.9	20	11I1399		09/08/11 06:55
Benzene		48.8		ug/kg	50.0	98%	70 - 130	2	20	11I1399		09/08/11 06:55
Bromobenzene		51.6		ug/kg	50.0	103%	70 - 130	1	20	11I1399		09/08/11 06:55
Bromochloromethane		50.4		ug/kg	50.0	101%	70 - 130	3	20	11I1399		09/08/11 06:55
Bromodichloromethane		52.3		ug/kg	50.0	105%	70 - 130	1	20	11I1399		09/08/11 06:55
Bromoform		42.7		ug/kg	50.0	85%	70 - 130	1	20	11I1399		09/08/11 06:55
Bromomethane		45.3		ug/kg	50.0	91%	70 - 130	3	20	11I1399		09/08/11 06:55
2-Butanone		242		ug/kg	250	97%	70 - 130	3	20	11I1399		09/08/11 06:55
tert-Butylbenzene		51.8		ug/kg	50.0	104%	70 - 130	0.8	20	11I1399		09/08/11 06:55
n-Butylbenzene		50.3		ug/kg	50.0	101%	70 - 130	0.2	20	11I1399		09/08/11 06:55
sec-Butylbenzene		52.5		ug/kg	50.0	105%	70 - 130	1	20	11I1399		09/08/11 06:55
Carbon disulfide		46.4		ug/kg	50.0	93%	70 - 130	0.2	20	11I1399		09/08/11 06:55
Carbon Tetrachloride		56.7		ug/kg	50.0	113%	70 - 130	1	20	11I1399		09/08/11 06:55
Chlorobenzene		51.4		ug/kg	50.0	103%	70 - 130	0.2	20	11I1399		09/08/11 06:55
Chlorodibromomethane		56.5		ug/kg	50.0	113%	70 - 130	1	20	11I1399		09/08/11 06:55
Chloroethane		41.6		ug/kg	50.0	83%	70 - 130	0.7	20	11I1399		09/08/11 06:55
Chloroform		53.1		ug/kg	50.0	106%	70 - 130	1	20	11I1399		09/08/11 06:55
Chloromethane		33.5	L2	ug/kg	50.0	67%	70 - 130	2	20	11I1399		09/08/11 06:55
2-Chlorotoluene		52.2		ug/kg	50.0	104%	70 - 130	0.6	20	11I1399		09/08/11 06:55
4-Chlorotoluene		53.6		ug/kg	50.0	107%	70 - 130	1	20	11I1399		09/08/11 06:55
1,2-Dibromo-3-chloropropane		42.4		ug/kg	50.0	85%	70 - 130	1	20	11I1399		09/08/11 06:55
1,2-Dibromoethane (EDB)		51.5		ug/kg	50.0	103%	70 - 130	1	20	11I1399		09/08/11 06:55
Dibromomethane		50.2		ug/kg	50.0	100%	70 - 130	0.7	20	11I1399		09/08/11 06:55
1,2-Dichlorobenzene		50.9		ug/kg	50.0	102%	70 - 130	1	20	11I1399		09/08/11 06:55
1,3-Dichlorobenzene		51.2		ug/kg	50.0	102%	70 - 130	1	20	11I1399		09/08/11 06:55
1,4-Dichlorobenzene		51.6		ug/kg	50.0	103%	70 - 130	2	20	11I1399		09/08/11 06:55
Dichlorodifluoromethane		23.7	L2	ug/kg	50.0	47%	70 - 130	0.9	20	11I1399		09/08/11 06:55
1,2-Dichloroethane		50.3		ug/kg	50.0	101%	70 - 130	4	20	11I1399		09/08/11 06:55
1,1-Dichloroethane		49.0		ug/kg	50.0	98%	70 - 130	3	20	11I1399		09/08/11 06:55
1,1-Dichloroethene		50.8		ug/kg	50.0	102%	70 - 130	2	20	11I1399		09/08/11 06:55
trans-1,2-Dichloroethene		50.9		ug/kg	50.0	102%	70 - 130	0.7	20	11I1399		09/08/11 06:55
cis-1,2-Dichloroethene		48.1		ug/kg	50.0	96%	70 - 130	0.2	20	11I1399		09/08/11 06:55
1,3-Dichloropropane		49.4		ug/kg	50.0	99%	70 - 130	0.8	20	11I1399		09/08/11 06:55
2,2-Dichloropropane		44.1		ug/kg	50.0	88%	70 - 130	1	20	11I1399		09/08/11 06:55
1,2-Dichloropropane		44.1		ug/kg	50.0	88%	70 - 130	2	20	11I1399		09/08/11 06:55
trans-1,3-Dichloropropene		49.6		ug/kg	50.0	99%	70 - 130	0.8	20	11I1399		09/08/11 06:55
1,1-Dichloropropene		51.5		ug/kg	50.0	103%	70 - 130	2	20	11I1399		09/08/11 06:55
cis-1,3-Dichloropropene		52.6		ug/kg	50.0	105%	70 - 130	0.2	20	11I1399		09/08/11 06:55
Diethyl ether		47.0		ug/kg	50.0	94%	70 - 130	0.9	20	11I1399		09/08/11 06:55
1,4-Dioxane		5360		ug/kg	5000	107%	70 - 130	7	20	11I1399		09/08/11 06:55

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI0601
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/03/11 08:10

PROJECT QUALITY CONTROL DATA

LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11I1399-BSD1												
Ethylbenzene		51.1		ug/kg	50.0	102%	70 - 130	0.02	20	11I1399		09/08/11 06:55
Ethyl tert-Butyl Ether		39.2		ug/kg	50.0	78%	70 - 130	0.3	20	11I1399		09/08/11 06:55
Hexachlorobutadiene		34.3	L2	ug/kg	50.0	69%	70 - 130	0.8	20	11I1399		09/08/11 06:55
2-Hexanone		228		ug/kg	250	91%	70 - 130	0.1	20	11I1399		09/08/11 06:55
Isopropylbenzene		55.3		ug/kg	50.0	111%	70 - 130	0.6	20	11I1399		09/08/11 06:55
Diisopropyl Ether		40.1		ug/kg	50.0	80%	70 - 130	1	20	11I1399		09/08/11 06:55
p-Isopropyltoluene		49.9		ug/kg	50.0	100%	70 - 130	0.2	20	11I1399		09/08/11 06:55
Methyl tert-Butyl Ether		42.9		ug/kg	50.0	86%	70 - 130	0.6	20	11I1399		09/08/11 06:55
Methylene Chloride		51.1		ug/kg	50.0	102%	70 - 130	0.3	20	11I1399		09/08/11 06:55
4-Methyl-2-pentanone		223		ug/kg	250	89%	70 - 130	2	20	11I1399		09/08/11 06:55
Naphthalene		44.4		ug/kg	50.0	89%	70 - 130	2	20	11I1399		09/08/11 06:55
n-Propylbenzene		53.0		ug/kg	50.0	106%	70 - 130	1	20	11I1399		09/08/11 06:55
Styrene		49.6		ug/kg	50.0	99%	70 - 130	0.4	20	11I1399		09/08/11 06:55
1,1,2,2-Tetrachloroethane		49.8		ug/kg	50.0	100%	70 - 130	0.9	20	11I1399		09/08/11 06:55
1,1,1,2-Tetrachloroethane		54.3		ug/kg	50.0	109%	70 - 130	0.5	20	11I1399		09/08/11 06:55
Tetrachloroethene		50.3		ug/kg	50.0	101%	70 - 130	0.5	20	11I1399		09/08/11 06:55
Tetrahydrofuran		404		ug/kg	500	81%	70 - 130	2	20	11I1399		09/08/11 06:55
Toluene		51.8		ug/kg	50.0	104%	70 - 130	0.2	20	11I1399		09/08/11 06:55
1,2,4-Trichlorobenzene		40.9		ug/kg	50.0	82%	70 - 130	0.5	20	11I1399		09/08/11 06:55
1,2,3-Trichlorobenzene		40.4		ug/kg	50.0	81%	70 - 130	0.8	20	11I1399		09/08/11 06:55
1,1,1-Trichloroethane		54.4		ug/kg	50.0	109%	70 - 130	2	20	11I1399		09/08/11 06:55
1,1,2-Trichloroethane		51.7		ug/kg	50.0	103%	70 - 130	1	20	11I1399		09/08/11 06:55
Trichloroethene		53.4		ug/kg	50.0	107%	70 - 130	0.4	20	11I1399		09/08/11 06:55
Trichlorofluoromethane		45.3		ug/kg	50.0	91%	70 - 130	2	20	11I1399		09/08/11 06:55
1,2,3-Trichloropropane		52.0		ug/kg	50.0	104%	70 - 130	1	20	11I1399		09/08/11 06:55
1,3,5-Trimethylbenzene		52.4		ug/kg	50.0	105%	70 - 130	1	20	11I1399		09/08/11 06:55
1,2,4-Trimethylbenzene		50.9		ug/kg	50.0	102%	70 - 130	0.7	20	11I1399		09/08/11 06:55
Vinyl chloride		37.8		ug/kg	50.0	76%	70 - 130	0.5	20	11I1399		09/08/11 06:55
Xylenes, total		149		ug/kg	150	99%	70 - 130	0.6	20	11I1399		09/08/11 06:55
1,1,2-Trifluorotrichloroethane		53.6		ug/kg	50.0	107%	61 - 134	0.9	20	11I1399		09/08/11 06:55
Surrogate: 1,2-Dichloroethane-d4		24.8		ug/kg	25.0	99%	70 - 130			11I1399		09/08/11 06:55
Surrogate: Dibromofluoromethane		26.2		ug/kg	25.0	105%	70 - 130			11I1399		09/08/11 06:55
Surrogate: Toluene-d8		25.7		ug/kg	25.0	103%	70 - 130			11I1399		09/08/11 06:55
Surrogate: 4-Bromofluorobenzene		25.7		ug/kg	25.0	103%	70 - 130			11I1399		09/08/11 06:55

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI0601
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/03/11 08:10

DATA QUALIFIERS AND DEFINITIONS

L2 Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was below acceptance limits.

ND Not detected at the reporting limit (or method detection limit if shown)

METHOD MODIFICATION NOTES

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Nashville, TN

COOLER REC

NUI0601

Cooler Received/Opened On 9/3/2011 @ 08:10

1. Tracking # 4793 (last 4 digits, FedEx)

Courier: FEDEX IR Gun ID 96210146 3.0

2. Temperature of rep. sample or temp blank when opened: _____ *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES...NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1 Front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) EB

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) RC

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) P.H.

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) P.H.

I certify that I attached a label with the unique LIMS number to each container (intial) P.H.

21. Were there Non-Conformance issues at login? YES...NO Was a PIPE generated? YES...NO...#_____

BIS = Broken in shipment

Cooler Receipt Form.doc

NUI0601

09/20/11 23 59

TestAmerica INCORPORATED

Nashville Division
2960 Foster Creighton
Nashville, TN 37204

Phone: 615-726-0177
Toll Free: 800-765-0980
Fax: 615-726-3404

GENERAL CHEMICAL

Consultant Name: GES
Address: 364 Littleton Road
City/State/Zip: Westford, MA 01886
Project Mgr: Stefan Sokol
Consultant Project Mgr: Roy Swartz
Consultant Telephone Number: 800-221-6119 Fax No.: 978-392-8583
Sampler Name: (Print) Jarrett Everton
Sampler Signature:

TA Account #:
Invoice To:
Report To: Stefan Sokol - ssokol@gesonline.com; Mary Cathey - mcathey@gesonline.com
PO #:
PROJECT #: 1603978
Facility ID # General Chemical
Site Address 133 Leland Street
City, State, Zip Framington, MA
Regulatory District (CA)

Sample ID or Field ID	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative: Methanol	Sodium Bisulfate	HCl (Blue Label)	NaOH (Orange Label)	H_2SO_4 Plastic (Yellow Label)	H_2SO_4 Glass(Yellow Label)	HNO_3 (Red Label)	None (Black Label)	Matrix: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify)	Analyze For: VOCs	VPH	SVOCs	EPH	TOC	total Fe & Mn	% solids						RUSH TAT (Pre-Scheduled) *	TAT request (in Bus. Days)	Fax Results (yes or no)	Due Date of Report
MW-18(S)(8-10')	8/25/11	1000	3	X			2							1					[redacted]		X						X									
MW-18(M)(42-44')	8/26/11	1600	3	X			2							1					[redacted]		X						X									
MW-18(M)(46-48')	8/26/11	1630	3	X			2							1					[redacted]		X						X									
Trip Blank	8/25/11	[redacted]	1				1														X															
		0600																																		

Comments/Special Instructions: Must meet MassDEP CAMs limits and reporting format.

Laboratory Comments:
Temperature Upon Receipt: 3.0°C
Sample Containers Intact? Y N
VOCs Free of Headspace? Y N
QC Deliverables (please circle one)
Level 2 Level 3 Level 4 Other

Relinquished by:	Date	Time	Received by:	Date	Time
	8/26/11	[redacted]	GES SOK	8/26/11	1800
Relinquished by: Brian Lacel	9/2/11	1120	Received by TestAmerica:	9/2/11	1120

Paul R. Mitell T/A Nashville 9/3/11 08:10

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

September 22, 2011 3:42:14PM

Client: GES Westford (10650)
364 Littleton Road, Suite 4
Westford, MA 01886
Attn: Stefan Sokol

Work Order: NUI2083
Project Name: General Chemical
Project Nbr: Framingham, MA
P/O Nbr: 1603978
Date Received: 09/16/11

SAMPLE IDENTIFICATION	LAB NUMBER	COLLECTION DATE AND TIME
Trip Blank	NUI2083-01	09/13/11 00:01
MW-21R (54-56')	NUI2083-02	09/13/11 10:45
MW-21R (56-58')	NUI2083-03	09/13/11 10:55

An executed copy of the chain of custody, the project quality control data, and the sample receipt form are also included as an addendum to this report. If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-800-765-0980. These results relate only to the items tested, and this report may not be reproduced except in full and with the permission of the Laboratory. Any opinions, if expressed, are outside the scope of the Laboratory's accredidation.

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Certification Number: M-TN032

Additional Laboratory Comments:
All samples were received in good condition, properly preserved, and properly labeled. All analyses were completed within holding times.

All no responses from the attached “MCP Response Action Analytical Report Certification Form” are addressed below.

H. The volatile blank spike and/or blank spike duplicate (LCS/LCSD) recoveries for Acetone and Hexachlorobutadiene in batch 11I3965 were outside QC limits. Less than 10% of the analytes were outside criteria and the recoveries were within greater than 10%; therefore the data was accepted without further analysis. The only sample from this batch for this work order is the trip blank.

The Chain(s) of Custody, 2 pages, are included and are an integral part of this report.

These results relate only to the items tested. This report shall not be reproduced except in full and with permission of the laboratory.

All solids results are reported in wet weight unless specifically stated.
Estimated uncertainty is available upon request.
This report has been electronically signed.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650) 364 Littleton Road, Suite 4 Westford, MA 01886	Work Order:	NUI2083
		Project Name:	General Chemical
		Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

Report Approved By:

Jennifer Huckaba

Jennifer Huckaba

Senior Project Manager

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Client	GES Westford (10650)	Work Order:	NUI2083
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

Sample Cooler Information

Lab ID	Cooler ID	Temp	Seals	Containers Intact	Preservation Confirmed	On Ice
	0534	2.3C	Yes	Yes	No	Yes

MassDEP Analytical Protocol Certification Form

Laboratory Name: TestAmerica Analytical Testing Corporation | Project #: Framingham, MA

Project Location: General Chemical | RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):
NUI2083

Matrices: Groundwater/Surface Water Soil/Sediment Drinking Water Air Other:

CAM Protocol (check all that apply below):

8260 VOC CAM II A X	7470/7471 Hg CAM III B	MassDEP VPH CAM IV A	8081 Pesticides CAM V B	7196 Hex Cr CAM VI B	MassDEP APH CAM IX A
8270 SVOC CAM II B	7010 Metals CAM III C	MassDEP EPH CAM IV B	8151 Herbicides CAM V C	8330 Explosives CAM VIII A	TO-15 VOC CAM IX B
6010 Metals CAM III A	6020 Metals CAM III D	8082 PCB CAM V A	9014 Total Cyanide/PAC CAM VI A	6860 Perchlorate CAM VIII B	

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	(Yes) No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	(Yes) No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	(Yes) No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	(Yes) No
E	VPH, EPH, APH, and TO-15 only: a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	Yes No Yes No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	(Yes) No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	(Yes) No[1]

***Data User Note**: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.*

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	Yes (No[1])
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	(Yes) No[1]

[1]*All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Jennifer Huckaba **Position:** Sr Proj Mgr.

Printed Name: Jennifer Huckaba **Date:** 9-22-11

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2083
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

ANALYTICAL REPORT

Sample ID: NUI2083-01 (Trip Blank - Soil) Sampled: 09/13/11 00:01

Volatile Organic - MCP CAM Method 8260

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acetone	ND	mg/kg wet	L	1.00	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Tert-Amyl Methyl Ether	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Benzene	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Bromobenzene	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Bromochloromethane	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Bromodichloromethane	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Bromoform	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Bromomethane	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
2-Butanone	ND	mg/kg wet		1.00	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
tert-Butylbenzene	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
n-Butylbenzene	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
sec-Butylbenzene	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Carbon disulfide	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Carbon Tetrachloride	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Chlorobenzene	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Chlorodibromomethane	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Chloroethane	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Chloroform	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Chloromethane	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
2-Chlorotoluene	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
4-Chlorotoluene	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
1,2-Dibromo-3-chloropropane	ND	mg/kg wet		0.100	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
1,2-Dibromoethane (EDB)	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Dibromomethane	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
1,2-Dichlorobenzene	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
1,3-Dichlorobenzene	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
1,4-Dichlorobenzene	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Dichlorodifluoromethane	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
1,2-Dichloroethane	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
1,1-Dichloroethane	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
1,1-Dichloroethene	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
trans-1,2-Dichloroethene	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
cis-1,2-Dichloroethene	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
1,3-Dichloropropane	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
2,2-Dichloropropane	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
1,2-Dichloropropane	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
trans-1,3-Dichloropropene	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
1,1-Dichloropropene	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
cis-1,3-Dichloropropene	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Diethyl ether	ND	mg/kg wet		0.100	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965

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Client	GES Westford (10650)	Work Order:	NUI2083
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUI2083-01 (Trip Blank - Soil) - cont. Sampled: 09/13/11 00:01										
Volatile Organic - MCP CAM Method 8260 - cont.										
1,4-Dioxane	ND	mg/kg wet		10.0	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Ethylbenzene	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Ethyl tert-Butyl Ether	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Hexachlorobutadiene	ND	mg/kg wet	L2	0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
2-Hexanone	ND	mg/kg wet		1.00	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Isopropylbenzene	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Diisopropyl Ether	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
p-Isopropyltoluene	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Methyl tert-Butyl Ether	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Methylene Chloride	ND	mg/kg wet		0.100	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
4-Methyl-2-pentanone	ND	mg/kg wet		1.00	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Naphthalene	ND	mg/kg wet		0.100	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
n-Propylbenzene	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Styrene	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
1,1,2,2-Tetrachloroethane	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
1,1,1,2-Tetrachloroethane	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Tetrachloroethene	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Tetrahydrofuran	ND	mg/kg wet		0.100	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Toluene	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
1,2,4-Trichlorobenzene	ND	mg/kg wet		0.100	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
1,2,3-Trichlorobenzene	ND	mg/kg wet		0.100	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
1,1,1-Trichloroethane	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
1,1,2-Trichloroethane	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Trichloroethene	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Trichlorofluoromethane	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
1,2,3-Trichloropropane	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
1,3,5-Trimethylbenzene	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
1,2,4-Trimethylbenzene	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Vinyl chloride	ND	mg/kg wet		0.0500	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Xylenes, total	ND	mg/kg wet		0.150	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
1,1,2-Trifluorotrichloroethane	ND	mg/kg wet		0.100	50	09/13/11 00:01	09/20/11 23:32	CMM	SW846 8260B	11I3965
Surr: 1,2-Dichloroethane-d4 (70-130%)	*111 %*						09/20/11 23:32	CMM	SW846 8260B	11I3965
Surr: Dibromofluoromethane (70-130%)	*107 %*						09/20/11 23:32	CMM	SW846 8260B	11I3965
Surr: Toluene-d8 (70-130%)	*94 %*						09/20/11 23:32	CMM	SW846 8260B	11I3965
Surr: 4-Bromofluorobenzene (70-130%)	*102 %*						09/20/11 23:32	CMM	SW846 8260B	11I3965

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Client	GES Westford (10650)	Work Order:	NUI2083
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUI2083-02 (MW-21R (54-56') - Soil) Sampled: 09/13/11 10:45										
General Chemistry Parameters										
% Dry Solids	**84.9**	%		0.500	1	09/19/11 11:24	09/20/11 09:19	RRS	SW-846	11I3525

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Client	GES Westford (10650)	Work Order:	NUI2083
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

ANALYTICAL REPORT

Sample ID: NUI2083-02 (MW-21R (54-56') - Soil) - cont. Sampled: 09/13/11 10:45

Volatile Organic - MCP CAM Method 8260

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acetone	ND	mg/kg dry		1.34	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Tert-Amyl Methyl Ether	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Benzene	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Bromobenzene	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Bromochloromethane	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Bromodichloromethane	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Bromoform	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Bromomethane	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
2-Butanone	ND	mg/kg dry		1.34	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
tert-Butylbenzene	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
n-Butylbenzene	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
sec-Butylbenzene	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Carbon disulfide	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Carbon Tetrachloride	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Chlorobenzene	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Chlorodibromomethane	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Chloroethane	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Chloroform	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Chloromethane	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
2-Chlorotoluene	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
4-Chlorotoluene	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
1,2-Dibromo-3-chloropropane	ND	mg/kg dry		0.134	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
1,2-Dibromoethane (EDB)	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Dibromomethane	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
1,2-Dichlorobenzene	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
1,3-Dichlorobenzene	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
1,4-Dichlorobenzene	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Dichlorodifluoromethane	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
1,2-Dichloroethane	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
1,1-Dichloroethane	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
1,1-Dichloroethene	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
trans-1,2-Dichloroethene	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
cis-1,2-Dichloroethene	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
1,3-Dichloropropane	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
2,2-Dichloropropane	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
1,2-Dichloropropane	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
trans-1,3-Dichloropropene	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
1,1-Dichloropropene	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
cis-1,3-Dichloropropene	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Diethyl ether	ND	mg/kg dry		0.134	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2083
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUI2083-02 (MW-21R (54-56') - Soil) - cont. Sampled: 09/13/11 10:45										
Volatile Organic - MCP CAM Method 8260 - cont.										
1,4-Dioxane	ND	mg/kg dry		13.4	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Ethylbenzene	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Ethyl tert-Butyl Ether	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Hexachlorobutadiene	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
2-Hexanone	ND	mg/kg dry		1.34	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Isopropylbenzene	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Diisopropyl Ether	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
p-Isopropyltoluene	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Methyl tert-Butyl Ether	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Methylene Chloride	ND	mg/kg dry		0.134	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
4-Methyl-2-pentanone	ND	mg/kg dry		1.34	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Naphthalene	ND	mg/kg dry		0.134	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
n-Propylbenzene	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Styrene	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
1,1,2,2-Tetrachloroethane	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
1,1,1,2-Tetrachloroethane	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Tetrachloroethene	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Tetrahydrofuran	ND	mg/kg dry		0.134	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Toluene	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.134	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
1,2,3-Trichlorobenzene	ND	mg/kg dry		0.134	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
1,1,1-Trichloroethane	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
1,1,2-Trichloroethane	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Trichloroethene	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Trichlorofluoromethane	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
1,2,3-Trichloropropane	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
1,3,5-Trimethylbenzene	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
1,2,4-Trimethylbenzene	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Vinyl chloride	ND	mg/kg dry		0.0672	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Xylenes, total	ND	mg/kg dry		0.202	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
1,1,2-Trifluorotrichloroethane	ND	mg/kg dry		0.134	50	09/13/11 10:45	09/20/11 02:06	CMM	SW846 8260B	11I2413
Surr: 1,2-Dichloroethane-d4 (70-130%)	*100 %*						09/20/11 02:06	CMM	SW846 8260B	11I2413
Surr: Dibromofluoromethane (70-130%)	*103 %*						09/20/11 02:06	CMM	SW846 8260B	11I2413
Surr: Toluene-d8 (70-130%)	*97 %*						09/20/11 02:06	CMM	SW846 8260B	11I2413
Surr: 4-Bromofluorobenzene (70-130%)	*100 %*						09/20/11 02:06	CMM	SW846 8260B	11I2413

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2083
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUI2083-03 (MW-21R (56-58') - Soil) Sampled: 09/13/11 10:55										
General Chemistry Parameters										
% Dry Solids	**84.2**	%		0.500	1	09/19/11 11:24	09/20/11 09:19	RRS	SW-846	11I3525

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2083
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUI2083-03 (MW-21R (56-58') - Soil) - cont. Sampled: 09/13/11 10:55										
Volatile Organic - MCP CAM Method 8260										
Acetone	ND	mg/kg dry		1.88	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Tert-Amyl Methyl Ether	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Benzene	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Bromobenzene	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Bromochloromethane	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Bromodichloromethane	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Bromoform	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Bromomethane	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
2-Butanone	ND	mg/kg dry		1.88	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
tert-Butylbenzene	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
n-Butylbenzene	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
sec-Butylbenzene	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Carbon disulfide	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Carbon Tetrachloride	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Chlorobenzene	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Chlorodibromomethane	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Chloroethane	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Chloroform	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Chloromethane	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
2-Chlorotoluene	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
4-Chlorotoluene	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
1,2-Dibromo-3-chloropropane	ND	mg/kg dry		0.188	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
1,2-Dibromoethane (EDB)	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Dibromomethane	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
1,2-Dichlorobenzene	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
1,3-Dichlorobenzene	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
1,4-Dichlorobenzene	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Dichlorodifluoromethane	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
1,2-Dichloroethane	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
1,1-Dichloroethane	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
1,1-Dichloroethene	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
trans-1,2-Dichloroethene	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
cis-1,2-Dichloroethene	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
1,3-Dichloropropane	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
2,2-Dichloropropane	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
1,2-Dichloropropane	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
trans-1,3-Dichloropropene	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
1,1-Dichloropropene	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
cis-1,3-Dichloropropene	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Diethyl ether	ND	mg/kg dry		0.188	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413

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Client	GES Westford (10650)	Work Order:	NUI2083
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

ANALYTICAL REPORT

Sample ID: NUI2083-03 (MW-21R (56-58') - Soil) - cont. Sampled: 09/13/11 10:55

Volatile Organic - MCP CAM Method 8260 - cont.

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
1,4-Dioxane	ND	mg/kg dry		18.8	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Ethylbenzene	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Ethyl tert-Butyl Ether	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Hexachlorobutadiene	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
2-Hexanone	ND	mg/kg dry		1.88	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Isopropylbenzene	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Diisopropyl Ether	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
p-Isopropyltoluene	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Methyl tert-Butyl Ether	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Methylene Chloride	ND	mg/kg dry		0.188	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
4-Methyl-2-pentanone	ND	mg/kg dry		1.88	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Naphthalene	ND	mg/kg dry		0.188	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
n-Propylbenzene	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Styrene	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
1,1,2,2-Tetrachloroethane	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
1,1,1,2-Tetrachloroethane	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Tetrachloroethene	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Tetrahydrofuran	ND	mg/kg dry		0.188	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Toluene	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.188	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
1,2,3-Trichlorobenzene	ND	mg/kg dry		0.188	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
1,1,1-Trichloroethane	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
1,1,2-Trichloroethane	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Trichloroethene	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Trichlorofluoromethane	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
1,2,3-Trichloropropane	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
1,3,5-Trimethylbenzene	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
1,2,4-Trimethylbenzene	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Vinyl chloride	ND	mg/kg dry		0.0941	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Xylenes, total	ND	mg/kg dry		0.282	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
1,1,2-Trifluorotrichloroethane	ND	mg/kg dry		0.188	50	09/13/11 10:55	09/20/11 02:34	CMM	SW846 8260B	11I2413
Surr: 1,2-Dichloroethane-d4 (70-130%)	*99 %*						09/20/11 02:34	CMM	SW846 8260B	11I2413
Surr: Dibromofluoromethane (70-130%)	*100 %*						09/20/11 02:34	CMM	SW846 8260B	11I2413
Surr: Toluene-d8 (70-130%)	*97 %*						09/20/11 02:34	CMM	SW846 8260B	11I2413
Surr: 4-Bromofluorobenzene (70-130%)	*102 %*						09/20/11 02:34	CMM	SW846 8260B	11I2413

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2083
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

SAMPLE EXTRACTION DATA

Parameter	Batch	Lab Number	Wt/Vol Extracted	Extract Vol	Date	Analyst	Extraction Method
Volatile Organic - MCP CAM Method 8260							
SW846 8260B	11I3965	NUI2083-01	10.00	10.00	09/13/11 00:01	AAN	EPA 5035
SW846 8260B	11I2413	NUI2083-02	8.76	10.00	09/13/11 10:45	AAN	EPA 5035
SW846 8260B	11I2413	NUI2083-03	6.31	10.00	09/13/11 10:55	AAN	EPA 5035

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2083
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

PROJECT QUALITY CONTROL DATA
Blank

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11I2413-BLK1						
Acetone	<1.00		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Tert-Amyl Methyl Ether	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Benzene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Bromobenzene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Bromochloromethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Bromodichloromethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Bromoform	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Bromomethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
2-Butanone	<1.00		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
tert-Butylbenzene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
n-Butylbenzene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
sec-Butylbenzene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Carbon disulfide	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Carbon Tetrachloride	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Chlorobenzene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Chlorodibromomethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Chloroethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Chloroform	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Chloromethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
2-Chlorotoluene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
4-Chlorotoluene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,2-Dibromo-3-chloropropane	<0.100		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,2-Dibromoethane (EDB)	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Dibromomethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,2-Dichlorobenzene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,3-Dichlorobenzene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,4-Dichlorobenzene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Dichlorodifluoromethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,2-Dichloroethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,1-Dichloroethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,1-Dichloroethene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
trans-1,2-Dichloroethene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
cis-1,2-Dichloroethene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,3-Dichloropropane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
2,2-Dichloropropane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,2-Dichloropropane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
trans-1,3-Dichloropropene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,1-Dichloropropene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
cis-1,3-Dichloropropene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Diethyl ether	<0.100		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,4-Dioxane	<5.00		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2083
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11I2413-BLK1						
Ethylbenzene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Ethyl tert-Butyl Ether	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Hexachlorobutadiene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
2-Hexanone	<1.00		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Isopropylbenzene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Diisopropyl Ether	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
p-Isopropyltoluene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Methyl tert-Butyl Ether	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Methylene Chloride	<0.100		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
4-Methyl-2-pentanone	<1.00		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Naphthalene	<0.100		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
n-Propylbenzene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Styrene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,1,2,2-Tetrachloroethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,1,1,2-Tetrachloroethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Tetrachloroethene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Tetrahydrofuran	<0.100		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Toluene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,2,4-Trichlorobenzene	<0.0600		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,2,3-Trichlorobenzene	<0.0550		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,1,1-Trichloroethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,1,2-Trichloroethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Trichloroethene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Trichlorofluoromethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,2,3-Trichloropropane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,3,5-Trimethylbenzene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,2,4-Trimethylbenzene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Vinyl chloride	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Xylenes, total	<0.125		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,1,2-Trifluorotrichloroethane	<0.0550		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Surrogate: 1,2-Dichloroethane-d4	107%			11I2413	11I2413-BLK1	09/19/11 20:59
Surrogate: Dibromofluoromethane	106%			11I2413	11I2413-BLK1	09/19/11 20:59
Surrogate: Toluene-d8	93%			11I2413	11I2413-BLK1	09/19/11 20:59
Surrogate: 4-Bromofluorobenzene	103%			11I2413	11I2413-BLK1	09/19/11 20:59
11I3965-BLK1						
Acetone	<0.0200		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Tert-Amyl Methyl Ether	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Benzene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Bromobenzene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Bromochloromethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2083
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11I3965-BLK1						
Bromodichloromethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Bromoform	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Bromomethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
2-Butanone	<0.0200		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
tert-Butylbenzene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
n-Butylbenzene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
sec-Butylbenzene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Carbon disulfide	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Carbon Tetrachloride	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Chlorobenzene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Chlorodibromomethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Chloroethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Chloroform	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Chloromethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
2-Chlorotoluene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
4-Chlorotoluene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,2-Dibromo-3-chloropropane	<0.00200		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,2-Dibromoethane (EDB)	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Dibromomethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,2-Dichlorobenzene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,3-Dichlorobenzene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,4-Dichlorobenzene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Dichlorodifluoromethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,2-Dichloroethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,1-Dichloroethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,1-Dichloroethene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
trans-1,2-Dichloroethene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
cis-1,2-Dichloroethene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,3-Dichloropropane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
2,2-Dichloropropane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,2-Dichloropropane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
trans-1,3-Dichloropropene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,1-Dichloropropene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
cis-1,3-Dichloropropene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Diethyl ether	<0.00200		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,4-Dioxane	<0.100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Ethylbenzene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Ethyl tert-Butyl Ether	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Hexachlorobutadiene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
2-Hexanone	<0.0200		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Isopropylbenzene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44

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THE LEADER IN ENVIRONMENTAL TESTING
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Client	GES Westford (10650)	Work Order:	NUI2083
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11I3965-BLK1						
Diisopropyl Ether	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
p-Isopropyltoluene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Methyl tert-Butyl Ether	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Methylene Chloride	<0.00200		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
4-Methyl-2-pentanone	<0.0200		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Naphthalene	<0.00200		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
n-Propylbenzene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Styrene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,1,2,2-Tetrachloroethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,1,1,2-Tetrachloroethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Tetrachloroethene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Tetrahydrofuran	<0.00200		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Toluene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,2,4-Trichlorobenzene	<0.00120		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,2,3-Trichlorobenzene	<0.00110		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,1,1-Trichloroethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,1,2-Trichloroethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Trichloroethene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Trichlorofluoromethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,2,3-Trichloropropane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,3,5-Trimethylbenzene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,2,4-Trimethylbenzene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Vinyl chloride	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Xylenes, total	<0.00250		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,1,2-Trifluorotrichloroethane	<0.00110		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Surrogate: 1,2-Dichloroethane-d4	115%			11I3965	11I3965-BLK1	09/20/11 20:44
Surrogate: Dibromofluoromethane	108%			11I3965	11I3965-BLK1	09/20/11 20:44
Surrogate: Toluene-d8	98%			11I3965	11I3965-BLK1	09/20/11 20:44
Surrogate: 4-Bromofluorobenzene	102%			11I3965	11I3965-BLK1	09/20/11 20:44
11I3965-BLK2						
Acetone	<1.00		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Tert-Amyl Methyl Ether	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Benzene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Bromobenzene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Bromochloromethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Bromodichloromethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Bromoform	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Bromomethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
2-Butanone	<1.00		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
tert-Butylbenzene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2083
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11I3965-BLK2						
n-Butylbenzene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
sec-Butylbenzene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Carbon disulfide	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Carbon Tetrachloride	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Chlorobenzene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Chlorodibromomethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Chloroethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Chloroform	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Chloromethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
2-Chlorotoluene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
4-Chlorotoluene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,2-Dibromo-3-chloropropane	<0.100		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,2-Dibromoethane (EDB)	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Dibromomethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,2-Dichlorobenzene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,3-Dichlorobenzene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,4-Dichlorobenzene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Dichlorodifluoromethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,2-Dichloroethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,1-Dichloroethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,1-Dichloroethene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
trans-1,2-Dichloroethene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
cis-1,2-Dichloroethene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,3-Dichloropropane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
2,2-Dichloropropane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,2-Dichloropropane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
trans-1,3-Dichloropropene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,1-Dichloropropene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
cis-1,3-Dichloropropene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Diethyl ether	<0.100		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,4-Dioxane	<5.00		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Ethylbenzene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Ethyl tert-Butyl Ether	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Hexachlorobutadiene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
2-Hexanone	<1.00		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Isopropylbenzene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Diisopropyl Ether	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
p-Isopropyltoluene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Methyl tert-Butyl Ether	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Methylene Chloride	<0.100		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
4-Methyl-2-pentanone	<1.00		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2083
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11I3965-BLK2						
Naphthalene	<0.100		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
n-Propylbenzene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Styrene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,1,2,2-Tetrachloroethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,1,1,2-Tetrachloroethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Tetrachloroethene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Tetrahydrofuran	<0.100		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Toluene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,2,4-Trichlorobenzene	<0.0600		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,2,3-Trichlorobenzene	<0.0550		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,1,1-Trichloroethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,1,2-Trichloroethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Trichloroethene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Trichlorofluoromethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,2,3-Trichloropropane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,3,5-Trimethylbenzene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,2,4-Trimethylbenzene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Vinyl chloride	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Xylenes, total	<0.125		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,1,2-Trifluorotrichloroethane	<0.0550		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Surrogate: 1,2-Dichloroethane-d4	112%			11I3965	11I3965-BLK2	09/20/11 21:12
Surrogate: Dibromofluoromethane	107%			11I3965	11I3965-BLK2	09/20/11 21:12
Surrogate: Toluene-d8	97%			11I3965	11I3965-BLK2	09/20/11 21:12
Surrogate: 4-Bromofluorobenzene	100%			11I3965	11I3965-BLK2	09/20/11 21:12

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2083
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

PROJECT QUALITY CONTROL DATA
LCS

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11I2413-BS1								
Acetone	250	319		ug/kg	128%	70 - 130	11I2413	09/19/11 18:11
Tert-Amyl Methyl Ether	50.0	41.2		ug/kg	82%	70 - 130	11I2413	09/19/11 18:11
Benzene	50.0	51.0		ug/kg	102%	70 - 130	11I2413	09/19/11 18:11
Bromobenzene	50.0	51.5		ug/kg	103%	70 - 130	11I2413	09/19/11 18:11
Bromochloromethane	50.0	54.6		ug/kg	109%	70 - 130	11I2413	09/19/11 18:11
Bromodichloromethane	50.0	56.8		ug/kg	114%	70 - 130	11I2413	09/19/11 18:11
Bromoform	50.0	46.5		ug/kg	93%	70 - 130	11I2413	09/19/11 18:11
Bromomethane	50.0	47.9		ug/kg	96%	70 - 130	11I2413	09/19/11 18:11
2-Butanone	250	266		ug/kg	106%	70 - 130	11I2413	09/19/11 18:11
tert-Butylbenzene	50.0	52.8		ug/kg	106%	70 - 130	11I2413	09/19/11 18:11
n-Butylbenzene	50.0	52.2		ug/kg	104%	70 - 130	11I2413	09/19/11 18:11
sec-Butylbenzene	50.0	53.3		ug/kg	107%	70 - 130	11I2413	09/19/11 18:11
Carbon disulfide	50.0	47.0		ug/kg	94%	70 - 130	11I2413	09/19/11 18:11
Carbon Tetrachloride	50.0	63.1		ug/kg	126%	70 - 130	11I2413	09/19/11 18:11
Chlorobenzene	50.0	53.4		ug/kg	107%	70 - 130	11I2413	09/19/11 18:11
Chlorodibromomethane	50.0	60.8		ug/kg	122%	70 - 130	11I2413	09/19/11 18:11
Chloroethane	50.0	45.9		ug/kg	92%	70 - 130	11I2413	09/19/11 18:11
Chloroform	50.0	56.9		ug/kg	114%	70 - 130	11I2413	09/19/11 18:11
Chloromethane	50.0	45.6		ug/kg	91%	70 - 130	11I2413	09/19/11 18:11
2-Chlorotoluene	50.0	52.7		ug/kg	105%	70 - 130	11I2413	09/19/11 18:11
4-Chlorotoluene	50.0	55.1		ug/kg	110%	70 - 130	11I2413	09/19/11 18:11
1,2-Dibromo-3-chloropropane	50.0	44.4		ug/kg	89%	70 - 130	11I2413	09/19/11 18:11
1,2-Dibromoethane (EDB)	50.0	53.3		ug/kg	107%	70 - 130	11I2413	09/19/11 18:11
Dibromomethane	50.0	53.7		ug/kg	107%	70 - 130	11I2413	09/19/11 18:11
1,2-Dichlorobenzene	50.0	52.8		ug/kg	106%	70 - 130	11I2413	09/19/11 18:11
1,3-Dichlorobenzene	50.0	53.1		ug/kg	106%	70 - 130	11I2413	09/19/11 18:11
1,4-Dichlorobenzene	50.0	53.4		ug/kg	107%	70 - 130	11I2413	09/19/11 18:11
Dichlorodifluoromethane	50.0	41.0		ug/kg	82%	70 - 130	11I2413	09/19/11 18:11
1,2-Dichloroethane	50.0	55.3		ug/kg	111%	70 - 130	11I2413	09/19/11 18:11
1,1-Dichloroethane	50.0	52.3		ug/kg	105%	70 - 130	11I2413	09/19/11 18:11
1,1-Dichloroethene	50.0	52.8		ug/kg	106%	70 - 130	11I2413	09/19/11 18:11
trans-1,2-Dichloroethene	50.0	52.5		ug/kg	105%	70 - 130	11I2413	09/19/11 18:11
cis-1,2-Dichloroethene	50.0	52.8		ug/kg	106%	70 - 130	11I2413	09/19/11 18:11
1,3-Dichloropropane	50.0	51.4		ug/kg	103%	70 - 130	11I2413	09/19/11 18:11
2,2-Dichloropropane	50.0	60.2		ug/kg	120%	70 - 130	11I2413	09/19/11 18:11
1,2-Dichloropropane	50.0	46.0		ug/kg	92%	70 - 130	11I2413	09/19/11 18:11
trans-1,3-Dichloropropene	50.0	55.0		ug/kg	110%	70 - 130	11I2413	09/19/11 18:11
1,1-Dichloropropene	50.0	54.4		ug/kg	109%	70 - 130	11I2413	09/19/11 18:11
cis-1,3-Dichloropropene	50.0	56.8		ug/kg	114%	70 - 130	11I2413	09/19/11 18:11
Diethyl ether	50.0	48.4		ug/kg	97%	70 - 130	11I2413	09/19/11 18:11
1,4-Dioxane	5000	6210		ug/kg	124%	70 - 130	11I2413	09/19/11 18:11

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2083
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11I2413-BS1								
Ethylbenzene	50.0	52.3		ug/kg	105%	70 - 130	11I2413	09/19/11 18:11
Ethyl tert-Butyl Ether	50.0	41.3		ug/kg	83%	70 - 130	11I2413	09/19/11 18:11
Hexachlorobutadiene	50.0	35.5		ug/kg	71%	70 - 130	11I2413	09/19/11 18:11
2-Hexanone	250	238		ug/kg	95%	70 - 130	11I2413	09/19/11 18:11
Isopropylbenzene	50.0	57.7		ug/kg	115%	70 - 130	11I2413	09/19/11 18:11
Diisopropyl Ether	50.0	42.4		ug/kg	85%	70 - 130	11I2413	09/19/11 18:11
p-Isopropyltoluene	50.0	52.2		ug/kg	104%	70 - 130	11I2413	09/19/11 18:11
Methyl tert-Butyl Ether	50.0	45.1		ug/kg	90%	70 - 130	11I2413	09/19/11 18:11
Methylene Chloride	50.0	54.0		ug/kg	108%	70 - 130	11I2413	09/19/11 18:11
4-Methyl-2-pentanone	250	227		ug/kg	91%	70 - 130	11I2413	09/19/11 18:11
Naphthalene	50.0	43.8		ug/kg	88%	70 - 130	11I2413	09/19/11 18:11
n-Propylbenzene	50.0	53.4		ug/kg	107%	70 - 130	11I2413	09/19/11 18:11
Styrene	50.0	51.2		ug/kg	102%	70 - 130	11I2413	09/19/11 18:11
1,1,2,2-Tetrachloroethane	50.0	50.9		ug/kg	102%	70 - 130	11I2413	09/19/11 18:11
1,1,1,2-Tetrachloroethane	50.0	57.5		ug/kg	115%	70 - 130	11I2413	09/19/11 18:11
Tetrachloroethene	50.0	52.2		ug/kg	104%	70 - 130	11I2413	09/19/11 18:11
Tetrahydrofuran	500	435		ug/kg	87%	70 - 130	11I2413	09/19/11 18:11
Toluene	50.0	52.8		ug/kg	106%	70 - 130	11I2413	09/19/11 18:11
1,2,4-Trichlorobenzene	50.0	42.6		ug/kg	85%	70 - 130	11I2413	09/19/11 18:11
1,2,3-Trichlorobenzene	50.0	40.9		ug/kg	82%	70 - 130	11I2413	09/19/11 18:11
1,1,1-Trichloroethane	50.0	59.5		ug/kg	119%	70 - 130	11I2413	09/19/11 18:11
1,1,2-Trichloroethane	50.0	54.0		ug/kg	108%	70 - 130	11I2413	09/19/11 18:11
Trichloroethene	50.0	54.7		ug/kg	109%	70 - 130	11I2413	09/19/11 18:11
Trichlorofluoromethane	50.0	51.5		ug/kg	103%	70 - 130	11I2413	09/19/11 18:11
1,2,3-Trichloropropane	50.0	54.2		ug/kg	108%	70 - 130	11I2413	09/19/11 18:11
1,3,5-Trimethylbenzene	50.0	54.2		ug/kg	108%	70 - 130	11I2413	09/19/11 18:11
1,2,4-Trimethylbenzene	50.0	52.0		ug/kg	104%	70 - 130	11I2413	09/19/11 18:11
Vinyl chloride	50.0	42.9		ug/kg	86%	70 - 130	11I2413	09/19/11 18:11
Xylenes, total	150	156		ug/kg	104%	70 - 130	11I2413	09/19/11 18:11
1,1,2-Trifluorotrichloroethane	50.0	56.2		ug/kg	112%	61 - 134	11I2413	09/19/11 18:11
Surrogate: 1,2-Dichloroethane-d4	25.0	26.6			107%	70 - 130	11I2413	09/19/11 18:11
Surrogate: Dibromofluoromethane	25.0	27.2			109%	70 - 130	11I2413	09/19/11 18:11
Surrogate: Toluene-d8	25.0	24.9			100%	70 - 130	11I2413	09/19/11 18:11
Surrogate: 4-Bromofluorobenzene	25.0	25.0			100%	70 - 130	11I2413	09/19/11 18:11
11I3965-BS1								
Acetone	250	333	L1	ug/kg	133%	70 - 130	11I3965	09/20/11 18:52
Tert-Amyl Methyl Ether	50.0	42.3		ug/kg	85%	70 - 130	11I3965	09/20/11 18:52
Benzene	50.0	51.5		ug/kg	103%	70 - 130	11I3965	09/20/11 18:52
Bromobenzene	50.0	50.7		ug/kg	101%	70 - 130	11I3965	09/20/11 18:52
Bromochloromethane	50.0	55.1		ug/kg	110%	70 - 130	11I3965	09/20/11 18:52

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2083
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11I3965-BS1								
Bromodichloromethane	50.0	56.8		ug/kg	114%	70 - 130	11I3965	09/20/11 18:52
Bromoform	50.0	45.6		ug/kg	91%	70 - 130	11I3965	09/20/11 18:52
Bromomethane	50.0	49.0		ug/kg	98%	70 - 130	11I3965	09/20/11 18:52
2-Butanone	250	285		ug/kg	114%	70 - 130	11I3965	09/20/11 18:52
tert-Butylbenzene	50.0	51.2		ug/kg	102%	70 - 130	11I3965	09/20/11 18:52
n-Butylbenzene	50.0	51.2		ug/kg	102%	70 - 130	11I3965	09/20/11 18:52
sec-Butylbenzene	50.0	51.4		ug/kg	103%	70 - 130	11I3965	09/20/11 18:52
Carbon disulfide	50.0	50.2		ug/kg	100%	70 - 130	11I3965	09/20/11 18:52
Carbon Tetrachloride	50.0	63.3		ug/kg	127%	70 - 130	11I3965	09/20/11 18:52
Chlorobenzene	50.0	51.3		ug/kg	103%	70 - 130	11I3965	09/20/11 18:52
Chlorodibromomethane	50.0	58.3		ug/kg	117%	70 - 130	11I3965	09/20/11 18:52
Chloroethane	50.0	47.3		ug/kg	95%	70 - 130	11I3965	09/20/11 18:52
Chloroform	50.0	57.0		ug/kg	114%	70 - 130	11I3965	09/20/11 18:52
Chloromethane	50.0	40.5		ug/kg	81%	70 - 130	11I3965	09/20/11 18:52
2-Chlorotoluene	50.0	50.9		ug/kg	102%	70 - 130	11I3965	09/20/11 18:52
4-Chlorotoluene	50.0	53.0		ug/kg	106%	70 - 130	11I3965	09/20/11 18:52
1,2-Dibromo-3-chloropropane	50.0	42.8		ug/kg	86%	70 - 130	11I3965	09/20/11 18:52
1,2-Dibromoethane (EDB)	50.0	53.0		ug/kg	106%	70 - 130	11I3965	09/20/11 18:52
Dibromomethane	50.0	54.8		ug/kg	110%	70 - 130	11I3965	09/20/11 18:52
1,2-Dichlorobenzene	50.0	51.6		ug/kg	103%	70 - 130	11I3965	09/20/11 18:52
1,3-Dichlorobenzene	50.0	51.7		ug/kg	103%	70 - 130	11I3965	09/20/11 18:52
1,4-Dichlorobenzene	50.0	52.7		ug/kg	105%	70 - 130	11I3965	09/20/11 18:52
Dichlorodifluoromethane	50.0	39.0		ug/kg	78%	70 - 130	11I3965	09/20/11 18:52
1,2-Dichloroethane	50.0	56.6		ug/kg	113%	70 - 130	11I3965	09/20/11 18:52
1,1-Dichloroethane	50.0	51.8		ug/kg	104%	70 - 130	11I3965	09/20/11 18:52
1,1-Dichloroethene	50.0	53.4		ug/kg	107%	70 - 130	11I3965	09/20/11 18:52
trans-1,2-Dichloroethene	50.0	54.1		ug/kg	108%	70 - 130	11I3965	09/20/11 18:52
cis-1,2-Dichloroethene	50.0	52.3		ug/kg	105%	70 - 130	11I3965	09/20/11 18:52
1,3-Dichloropropane	50.0	50.3		ug/kg	101%	70 - 130	11I3965	09/20/11 18:52
2,2-Dichloropropane	50.0	61.3		ug/kg	123%	70 - 130	11I3965	09/20/11 18:52
1,2-Dichloropropane	50.0	46.4		ug/kg	93%	70 - 130	11I3965	09/20/11 18:52
trans-1,3-Dichloropropene	50.0	53.6		ug/kg	107%	70 - 130	11I3965	09/20/11 18:52
1,1-Dichloropropene	50.0	54.8		ug/kg	110%	70 - 130	11I3965	09/20/11 18:52
cis-1,3-Dichloropropene	50.0	54.6		ug/kg	109%	70 - 130	11I3965	09/20/11 18:52
Diethyl ether	50.0	51.4		ug/kg	103%	70 - 130	11I3965	09/20/11 18:52
1,4-Dioxane	5000	6190		ug/kg	124%	70 - 130	11I3965	09/20/11 18:52
Ethylbenzene	50.0	50.9		ug/kg	102%	70 - 130	11I3965	09/20/11 18:52
Ethyl tert-Butyl Ether	50.0	41.5		ug/kg	83%	70 - 130	11I3965	09/20/11 18:52
Hexachlorobutadiene	50.0	34.7	L2	ug/kg	69%	70 - 130	11I3965	09/20/11 18:52
2-Hexanone	250	253		ug/kg	101%	70 - 130	11I3965	09/20/11 18:52
Isopropylbenzene	50.0	55.4		ug/kg	111%	70 - 130	11I3965	09/20/11 18:52

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2083
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11I3965-BS1								
Diisopropyl Ether	50.0	42.3		ug/kg	85%	70 - 130	11I3965	09/20/11 18:52
p-Isopropyltoluene	50.0	50.3		ug/kg	101%	70 - 130	11I3965	09/20/11 18:52
Methyl tert-Butyl Ether	50.0	48.0		ug/kg	96%	70 - 130	11I3965	09/20/11 18:52
Methylene Chloride	50.0	54.2		ug/kg	108%	70 - 130	11I3965	09/20/11 18:52
4-Methyl-2-pentanone	250	238		ug/kg	95%	70 - 130	11I3965	09/20/11 18:52
Naphthalene	50.0	44.3		ug/kg	89%	70 - 130	11I3965	09/20/11 18:52
n-Propylbenzene	50.0	51.8		ug/kg	104%	70 - 130	11I3965	09/20/11 18:52
Styrene	50.0	49.3		ug/kg	99%	70 - 130	11I3965	09/20/11 18:52
1,1,2,2-Tetrachloroethane	50.0	51.3		ug/kg	103%	70 - 130	11I3965	09/20/11 18:52
1,1,1,2-Tetrachloroethane	50.0	55.1		ug/kg	110%	70 - 130	11I3965	09/20/11 18:52
Tetrachloroethene	50.0	51.0		ug/kg	102%	70 - 130	11I3965	09/20/11 18:52
Tetrahydrofuran	500	473		ug/kg	95%	70 - 130	11I3965	09/20/11 18:52
Toluene	50.0	50.9		ug/kg	102%	70 - 130	11I3965	09/20/11 18:52
1,2,4-Trichlorobenzene	50.0	40.6		ug/kg	81%	70 - 130	11I3965	09/20/11 18:52
1,2,3-Trichlorobenzene	50.0	41.4		ug/kg	83%	70 - 130	11I3965	09/20/11 18:52
1,1,1-Trichloroethane	50.0	60.0		ug/kg	120%	70 - 130	11I3965	09/20/11 18:52
1,1,2-Trichloroethane	50.0	52.2		ug/kg	104%	70 - 130	11I3965	09/20/11 18:52
Trichloroethene	50.0	54.4		ug/kg	109%	70 - 130	11I3965	09/20/11 18:52
Trichlorofluoromethane	50.0	54.4		ug/kg	109%	70 - 130	11I3965	09/20/11 18:52
1,2,3-Trichloropropane	50.0	54.2		ug/kg	108%	70 - 130	11I3965	09/20/11 18:52
1,3,5-Trimethylbenzene	50.0	51.7		ug/kg	103%	70 - 130	11I3965	09/20/11 18:52
1,2,4-Trimethylbenzene	50.0	50.2		ug/kg	100%	70 - 130	11I3965	09/20/11 18:52
Vinyl chloride	50.0	42.9		ug/kg	86%	70 - 130	11I3965	09/20/11 18:52
Xylenes, total	150	151		ug/kg	101%	70 - 130	11I3965	09/20/11 18:52
1,1,2-Trifluorotrichloroethane	50.0	60.3		ug/kg	121%	61 - 134	11I3965	09/20/11 18:52
Surrogate: 1,2-Dichloroethane-d4	25.0	26.9			108%	70 - 130	11I3965	09/20/11 18:52
Surrogate: Dibromofluoromethane	25.0	27.5			110%	70 - 130	11I3965	09/20/11 18:52
Surrogate: Toluene-d8	25.0	24.7			99%	70 - 130	11I3965	09/20/11 18:52
Surrogate: 4-Bromofluorobenzene	25.0	25.1			101%	70 - 130	11I3965	09/20/11 18:52

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2083
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

PROJECT QUALITY CONTROL DATA
LCS Dup

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11I2413-BSD1												
Acetone		305		ug/kg	250	122%	70 - 130	5	20	11I2413		09/19/11 18:39
Tert-Amyl Methyl Ether		41.0		ug/kg	50.0	82%	70 - 130	0.6	20	11I2413		09/19/11 18:39
Benzene		50.0		ug/kg	50.0	100%	70 - 130	2	20	11I2413		09/19/11 18:39
Bromobenzene		51.0		ug/kg	50.0	102%	70 - 130	1	20	11I2413		09/19/11 18:39
Bromochloromethane		53.1		ug/kg	50.0	106%	70 - 130	3	20	11I2413		09/19/11 18:39
Bromodichloromethane		55.4		ug/kg	50.0	111%	70 - 130	3	20	11I2413		09/19/11 18:39
Bromoform		45.6		ug/kg	50.0	91%	70 - 130	2	20	11I2413		09/19/11 18:39
Bromomethane		47.2		ug/kg	50.0	94%	70 - 130	1	20	11I2413		09/19/11 18:39
2-Butanone		257		ug/kg	250	103%	70 - 130	4	20	11I2413		09/19/11 18:39
tert-Butylbenzene		51.3		ug/kg	50.0	103%	70 - 130	3	20	11I2413		09/19/11 18:39
n-Butylbenzene		51.2		ug/kg	50.0	102%	70 - 130	2	20	11I2413		09/19/11 18:39
sec-Butylbenzene		52.5		ug/kg	50.0	105%	70 - 130	1	20	11I2413		09/19/11 18:39
Carbon disulfide		46.0		ug/kg	50.0	92%	70 - 130	2	20	11I2413		09/19/11 18:39
Carbon Tetrachloride		61.6		ug/kg	50.0	123%	70 - 130	2	20	11I2413		09/19/11 18:39
Chlorobenzene		52.3		ug/kg	50.0	105%	70 - 130	2	20	11I2413		09/19/11 18:39
Chlorodibromomethane		59.8		ug/kg	50.0	120%	70 - 130	2	20	11I2413		09/19/11 18:39
Chloroethane		44.6		ug/kg	50.0	89%	70 - 130	3	20	11I2413		09/19/11 18:39
Chloroform		55.9		ug/kg	50.0	112%	70 - 130	2	20	11I2413		09/19/11 18:39
Chloromethane		43.2		ug/kg	50.0	86%	70 - 130	5	20	11I2413		09/19/11 18:39
2-Chlorotoluene		51.5		ug/kg	50.0	103%	70 - 130	2	20	11I2413		09/19/11 18:39
4-Chlorotoluene		53.8		ug/kg	50.0	108%	70 - 130	2	20	11I2413		09/19/11 18:39
1,2-Dibromo-3-chloropropane		41.8		ug/kg	50.0	84%	70 - 130	6	20	11I2413		09/19/11 18:39
1,2-Dibromoethane (EDB)		53.0		ug/kg	50.0	106%	70 - 130	0.5	20	11I2413		09/19/11 18:39
Dibromomethane		53.4		ug/kg	50.0	107%	70 - 130	0.6	20	11I2413		09/19/11 18:39
1,2-Dichlorobenzene		51.6		ug/kg	50.0	103%	70 - 130	2	20	11I2413		09/19/11 18:39
1,3-Dichlorobenzene		51.9		ug/kg	50.0	104%	70 - 130	2	20	11I2413		09/19/11 18:39
1,4-Dichlorobenzene		52.5		ug/kg	50.0	105%	70 - 130	2	20	11I2413		09/19/11 18:39
Dichlorodifluoromethane		39.8		ug/kg	50.0	80%	70 - 130	3	20	11I2413		09/19/11 18:39
1,2-Dichloroethane		55.3		ug/kg	50.0	111%	70 - 130	0.09	20	11I2413		09/19/11 18:39
1,1-Dichloroethane		51.2		ug/kg	50.0	102%	70 - 130	2	20	11I2413		09/19/11 18:39
1,1-Dichloroethene		49.5		ug/kg	50.0	99%	70 - 130	7	20	11I2413		09/19/11 18:39
trans-1,2-Dichloroethene		52.4		ug/kg	50.0	105%	70 - 130	0.06	20	11I2413		09/19/11 18:39
cis-1,2-Dichloroethene		51.4		ug/kg	50.0	103%	70 - 130	3	20	11I2413		09/19/11 18:39
1,3-Dichloropropane		50.2		ug/kg	50.0	100%	70 - 130	2	20	11I2413		09/19/11 18:39
2,2-Dichloropropane		57.8		ug/kg	50.0	116%	70 - 130	4	20	11I2413		09/19/11 18:39
1,2-Dichloropropane		46.0		ug/kg	50.0	92%	70 - 130	0.04	20	11I2413		09/19/11 18:39
trans-1,3-Dichloropropene		54.2		ug/kg	50.0	108%	70 - 130	1	20	11I2413		09/19/11 18:39
1,1-Dichloropropene		53.4		ug/kg	50.0	107%	70 - 130	2	20	11I2413		09/19/11 18:39
cis-1,3-Dichloropropene		55.4		ug/kg	50.0	111%	70 - 130	2	20	11I2413		09/19/11 18:39
Diethyl ether		47.9		ug/kg	50.0	96%	70 - 130	1	20	11I2413		09/19/11 18:39
1,4-Dioxane		6220		ug/kg	5000	124%	70 - 130	0.2	20	11I2413		09/19/11 18:39

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2083
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11I2413-BSD1												
Ethylbenzene		51.8		ug/kg	50.0	104%	70 - 130	0.9	20	11I2413		09/19/11 18:39
Ethyl tert-Butyl Ether		40.8		ug/kg	50.0	82%	70 - 130	1	20	11I2413		09/19/11 18:39
Hexachlorobutadiene		35.3		ug/kg	50.0	71%	70 - 130	0.7	20	11I2413		09/19/11 18:39
2-Hexanone		237		ug/kg	250	95%	70 - 130	0.7	20	11I2413		09/19/11 18:39
Isopropylbenzene		56.7		ug/kg	50.0	113%	70 - 130	2	20	11I2413		09/19/11 18:39
Diisopropyl Ether		41.9		ug/kg	50.0	84%	70 - 130	1	20	11I2413		09/19/11 18:39
p-Isopropyltoluene		50.4		ug/kg	50.0	101%	70 - 130	3	20	11I2413		09/19/11 18:39
Methyl tert-Butyl Ether		45.6		ug/kg	50.0	91%	70 - 130	1	20	11I2413		09/19/11 18:39
Methylene Chloride		51.6		ug/kg	50.0	103%	70 - 130	4	20	11I2413		09/19/11 18:39
4-Methyl-2-pentanone		228		ug/kg	250	91%	70 - 130	0.2	20	11I2413		09/19/11 18:39
Naphthalene		43.7		ug/kg	50.0	87%	70 - 130	0.2	20	11I2413		09/19/11 18:39
n-Propylbenzene		51.9		ug/kg	50.0	104%	70 - 130	3	20	11I2413		09/19/11 18:39
Styrene		50.1		ug/kg	50.0	100%	70 - 130	2	20	11I2413		09/19/11 18:39
1,1,2,2-Tetrachloroethane		50.4		ug/kg	50.0	101%	70 - 130	1	20	11I2413		09/19/11 18:39
1,1,1,2-Tetrachloroethane		55.9		ug/kg	50.0	112%	70 - 130	3	20	11I2413		09/19/11 18:39
Tetrachloroethene		51.4		ug/kg	50.0	103%	70 - 130	1	20	11I2413		09/19/11 18:39
Tetrahydrofuran		437		ug/kg	500	87%	70 - 130	0.6	20	11I2413		09/19/11 18:39
Toluene		51.3		ug/kg	50.0	103%	70 - 130	3	20	11I2413		09/19/11 18:39
1,2,4-Trichlorobenzene		41.8		ug/kg	50.0	84%	70 - 130	2	20	11I2413		09/19/11 18:39
1,2,3-Trichlorobenzene		41.6		ug/kg	50.0	83%	70 - 130	2	20	11I2413		09/19/11 18:39
1,1,1-Trichloroethane		58.8		ug/kg	50.0	118%	70 - 130	1	20	11I2413		09/19/11 18:39
1,1,2-Trichloroethane		53.4		ug/kg	50.0	107%	70 - 130	1	20	11I2413		09/19/11 18:39
Trichloroethene		54.4		ug/kg	50.0	109%	70 - 130	0.5	20	11I2413		09/19/11 18:39
Trichlorofluoromethane		52.6		ug/kg	50.0	105%	70 - 130	2	20	11I2413		09/19/11 18:39
1,2,3-Trichloropropane		54.0		ug/kg	50.0	108%	70 - 130	0.2	20	11I2413		09/19/11 18:39
1,3,5-Trimethylbenzene		51.9		ug/kg	50.0	104%	70 - 130	4	20	11I2413		09/19/11 18:39
1,2,4-Trimethylbenzene		50.9		ug/kg	50.0	102%	70 - 130	2	20	11I2413		09/19/11 18:39
Vinyl chloride		42.8		ug/kg	50.0	86%	70 - 130	0.2	20	11I2413		09/19/11 18:39
Xylenes, total		152		ug/kg	150	102%	70 - 130	2	20	11I2413		09/19/11 18:39
1,1,2-Trifluorotrichloroethane		55.7		ug/kg	50.0	111%	61 - 134	0.8	20	11I2413		09/19/11 18:39
Surrogate: 1,2-Dichloroethane-d4		26.5		ug/kg	25.0	106%	70 - 130			11I2413		09/19/11 18:39
Surrogate: Dibromofluoromethane		27.0		ug/kg	25.0	108%	70 - 130			11I2413		09/19/11 18:39
Surrogate: Toluene-d8		25.1		ug/kg	25.0	101%	70 - 130			11I2413		09/19/11 18:39
Surrogate: 4-Bromofluorobenzene		24.9		ug/kg	25.0	100%	70 - 130			11I2413		09/19/11 18:39
11I3965-BSD1												
Acetone		292		ug/kg	250	117%	70 - 130	13	20	11I3965		09/20/11 19:20
Tert-Amyl Methyl Ether		40.0		ug/kg	50.0	80%	70 - 130	5	20	11I3965		09/20/11 19:20
Benzene		47.8		ug/kg	50.0	96%	70 - 130	7	20	11I3965		09/20/11 19:20
Bromobenzene		47.4		ug/kg	50.0	95%	70 - 130	7	20	11I3965		09/20/11 19:20
Bromochloromethane		51.6		ug/kg	50.0	103%	70 - 130	7	20	11I3965		09/20/11 19:20

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2083
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

PROJECT QUALITY CONTROL DATA

LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11I3965-BSD1												
Bromodichloromethane		52.5		ug/kg	50.0	105%	70 - 130	8	20	11I3965		09/20/11 19:20
Bromoform		41.9		ug/kg	50.0	84%	70 - 130	8	20	11I3965		09/20/11 19:20
Bromomethane		47.3		ug/kg	50.0	95%	70 - 130	4	20	11I3965		09/20/11 19:20
2-Butanone		262		ug/kg	250	105%	70 - 130	9	20	11I3965		09/20/11 19:20
tert-Butylbenzene		47.5		ug/kg	50.0	95%	70 - 130	8	20	11I3965		09/20/11 19:20
n-Butylbenzene		47.3		ug/kg	50.0	95%	70 - 130	8	20	11I3965		09/20/11 19:20
sec-Butylbenzene		48.0		ug/kg	50.0	96%	70 - 130	7	20	11I3965		09/20/11 19:20
Carbon disulfide		46.6		ug/kg	50.0	93%	70 - 130	8	20	11I3965		09/20/11 19:20
Carbon Tetrachloride		58.4		ug/kg	50.0	117%	70 - 130	8	20	11I3965		09/20/11 19:20
Chlorobenzene		48.3		ug/kg	50.0	97%	70 - 130	6	20	11I3965		09/20/11 19:20
Chlorodibromomethane		55.4		ug/kg	50.0	111%	70 - 130	5	20	11I3965		09/20/11 19:20
Chloroethane		44.2		ug/kg	50.0	88%	70 - 130	7	20	11I3965		09/20/11 19:20
Chloroform		53.4		ug/kg	50.0	107%	70 - 130	6	20	11I3965		09/20/11 19:20
Chloromethane		37.8		ug/kg	50.0	76%	70 - 130	7	20	11I3965		09/20/11 19:20
2-Chlorotoluene		47.9		ug/kg	50.0	96%	70 - 130	6	20	11I3965		09/20/11 19:20
4-Chlorotoluene		50.2		ug/kg	50.0	100%	70 - 130	6	20	11I3965		09/20/11 19:20
1,2-Dibromo-3-chloropropane		40.5		ug/kg	50.0	81%	70 - 130	6	20	11I3965		09/20/11 19:20
1,2-Dibromoethane (EDB)		50.5		ug/kg	50.0	101%	70 - 130	5	20	11I3965		09/20/11 19:20
Dibromomethane		51.2		ug/kg	50.0	102%	70 - 130	7	20	11I3965		09/20/11 19:20
1,2-Dichlorobenzene		48.4		ug/kg	50.0	97%	70 - 130	6	20	11I3965		09/20/11 19:20
1,3-Dichlorobenzene		48.2		ug/kg	50.0	96%	70 - 130	7	20	11I3965		09/20/11 19:20
1,4-Dichlorobenzene		48.8		ug/kg	50.0	98%	70 - 130	8	20	11I3965		09/20/11 19:20
Dichlorodifluoromethane		36.6		ug/kg	50.0	73%	70 - 130	6	20	11I3965		09/20/11 19:20
1,2-Dichloroethane		53.2		ug/kg	50.0	106%	70 - 130	6	20	11I3965		09/20/11 19:20
1,1-Dichloroethane		48.8		ug/kg	50.0	98%	70 - 130	6	20	11I3965		09/20/11 19:20
1,1-Dichloroethene		51.6		ug/kg	50.0	103%	70 - 130	4	20	11I3965		09/20/11 19:20
trans-1,2-Dichloroethene		49.4		ug/kg	50.0	99%	70 - 130	9	20	11I3965		09/20/11 19:20
cis-1,2-Dichloroethene		49.0		ug/kg	50.0	98%	70 - 130	7	20	11I3965		09/20/11 19:20
1,3-Dichloropropane		47.7		ug/kg	50.0	95%	70 - 130	5	20	11I3965		09/20/11 19:20
2,2-Dichloropropane		55.1		ug/kg	50.0	110%	70 - 130	11	20	11I3965		09/20/11 19:20
1,2-Dichloropropane		43.6		ug/kg	50.0	87%	70 - 130	6	20	11I3965		09/20/11 19:20
trans-1,3-Dichloropropene		50.4		ug/kg	50.0	101%	70 - 130	6	20	11I3965		09/20/11 19:20
1,1-Dichloropropene		50.2		ug/kg	50.0	100%	70 - 130	9	20	11I3965		09/20/11 19:20
cis-1,3-Dichloropropene		51.5		ug/kg	50.0	103%	70 - 130	6	20	11I3965		09/20/11 19:20
Diethyl ether		48.5		ug/kg	50.0	97%	70 - 130	6	20	11I3965		09/20/11 19:20
1,4-Dioxane		5900		ug/kg	5000	118%	70 - 130	5	20	11I3965		09/20/11 19:20
Ethylbenzene		47.9		ug/kg	50.0	96%	70 - 130	6	20	11I3965		09/20/11 19:20
Ethyl tert-Butyl Ether		39.8		ug/kg	50.0	80%	70 - 130	4	20	11I3965		09/20/11 19:20
Hexachlorobutadiene		32.2	L2	ug/kg	50.0	64%	70 - 130	8	20	11I3965		09/20/11 19:20
2-Hexanone		237		ug/kg	250	95%	70 - 130	7	20	11I3965		09/20/11 19:20
Isopropylbenzene		52.0		ug/kg	50.0	104%	70 - 130	6	20	11I3965		09/20/11 19:20

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2083
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

PROJECT QUALITY CONTROL DATA

LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11I3965-BSD1												
Diisopropyl Ether		39.6		ug/kg	50.0	79%	70 - 130	7	20	11I3965		09/20/11 19:20
p-Isopropyltoluene		46.4		ug/kg	50.0	93%	70 - 130	8	20	11I3965		09/20/11 19:20
Methyl tert-Butyl Ether		45.4		ug/kg	50.0	91%	70 - 130	5	20	11I3965		09/20/11 19:20
Methylene Chloride		52.2		ug/kg	50.0	104%	70 - 130	4	20	11I3965		09/20/11 19:20
4-Methyl-2-pentanone		223		ug/kg	250	89%	70 - 130	6	20	11I3965		09/20/11 19:20
Naphthalene		41.8		ug/kg	50.0	84%	70 - 130	6	20	11I3965		09/20/11 19:20
n-Propylbenzene		48.7		ug/kg	50.0	97%	70 - 130	6	20	11I3965		09/20/11 19:20
Styrene		46.8		ug/kg	50.0	94%	70 - 130	5	20	11I3965		09/20/11 19:20
1,1,2,2-Tetrachloroethane		48.6		ug/kg	50.0	97%	70 - 130	5	20	11I3965		09/20/11 19:20
1,1,1,2-Tetrachloroethane		51.4		ug/kg	50.0	103%	70 - 130	7	20	11I3965		09/20/11 19:20
Tetrachloroethene		47.6		ug/kg	50.0	95%	70 - 130	7	20	11I3965		09/20/11 19:20
Tetrahydrofuran		443		ug/kg	500	89%	70 - 130	7	20	11I3965		09/20/11 19:20
Toluene		48.3		ug/kg	50.0	97%	70 - 130	5	20	11I3965		09/20/11 19:20
1,2,4-Trichlorobenzene		38.4		ug/kg	50.0	77%	70 - 130	5	20	11I3965		09/20/11 19:20
1,2,3-Trichlorobenzene		39.1		ug/kg	50.0	78%	70 - 130	6	20	11I3965		09/20/11 19:20
1,1,1-Trichloroethane		55.7		ug/kg	50.0	111%	70 - 130	7	20	11I3965		09/20/11 19:20
1,1,2-Trichloroethane		50.0		ug/kg	50.0	100%	70 - 130	4	20	11I3965		09/20/11 19:20
Trichloroethene		50.7		ug/kg	50.0	101%	70 - 130	7	20	11I3965		09/20/11 19:20
Trichlorofluoromethane		51.8		ug/kg	50.0	104%	70 - 130	5	20	11I3965		09/20/11 19:20
1,2,3-Trichloropropane		50.8		ug/kg	50.0	102%	70 - 130	6	20	11I3965		09/20/11 19:20
1,3,5-Trimethylbenzene		48.7		ug/kg	50.0	97%	70 - 130	6	20	11I3965		09/20/11 19:20
1,2,4-Trimethylbenzene		47.6		ug/kg	50.0	95%	70 - 130	5	20	11I3965		09/20/11 19:20
Vinyl chloride		41.1		ug/kg	50.0	82%	70 - 130	4	20	11I3965		09/20/11 19:20
Xylenes, total		143		ug/kg	150	95%	70 - 130	6	20	11I3965		09/20/11 19:20
1,1,2-Trifluorotrichloroethane		55.9		ug/kg	50.0	112%	61 - 134	8	20	11I3965		09/20/11 19:20
Surrogate: 1,2-Dichloroethane-d4		26.7		ug/kg	25.0	107%	70 - 130			11I3965		09/20/11 19:20
Surrogate: Dibromofluoromethane		27.6		ug/kg	25.0	110%	70 - 130			11I3965		09/20/11 19:20
Surrogate: Toluene-d8		24.8		ug/kg	25.0	99%	70 - 130			11I3965		09/20/11 19:20
Surrogate: 4-Bromofluorobenzene		24.8		ug/kg	25.0	99%	70 - 130			11I3965		09/20/11 19:20

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2083
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

DATA QUALIFIERS AND DEFINITIONS

L	Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was above the acceptance limits. Analyte not detected, data not impacted.
L1	Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was above acceptance limits.
L2	Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was below acceptance limits.
ND	Not detected at the reporting limit (or method detection limit if shown)

METHOD MODIFICATION NOTES

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Nashville, TN

COOLER RE

NUI2083

Cooler Received/Opened On 9/16/2011 @ 08:30

1. Tracking # 0534 (last 4 digits, FedE:

Courier: FedEx IR Gun ID 94660220

2. Temperature of rep. sample or temp blank when opened: 2.3 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO. NA

4. Were custody seals on outside of cooler? YES..NO...NA

   If yes, how many and where: 1 Front

5. Were the seals intact, signed, and dated correctly? YES..NO...NA

6. Were custody papers inside cooler? YES..NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) WJ

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

   Were these signed and dated correctly? YES...NO. NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES..NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES..NO...NA

12. Did all container labels and tags agree with custody papers? YES..NO...NA

13a. Were VOA vials received? YES..NO...NA

   b. Was there any observable headspace present in any VOA vial? YES..NO...NA - BIS

14. Was there a Trip Blank in this cooler? YES..NO...NA If multiple coolers, sequence # NA

I certify that I unloaded the cooler and answered questions 7-14 (intial) [illegible]

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES..NO..NA

   b. Did the bottle labels indicate that the correct preservatives were used YES..NO...NA

16. Was residual chlorine present? YES...NO. NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) [illegible]

17. Were custody papers properly filled out (ink, signed, etc)? YES..NO...NA

18. Did you sign the custody papers in the appropriate place? YES..NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) [illegible]

I certify that I attached a label with the unique LIMS number to each container (intial) [illegible]

21. Were there Non-Conformance issues at login? YES..NO Was a PIPE generated? YES...NO...#

BIS = Broken in shipment

Cooler Receipt Form.doc

LF-1

End of Form

Revised 6/24/09

General Chemical

NUI2083

09/23/11 23 59

Nashville Division
2960 Foster Creighton
Nashville, TN 37204

Phone: 615-726-0177
Toll Free: 800-765-0980
Fax: 615-726-3404

Consultant Name: GES
Address: 364 Littleton Road
City/State/Zip: Westford, MA 01886
Project Mgr: Stefan Sikol
Consultant Project Mgr. Ray Smalley
Consultant Telephone Number: 800-221-6119
Sampler Name: (Print) Mary Cathey
Sampler Signature: Mary Cathey
Fax No.: 978-392-8583

TA Account #:
Invoice To: Stefan Sikol (GES)
Report To: Stefan Sikol
PO #: 1603978
PROJECT #: 1603978
Facility ID # General Chemical
Site Address 133 Leland St.
City, State, Zip Framingham, MA
Regulatory District (CA)

Sample ID or Field ID	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Methanol	Sodium Bisulfate	HCl (Blue Label)	NaOH (Orange Label)	H_2SO_4 Plastic (Yellow Label)	H_2SO_4 Glass (Yellow Label)	HNO_3 (Red Label)	None (Black Label)	Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify)	VOCs	VPH	SVOCs	EPH	TOC	total Fe & Mn	% solids					RUSH TAT (Pre-Schedule) *	TAT request (in Bus. Days)	Fax Results (yes or no)	Due Date of Report
trip blank	9/13/11	0700	1				X													X	X														
MW-21R (54-56')	9/13/11	1045	3				2													1	X						X								
MW-21R (56-58')	9/13/2011	1055	3				2													1	X						X								

Comments/Special Instructions:
Request 5-day turnaround - email to J. Huckabee

Relinquished by:	Date	Time	Received by:	Date	Time
Mary Cathey	9/13/2011	1700	GES Stock	9/13/2011	1700
J. Huckabee	9/15/11	1215	Received by TestAmerica:	9/15/11	12:15

Laboratory Comments:
Temperature Upon Receipt:
Sample Containers Intact? Y N
VOCs Free of Headspace? Y N
QC Deliverables (please circle one)
Level 2 Level 3 Level 4 Other

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

September 22, 2011 3:36:39PM

Client: GES Westford (10650)
364 Littleton Road, Suite 4
Westford, MA 01886
Attn: Stefan Sokol

Work Order: NUI2077
Project Name: General Chemical
Project Nbr: Framingham, MA
P/O Nbr: 1603978
Date Received: 09/16/11

SAMPLE IDENTIFICATION	LAB NUMBER	COLLECTION DATE AND TIME
Trip Blank	NUI2077-01	09/14/11 00:01
MW-19 (10-12.5)	NUI2077-02	09/14/11 08:30
MW-19 (27.5-30)	NUI2077-03	09/14/11 09:00
MW-20 (10-12.5)	NUI2077-04	09/14/11 10:00

An executed copy of the chain of custody, the project quality control data, and the sample receipt form are also included as an addendum to this report. If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-800-765-0980. These results relate only to the items tested, and this report may not be reproduced except in full and with the permission of the Laboratory. Any opinions, if expressed, are outside the scope of the Laboratory's accredidation.

This material is intended only for the use of the individual(s) or entity to whom it is addressed, and may contain information that is privileged and confidential. If you are not the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this material is strictly prohibited. If you have received this material in error, please notify us immediately at 615-726-0177.

Certification Number: M-TN032

Additional Laboratory Comments:
All samples were received in good condition, properly preserved, and properly labeled. All analyses were completed within holding times.

All no responses from the attached “MCP Response Action Analytical Report Certification Form” are addressed below.

H. The volatile blank spike and/or blank spike duplicate (LCS/LCSD) recoveries for Acetone and Hexachlorobutadiene in batch 11I3965 were outside QC limits. Less than 10% of the analytes were outside criteria and the recoveries were within greater than 10%; therefore the data was accepted without further analysis. The only sample from this batch for this work order is the trip blank.

The Chain(s) of Custody, 2 pages, are included and are an integral part of this report.

These results relate only to the items tested. This report shall not be reproduced except in full and with permission of the laboratory.

All solids results are reported in wet weight unless specifically stated.
Estimated uncertainty is available upon request.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650) 364 Littleton Road, Suite 4 Westford, MA 01886	Work Order:	NUI2077
		Project Name:	General Chemical
		Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

This report has been electronically signed.
Report Approved By:

Jennifer Huckaba

Senior Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2077
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

Sample Cooler Information

Lab ID	Cooler ID	Temp	Seals	Containers Intact	Preservation Confirmed	On Ice
	0534	2.3C	Yes	Yes	No	Yes

MassDEP Analytical Protocol Certification Form

Laboratory Name: TestAmerica Analytical Testing Corporation | Project #: Framingham, MA

Project Location: General Chemical | RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):

NUI2077

Matrices: Groundwater/Surface Water Soil/Sediment Drinking Water Air Other:

CAM Protocol (check all that apply below):

8260 VOC CAM II A X	7470/7471 Hg CAM III B	MassDEP VPH CAM IV A	8081 Pesticides CAM V B	7196 Hex Cr CAM VI B	MassDEP APH CAM IX A
8270 SVOC CAM II B	7010 Metals CAM III C	MassDEP EPH CAM IV B	8151 Herbicides CAM V C	8330 Explosives CAM VIII A	TO-15 VOC CAM IX B
6010 Metals CAM III A	6020 Metals CAM III D	8082 PCB CAM V A	9014 Total Cyanide/PAC CAM VI A	6860 Perchlorate CAM VIII B	

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	Yes No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	Yes No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	Yes No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	Yes No
E	VPH, EPH, APH, and TO-15 only: a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	Yes No Yes No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	Yes No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	Yes No[1]

***Data User Note**: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.*

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	Yes No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	Yes No[1]

[1]*All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Jennifer Huckaba **Position:** Sr Proj Mgr.

Printed Name: Jennifer Huckaba **Date:** 9-22-11

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2077
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

ANALYTICAL REPORT

Sample ID: NUI2077-01 (Trip Blank - Soil) Sampled: 09/14/11 00:01

Volatile Organic - MCP CAM Method 8260

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acetone	ND	mg/kg wet	L	1.00	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Tert-Amyl Methyl Ether	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Benzene	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Bromobenzene	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Bromochloromethane	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Bromodichloromethane	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Bromoform	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Bromomethane	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
2-Butanone	ND	mg/kg wet		1.00	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
tert-Butylbenzene	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
n-Butylbenzene	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
sec-Butylbenzene	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Carbon disulfide	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Carbon Tetrachloride	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Chlorobenzene	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Chlorodibromomethane	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Chloroethane	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Chloroform	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Chloromethane	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
2-Chlorotoluene	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
4-Chlorotoluene	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
1,2-Dibromo-3-chloropropane	ND	mg/kg wet		0.100	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
1,2-Dibromoethane (EDB)	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Dibromomethane	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
1,2-Dichlorobenzene	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
1,3-Dichlorobenzene	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
1,4-Dichlorobenzene	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Dichlorodifluoromethane	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
1,2-Dichloroethane	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
1,1-Dichloroethane	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
1,1-Dichloroethene	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
trans-1,2-Dichloroethene	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
cis-1,2-Dichloroethene	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
1,3-Dichloropropane	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
2,2-Dichloropropane	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
1,2-Dichloropropane	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
trans-1,3-Dichloropropene	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
1,1-Dichloropropene	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
cis-1,3-Dichloropropene	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Diethyl ether	ND	mg/kg wet		0.100	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2077
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

ANALYTICAL REPORT

Sample ID: NUI2077-01 (Trip Blank - Soil) - cont. Sampled: 09/14/11 00:01

Volatile Organic - MCP CAM Method 8260 - cont.

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
1,4-Dioxane	ND	mg/kg wet		10.0	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Ethylbenzene	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Ethyl tert-Butyl Ether	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Hexachlorobutadiene	ND	mg/kg wet	L2	0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
2-Hexanone	ND	mg/kg wet		1.00	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Isopropylbenzene	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Diisopropyl Ether	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
p-Isopropyltoluene	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Methyl tert-Butyl Ether	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Methylene Chloride	ND	mg/kg wet		0.100	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
4-Methyl-2-pentanone	ND	mg/kg wet		1.00	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Naphthalene	ND	mg/kg wet		0.100	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
n-Propylbenzene	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Styrene	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
1,1,2,2-Tetrachloroethane	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
1,1,1,2-Tetrachloroethane	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Tetrachloroethene	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Tetrahydrofuran	ND	mg/kg wet		0.100	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Toluene	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
1,2,4-Trichlorobenzene	ND	mg/kg wet		0.100	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
1,2,3-Trichlorobenzene	ND	mg/kg wet		0.100	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
1,1,1-Trichloroethane	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
1,1,2-Trichloroethane	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Trichloroethene	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Trichlorofluoromethane	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
1,2,3-Trichloropropane	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
1,3,5-Trimethylbenzene	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
1,2,4-Trimethylbenzene	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Vinyl chloride	ND	mg/kg wet		0.0500	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Xylenes, total	ND	mg/kg wet		0.150	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
1,1,2-Trifluorotrichloroethane	ND	mg/kg wet		0.100	50	09/14/11 00:01	09/21/11 00:00	CMM	SW846 8260B	11I3965
Surr: 1,2-Dichloroethane-d4 (70-130%)	*112 %*						09/21/11 00:00	CMM	SW846 8260B	11I3965
Surr: Dibromofluoromethane (70-130%)	*104 %*						09/21/11 00:00	CMM	SW846 8260B	11I3965
Surr: Toluene-d8 (70-130%)	*95 %*						09/21/11 00:00	CMM	SW846 8260B	11I3965
Surr: 4-Bromofluorobenzene (70-130%)	*100 %*						09/21/11 00:00	CMM	SW846 8260B	11I3965

TestAmerica
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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2077
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUI2077-02 (MW-19 (10-12.5) - Soil) Sampled: 09/14/11 08:30										
General Chemistry Parameters										
% Dry Solids	**89.7**	%		0.500	1	09/19/11 11:24	09/20/11 09:19	RRS	SW-846	11I3525

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2077
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

ANALYTICAL REPORT

Sample ID: NUI2077-02 (MW-19 (10-12.5) - Soil) - cont. Sampled: 09/14/11 08:30

Volatile Organic - MCP CAM Method 8260

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acetone	ND	mg/kg dry		1.35	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Tert-Amyl Methyl Ether	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Benzene	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Bromobenzene	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Bromochloromethane	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Bromodichloromethane	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Bromoform	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Bromomethane	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
2-Butanone	ND	mg/kg dry		1.35	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
tert-Butylbenzene	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
n-Butylbenzene	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
sec-Butylbenzene	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Carbon disulfide	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Carbon Tetrachloride	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Chlorobenzene	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Chlorodibromomethane	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Chloroethane	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Chloroform	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Chloromethane	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
2-Chlorotoluene	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
4-Chlorotoluene	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
1,2-Dibromo-3-chloropropane	ND	mg/kg dry		0.135	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
1,2-Dibromoethane (EDB)	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Dibromomethane	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
1,2-Dichlorobenzene	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
1,3-Dichlorobenzene	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
1,4-Dichlorobenzene	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Dichlorodifluoromethane	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
1,2-Dichloroethane	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
1,1-Dichloroethane	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
1,1-Dichloroethene	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
trans-1,2-Dichloroethene	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
cis-1,2-Dichloroethene	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
1,3-Dichloropropane	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
2,2-Dichloropropane	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
1,2-Dichloropropane	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
trans-1,3-Dichloropropene	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
1,1-Dichloropropene	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
cis-1,3-Dichloropropene	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Diethyl ether	ND	mg/kg dry		0.135	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2077
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

ANALYTICAL REPORT

Sample ID: NUI2077-02 (MW-19 (10-12.5) - Soil) - cont. Sampled: 09/14/11 08:30

Volatile Organic - MCP CAM Method 8260 - cont.

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
1,4-Dioxane	ND	mg/kg dry		13.5	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Ethylbenzene	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Ethyl tert-Butyl Ether	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Hexachlorobutadiene	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
2-Hexanone	ND	mg/kg dry		1.35	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Isopropylbenzene	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Diisopropyl Ether	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
p-Isopropyltoluene	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Methyl tert-Butyl Ether	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Methylene Chloride	ND	mg/kg dry		0.135	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
4-Methyl-2-pentanone	ND	mg/kg dry		1.35	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Naphthalene	ND	mg/kg dry		0.135	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
n-Propylbenzene	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Styrene	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
1,1,2,2-Tetrachloroethane	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
1,1,1,2-Tetrachloroethane	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Tetrachloroethene	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Tetrahydrofuran	ND	mg/kg dry		0.135	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Toluene	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.135	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
1,2,3-Trichlorobenzene	ND	mg/kg dry		0.135	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
1,1,1-Trichloroethane	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
1,1,2-Trichloroethane	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Trichloroethene	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Trichlorofluoromethane	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
1,2,3-Trichloropropane	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
1,3,5-Trimethylbenzene	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
1,2,4-Trimethylbenzene	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Vinyl chloride	ND	mg/kg dry		0.0675	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Xylenes, total	ND	mg/kg dry		0.203	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
1,1,2-Trifluorotrichloroethane	ND	mg/kg dry		0.135	50	09/14/11 08:30	09/20/11 03:02	CMM	SW846 8260B	11I2413
Surr: 1,2-Dichloroethane-d4 (70-130%)	*104 %*						09/20/11 03:02	CMM	SW846 8260B	11I2413
Surr: Dibromofluoromethane (70-130%)	*101 %*						09/20/11 03:02	CMM	SW846 8260B	11I2413
Surr: Toluene-d8 (70-130%)	*98 %*						09/20/11 03:02	CMM	SW846 8260B	11I2413
Surr: 4-Bromofluorobenzene (70-130%)	*99 %*						09/20/11 03:02	CMM	SW846 8260B	11I2413

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2077
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUI2077-03 (MW-19 (27.5-30) - Soil) Sampled: 09/14/11 09:00										
General Chemistry Parameters										
% Dry Solids	**83.8**	%		0.500	1	09/19/11 11:24	09/20/11 09:19	RRS	SW-846	11I3525

TestAmerica
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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2077
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

ANALYTICAL REPORT

Sample ID: NUI2077-03 (MW-19 (27.5-30) - Soil) - cont. Sampled: 09/14/11 09:00

Volatile Organic - MCP CAM Method 8260

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acetone	ND	mg/kg dry		1.98	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Tert-Amyl Methyl Ether	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Benzene	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Bromobenzene	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Bromochloromethane	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Bromodichloromethane	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Bromoform	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Bromomethane	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
2-Butanone	ND	mg/kg dry		1.98	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
tert-Butylbenzene	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
n-Butylbenzene	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
sec-Butylbenzene	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Carbon disulfide	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Carbon Tetrachloride	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Chlorobenzene	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Chlorodibromomethane	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Chloroethane	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Chloroform	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Chloromethane	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
2-Chlorotoluene	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
4-Chlorotoluene	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
1,2-Dibromo-3-chloropropane	ND	mg/kg dry		0.198	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
1,2-Dibromoethane (EDB)	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Dibromomethane	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
1,2-Dichlorobenzene	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
1,3-Dichlorobenzene	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
1,4-Dichlorobenzene	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Dichlorodifluoromethane	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
1,2-Dichloroethane	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
1,1-Dichloroethane	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
1,1-Dichloroethene	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
trans-1,2-Dichloroethene	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
cis-1,2-Dichloroethene	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
1,3-Dichloropropane	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
2,2-Dichloropropane	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
1,2-Dichloropropane	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
trans-1,3-Dichloropropene	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
1,1-Dichloropropene	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
cis-1,3-Dichloropropene	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Diethyl ether	ND	mg/kg dry		0.198	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2077
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

ANALYTICAL REPORT

Sample ID: NUI2077-03 (MW-19 (27.5-30) - Soil) - cont. Sampled: 09/14/11 09:00

Volatile Organic - MCP CAM Method 8260 - cont.

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
1,4-Dioxane	ND	mg/kg dry		19.8	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Ethylbenzene	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Ethyl tert-Butyl Ether	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Hexachlorobutadiene	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
2-Hexanone	ND	mg/kg dry		1.98	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Isopropylbenzene	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Diisopropyl Ether	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
p-Isopropyltoluene	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Methyl tert-Butyl Ether	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Methylene Chloride	ND	mg/kg dry		0.198	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
4-Methyl-2-pentanone	ND	mg/kg dry		1.98	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Naphthalene	ND	mg/kg dry		0.198	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
n-Propylbenzene	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Styrene	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
1,1,2,2-Tetrachloroethane	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
1,1,1,2-Tetrachloroethane	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Tetrachloroethene	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Tetrahydrofuran	ND	mg/kg dry		0.198	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Toluene	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.198	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
1,2,3-Trichlorobenzene	ND	mg/kg dry		0.198	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
1,1,1-Trichloroethane	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
1,1,2-Trichloroethane	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Trichloroethene	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Trichlorofluoromethane	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
1,2,3-Trichloropropane	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
1,3,5-Trimethylbenzene	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
1,2,4-Trimethylbenzene	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Vinyl chloride	ND	mg/kg dry		0.0992	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Xylenes, total	ND	mg/kg dry		0.298	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
1,1,2-Trifluorotrichloroethane	ND	mg/kg dry		0.198	50	09/14/11 09:00	09/20/11 03:30	CMM	SW846 8260B	11I2413
Surr: 1,2-Dichloroethane-d4 (70-130%)	*103 %*						09/20/11 03:30	CMM	SW846 8260B	11I2413
Surr: Dibromofluoromethane (70-130%)	*101 %*						09/20/11 03:30	CMM	SW846 8260B	11I2413
Surr: Toluene-d8 (70-130%)	*97 %*						09/20/11 03:30	CMM	SW846 8260B	11I2413
Surr: 4-Bromofluorobenzene (70-130%)	*101 %*						09/20/11 03:30	CMM	SW846 8260B	11I2413

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2077
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Extracted Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUI2077-04 (MW-20 (10-12.5) - Soil) Sampled: 09/14/11 10:00										
General Chemistry Parameters										
% Dry Solids	**79.4**	%		0.500	1	09/19/11 11:24	09/20/11 09:19	RRS	SW-846	11I3525

Client	GES Westford (10650)	Work Order:	NUI2077
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

ANALYTICAL REPORT

Sample ID: NUI2077-04 (MW-20 (10-12.5) - Soil) - cont. Sampled: 09/14/11 10:00

Volatile Organic - MCP CAM Method 8260

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Acetone	ND	mg/kg dry		1.40	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Tert-Amyl Methyl Ether	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Benzene	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Bromobenzene	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Bromochloromethane	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Bromodichloromethane	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Bromoform	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Bromomethane	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
2-Butanone	ND	mg/kg dry		1.40	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
tert-Butylbenzene	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
n-Butylbenzene	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
sec-Butylbenzene	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Carbon disulfide	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Carbon Tetrachloride	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Chlorobenzene	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Chlorodibromomethane	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Chloroethane	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Chloroform	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Chloromethane	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
2-Chlorotoluene	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
4-Chlorotoluene	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
1,2-Dibromo-3-chloropropane	ND	mg/kg dry		0.140	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
1,2-Dibromoethane (EDB)	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Dibromomethane	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
1,2-Dichlorobenzene	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
1,3-Dichlorobenzene	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
1,4-Dichlorobenzene	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Dichlorodifluoromethane	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
1,2-Dichloroethane	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
1,1-Dichloroethane	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
1,1-Dichloroethene	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
trans-1,2-Dichloroethene	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
cis-1,2-Dichloroethene	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
1,3-Dichloropropane	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
2,2-Dichloropropane	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
1,2-Dichloropropane	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
trans-1,3-Dichloropropene	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
1,1-Dichloropropene	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
cis-1,3-Dichloropropene	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Diethyl ether	ND	mg/kg dry		0.140	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413

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Client	GES Westford (10650)	Work Order:	NUI2077
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

ANALYTICAL REPORT

Analyte	Result	Units	Flag	Report Limit	Dil Factor	Preserved Date/Time	Analysis Date/Time	Analyst	Method	Batch
Sample ID: NUI2077-04 (MW-20 (10-12.5) - Soil) - cont. Sampled: 09/14/11 10:00										
Volatile Organic - MCP CAM Method 8260 - cont.										
1,4-Dioxane	ND	mg/kg dry		14.0	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Ethylbenzene	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Ethyl tert-Butyl Ether	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Hexachlorobutadiene	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
2-Hexanone	ND	mg/kg dry		1.40	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Isopropylbenzene	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Diisopropyl Ether	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
p-Isopropyltoluene	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Methyl tert-Butyl Ether	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Methylene Chloride	ND	mg/kg dry		0.140	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
4-Methyl-2-pentanone	ND	mg/kg dry		1.40	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Naphthalene	ND	mg/kg dry		0.140	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
n-Propylbenzene	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Styrene	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
1,1,2,2-Tetrachloroethane	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
1,1,1,2-Tetrachloroethane	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Tetrachloroethene	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Tetrahydrofuran	ND	mg/kg dry		0.140	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Toluene	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
1,2,4-Trichlorobenzene	ND	mg/kg dry		0.140	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
1,2,3-Trichlorobenzene	ND	mg/kg dry		0.140	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
1,1,1-Trichloroethane	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
1,1,2-Trichloroethane	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Trichloroethene	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Trichlorofluoromethane	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
1,2,3-Trichloropropane	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
1,3,5-Trimethylbenzene	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
1,2,4-Trimethylbenzene	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Vinyl chloride	ND	mg/kg dry		0.0698	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Xylenes, total	ND	mg/kg dry		0.209	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
1,1,2-Trifluorotrichloroethane	ND	mg/kg dry		0.140	50	09/14/11 10:00	09/20/11 03:58	CMM	SW846 8260B	11I2413
Surr: 1,2-Dichloroethane-d4 (70-130%)	*105 %*						09/20/11 03:58	CMM	SW846 8260B	11I2413
Surr: Dibromofluoromethane (70-130%)	*99 %*						09/20/11 03:58	CMM	SW846 8260B	11I2413
Surr: Toluene-d8 (70-130%)	*95 %*						09/20/11 03:58	CMM	SW846 8260B	11I2413
Surr: 4-Bromofluorobenzene (70-130%)	*100 %*						09/20/11 03:58	CMM	SW846 8260B	11I2413

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2077
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

SAMPLE EXTRACTION DATA

Parameter	Batch	Lab Number	Wt/Vol Extracted	Extract Vol	Date	Analyst	Extraction Method
Volatile Organic - MCP CAM Method 8260							
SW846 8260B	11I3965	NUI2077-01	10.00	10.00	09/14/11 00:01	AAN	EPA 5035
SW846 8260B	11I2413	NUI2077-02	8.26	10.00	09/14/11 08:30	AAN	EPA 5035
SW846 8260B	11I2413	NUI2077-03	6.01	10.00	09/14/11 09:00	AAN	EPA 5035
SW846 8260B	11I2413	NUI2077-04	9.02	10.00	09/14/11 10:00	AAN	EPA 5035

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Client	GES Westford (10650)	Work Order:	NUI2077
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

PROJECT QUALITY CONTROL DATA
Blank

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11I2413-BLK1						
Acetone	<1.00		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Tert-Amyl Methyl Ether	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Benzene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Bromobenzene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Bromochloromethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Bromodichloromethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Bromoform	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Bromomethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
2-Butanone	<1.00		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
tert-Butylbenzene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
n-Butylbenzene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
sec-Butylbenzene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Carbon disulfide	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Carbon Tetrachloride	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Chlorobenzene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Chlorodibromomethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Chloroethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Chloroform	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Chloromethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
2-Chlorotoluene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
4-Chlorotoluene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,2-Dibromo-3-chloropropane	<0.100		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,2-Dibromoethane (EDB)	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Dibromomethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,2-Dichlorobenzene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,3-Dichlorobenzene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,4-Dichlorobenzene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Dichlorodifluoromethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,2-Dichloroethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,1-Dichloroethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,1-Dichloroethene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
trans-1,2-Dichloroethene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
cis-1,2-Dichloroethene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,3-Dichloropropane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
2,2-Dichloropropane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,2-Dichloropropane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
trans-1,3-Dichloropropene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,1-Dichloropropene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
cis-1,3-Dichloropropene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Diethyl ether	<0.100		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,4-Dioxane	<5.00		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2077
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11I2413-BLK1						
Ethylbenzene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Ethyl tert-Butyl Ether	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Hexachlorobutadiene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
2-Hexanone	<1.00		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Isopropylbenzene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Diisopropyl Ether	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
p-Isopropyltoluene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Methyl tert-Butyl Ether	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Methylene Chloride	<0.100		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
4-Methyl-2-pentanone	<1.00		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Naphthalene	<0.100		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
n-Propylbenzene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Styrene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,1,2,2-Tetrachloroethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,1,1,2-Tetrachloroethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Tetrachloroethene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Tetrahydrofuran	<0.100		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Toluene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,2,4-Trichlorobenzene	<0.0600		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,2,3-Trichlorobenzene	<0.0550		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,1,1-Trichloroethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,1,2-Trichloroethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Trichloroethene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Trichlorofluoromethane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,2,3-Trichloropropane	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,3,5-Trimethylbenzene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,2,4-Trimethylbenzene	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Vinyl chloride	<0.0500		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Xylenes, total	<0.125		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
1,1,2-Trifluorotrichloroethane	<0.0550		mg/kg wet	11I2413	11I2413-BLK1	09/19/11 20:59
Surrogate: 1,2-Dichloroethane-d4	107%			11I2413	11I2413-BLK1	09/19/11 20:59
Surrogate: Dibromofluoromethane	106%			11I2413	11I2413-BLK1	09/19/11 20:59
Surrogate: Toluene-d8	93%			11I2413	11I2413-BLK1	09/19/11 20:59
Surrogate: 4-Bromofluorobenzene	103%			11I2413	11I2413-BLK1	09/19/11 20:59
11I3965-BLK1						
Acetone	<0.0200		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Tert-Amyl Methyl Ether	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Benzene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Bromobenzene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Bromochloromethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44

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THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2077
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11I3965-BLK1						
Bromodichloromethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Bromoform	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Bromomethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
2-Butanone	<0.0200		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
tert-Butylbenzene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
n-Butylbenzene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
sec-Butylbenzene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Carbon disulfide	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Carbon Tetrachloride	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Chlorobenzene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Chlorodibromomethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Chloroethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Chloroform	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Chloromethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
2-Chlorotoluene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
4-Chlorotoluene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,2-Dibromo-3-chloropropane	<0.00200		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,2-Dibromoethane (EDB)	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Dibromomethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,2-Dichlorobenzene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,3-Dichlorobenzene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,4-Dichlorobenzene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Dichlorodifluoromethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,2-Dichloroethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,1-Dichloroethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,1-Dichloroethene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
trans-1,2-Dichloroethene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
cis-1,2-Dichloroethene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,3-Dichloropropane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
2,2-Dichloropropane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,2-Dichloropropane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
trans-1,3-Dichloropropene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,1-Dichloropropene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
cis-1,3-Dichloropropene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Diethyl ether	<0.00200		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,4-Dioxane	<0.100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Ethylbenzene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Ethyl tert-Butyl Ether	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Hexachlorobutadiene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
2-Hexanone	<0.0200		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Isopropylbenzene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44

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Client	GES Westford (10650)	Work Order:	NUI2077
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11I3965-BLK1						
Diisopropyl Ether	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
p-Isopropyltoluene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Methyl tert-Butyl Ether	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Methylene Chloride	<0.00200		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
4-Methyl-2-pentanone	<0.0200		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Naphthalene	<0.00200		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
n-Propylbenzene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Styrene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,1,2,2-Tetrachloroethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,1,1,2-Tetrachloroethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Tetrachloroethene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Tetrahydrofuran	<0.00200		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Toluene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,2,4-Trichlorobenzene	<0.00120		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,2,3-Trichlorobenzene	<0.00110		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,1,1-Trichloroethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,1,2-Trichloroethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Trichloroethene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Trichlorofluoromethane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,2,3-Trichloropropane	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,3,5-Trimethylbenzene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,2,4-Trimethylbenzene	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Vinyl chloride	<0.00100		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Xylenes, total	<0.00250		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
1,1,2-Trifluorotrichloroethane	<0.00110		mg/kg wet	11I3965	11I3965-BLK1	09/20/11 20:44
Surrogate: 1,2-Dichloroethane-d4	115%			11I3965	11I3965-BLK1	09/20/11 20:44
Surrogate: Dibromofluoromethane	108%			11I3965	11I3965-BLK1	09/20/11 20:44
Surrogate: Toluene-d8	98%			11I3965	11I3965-BLK1	09/20/11 20:44
Surrogate: 4-Bromofluorobenzene	102%			11I3965	11I3965-BLK1	09/20/11 20:44
11I3965-BLK2						
Acetone	<1.00		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Tert-Amyl Methyl Ether	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Benzene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Bromobenzene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Bromochloromethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Bromodichloromethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Bromoform	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Bromomethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
2-Butanone	<1.00		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
tert-Butylbenzene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2077
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11I3965-BLK2						
n-Butylbenzene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
sec-Butylbenzene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Carbon disulfide	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Carbon Tetrachloride	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Chlorobenzene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Chlorodibromomethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Chloroethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Chloroform	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Chloromethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
2-Chlorotoluene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
4-Chlorotoluene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,2-Dibromo-3-chloropropane	<0.100		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,2-Dibromoethane (EDB)	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Dibromomethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,2-Dichlorobenzene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,3-Dichlorobenzene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,4-Dichlorobenzene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Dichlorodifluoromethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,2-Dichloroethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,1-Dichloroethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,1-Dichloroethene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
trans-1,2-Dichloroethene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
cis-1,2-Dichloroethene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,3-Dichloropropane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
2,2-Dichloropropane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,2-Dichloropropane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
trans-1,3-Dichloropropene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,1-Dichloropropene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
cis-1,3-Dichloropropene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Diethyl ether	<0.100		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,4-Dioxane	<5.00		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Ethylbenzene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Ethyl tert-Butyl Ether	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Hexachlorobutadiene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
2-Hexanone	<1.00		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Isopropylbenzene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Diisopropyl Ether	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
p-Isopropyltoluene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Methyl tert-Butyl Ether	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Methylene Chloride	<0.100		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
4-Methyl-2-pentanone	<1.00		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2077
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260						
11I3965-BLK2						
Naphthalene	<0.100		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
n-Propylbenzene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Styrene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,1,2,2-Tetrachloroethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,1,1,2-Tetrachloroethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Tetrachloroethene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Tetrahydrofuran	<0.100		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Toluene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,2,4-Trichlorobenzene	<0.0600		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,2,3-Trichlorobenzene	<0.0550		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,1,1-Trichloroethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,1,2-Trichloroethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Trichloroethene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Trichlorofluoromethane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,2,3-Trichloropropane	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,3,5-Trimethylbenzene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,2,4-Trimethylbenzene	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Vinyl chloride	<0.0500		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Xylenes, total	<0.125		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
1,1,2-Trifluorotrichloroethane	<0.0550		mg/kg wet	11I3965	11I3965-BLK2	09/20/11 21:12
Surrogate: 1,2-Dichloroethane-d4	112%			11I3965	11I3965-BLK2	09/20/11 21:12
Surrogate: Dibromofluoromethane	107%			11I3965	11I3965-BLK2	09/20/11 21:12
Surrogate: Toluene-d8	97%			11I3965	11I3965-BLK2	09/20/11 21:12
Surrogate: 4-Bromofluorobenzene	100%			11I3965	11I3965-BLK2	09/20/11 21:12

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2077
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

PROJECT QUALITY CONTROL DATA
LCS

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11I2413-BS1								
Acetone	250	319		ug/kg	128%	70 - 130	11I2413	09/19/11 18:11
Tert-Amyl Methyl Ether	50.0	41.2		ug/kg	82%	70 - 130	11I2413	09/19/11 18:11
Benzene	50.0	51.0		ug/kg	102%	70 - 130	11I2413	09/19/11 18:11
Bromobenzene	50.0	51.5		ug/kg	103%	70 - 130	11I2413	09/19/11 18:11
Bromochloromethane	50.0	54.6		ug/kg	109%	70 - 130	11I2413	09/19/11 18:11
Bromodichloromethane	50.0	56.8		ug/kg	114%	70 - 130	11I2413	09/19/11 18:11
Bromoform	50.0	46.5		ug/kg	93%	70 - 130	11I2413	09/19/11 18:11
Bromomethane	50.0	47.9		ug/kg	96%	70 - 130	11I2413	09/19/11 18:11
2-Butanone	250	266		ug/kg	106%	70 - 130	11I2413	09/19/11 18:11
tert-Butylbenzene	50.0	52.8		ug/kg	106%	70 - 130	11I2413	09/19/11 18:11
n-Butylbenzene	50.0	52.2		ug/kg	104%	70 - 130	11I2413	09/19/11 18:11
sec-Butylbenzene	50.0	53.3		ug/kg	107%	70 - 130	11I2413	09/19/11 18:11
Carbon disulfide	50.0	47.0		ug/kg	94%	70 - 130	11I2413	09/19/11 18:11
Carbon Tetrachloride	50.0	63.1		ug/kg	126%	70 - 130	11I2413	09/19/11 18:11
Chlorobenzene	50.0	53.4		ug/kg	107%	70 - 130	11I2413	09/19/11 18:11
Chlorodibromomethane	50.0	60.8		ug/kg	122%	70 - 130	11I2413	09/19/11 18:11
Chloroethane	50.0	45.9		ug/kg	92%	70 - 130	11I2413	09/19/11 18:11
Chloroform	50.0	56.9		ug/kg	114%	70 - 130	11I2413	09/19/11 18:11
Chloromethane	50.0	45.6		ug/kg	91%	70 - 130	11I2413	09/19/11 18:11
2-Chlorotoluene	50.0	52.7		ug/kg	105%	70 - 130	11I2413	09/19/11 18:11
4-Chlorotoluene	50.0	55.1		ug/kg	110%	70 - 130	11I2413	09/19/11 18:11
1,2-Dibromo-3-chloropropane	50.0	44.4		ug/kg	89%	70 - 130	11I2413	09/19/11 18:11
1,2-Dibromoethane (EDB)	50.0	53.3		ug/kg	107%	70 - 130	11I2413	09/19/11 18:11
Dibromomethane	50.0	53.7		ug/kg	107%	70 - 130	11I2413	09/19/11 18:11
1,2-Dichlorobenzene	50.0	52.8		ug/kg	106%	70 - 130	11I2413	09/19/11 18:11
1,3-Dichlorobenzene	50.0	53.1		ug/kg	106%	70 - 130	11I2413	09/19/11 18:11
1,4-Dichlorobenzene	50.0	53.4		ug/kg	107%	70 - 130	11I2413	09/19/11 18:11
Dichlorodifluoromethane	50.0	41.0		ug/kg	82%	70 - 130	11I2413	09/19/11 18:11
1,2-Dichloroethane	50.0	55.3		ug/kg	111%	70 - 130	11I2413	09/19/11 18:11
1,1-Dichloroethane	50.0	52.3		ug/kg	105%	70 - 130	11I2413	09/19/11 18:11
1,1-Dichloroethene	50.0	52.8		ug/kg	106%	70 - 130	11I2413	09/19/11 18:11
trans-1,2-Dichloroethene	50.0	52.5		ug/kg	105%	70 - 130	11I2413	09/19/11 18:11
cis-1,2-Dichloroethene	50.0	52.8		ug/kg	106%	70 - 130	11I2413	09/19/11 18:11
1,3-Dichloropropane	50.0	51.4		ug/kg	103%	70 - 130	11I2413	09/19/11 18:11
2,2-Dichloropropane	50.0	60.2		ug/kg	120%	70 - 130	11I2413	09/19/11 18:11
1,2-Dichloropropane	50.0	46.0		ug/kg	92%	70 - 130	11I2413	09/19/11 18:11
trans-1,3-Dichloropropene	50.0	55.0		ug/kg	110%	70 - 130	11I2413	09/19/11 18:11
1,1-Dichloropropene	50.0	54.4		ug/kg	109%	70 - 130	11I2413	09/19/11 18:11
cis-1,3-Dichloropropene	50.0	56.8		ug/kg	114%	70 - 130	11I2413	09/19/11 18:11
Diethyl ether	50.0	48.4		ug/kg	97%	70 - 130	11I2413	09/19/11 18:11
1,4-Dioxane	5000	6210		ug/kg	124%	70 - 130	11I2413	09/19/11 18:11

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2077
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11I2413-BS1								
Ethylbenzene	50.0	52.3		ug/kg	105%	70 - 130	11I2413	09/19/11 18:11
Ethyl tert-Butyl Ether	50.0	41.3		ug/kg	83%	70 - 130	11I2413	09/19/11 18:11
Hexachlorobutadiene	50.0	35.5		ug/kg	71%	70 - 130	11I2413	09/19/11 18:11
2-Hexanone	250	238		ug/kg	95%	70 - 130	11I2413	09/19/11 18:11
Isopropylbenzene	50.0	57.7		ug/kg	115%	70 - 130	11I2413	09/19/11 18:11
Diisopropyl Ether	50.0	42.4		ug/kg	85%	70 - 130	11I2413	09/19/11 18:11
p-Isopropyltoluene	50.0	52.2		ug/kg	104%	70 - 130	11I2413	09/19/11 18:11
Methyl tert-Butyl Ether	50.0	45.1		ug/kg	90%	70 - 130	11I2413	09/19/11 18:11
Methylene Chloride	50.0	54.0		ug/kg	108%	70 - 130	11I2413	09/19/11 18:11
4-Methyl-2-pentanone	250	227		ug/kg	91%	70 - 130	11I2413	09/19/11 18:11
Naphthalene	50.0	43.8		ug/kg	88%	70 - 130	11I2413	09/19/11 18:11
n-Propylbenzene	50.0	53.4		ug/kg	107%	70 - 130	11I2413	09/19/11 18:11
Styrene	50.0	51.2		ug/kg	102%	70 - 130	11I2413	09/19/11 18:11
1,1,2,2-Tetrachloroethane	50.0	50.9		ug/kg	102%	70 - 130	11I2413	09/19/11 18:11
1,1,1,2-Tetrachloroethane	50.0	57.5		ug/kg	115%	70 - 130	11I2413	09/19/11 18:11
Tetrachloroethene	50.0	52.2		ug/kg	104%	70 - 130	11I2413	09/19/11 18:11
Tetrahydrofuran	500	435		ug/kg	87%	70 - 130	11I2413	09/19/11 18:11
Toluene	50.0	52.8		ug/kg	106%	70 - 130	11I2413	09/19/11 18:11
1,2,4-Trichlorobenzene	50.0	42.6		ug/kg	85%	70 - 130	11I2413	09/19/11 18:11
1,2,3-Trichlorobenzene	50.0	40.9		ug/kg	82%	70 - 130	11I2413	09/19/11 18:11
1,1,1-Trichloroethane	50.0	59.5		ug/kg	119%	70 - 130	11I2413	09/19/11 18:11
1,1,2-Trichloroethane	50.0	54.0		ug/kg	108%	70 - 130	11I2413	09/19/11 18:11
Trichloroethene	50.0	54.7		ug/kg	109%	70 - 130	11I2413	09/19/11 18:11
Trichlorofluoromethane	50.0	51.5		ug/kg	103%	70 - 130	11I2413	09/19/11 18:11
1,2,3-Trichloropropane	50.0	54.2		ug/kg	108%	70 - 130	11I2413	09/19/11 18:11
1,3,5-Trimethylbenzene	50.0	54.2		ug/kg	108%	70 - 130	11I2413	09/19/11 18:11
1,2,4-Trimethylbenzene	50.0	52.0		ug/kg	104%	70 - 130	11I2413	09/19/11 18:11
Vinyl chloride	50.0	42.9		ug/kg	86%	70 - 130	11I2413	09/19/11 18:11
Xylenes, total	150	156		ug/kg	104%	70 - 130	11I2413	09/19/11 18:11
1,1,2-Trifluorotrichloroethane	50.0	56.2		ug/kg	112%	61 - 134	11I2413	09/19/11 18:11
Surrogate: 1,2-Dichloroethane-d4	25.0	26.6			107%	70 - 130	11I2413	09/19/11 18:11
Surrogate: Dibromofluoromethane	25.0	27.2			109%	70 - 130	11I2413	09/19/11 18:11
Surrogate: Toluene-d8	25.0	24.9			100%	70 - 130	11I2413	09/19/11 18:11
Surrogate: 4-Bromofluorobenzene	25.0	25.0			100%	70 - 130	11I2413	09/19/11 18:11
11I3965-BS1								
Acetone	250	333	L1	ug/kg	133%	70 - 130	11I3965	09/20/11 18:52
Tert-Amyl Methyl Ether	50.0	42.3		ug/kg	85%	70 - 130	11I3965	09/20/11 18:52
Benzene	50.0	51.5		ug/kg	103%	70 - 130	11I3965	09/20/11 18:52
Bromobenzene	50.0	50.7		ug/kg	101%	70 - 130	11I3965	09/20/11 18:52
Bromochloromethane	50.0	55.1		ug/kg	110%	70 - 130	11I3965	09/20/11 18:52

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2077
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11I3965-BS1								
Bromodichloromethane	50.0	56.8		ug/kg	114%	70 - 130	11I3965	09/20/11 18:52
Bromoform	50.0	45.6		ug/kg	91%	70 - 130	11I3965	09/20/11 18:52
Bromomethane	50.0	49.0		ug/kg	98%	70 - 130	11I3965	09/20/11 18:52
2-Butanone	250	285		ug/kg	114%	70 - 130	11I3965	09/20/11 18:52
tert-Butylbenzene	50.0	51.2		ug/kg	102%	70 - 130	11I3965	09/20/11 18:52
n-Butylbenzene	50.0	51.2		ug/kg	102%	70 - 130	11I3965	09/20/11 18:52
sec-Butylbenzene	50.0	51.4		ug/kg	103%	70 - 130	11I3965	09/20/11 18:52
Carbon disulfide	50.0	50.2		ug/kg	100%	70 - 130	11I3965	09/20/11 18:52
Carbon Tetrachloride	50.0	63.3		ug/kg	127%	70 - 130	11I3965	09/20/11 18:52
Chlorobenzene	50.0	51.3		ug/kg	103%	70 - 130	11I3965	09/20/11 18:52
Chlorodibromomethane	50.0	58.3		ug/kg	117%	70 - 130	11I3965	09/20/11 18:52
Chloroethane	50.0	47.3		ug/kg	95%	70 - 130	11I3965	09/20/11 18:52
Chloroform	50.0	57.0		ug/kg	114%	70 - 130	11I3965	09/20/11 18:52
Chloromethane	50.0	40.5		ug/kg	81%	70 - 130	11I3965	09/20/11 18:52
2-Chlorotoluene	50.0	50.9		ug/kg	102%	70 - 130	11I3965	09/20/11 18:52
4-Chlorotoluene	50.0	53.0		ug/kg	106%	70 - 130	11I3965	09/20/11 18:52
1,2-Dibromo-3-chloropropane	50.0	42.8		ug/kg	86%	70 - 130	11I3965	09/20/11 18:52
1,2-Dibromoethane (EDB)	50.0	53.0		ug/kg	106%	70 - 130	11I3965	09/20/11 18:52
Dibromomethane	50.0	54.8		ug/kg	110%	70 - 130	11I3965	09/20/11 18:52
1,2-Dichlorobenzene	50.0	51.6		ug/kg	103%	70 - 130	11I3965	09/20/11 18:52
1,3-Dichlorobenzene	50.0	51.7		ug/kg	103%	70 - 130	11I3965	09/20/11 18:52
1,4-Dichlorobenzene	50.0	52.7		ug/kg	105%	70 - 130	11I3965	09/20/11 18:52
Dichlorodifluoromethane	50.0	39.0		ug/kg	78%	70 - 130	11I3965	09/20/11 18:52
1,2-Dichloroethane	50.0	56.6		ug/kg	113%	70 - 130	11I3965	09/20/11 18:52
1,1-Dichloroethane	50.0	51.8		ug/kg	104%	70 - 130	11I3965	09/20/11 18:52
1,1-Dichloroethene	50.0	53.4		ug/kg	107%	70 - 130	11I3965	09/20/11 18:52
trans-1,2-Dichloroethene	50.0	54.1		ug/kg	108%	70 - 130	11I3965	09/20/11 18:52
cis-1,2-Dichloroethene	50.0	52.3		ug/kg	105%	70 - 130	11I3965	09/20/11 18:52
1,3-Dichloropropane	50.0	50.3		ug/kg	101%	70 - 130	11I3965	09/20/11 18:52
2,2-Dichloropropane	50.0	61.3		ug/kg	123%	70 - 130	11I3965	09/20/11 18:52
1,2-Dichloropropane	50.0	46.4		ug/kg	93%	70 - 130	11I3965	09/20/11 18:52
trans-1,3-Dichloropropene	50.0	53.6		ug/kg	107%	70 - 130	11I3965	09/20/11 18:52
1,1-Dichloropropene	50.0	54.8		ug/kg	110%	70 - 130	11I3965	09/20/11 18:52
cis-1,3-Dichloropropene	50.0	54.6		ug/kg	109%	70 - 130	11I3965	09/20/11 18:52
Diethyl ether	50.0	51.4		ug/kg	103%	70 - 130	11I3965	09/20/11 18:52
1,4-Dioxane	5000	6190		ug/kg	124%	70 - 130	11I3965	09/20/11 18:52
Ethylbenzene	50.0	50.9		ug/kg	102%	70 - 130	11I3965	09/20/11 18:52
Ethyl tert-Butyl Ether	50.0	41.5		ug/kg	83%	70 - 130	11I3965	09/20/11 18:52
Hexachlorobutadiene	50.0	34.7	L2	ug/kg	69%	70 - 130	11I3965	09/20/11 18:52
2-Hexanone	250	253		ug/kg	101%	70 - 130	11I3965	09/20/11 18:52
Isopropylbenzene	50.0	55.4		ug/kg	111%	70 - 130	11I3965	09/20/11 18:52

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2077
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260								
11I3965-BS1								
Diisopropyl Ether	50.0	42.3		ug/kg	85%	70 - 130	11I3965	09/20/11 18:52
p-Isopropyltoluene	50.0	50.3		ug/kg	101%	70 - 130	11I3965	09/20/11 18:52
Methyl tert-Butyl Ether	50.0	48.0		ug/kg	96%	70 - 130	11I3965	09/20/11 18:52
Methylene Chloride	50.0	54.2		ug/kg	108%	70 - 130	11I3965	09/20/11 18:52
4-Methyl-2-pentanone	250	238		ug/kg	95%	70 - 130	11I3965	09/20/11 18:52
Naphthalene	50.0	44.3		ug/kg	89%	70 - 130	11I3965	09/20/11 18:52
n-Propylbenzene	50.0	51.8		ug/kg	104%	70 - 130	11I3965	09/20/11 18:52
Styrene	50.0	49.3		ug/kg	99%	70 - 130	11I3965	09/20/11 18:52
1,1,2,2-Tetrachloroethane	50.0	51.3		ug/kg	103%	70 - 130	11I3965	09/20/11 18:52
1,1,1,2-Tetrachloroethane	50.0	55.1		ug/kg	110%	70 - 130	11I3965	09/20/11 18:52
Tetrachloroethene	50.0	51.0		ug/kg	102%	70 - 130	11I3965	09/20/11 18:52
Tetrahydrofuran	500	473		ug/kg	95%	70 - 130	11I3965	09/20/11 18:52
Toluene	50.0	50.9		ug/kg	102%	70 - 130	11I3965	09/20/11 18:52
1,2,4-Trichlorobenzene	50.0	40.6		ug/kg	81%	70 - 130	11I3965	09/20/11 18:52
1,2,3-Trichlorobenzene	50.0	41.4		ug/kg	83%	70 - 130	11I3965	09/20/11 18:52
1,1,1-Trichloroethane	50.0	60.0		ug/kg	120%	70 - 130	11I3965	09/20/11 18:52
1,1,2-Trichloroethane	50.0	52.2		ug/kg	104%	70 - 130	11I3965	09/20/11 18:52
Trichloroethene	50.0	54.4		ug/kg	109%	70 - 130	11I3965	09/20/11 18:52
Trichlorofluoromethane	50.0	54.4		ug/kg	109%	70 - 130	11I3965	09/20/11 18:52
1,2,3-Trichloropropane	50.0	54.2		ug/kg	108%	70 - 130	11I3965	09/20/11 18:52
1,3,5-Trimethylbenzene	50.0	51.7		ug/kg	103%	70 - 130	11I3965	09/20/11 18:52
1,2,4-Trimethylbenzene	50.0	50.2		ug/kg	100%	70 - 130	11I3965	09/20/11 18:52
Vinyl chloride	50.0	42.9		ug/kg	86%	70 - 130	11I3965	09/20/11 18:52
Xylenes, total	150	151		ug/kg	101%	70 - 130	11I3965	09/20/11 18:52
1,1,2-Trifluorotrichloroethane	50.0	60.3		ug/kg	121%	61 - 134	11I3965	09/20/11 18:52
Surrogate: 1,2-Dichloroethane-d4	25.0	26.9			108%	70 - 130	11I3965	09/20/11 18:52
Surrogate: Dibromofluoromethane	25.0	27.5			110%	70 - 130	11I3965	09/20/11 18:52
Surrogate: Toluene-d8	25.0	24.7			99%	70 - 130	11I3965	09/20/11 18:52
Surrogate: 4-Bromofluorobenzene	25.0	25.1			101%	70 - 130	11I3965	09/20/11 18:52

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2077
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

PROJECT QUALITY CONTROL DATA
LCS Dup

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11I2413-BSD1												
Acetone		305		ug/kg	250	122%	70 - 130	5	20	11I2413		09/19/11 18:39
Tert-Amyl Methyl Ether		41.0		ug/kg	50.0	82%	70 - 130	0.6	20	11I2413		09/19/11 18:39
Benzene		50.0		ug/kg	50.0	100%	70 - 130	2	20	11I2413		09/19/11 18:39
Bromobenzene		51.0		ug/kg	50.0	102%	70 - 130	1	20	11I2413		09/19/11 18:39
Bromochloromethane		53.1		ug/kg	50.0	106%	70 - 130	3	20	11I2413		09/19/11 18:39
Bromodichloromethane		55.4		ug/kg	50.0	111%	70 - 130	3	20	11I2413		09/19/11 18:39
Bromoform		45.6		ug/kg	50.0	91%	70 - 130	2	20	11I2413		09/19/11 18:39
Bromomethane		47.2		ug/kg	50.0	94%	70 - 130	1	20	11I2413		09/19/11 18:39
2-Butanone		257		ug/kg	250	103%	70 - 130	4	20	11I2413		09/19/11 18:39
tert-Butylbenzene		51.3		ug/kg	50.0	103%	70 - 130	3	20	11I2413		09/19/11 18:39
n-Butylbenzene		51.2		ug/kg	50.0	102%	70 - 130	2	20	11I2413		09/19/11 18:39
sec-Butylbenzene		52.5		ug/kg	50.0	105%	70 - 130	1	20	11I2413		09/19/11 18:39
Carbon disulfide		46.0		ug/kg	50.0	92%	70 - 130	2	20	11I2413		09/19/11 18:39
Carbon Tetrachloride		61.6		ug/kg	50.0	123%	70 - 130	2	20	11I2413		09/19/11 18:39
Chlorobenzene		52.3		ug/kg	50.0	105%	70 - 130	2	20	11I2413		09/19/11 18:39
Chlorodibromomethane		59.8		ug/kg	50.0	120%	70 - 130	2	20	11I2413		09/19/11 18:39
Chloroethane		44.6		ug/kg	50.0	89%	70 - 130	3	20	11I2413		09/19/11 18:39
Chloroform		55.9		ug/kg	50.0	112%	70 - 130	2	20	11I2413		09/19/11 18:39
Chloromethane		43.2		ug/kg	50.0	86%	70 - 130	5	20	11I2413		09/19/11 18:39
2-Chlorotoluene		51.5		ug/kg	50.0	103%	70 - 130	2	20	11I2413		09/19/11 18:39
4-Chlorotoluene		53.8		ug/kg	50.0	108%	70 - 130	2	20	11I2413		09/19/11 18:39
1,2-Dibromo-3-chloropropane		41.8		ug/kg	50.0	84%	70 - 130	6	20	11I2413		09/19/11 18:39
1,2-Dibromoethane (EDB)		53.0		ug/kg	50.0	106%	70 - 130	0.5	20	11I2413		09/19/11 18:39
Dibromomethane		53.4		ug/kg	50.0	107%	70 - 130	0.6	20	11I2413		09/19/11 18:39
1,2-Dichlorobenzene		51.6		ug/kg	50.0	103%	70 - 130	2	20	11I2413		09/19/11 18:39
1,3-Dichlorobenzene		51.9		ug/kg	50.0	104%	70 - 130	2	20	11I2413		09/19/11 18:39
1,4-Dichlorobenzene		52.5		ug/kg	50.0	105%	70 - 130	2	20	11I2413		09/19/11 18:39
Dichlorodifluoromethane		39.8		ug/kg	50.0	80%	70 - 130	3	20	11I2413		09/19/11 18:39
1,2-Dichloroethane		55.3		ug/kg	50.0	111%	70 - 130	0.09	20	11I2413		09/19/11 18:39
1,1-Dichloroethane		51.2		ug/kg	50.0	102%	70 - 130	2	20	11I2413		09/19/11 18:39
1,1-Dichloroethene		49.5		ug/kg	50.0	99%	70 - 130	7	20	11I2413		09/19/11 18:39
trans-1,2-Dichloroethene		52.4		ug/kg	50.0	105%	70 - 130	0.06	20	11I2413		09/19/11 18:39
cis-1,2-Dichloroethene		51.4		ug/kg	50.0	103%	70 - 130	3	20	11I2413		09/19/11 18:39
1,3-Dichloropropane		50.2		ug/kg	50.0	100%	70 - 130	2	20	11I2413		09/19/11 18:39
2,2-Dichloropropane		57.8		ug/kg	50.0	116%	70 - 130	4	20	11I2413		09/19/11 18:39
1,2-Dichloropropane		46.0		ug/kg	50.0	92%	70 - 130	0.04	20	11I2413		09/19/11 18:39
trans-1,3-Dichloropropene		54.2		ug/kg	50.0	108%	70 - 130	1	20	11I2413		09/19/11 18:39
1,1-Dichloropropene		53.4		ug/kg	50.0	107%	70 - 130	2	20	11I2413		09/19/11 18:39
cis-1,3-Dichloropropene		55.4		ug/kg	50.0	111%	70 - 130	2	20	11I2413		09/19/11 18:39
Diethyl ether		47.9		ug/kg	50.0	96%	70 - 130	1	20	11I2413		09/19/11 18:39
1,4-Dioxane		6220		ug/kg	5000	124%	70 - 130	0.2	20	11I2413		09/19/11 18:39

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2077
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11I2413-BSD1												
Ethylbenzene		51.8		ug/kg	50.0	104%	70 - 130	0.9	20	11I2413		09/19/11 18:39
Ethyl tert-Butyl Ether		40.8		ug/kg	50.0	82%	70 - 130	1	20	11I2413		09/19/11 18:39
Hexachlorobutadiene		35.3		ug/kg	50.0	71%	70 - 130	0.7	20	11I2413		09/19/11 18:39
2-Hexanone		237		ug/kg	250	95%	70 - 130	0.7	20	11I2413		09/19/11 18:39
Isopropylbenzene		56.7		ug/kg	50.0	113%	70 - 130	2	20	11I2413		09/19/11 18:39
Diisopropyl Ether		41.9		ug/kg	50.0	84%	70 - 130	1	20	11I2413		09/19/11 18:39
p-Isopropyltoluene		50.4		ug/kg	50.0	101%	70 - 130	3	20	11I2413		09/19/11 18:39
Methyl tert-Butyl Ether		45.6		ug/kg	50.0	91%	70 - 130	1	20	11I2413		09/19/11 18:39
Methylene Chloride		51.6		ug/kg	50.0	103%	70 - 130	4	20	11I2413		09/19/11 18:39
4-Methyl-2-pentanone		228		ug/kg	250	91%	70 - 130	0.2	20	11I2413		09/19/11 18:39
Naphthalene		43.7		ug/kg	50.0	87%	70 - 130	0.2	20	11I2413		09/19/11 18:39
n-Propylbenzene		51.9		ug/kg	50.0	104%	70 - 130	3	20	11I2413		09/19/11 18:39
Styrene		50.1		ug/kg	50.0	100%	70 - 130	2	20	11I2413		09/19/11 18:39
1,1,2,2-Tetrachloroethane		50.4		ug/kg	50.0	101%	70 - 130	1	20	11I2413		09/19/11 18:39
1,1,1,2-Tetrachloroethane		55.9		ug/kg	50.0	112%	70 - 130	3	20	11I2413		09/19/11 18:39
Tetrachloroethene		51.4		ug/kg	50.0	103%	70 - 130	1	20	11I2413		09/19/11 18:39
Tetrahydrofuran		437		ug/kg	500	87%	70 - 130	0.6	20	11I2413		09/19/11 18:39
Toluene		51.3		ug/kg	50.0	103%	70 - 130	3	20	11I2413		09/19/11 18:39
1,2,4-Trichlorobenzene		41.8		ug/kg	50.0	84%	70 - 130	2	20	11I2413		09/19/11 18:39
1,2,3-Trichlorobenzene		41.6		ug/kg	50.0	83%	70 - 130	2	20	11I2413		09/19/11 18:39
1,1,1-Trichloroethane		58.8		ug/kg	50.0	118%	70 - 130	1	20	11I2413		09/19/11 18:39
1,1,2-Trichloroethane		53.4		ug/kg	50.0	107%	70 - 130	1	20	11I2413		09/19/11 18:39
Trichloroethene		54.4		ug/kg	50.0	109%	70 - 130	0.5	20	11I2413		09/19/11 18:39
Trichlorofluoromethane		52.6		ug/kg	50.0	105%	70 - 130	2	20	11I2413		09/19/11 18:39
1,2,3-Trichloropropane		54.0		ug/kg	50.0	108%	70 - 130	0.2	20	11I2413		09/19/11 18:39
1,3,5-Trimethylbenzene		51.9		ug/kg	50.0	104%	70 - 130	4	20	11I2413		09/19/11 18:39
1,2,4-Trimethylbenzene		50.9		ug/kg	50.0	102%	70 - 130	2	20	11I2413		09/19/11 18:39
Vinyl chloride		42.8		ug/kg	50.0	86%	70 - 130	0.2	20	11I2413		09/19/11 18:39
Xylenes, total		152		ug/kg	150	102%	70 - 130	2	20	11I2413		09/19/11 18:39
1,1,2-Trifluorotrichloroethane		55.7		ug/kg	50.0	111%	61 - 134	0.8	20	11I2413		09/19/11 18:39
Surrogate: 1,2-Dichloroethane-d4		26.5		ug/kg	25.0	106%	70 - 130			11I2413		09/19/11 18:39
Surrogate: Dibromofluoromethane		27.0		ug/kg	25.0	108%	70 - 130			11I2413		09/19/11 18:39
Surrogate: Toluene-d8		25.1		ug/kg	25.0	101%	70 - 130			11I2413		09/19/11 18:39
Surrogate: 4-Bromofluorobenzene		24.9		ug/kg	25.0	100%	70 - 130			11I2413		09/19/11 18:39
11I3965-BSD1												
Acetone		292		ug/kg	250	117%	70 - 130	13	20	11I3965		09/20/11 19:20
Tert-Amyl Methyl Ether		40.0		ug/kg	50.0	80%	70 - 130	5	20	11I3965		09/20/11 19:20
Benzene		47.8		ug/kg	50.0	96%	70 - 130	7	20	11I3965		09/20/11 19:20
Bromobenzene		47.4		ug/kg	50.0	95%	70 - 130	7	20	11I3965		09/20/11 19:20
Bromochloromethane		51.6		ug/kg	50.0	103%	70 - 130	7	20	11I3965		09/20/11 19:20

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2077
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11I3965-BSD1												
Bromodichloromethane		52.5		ug/kg	50.0	105%	70 - 130	8	20	11I3965		09/20/11 19:20
Bromoform		41.9		ug/kg	50.0	84%	70 - 130	8	20	11I3965		09/20/11 19:20
Bromomethane		47.3		ug/kg	50.0	95%	70 - 130	4	20	11I3965		09/20/11 19:20
2-Butanone		262		ug/kg	250	105%	70 - 130	9	20	11I3965		09/20/11 19:20
tert-Butylbenzene		47.5		ug/kg	50.0	95%	70 - 130	8	20	11I3965		09/20/11 19:20
n-Butylbenzene		47.3		ug/kg	50.0	95%	70 - 130	8	20	11I3965		09/20/11 19:20
sec-Butylbenzene		48.0		ug/kg	50.0	96%	70 - 130	7	20	11I3965		09/20/11 19:20
Carbon disulfide		46.6		ug/kg	50.0	93%	70 - 130	8	20	11I3965		09/20/11 19:20
Carbon Tetrachloride		58.4		ug/kg	50.0	117%	70 - 130	8	20	11I3965		09/20/11 19:20
Chlorobenzene		48.3		ug/kg	50.0	97%	70 - 130	6	20	11I3965		09/20/11 19:20
Chlorodibromomethane		55.4		ug/kg	50.0	111%	70 - 130	5	20	11I3965		09/20/11 19:20
Chloroethane		44.2		ug/kg	50.0	88%	70 - 130	7	20	11I3965		09/20/11 19:20
Chloroform		53.4		ug/kg	50.0	107%	70 - 130	6	20	11I3965		09/20/11 19:20
Chloromethane		37.8		ug/kg	50.0	76%	70 - 130	7	20	11I3965		09/20/11 19:20
2-Chlorotoluene		47.9		ug/kg	50.0	96%	70 - 130	6	20	11I3965		09/20/11 19:20
4-Chlorotoluene		50.2		ug/kg	50.0	100%	70 - 130	6	20	11I3965		09/20/11 19:20
1,2-Dibromo-3-chloropropane		40.5		ug/kg	50.0	81%	70 - 130	6	20	11I3965		09/20/11 19:20
1,2-Dibromoethane (EDB)		50.5		ug/kg	50.0	101%	70 - 130	5	20	11I3965		09/20/11 19:20
Dibromomethane		51.2		ug/kg	50.0	102%	70 - 130	7	20	11I3965		09/20/11 19:20
1,2-Dichlorobenzene		48.4		ug/kg	50.0	97%	70 - 130	6	20	11I3965		09/20/11 19:20
1,3-Dichlorobenzene		48.2		ug/kg	50.0	96%	70 - 130	7	20	11I3965		09/20/11 19:20
1,4-Dichlorobenzene		48.8		ug/kg	50.0	98%	70 - 130	8	20	11I3965		09/20/11 19:20
Dichlorodifluoromethane		36.6		ug/kg	50.0	73%	70 - 130	6	20	11I3965		09/20/11 19:20
1,2-Dichloroethane		53.2		ug/kg	50.0	106%	70 - 130	6	20	11I3965		09/20/11 19:20
1,1-Dichloroethane		48.8		ug/kg	50.0	98%	70 - 130	6	20	11I3965		09/20/11 19:20
1,1-Dichloroethene		51.6		ug/kg	50.0	103%	70 - 130	4	20	11I3965		09/20/11 19:20
trans-1,2-Dichloroethene		49.4		ug/kg	50.0	99%	70 - 130	9	20	11I3965		09/20/11 19:20
cis-1,2-Dichloroethene		49.0		ug/kg	50.0	98%	70 - 130	7	20	11I3965		09/20/11 19:20
1,3-Dichloropropane		47.7		ug/kg	50.0	95%	70 - 130	5	20	11I3965		09/20/11 19:20
2,2-Dichloropropane		55.1		ug/kg	50.0	110%	70 - 130	11	20	11I3965		09/20/11 19:20
1,2-Dichloropropane		43.6		ug/kg	50.0	87%	70 - 130	6	20	11I3965		09/20/11 19:20
trans-1,3-Dichloropropene		50.4		ug/kg	50.0	101%	70 - 130	6	20	11I3965		09/20/11 19:20
1,1-Dichloropropene		50.2		ug/kg	50.0	100%	70 - 130	9	20	11I3965		09/20/11 19:20
cis-1,3-Dichloropropene		51.5		ug/kg	50.0	103%	70 - 130	6	20	11I3965		09/20/11 19:20
Diethyl ether		48.5		ug/kg	50.0	97%	70 - 130	6	20	11I3965		09/20/11 19:20
1,4-Dioxane		5900		ug/kg	5000	118%	70 - 130	5	20	11I3965		09/20/11 19:20
Ethylbenzene		47.9		ug/kg	50.0	96%	70 - 130	6	20	11I3965		09/20/11 19:20
Ethyl tert-Butyl Ether		39.8		ug/kg	50.0	80%	70 - 130	4	20	11I3965		09/20/11 19:20
Hexachlorobutadiene		32.2	L2	ug/kg	50.0	64%	70 - 130	8	20	11I3965		09/20/11 19:20
2-Hexanone		237		ug/kg	250	95%	70 - 130	7	20	11I3965		09/20/11 19:20
Isopropylbenzene		52.0		ug/kg	50.0	104%	70 - 130	6	20	11I3965		09/20/11 19:20

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2077
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

PROJECT QUALITY CONTROL DATA

LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic - MCP CAM Method 8260												
11I3965-BSD1												
Diisopropyl Ether		39.6		ug/kg	50.0	79%	70 - 130	7	20	11I3965		09/20/11 19:20
p-Isopropyltoluene		46.4		ug/kg	50.0	93%	70 - 130	8	20	11I3965		09/20/11 19:20
Methyl tert-Butyl Ether		45.4		ug/kg	50.0	91%	70 - 130	5	20	11I3965		09/20/11 19:20
Methylene Chloride		52.2		ug/kg	50.0	104%	70 - 130	4	20	11I3965		09/20/11 19:20
4-Methyl-2-pentanone		223		ug/kg	250	89%	70 - 130	6	20	11I3965		09/20/11 19:20
Naphthalene		41.8		ug/kg	50.0	84%	70 - 130	6	20	11I3965		09/20/11 19:20
n-Propylbenzene		48.7		ug/kg	50.0	97%	70 - 130	6	20	11I3965		09/20/11 19:20
Styrene		46.8		ug/kg	50.0	94%	70 - 130	5	20	11I3965		09/20/11 19:20
1,1,2,2-Tetrachloroethane		48.6		ug/kg	50.0	97%	70 - 130	5	20	11I3965		09/20/11 19:20
1,1,1,2-Tetrachloroethane		51.4		ug/kg	50.0	103%	70 - 130	7	20	11I3965		09/20/11 19:20
Tetrachloroethene		47.6		ug/kg	50.0	95%	70 - 130	7	20	11I3965		09/20/11 19:20
Tetrahydrofuran		443		ug/kg	500	89%	70 - 130	7	20	11I3965		09/20/11 19:20
Toluene		48.3		ug/kg	50.0	97%	70 - 130	5	20	11I3965		09/20/11 19:20
1,2,4-Trichlorobenzene		38.4		ug/kg	50.0	77%	70 - 130	5	20	11I3965		09/20/11 19:20
1,2,3-Trichlorobenzene		39.1		ug/kg	50.0	78%	70 - 130	6	20	11I3965		09/20/11 19:20
1,1,1-Trichloroethane		55.7		ug/kg	50.0	111%	70 - 130	7	20	11I3965		09/20/11 19:20
1,1,2-Trichloroethane		50.0		ug/kg	50.0	100%	70 - 130	4	20	11I3965		09/20/11 19:20
Trichloroethene		50.7		ug/kg	50.0	101%	70 - 130	7	20	11I3965		09/20/11 19:20
Trichlorofluoromethane		51.8		ug/kg	50.0	104%	70 - 130	5	20	11I3965		09/20/11 19:20
1,2,3-Trichloropropane		50.8		ug/kg	50.0	102%	70 - 130	6	20	11I3965		09/20/11 19:20
1,3,5-Trimethylbenzene		48.7		ug/kg	50.0	97%	70 - 130	6	20	11I3965		09/20/11 19:20
1,2,4-Trimethylbenzene		47.6		ug/kg	50.0	95%	70 - 130	5	20	11I3965		09/20/11 19:20
Vinyl chloride		41.1		ug/kg	50.0	82%	70 - 130	4	20	11I3965		09/20/11 19:20
Xylenes, total		143		ug/kg	150	95%	70 - 130	6	20	11I3965		09/20/11 19:20
1,1,2-Trifluorotrichloroethane		55.9		ug/kg	50.0	112%	61 - 134	8	20	11I3965		09/20/11 19:20
Surrogate: 1,2-Dichloroethane-d4		26.7		ug/kg	25.0	107%	70 - 130			11I3965		09/20/11 19:20
Surrogate: Dibromofluoromethane		27.6		ug/kg	25.0	110%	70 - 130			11I3965		09/20/11 19:20
Surrogate: Toluene-d8		24.8		ug/kg	25.0	99%	70 - 130			11I3965		09/20/11 19:20
Surrogate: 4-Bromofluorobenzene		24.8		ug/kg	25.0	99%	70 - 130			11I3965		09/20/11 19:20

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2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	GES Westford (10650)	Work Order:	NUI2077
	364 Littleton Road, Suite 4	Project Name:	General Chemical
	Westford, MA 01886	Project Number:	Framingham, MA
Attn	Stefan Sokol	Received:	09/16/11 08:30

DATA QUALIFIERS AND DEFINITIONS

L	Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was above the acceptance limits. Analyte not detected, data not impacted.
L1	Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was above acceptance limits.
L2	Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was below acceptance limits.
ND	Not detected at the reporting limit (or method detection limit if shown)

METHOD MODIFICATION NOTES

TestAmerica

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Nashville, TN

COOLER REC

NUI2077

Cooler Received/Opened On 9/16/2011 @ 08:30

1. Tracking # 0534 (last 4 digits, FedEx)

Courier: FedEx IR Gun ID 94660220

2. Temperature of rep. sample or temp blank when opened: 2.3 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES..NO...NA

   If yes, how many and where: (1) Front

5. Were the seals intact, signed, and dated correctly? YES..NO...NA

6. Were custody papers inside cooler? YES..NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) _____

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

   Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES..NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES..NO...NA

12. Did all container labels and tags agree with custody papers? YES..NO...NA

13a. Were VOA vials received? YES..NO...NA

   b. Was there any observable headspace present in any VOA vial? YES NO NA - Soils

14. Was there a Trip Blank in this cooler? YES..NO...NA If multiple coolers, sequence # NA

I certify that I unloaded the cooler and answered questions 7-14 (intial) _____

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES..NO..NA

   b. Did the bottle labels indicate that the correct preservatives were used YES..NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) _____

17. Were custody papers properly filled out (ink, signed, etc)? YES..NO...NA

18. Did you sign the custody papers in the appropriate place? YES..NO...NA

19. Were correct containers used for the analysis requested? YES..NO...NA

20. Was sufficient amount of sample sent in each container? YES..NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) _____

I certify that I attached a label with the unique LIMS number to each container (intial) _____

21. Were there Non-Conformance issues at login? YES...NO Was a PIPE generated? YES...NO...# _____

BIS = Broken in shipment

Cooler Receipt Form.doc

LF-1

End of Form

Revised 6/24/09

General Chemical

NUI2077

Tes 09/30/11 23 59

INCORPORATED

Nashville Division
2960 Foster Creighton
Nashville, TN 37204

Phone: 615-726-0177
Toll Free: 800-765-0980
Fax: 615-726-3404

Consultant Name: GES
Address: 364 Littleton Road
City/State/Zip: Westford, MA 01886
Project Mgr: Stefan Sokol
Consultant Project Mgr: Roy Suntz
Consultant Telephone Number: 800-221-6119
Fax No.: 978-392-8583
Sampler Name: (Print) Mary Cathey
Sampler Signature: Mary Cathey

TA Account #:
Invoice To: GES, Stefan Sokol
Report To: Stefan Sokol
PO #: General Chemical 1603978
PROJECT #:
Facility ID # General Chemical
Site Address 133 Leland St.
City, State, Zip Framingham, MA
Regulatory District (CA)

Sample ID or Field ID	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative: Methanol	Sodium Bisulfate	HCl (Blue Label)	NaOH (Orange Label)	H_2SO_4 Plastic (Yellow Label)	H_2SO_4 Glass(Yellow Label)	HNO_3 (Red Label)	None (Black Label)	Matrix: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	Analyze For: VOCs	VPH	SVOCs	EPH	TOC	total Fe & Mn	% solids					RUSH TAT (Pre-Scheduled) *	TAT request (in Bus. Days)	Fax Results (yes or no)	Due Date of Report
trip blk	9/14/11	0700	1				1													X	X														
MW-19 (10-12.5)	9/14/11	0800	3				2							1							X						X								
MW-19 (27.5-30)	9/14/11	0900	3				2							1							X						X								
MW-20 (10-12.5)	9/14/11	1000	3				2							1							X						X								

Comments/Special Instructions:

Request 5-day turnaround - email to J. Huckaba

Relinquished by:	Date	Time	Received by:	Date	Time
Mary Cathey	9/15/2011	0800	GES Stock	9/15/11	0800
Relinquished by:	Date	Time	Received by TestAmerica:	Date	Time
J. Huckaba	9/15/11	1215	[illegible]	9-15-11	12:15

Laboratory Comments:
Temperature Upon Receipt:
Sample Containers Intact? Y N
VOCs Free of Headspace? Y N
QC Deliverables (please circle one)
Level 2 Level 3 Level 4 Other

Appendix G

Method 3 Risk Characterization and Stage I Environmental Screening

Method 3 Risk Characterization
General Chemical Corporation
133-135 Leland Street
Framingham, Massachusetts
RTN 3-19174

Submitted to:
Groundwater & Environmental Services, Inc.
364 Littleton Road, Suite 4
Westford, Massachusetts 01886
Attention: Stefan C. Sokol, L.S.P.

Submitted by:
Richard R. Lester and Stephen G. Zemba, Ph.D.

Cambridge Environmental Inc

Cambridge Environmental Inc.
58 Charles Street
Cambridge, MA 02141
617-225-0810
www.CambridgeEnvironmental.com

September 28, 2011

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1. Introduction

A Method 3 risk characterization in accordance with the Massachusetts Contingency Plan (MCP, 310 CMR 40) has been performed for the General Chemical Corporation (GCC) disposal site located at 133-135 Leland Street in Framingham, Massachusetts. Risks to human health, safety, public welfare, and the environment have been characterized relative to chlorinated volatile organic compounds (VOCs) and petroleum hydrocarbons detected in soil, groundwater, surface water, and sediment at the site.

GCC's historical operations have involved the presence of halogenated solvents on the site. Undocumented releases of chlorinated VOCs during the 1960s and 1970s are believed to be the primary source of contamination remaining at the site. Numerous documented releases have occurred since 1983. The documented releases have been contained and remediated to prevent environmental damage. Soil contamination is present on the GCC property, extending a short distance onto a CSX property to the south containing a rail line. Groundwater contamination has migrated onto several nearby properties, including a downgradient MWRA property on which the Sudbury Aqueduct is located; former residential properties, now vacant, located at 91, 91A, 119, and 125 Leland Street; a portion of the property occupied by the Woodrow Wilson School to the east; a portion of the residential property at 155 Leland Street; a portion of the Century Estates Condominium Property; land and wetlands south of the GCC property and operated by Exelon; and land and wetlands to the southeast of the GCC property and operated by Exelon which encompass an unnamed drainage ditch on the Exelon property which has a discharge point at Course Brook.

The Method 3 risk characterization evaluates exposure to contaminants for both current and future uses of the disposal site. Potentially exposed individuals considered in the risk characterization include workers at the GCC facility, current and hypothetical future residents, construction and utility workers, students at the Woodrow Wilson School, and emergency users of water from the aqueduct. It is anticipated that site use will remain mixed industrial, commercial, residential, and educational for the foreseeable future. Exposure routes considered in the analysis include incidental ingestion of soil, dermal absorption of contaminants from soil, inhalation of soil particles, inhalation of contaminants volatilizing from contaminated media, ingestion of drinking water, incidental ingestion of surface water, incidental ingestion of sediment, dermal contact with surface water, and dermal contact with sediment.

The human health risk characterization concludes that for current site conditions, exposure to site-related contamination on the GCC property itself is limited. Soil contamination is located at depth, groundwater is not in use, and a vapor barrier in the warehouse prevents contaminant migration to indoor air. Hence, there is no significant risk to workers at the GCC facility.

Construction worker exposure to contaminated soil poses no significant health risk. The maximum hazard index estimated for the construction worker is 0.1, and the incremental cancer risk is 1×10^{-7}. Both values are less than DEP guidelines. Volatilization of contaminants from groundwater in an open excavation could, however, pose a significant risk to construction workers which could be mitigated through ventilation or the use of respiratory protection. Utility

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workers would experience similar exposure to construction workers, but for a shorter duration. Hence, utility worker exposure to contaminated soil also poses no significant risk.

It is anticipated that the GCC facility will remain an industrial facility for the foreseeable future. In a hypothetical future residential scenario, however, vapor intrusion to future residences would pose potentially significant health risks. Groundwater remediation and/or an Activity and Use Limitation (AUL) restricting future residential development of the site should be placed on the property to prevent future residential exposure to contaminants of concern. Direct contact with contaminants remaining in soil results in a hazard index of 2, exceeding DEP's guideline of 1, indicating that direct contact with soil also poses a potentially significant risk to hypothetical future residents.

Due to groundwater injection at Infiltration Galleys #1 and #2, chlorinated VOC containing groundwater migrated to the north and east in 2007 and 2008, causing contaminants to be detected at sampling locations near the 155-157 Leland Street residences and the Woodrow Wilson School at concentrations that could possibly cause vapor intrusion to the residences or school. Groundwater injection at this location ceased in December 2008, and contaminant concentrations at those locations have greatly decreased to levels that are unlikely to affect indoor air.

Children and adults could come into contact with contaminants that have migrated to sediment and surface water in the drainage ditch to the west of the GCC property. The total hazard index and incremental cancer risk associated with sediment and surface water exposure are 0.4 and 6×10^{-6}, respectively, indicating no significant risk from this pathway.

The hazard index estimated for a resident exposed to drinking water at the levels measured in the aqueduct is 1 and the estimated lifetime incremental cancer risk is 9×10^{-6}. Neither risk estimate exceeds DEP guidelines, indicating that ingestion of drinking water from the aqueduct poses no significant risk to human health. If the aqueduct is returned to service, dilution due to the increased flow would reduce contaminant concentrations and potential health risks to negligible levels. It is noted that water is not ingested directly from the aqueduct in any circumstances.

The characterization of risks to safety demonstrates that workers entering manholes or confined spaces on the GCC property and northern portion of the CSX property may be exposed to contaminants in air at concentrations exceeding occupational exposure limits. Precautionary measures should be taken to ensure that contaminant concentrations in confined spaces do not exceed occupational exposure limits. The site otherwise poses no significant risk to safety. No drums, containers, pits, lagoons, or other dangerous structures are present on the property, and concentrations of contaminants in air will not exceed lower explosive limits (LELs).

The characterization of risks to public welfare demonstrates that if future sampling confirms that non-aqueous phase liquid (NAPL) at the site is no longer present or has been reduced in thickness to less than the one-half inch upper concentration limit (UCL), the site poses no significant risk to public welfare. The risk characterization demonstrates that the concentrations of all contaminants on the site in soil and groundwater are less than UCLs. The analysis also finds that the site is not likely to cause nuisance conditions, restrictions on the use of neighboring

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properties, or any monetary or non-pecuniary costs that may be due to the degradation of public or private resources.

The Stage I Environmental Screening finds no visual evidence of stressed biota at the site (based on site visit observations). No sheens or NAPL were observed in surface soil, surface water, sediment, or wetlands; and there are no records of past impacts on wildlife or fish. However, the concentrations of several contaminants in sediment and surface water in the drainage ditch southwest of the GCC property exceed screening levels indicating the potential for impacts to environmental receptors. A Stage II Environmental Risk Characterization is recommended to determine whether there is significant risk of environmental harm.

2. Site description

Detailed descriptions of the site and its history can be found in the Phase IV Remedy Implementation Plan (RIP) accompanying this report. The Phase IV report includes a site plan showing the layout of the site and sampling locations for all soil and groundwater samples referenced herein. To provide context to the risk characterization, relevant portions of the Comprehensive Assessment Reports (CARPs) prepared for the GCC site (GZA, 2000 and Envirotech & FS, 2008) are excerpted in Sections 2.1, 2.2, and 2.3 below.

2.1. Physical site characteristics

Physical site characteristics were outlined in Envirotech & FS Engineers' (2008) CARP. Relevant portions of that description are excerpted below.

> The GCC facility encompasses approximately 2 acres and is located at 133-135 Leland Street, Framingham, Massachusetts. The study area consists of approximately twelve acres in a mixed residential and industrial area located at approximately 42º16'14" N-latitude and 71º 24' 00" W-longitude. The study area includes the GCC facility, Woodrow Wilson School to the northeast, MWRA (Sudbury) Aqueduct to the south and southeast, CSX Transportation rail line to the south, a drainage ditch and associated wetlands further to the south, residential properties to the southwest and north along Leland Street, and the Exelon facility to the southeast.
>
> The site is located in a topographic region characterized by rolling hills and stream cut valleys with a regional slope to the east-northeast, but locally to the south-southeast and into Course Brook. The study area is underlain by 3' to 10' of unconsolidated sand, silt and gravel overlying 20' to 50' feet of interbedded sand and silt, more than 40' of silt and up to 50' of dense glacial till (clay with gravel), all of which set on granodiorite bedrock beginning at depths ranging from 40' to 85' below grade.
>
> Across the site, the depth to groundwater has averaged approximately 5' below grade, but ranges from approximately 1' to 12' below grade because of minor topographic relief and seasonal groundwater fluctuations. Groundwater is at or near grade in a wetland area located southeast from the GCC facility.
>
> The GCC facility is a Part "B"-permitted RCRA Treatment, Storage and Disposal (TSD) Facility with waste management operations that include the storage and repackaging of bulk virgin solvents for resale, and the storage and consolidation of hazardous and nonhazardous wastes.

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Several properties are located in the study area. CSX Railroad tracks (formerly New York, New Haven and Harford Railroad) are located immediately south of the GCC facility. Crossing beneath the railroad tracks immediately southeast of the GCC facility is the MWRA-operated Sudbury Aqueduct, and chlorination house. The aqueduct is an 8½'-diameter, brick-lined, gravity flow tunnel setting at approximately 4'-depth in the vicinity of the GCC facility. The aqueduct is a backup water supply for the City of Boston,[1] with a design flow of 90 million gallons per day (mgd), but is not currently in use.

Two former residential properties are located at 91 and 91A Leland Street, approximately 250 feet south-southwest of the GCC facility. The properties measure approximately 0.3 and 0.2 acres, respectively, are owned by the company, and are not currently in residential use. 119 Leland Street, a third residential property in that direction, is also owned by the company with no current residential use. Two additional residences owned by Mr. James Trombi, who also operates a car wash across Leland Street, are located north of the site at 155-157 Leland Street. The Century Estates Condominiums, located approximately 750 feet southwest of the GCC property are the nearest occupied residences in this direction.

The entire disposal site consists of the following properties:

- The GCC property located at 133-135 Leland Street;
- A portion of the downgradient CSX property;
- A portion of the downgradient MWRA property on which the Sudbury Aqueduct is located;
- Former residential properties, now vacant, located at 91, 91A, 119, and 125 Leland Street;
- A portion of the property occupied by the Wilson School;
- A portion of the residential property at 155 Leland Street;
- A portion of the Century Estates Condominium Property;
- Land and wetlands south of the GCC property and operated by Exelon, of which only a portion is developed and occupied by an electrical substation; and
- Land and wetlands to the southeast of the GCC property and operated by Exelon which encompass an unnamed drainage ditch on the Exelon property which has a discharge point at Course Brook.

[1] The aqueduct is a backup water supply for the City of Boston and the surrounding area, not solely the City of Boston.

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2.2. Site history

Site history was outlined in the Envirotech & FS (2008) CARP. For reference, the relevant text is excerpted here.

> A summary of the property transactions and major changes in operations follows.

1925	Deed transferred from Samuel and Alberta Beers to Gulf Refining Company (GFC)
1936	Deed conveyed from GFC to Gulf Oil Corporation (GOC, due to name change)
1960	Property leased by GOC to Richard and Frederic Gardner, Trustees of Rendrag Realty Trust (RRT)
1960-1978	Trinity Oil, Inc. (TOI) operated home heating oil storage and distribution facility, and moved operations to 138 Leland Street in 1979
1965	GCC began recycling operations
1967	Property sold by GOC to RRT
1979	GCC expanded/upgraded recycling operations from batch pot stills to the use of thin-film evaporator
1985	Two underground storage tanks (USTs) removed (formerly owned by GOC as used oil tanks)
Late-1980s	Nine solvent/diesel fuel ASTs removed
1992	Five solvent/diesel fuel ASTs and associated dike walls removed
1998	Spill and rainwater collection trough removed and upgraded with an underground system of steel piping and concrete catch basins
1999	TOI operations cease at 138 Leland Street
2000	GCC sold to the owners of CleanVenture/Cyclechem
2002	Solvent recycling operations are terminated.

> The MassDEP spills database has a record of approximately 34 of the 50 facility documented releases that have occurred at the GCC facility between 1983 to the present. The remaining facility-documented releases were below MassDEP and EPA specified reportable quantities. Most of the spills have been categorized as surface spills, tank overfills and pipeline breaks of either halogenated (solvent) compounds or used oil. All documented releases have been contained and abated without notable environmental impact. No release documentation exists prior to 1983; consequently, the current soil and groundwater quality impacts are believed to have originated from pre-1983 undocumented releases, primarily during the 1960s and 1970s.

2.3. Characterization and extent of the release

The extent of the release is described in detail in the accompanying RIP. A summary description of the release from the 2008 CARP (Envirotech & FS Engineers, 2008) follows.

> VOCs from GCC are present in the shallow, intermediate and deep soil and groundwater. The largest mass of VOCs appears to be located within the upper sand unit, especially within the source area, identified as the area southeast of the GCC warehouse and where truck loading/offloading activities had occurred during the 1960s and 1970s, and into the area of RW3. The upper sand unit sits on a semi-confining silt layer beneath the GCC facility at approximately 18' to 20' below grade; the semi-confining silt layer extends to approximately 25' depth in this area, and the contact appears to form a natural bowl-shaped, collection trough beneath GCC's southern fence line, between RW2 and RW4 (with RW3 in the middle of the elongated trough). The sand-silt contact is shallower immediately downgradient from this area, as has been shown in geologic logs for GC9. CDW3 through CDW7 are located in this area, immediately north and

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south of the railroad tracks, but are relatively shallow wells that were constructed above the sand-silt contact, and boring logs for EW1 and EWPZ2S-2D (installed by GZA in Spring 2001) are not available in GCC files. Review of geophysical survey results presented in the May 2000 GZA CARP supports the above stratigraphic condition(s).

The area along and adjacent to the aqueduct has not been reasonably assessed because of access constraints and the presence of a small marshy wetland immediately south of the aqueduct and north of the service road. This small wetland limits access by conventional drilling equipment. The lack of the access and ability for geologic profiling and associated soil and groundwater sample collection and testing in this area (between GCC-railroad track and the downgradient service road) yields not only a data gap, but also limits the ability to induce remedial measures in an area assumed to contain an appreciable VOC mass.[2]

Further downgradient from the aqueduct and small wetland area, is the monitoring well network along the existing and former service roads as well as the well network at 91 Leland Street . . . this area is characterized by an upper sand zone that extends to approximately 15' to 19' depth and sets on a semi-confining, dense silt layer that extends to at least 40' depth. A 2' to 4'-thick "loose" sandy silt horizon is present within the semi-confining silt at 24' to 28'. Consequently, the majority of groundwater recovery (or yield) caused by pumping RW5D and RW7 (both constructed to 40' depth) and newly activated RW6 (which became full of silt to approximately 34' depth, where the pump is set) is likely derived from the upper sand unit, and to a much less extent from the "loose" sandy silt horizon described above. Groundwater recovery from the dense silt horizon is limited.

Analytical testing of soil and groundwater samples from the monitoring wells and soil borings constructed in this area have shown that the majority of VOCs are contained within the upper sand unit. However . . . VOC-impacted soil is present to depths reaching 30' to 40' below grade. Further, the presence of DNAPL in WMW8D, which is constructed with a screen interval from 45' to 55' depth, indicates that considerable VOCs have likely penetrated the dense silt layer.

The May 2000 GZA Report provided an explanation that the drainage ditch, which begins at 91 Leland Street and extends parallel to the current and former service roads, past Excelon and makes confluence with the Course Brook, represents a feature to which groundwater flow (both laterally and vertically) is directed. A summary of vertical flow conditions . . . showed that upward flow conditions (from deeper groundwater zones to more shallow groundwater zones) has occurred in nearly all of the well cluster areas, with the most consistently upward flow conditions occurring proximate and parallel to the drainage ditch. The May 2000 GZA Report also presents the results of initial surface soil and water sample collection and testing, and subsequent AMR and MAP reports have presented testing results of more recent surface water sampling events.

Analysis of surface water samples collected from SW1, located in the small wetland area between the aqueduct and service road, have indicated the presence of up to 1.855 mg/l VOC (in April 2008), but as low as 0.014 mg/l (in October 2008). Consequently, the VOC concentration of surface waters in this area may be influenced by seasonal fluctuations in the groundwater flux from the GCC [property] and upgradient areas.

[2] Though this area was not addressed at the time of the 2008 CARP quote here, this area has been addressed with the recent installation of wells, MW-18S and MW-18M south of the aqueduct, and MW-19 and MW-20 further east along the aqueduct.

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SW10 is located within the drainage ditch, slightly upgradient from WMW8S-8D and immediately within the 91 Leland Street property, owned by GCC. During the past two years, VOC concentrations have averaged approximately 1.11 mg/l (ranging 0.7 to 1.6 mg/l) with approximately 0.13 mg/l Vinyl Chloride (VC), an indicator of continued biological breakdown and transformation of PCE, TCE and cis-12DCE. VC concentrations have ranged 0.11 to 0.17 mg/l during the past two years. Historically, VOC concentrations have been as high as 9 to 11 mg/l, with 0.15 to 0.4 mg/l VC in 2001-2002.

SW2 is located immediately south of the Excelon property within the drainage ditch, upgradient from Course Brook. Recent analysis of samples from this location has shown the presence of approximately 0.5 to 0.6 mg/l VOC, including approximately 0.01 to 0.03 mg/l of Vinyl Chloride (VC). In 1999, more than 6.5 mg/l VOC was detected in a sample collected at this location.

SW3 is located just upgradient of the confluence of the drainage ditch with Course Brook, southeast of the Excelon property. During the past two years, VOC concentrations in samples collected from this location have ranged from approximately 0.025 to 1.5 mg/l, including approximately 0.01 to 0.09 mg/l VC.

SWDSC1 is located further downgradient from the confluence than SW3, in Course Brook. VOC concentrations at this location have ranged from 0.005 to 0.04 mg/l during the past two years with VC rarely above low detection limits. In 2000-2002, VOC concentrations were as high as 0.25 to 0.35 mg/l VOC with 0.01 to 0.02 mg/l VC.

SWUSA1 (surface water upstream of aqueduct) is located in Course Brook, immediately upgradient from where the MWRA Aqueduct crosses the brook. This location is approximately 2,000 feet downstream of the drainage ditch/Course Brook confluence and is not shown on the site plans. VOC concentrations at this location have averaged approximately 0.005 mg/l during the past two years, but have been as high as 0.08 mg/l in 2000-2002. A majority of the VOC concentrations has been cis-12DCE, and VC has rarely been measured above low detection limits.

. . . data has shown that VOC concentrations have been measured at 1.855 mg/l in the upgradient wetland, decreasing to 1.11 mg/l in the drainage ditch near 91 Leland Street, decreasing to 0.55 mg/l in the drainage ditch immediately south of the Excelon/Boston Edison facility, further decreasing to approximately 0.5 mg/l just above the confluence of the drainage ditch with Course Brook, and approximately 0.03 mg/l downgradient from the confluence and in Course Brook, with only 0.005 mg/l VOC observed immediately upgradient of the aqueduct. These reductions are consistent with downstream biodegradation and dilution; the VOCs decrease approximately two orders of magnitude between 91 Leland Street and Course Brook.

2.4. Categorization of soil and groundwater

DEP categorizes soil based on whether children are present at the site, the frequency and intensity of soil exposure that is likely to occur at a disposal site, and the accessibility of the soil. At the GCC site, contaminated soil in the unsaturated zone is limited to the GCC property, possibly extending onto the northern portion of the CSX property. On the GCC property itself, all soil is located beneath buildings or pavement. The MCP defines such soil to be isolated (soil beneath buildings or at depths greater than 15 feet) or potentially accessible (soil beneath pavement at depths up to 15 feet). On the CSX property, soil contamination is not found in surface soil. Soil at depths of 3 to 15 feet is considered potentially accessible. Children live near the site and attend school at the nearby Wilson School, but would rarely be present on the fenced

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GCC property, and would be present only infrequently on the CSX property while trespassing in this area. No activities involving high intensity exposure to soil are expected to occur on either the GCC or CSX property. Therefore, contaminated soil at the GCC site is categorized S-3, the category applicable to potentially accessible and isolated soil for which exposure is of low frequency and low intensity.

Groundwater beneath the site is not within the boundaries of an interim wellhead protection area, Zone II, or potentially productive aquifer (MassGIS, 2011). No private drinking water supply wells are located within 500 feet of the site and all residences and businesses within 500 feet are on the public water supply (GES, 2011b). Therefore, the groundwater is not considered a source of drinking water and groundwater category GW-1 does not apply. Groundwater is located at depths ranging from 1 foot to 12 feet below the surface (Envirotech & FS, 2008). Groundwater that is less than 15 feet below the surface and that is within 30 feet of an occupied building is considered a potential source of vapors that could migrate to indoor air and is categorized GW-2. All MCP risk characterizations must assume that groundwater could eventually discharge to surface water. Therefore, all groundwater at the site is classified as category GW-3 groundwater, and groundwater within 30 feet of occupied buildings is categorized both GW-2 and GW-3.

Though groundwater on the site is not a source of drinking water, the MWRA aqueduct passing across the site contains water that could be indirectly used by Boston area residents in emergency situations (it is not currently in use). An MWRA report (2000) has found that groundwater may be infiltrating into the aqueduct through cracks in its brick lining. The aqueduct discharges to the Chestnut Hill Reservoir in Newton, MA. Water from the aqueduct would be greatly diluted should it be needed for emergency use, and a boil water order would be issued. Though no users will ever drink water directly from the aqueduct, it is likely that the water quality within the aqueduct will be required to meet applicable drinking water standards. The use of aqueduct water as drinking water is addressed in the human health risk characterization.

2.5. Selection of method

A Method 3 risk assessment was performed pursuant to 310 CMR 40.0993 through 310 CMR 40.0995 to obtain a site-specific estimate of risks to human health, safety, public welfare, and the environment. Method 3 allows for the examination of site-specific exposure scenarios under current and reasonably foreseeable site activities and uses and is an acceptable method for characterizing risks at all disposal sites.

3. Exposure pathways and exposure point concentrations

Exposure point concentrations are estimates of the levels of contaminants that people might contact on average, given assumed site activities/uses and the pattern of contamination. Exposure point concentrations are derived considering the data that have been collected to date from the site.

3.1. Exposure points and pathways

Exposure to site-related contaminants is most likely to occur through direct contact with soil, inhalation of contaminants volatilizing from groundwater, direct contact with surface water and sediment, and ingestion of drinking water from the aqueduct. The risk characterization examines the following receptors and exposure pathways:

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- Workers on the GCC property — under current site conditions, exposure by workers on the GCC property is unlikely. The site is paved, and contamination is generally located below the ground surface. A vapor barrier and sub-slab depressurization system (SSDS) prevents contaminant migration to indoor air of the warehouse. The risk characterization considers the potential for vapor intrusion to occur in a future redevelopment scenario in the absence of a vapor barrier.
- Construction and utility workers — the relevant exposure pathways are incidental ingestion of contaminants in soil, dermal absorption of contaminants in soil, inhalation of airborne dust during construction activities, and inhalation of contaminants volatilizing during construction.
- Hypothetical future residents on the GCC property — the relevant exposure pathways are ingestion of contaminants in soil, dermal absorption of contaminants in soil, and inhalation of contaminants migrating to indoor air.
- School children at the Woodrow Wilson School and nearby residents — the relevant exposure pathway is inhalation of contaminants migrating to indoor air.
- Neighboring residents and trespassers entering the drainage ditch and wetland — the relevant exposure pathways are incidental ingestion and dermal contact with contaminated surface water and sediment.
- Boston area residents drinking water arriving indirectly from the Sudbury Aqueduct in emergency situations — the relevant exposure pathways are ingestion of drinking water, dermal absorption of contaminants while showering, and inhalation of contaminants while showering.

3.2. Calculation of exposure point concentrations

Sampling at the site identified chemicals in a number of environmental media. This section describes the available data and their use in the risk characterization.

3.2.1. Soil

Over 70 soil samples have been collected at the GCC site between December 1996 and August 2011. Because only about 20 of these samples were collected in 2011 (from multiple depths at ten locations), the risk characterization makes use of both historical and recent soil data in evaluating risks associated with exposure to soil. The concentrations measured in the soil samples are presented in the Remedy Implementation Plan accompanying this report. Soil contamination at the site is generally limited to soils at depth (deeper than 3 feet) in the immediate vicinity of the GCC property. The exposure point concentrations used to evaluate exposure are based on samples collected between depths of 3 and 15 feet on the southeastern portion of the GCC property and a portion of the adjacent CSX property.[3] This area includes all soil samples within 15 feet of the surface that contain contaminants exceeding S-1/GW-2 standards with the exception of samples P7 and CDW-9-S2.[4] The samples included in the calculation of exposure point concentrations are: CDW-1, CDW-3, CDW-4, CDW-5, CDW-7, P1, P5, P8, P8-DUP, P13, P14, P15, P16, P16-DUP, P17, P18, P19, P20, GZ-1-S3, MW-16 (6'), MW-16 (12.5-15'), MW-17 (4'), MW-22 (6'), and MW-23 (6'). Sample MW-15 (8') is

[3] The area of soil contamination is limited by samples P-1, MW-17, and P-5 to the north, samples GZ-9 and CDW-7 to the west, samples CDW-4 to the south, and samples CDW-3, P-17, CDW-17, P-14, and P13 to the east.
[4] These two samples are evaluated separately in the Uncertainty chapter of the report (Section 9).

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evaluated separately as a potential hot spot for petroleum hydrocarbon contamination. Concentrations of petroleum hydrocarbons in MW-15 are more than a factor of 10 greater than those in any other sample.

The exposure point concentrations are the arithmetic average concentrations of contaminants. If a contaminant was detected in at least one sample, but not all samples, the contaminants was assumed to be present at one-half the detection limit when not detected. Duplicate samples were averaged prior to including them in the exposure point concentration calculation (duplicates were collected at P8 and P16). Exposure point concentrations for surface soil are summarized in Table 1.

3.2.2. Groundwater

The concentrations of contaminants measured in 47 groundwater samples collected between July 2011 and September 2011 are presented in the accompanying Remedy Implementation Plan. The MCP requires that each groundwater monitoring location be considered an exposure point. The concentrations of contaminants measured in the most recent round of groundwater sampling are considered most indicative of current site conditions and are the exposure points evaluated in the risk characterization.

Groundwater data are used quantitatively for several purposes: (1) screening-level health risk calculations for a construction worker exposed to vapors in an excavation that evolve from standing water; (2) evaluation of safety risks to utility workers potentially exposed to off-gassing vapors in confined spaces; and (3) comparisons with Upper Concentration Limits (UCLs) in the assessment of risks to public welfare. In each of these three cases, a conservative approach of examining the highest detected concentrations in any well is adopted, and hence maximum concentrations are used as exposure point concentrations. Groundwater data are further used to evaluate the potential migration of contaminants from groundwater to indoor air.

3.2.3. Surface water

Table 2 summarizes the concentrations of contaminants measured in surface water in the August/September 2011 sampling round. These data are considered more representative of current site conditions than historical data. Maximum detected contaminant concentrations in surface water are used as exposure point concentrations in the risk characterization.

3.2.4. Sediment

Table 3 summarizes the concentrations of contaminants measured in sediment. No sediment samples were collected in the most recent round of sampling; hence, the sediment exposure point concentrations rely in historical data from 1998 and 1999. As for surface water, maximum concentrations of contaminants in sediment are used as the exposure point concentrations in the risk characterization.

3.2.5. Aqueduct

The Massachusetts Water Resources Authority (MWRA) performed an inspection of the Sudbury Aqueduct in November 2000 (MWRA, 2000). The inspection included sampling of water collected inside the aqueduct in the vicinity of the GCC site. Table 4 summarizes the detected concentrations of contaminants at station 67+00 inside the aqueduct, the station nearest

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the GCC site. It should be noted that the GCC site is not the only source of chlorinated VOCs to the aqueduct. MWRA (2000) reports an additional upstream source of chlorinated VOCs entering the aqueduct at Station 29+66, but states that infiltration at this location has not had a noticeable impact on water quality. MWRA's inspection report (MWRA, 2000) reports that quarterly monitoring of water quality had been conducted in 1999 and 2000 at station 72+00, another station near the GCC site. These data, however, were not available for use in the risk characterization. The risk characterization uses the data in Table 4 to evaluate indirect use of the water in emergency circumstances requiring use of the aqueduct.

3.2.6. Soil gas and indoor air

The potential migration of contaminants to indoor air has been a concern at the GCC site. The 2000 CARP (GZA, 2000) and 2008 CARP (Envirotech & FS, 2008) indicated that concentrations of contaminants in groundwater near the former residences at 91, 91A, and 119 Leland Street exceeded GW-2 standards, indicating that potentially significant contaminant migration to indoor air at those residences was possible. The 2000 CARP (GZA, 2000) indicates that indoor air sampling performed between 1998 and 2000 at the 91 and 91A Leland Street residences found chlorinated VOCs in indoor air, but that concentrations were generally higher on upper levels in the bedrooms than in the basement, indicating potential confounding. Indoor air sampling of 119 Leland Street in May 2008 (Envirotech & FS, 2008) did not identify the presence of any chlorinated VOCs in indoor air at concentrations greater than ambient outdoor concentrations, though elevated concentrations were later reported when water infiltrated the basement under a period of high water conditions (GES, 2011a). GCC has since purchased all three residences (91, 91A, and 119 Leland Street), and the residences are no longer occupied. Vapor intrusion is no longer a concern for these former residences as long as they remain unoccupied. Contaminant concentrations in groundwater near the former residences at locations MW-12 and CDW-18D still exceed GW-2 standards, indicating that further evaluation would be necessary to evaluate contaminant migration to indoor air should there be any plans to use these buildings in the future.

According to an Immediate Response Action (IRA) Completion Report for 155-157 Leland Street (FS, 2009), groundwater data, soil gas, and indoor air sampling indicated potential contaminant migration to indoor air. Concentrations of contaminants in groundwater at well ERM-11 increased due to the use of Infiltration Galley #1 to reinject groundwater. Groundwater mounding, caused by the reinjection of groundwater, caused temporary contaminant migration to the north and east. Infiltration Galley #1 was shut down in December 2008. By June 2009, soil gas concentrations in the vicinity of 155-157 Leland Street had decreased by an order of magnitude, and it was determined that further monitoring was not warranted. Contaminant concentrations at ERM-11 and MW-13 (installed immediately adjacent to the residence) no longer contain chlorinated VOCs at concentrations greater than GW-2 standards. No chlorinated VOCs were detected in MW-13 in July 2011, except for a very low concentration of 1,1,2-trichlorotrifluoroethane (6.56 µg/l).

Similar concerns have been raised at the Woodrow Wilson School. Contaminant concentrations in groundwater spiked over GW-2 standards in 2007 and 2008 due to the use of Infiltration Galley #2. Since the shut down of the Infiltration Galley, contaminant concentrations have decreased and in July 2011, the total VOC concentration at monitoring well GZ-6 (adjacent to

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the school) was 32 µg/l, and the concentrations of individual chemicals were all well below GW-2 standards.

In February 2003, an Imminent Hazard Evaluation (IHE) was performed for the warehouse on the GCC property due to the detection of 8 mg/l of VOCs in sump water in the basement (Envirotech & FS, 2008). The IHE concluded that sump water conditions did not pose an imminent hazard to worker health. Since that time, due to basement flooding, the basement of the warehouse has been raised and a vapor barrier put in place to prevent contaminant migration to indoor air.

4. Toxicological data and chemical specific parameters

The human health risk characterization relies primarily on the toxicological data used by DEP in the MCP ShortForms for human health risk characterization (DEP, 2008; vlookup version 0808). These data are documented in the tables summarizing the ShortForm risk calculations in Appendix B. DEP did not provide toxicological data, however, for several chemicals identified in soil and groundwater at the site:

tert-Amyl methyl ether	Isopropylbenzene
tert-Butylbenzene	p-Isopropyl toluene
n-Butylbenzene	n-Propyl benzene
sec-Butylbenzene	Trichlorofluoromethane
Carbon disulfide	1,1,2-Trichlorotrifluoroethane
Chloroethane	1,2,4-Trimethylbenzene
Chloromethane	1,3,5-Trimethylbenzene
Diethyl ether	

Eight of these chemicals (tert-butylbenzene, n-butylbenzene, sec-butylbenzene, isopropylbenzene, p-isopropyl toluene, n-propyl benzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene) are aromatic hydrocarbons with 9 or 10 carbons. For these chemicals, DEP's toxicological data for the C_9 to C_{10} aromatic hydrocarbons are used. For the remaining seven chemicals, toxicological data derived by various EPA sources are used.

Table 5 summarizes the toxicological data used for chemicals not in DEP's ShortForm spreadsheets. Chronic and subchronic reference doses (R_{fD}) and reference concentrations (R_{fC}) are used to calculate hazard indices (non-cancer risks), and cancer slope factors (P_o) and unit risks (UR_i) are used to calculate incremental carcinogenic risks. Toxicological data are further explained below. Risk calculations are further explained in Section 5.

4.1. Reference doses and reference concentrations

Table 5 summarizes the reference doses and reference concentrations for each chemical of concern not included in DEP's risk assessment ShortForms (DEP, 2008). Whenever possible, toxicological data are obtained from the U. S. Environmental Protection Agency (EPA) Integrated Risk Information System (IRIS, 2011). Sometimes, either a reference dose or a reference concentration, but not both, is available for a chemical. In such cases, one can be estimated from the other using the equation:

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$$R_{fC} = \frac{R_{fD} \times W}{I}$$

where the terms are:

R_{fC}	reference concentration in milligrams per cubic meter (mg/m^3),
R_{fD}	reference dose in milligrams per kilogram per day (mg/kg-day),
W	adult body weight (70 kg), and
I	average adult inhalation rate (20 m^3/day).

Note that this equation does not account for differences in absorption between routes of exposure, and the extrapolation is based on adult exposure parameters. Differences in absorption could affect the extrapolation of reference doses and reference concentrations, and hence introduce some uncertainty.

Chronic reference doses are used to evaluate non-cancer health risks for exposure periods greater than 7 years. Subchronic reference doses are generally used to evaluate non-cancer health risks of less than 7 years, specifically those for the construction worker. Subchronic reference doses are usually greater than or equal to chronic reference doses. To simplify risk characterizations, chronic reference doses are sometimes used in place of subchronic reference doses for short term exposures as a conservative approach that overestimates risks.

Toxicological profiles for all contaminants of concern appear in Appendix A to the risk characterization.

4.2. Cancer potencies and unit risks

Slope factors (P_o) and unit risks (UR_i) are used to calculate incremental risks of cancer. Cancer potency factors and unit risk values for chemicals of concern are listed along with the reference doses and reference concentrations in Table 5. Carcinogenic slope factors or unit risks are not available for all of the chemicals considered in the risk characterization. Chemicals of concern that lack quantitative carcinogenic toxicity data are either unclassified as to carcinogenicity or classified as cancer class D by EPA. In general, a lack of data indicates that there is no evidence that the chemical causes cancer in humans or laboratory animals.

Cancer potency slope factors and unit risk factors can be extrapolated to one another in a manner similar to that of reference doses and concentrations as described in Section 4.1. Such extrapolations must be applied on a chemical-specific basis as certain chemicals are known to cause cancer by one mode or exposure but not another.

Toxicological profiles for all contaminants of concern appear in the appendices to the risk characterization.

4.3. Relative absorption factors

Applied exposures are multiplied by chemical and exposure pathway-specific relative absorption factors (RAFs) to calculate doses consistent with toxicological data. DEP's (2008) ShortForm spreadsheets provide relative absorption factors for most of the contaminants considered in the risk characterization. Table 6 summarizes RAFs for chlorinated VOCs not included in DEP's

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ShortForms. The RAFs for these chemicals were estimated based on knowledge of the exposure pathway involved in the study from which the toxicological data were derived and DEP default absorption efficiencies for VOCs (DEP, 1995). For the eight aromatic hydrocarbons not included in DEP's ShortForms (tert-butylbenzene, n-butylbenzene, sec-butylbenzene, isopropylbenzene, p-isopropyl toluene, n-propyl benzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene), the risk characterization uses DEP's RAFs for C_9 to C_{10} aromatic hydrocarbons.

5. Human health risk characterization

The Method 3 human health risk characterization is performed according to DEP's *Guidance for Disposal Site Risk Characterization* (DEP, 1995). Exposure pathways considered in the risk characterization are those that could possibly be associated with current or future site conditions for the receptors and pathways identified in Section 3.1. The exposure rates and risk estimates are based on the exposure point concentration calculations in Section 3.

5.1. Calculation of non-cancer risks

For the assessment of non-cancer health risks, each chemical is assumed to have some safe level below which the chemical causes no adverse effects on humans. This level is determined differently for each chemical through animal experiments and/or knowledge of historical human exposures and responses to the chemical. For the inhalation pathway, the reference concentration for a given chemical (R_{fC}) is a concentration of the chemical that a person could be exposed to without experiencing any health risk. Similarly, for other pathways, the reference dose for a given chemical (R_{fD}) is the dose of a chemical that an individual could be exposed to without experiencing health risks.

Hazard indices are used to assess non-cancer health risks associated with the presence of pollutants in the environment at the GCC site. A hazard index is the ratio between the dose of a chemical to which that a person is exposed and the reference dose for that chemical. Hazard indices (H_i) for the pathways evaluated in this risk characterization are calculated using the equation below:

$$H_i = \frac{e}{R_{fD}} \quad \text{or} \quad H_i = \frac{c}{R_{fC}}$$

In the above equation, e refers to the absorption-adjusted average daily dose of the chemical (including an appropriate relative absorption factor) and c refers to the time-averaged concentration inhaled over the period of exposure. R_{fD} and R_{fC} are the reference dose and concentration of the chemical, respectively, which may be based on oral or inhalation toxicity data.

The MCP requires that cumulative health risks be calculated. To estimate the aggregate non-cancer health risk associated with all chemicals present at the site, the hazard indices are summed across all chemicals and exposure pathways to arrive at a total hazard index. Summing the hazard indices in this manner provides a quantitative estimate of the total risk associated with the site; however, it must be noted that this is only an estimate. One chemical may affect a specific organ in the body while a second chemical has no effect on that organ at all. Summing hazard

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indices from a diverse set of chemicals does not necessarily give the best metric for the overall hazard. Rather, the sum provides an upper limit on the health risks associated with all of the chemicals in this risk characterization. This is a conservative estimate, and the actual health risks associated with exposures at these levels are likely to be lower.

5.2. Calculation of incremental cancer risks

When calculating the incremental cancer risk associated with exposure to pollutants, it is assumed that exposure to any level of a carcinogenic substance is associated with an increased risk of cancer at some point during the individual's lifetime. This differs from the assumption for non-cancer risks that there is some maximum safe level of exposure to a chemical below which a person's health will not be adversely affected. Carcinogenic health risks are assumed to be incremental and cumulative over a person's lifetime; hence, exposure to a carcinogenic substance during childhood leads to an increased risk of cancer throughout life.

Carcinogenic risks for oral and inhalation pathways (respectively) are calculated as the product of a lifetime-average dose or concentration and a potency slope factor P_o or unit risk factor (U_r):

$$R_o = e_{car}\ P_o \quad or \quad R_o = c_{car}\ U_r$$

where the terms are:

- R_o incremental risk of cancer (unitless),
- P_o oral potency slope factor (kg-day/mg),
- U_r inhalation unit risk factor ($m^3/\mu g$),
- e_{car} lifetime average daily dose (mg/kg-day), and
- c_{car} lifetime average concentration in air ($\mu g/m^3$).

Potency slope factors are used in the calculation of dermal absorption risks as well, as dermal potency slope factors are unavailable for most chemicals. The relative absorption factor (R_{AF}) used when calculating exposure accounts for the difference in chemical absorption between the pathway being assessed and the pathway in the carcinogenicity study used to develop the slope factor. When appropriate, inhalation-based pathways use potency factors developed from inhalation cancer data.

The calculation of doses differs for non-cancer and cancer risks. For non-cancer risks, doses are based on time-averages over the period in which exposure is assumed to occur. For cancer risks, doses are averaged over the lifetime (70 years) of the receptor, accounting for differences in exposure rates that occur over stages of childhood and adulthood.

Once again, total risks due to all chemicals *via* all pathways are summed for each receptor. As with non-cancer risk, this is not a completely accurate way to aggregate the risks, although it is more appropriate to sum cancer risks if the total risk of all types of cancer is the desired metric. One must keep in mind that actual carcinogenic risks are expected to be less than those presented here, given that oral slope factors have built-in safety factors, and that a number of conservative assumptions have been made in the calculations designed to overestimate actual risks.

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5.3. Workers at the GCC facility

Under current site conditions, workers at the GCC facility have extremely limited exposure to contaminants that have been released to soil and groundwater. Soil contamination is located at depth and beneath pavement. Workers therefore have no direct contact with contaminants in soil. Groundwater at the facility is not used as a source of drinking water. The chlorinated VOCs in soil and groundwater could volatilize and potentially migrate to indoor air, but the presence of a vapor barrier and SSDS beneath the warehouse limits potential contaminant migration to indoor air. No vapor barrier exists beneath the hazardous waste storage building located along Leland Street at the front (northwest) of the property. Contaminants are present in groundwater near this location (well GZ-13) at concentrations greater than GW-2 standards;[5] however, this building is used primarily for hazardous waste storage and is not a permanent location for GCC employees.

5.4. Construction workers

Construction workers excavating into contaminated portions of the site will come into direct contact with soil and groundwater contamination.

5.4.1. Construction worker exposure to soil

Construction worker exposure to contaminants in soil is evaluated using DEP's ShortForm for the construction worker scenario (DEP, 2008). DEP's ShortForm evaluates three exposure pathways: the incidental ingestion of soil, dermal exposure to contaminants in soil, and inhalation of particles. Because DEP's ShortForm does not include the inhalation of contaminants volatilizing from groundwater in an excavation, that pathway is evaluated separately. Section 3.2.1 and Table 1 summarize the two sets of exposure point concentrations used to evaluate construction worker exposures to soil. The two sets of exposure point concentrations represent the source area on the GCC property/northern portion of the CSX property, and a petroleum hydrocarbons hot spot at sampling location MW-15.

Appendix B contains the tables summarizing the human health risk ShortForm calculations for construction workers. The estimated hazard index and incremental cancer risk for the construction worker exposure to soil on the GCC property are 0.03 and 1×10^{-7}, respectively. The estimated hazard index for the petroleum hydrocarbons hot spot is 0.1. No chemicals detected in soil at the MW-15 sampling location are known or suspected carcinogens; hence, no incremental cancer risk was calculated for the hot spot. All risk estimates are less than DEP's guidelines (a hazard index of 1 and an incremental cancer risk of 1×10^{-5}); hence, exposure to contaminated soil by construction workers is not expected to pose a significant risk to human health.

5.4.2. Volatilization of contaminants in an excavation

Due to the presence of elevated concentrations of various volatile organic compounds in groundwater, construction workers working in an excavation or manhole could inhale chemicals that volatilize from groundwater from depths below the excavation or (in the worst-case scenario) from standing water that has seeped into the excavation. Assuming a 40-hour work

[5] Concentrations of cis-1,2-dichloroethene, tetrachloroethene, trichloroethene, and vinyl chloride exceed GW-2 standards at GZ-13.

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week, the average concentrations to which construction workers could be exposed to vapors can be estimated from the concentrations of chemicals in the excavation:

$$C_{cw} = C_{mh} f_w f_d$$

where the terms are:

C_{cw}	the average chemical concentration experienced by the construction worker;
C_{mh}	the chemical concentration in air in the manhole/excavation;
f_w	fraction of the week that a construction worker works (5/7); and
f_d	fraction of the day that a construction worker works (8/24).

Standard models are not available for estimating the concentrations of chemicals that could off-gas from standing water into an excavation. As such, a screening-level model is derived from mass transfer relationships that likely overpredicts the exposure likely to occur in an actual excavation. The volatilization of chemicals in groundwater is estimated using methods described by the Environmental Protection Agency to model the volatilization of chemicals (U.S. EPA, 1990). The physical scenario assumes that an excavation is made into soil, and that contaminated groundwater flows in to fill the bottom of the excavation. Conceptually, this scenario is modeled as a coupled mass transfer process in which the contaminants:

- evaporate from the standing water into the excavation (manhole) at the base of the excavation and then mixes into the airspace of the excavation; and
- leave the excavation as ground-level winds blow atop the excavation.

Assumptions to construct a model to estimate C_{mh} from the contaminant concentration in standing water (assumed to be groundwater) include:

- The areas over which mass transfer occurs are approximately equal (the top and bottom of the excavation, and the surface of the groundwater table);
- The background concentration of the contaminant in ambient air is negligibly small; and
- Atmospheric convection is responsible for contaminant mass transfer both within and outside of the excavation, as described below.

At steady-state, the mass transfer of each of these mass transfer processes must be equal. Equations used to estimate the rate of mass transfer for each process are:

$$m = K\left(C_{gw} - \frac{C_{mh}}{H}\right)$$

$$m = k_{g,out} C_{mh}$$

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where the additional terms are:

m	mass transfer rate (mass/time);
C_{gw}	contaminant concentration in groundwater;
K	overall mass transfer velocity from the water to the air phase;
H	dimensionless Henry's Law constant;[6] and
$k_{g,out}$	mass transfer velocity out of the top of the excavation.

Where the overall mass transfer velocity K at the excavation floor includes resistances in both the air and water phases:

$$K = \left(\frac{1}{k_l} + \frac{1}{k_{g,in} H} \right)^{-1}$$

where the additional terms are:

k_l	liquid-phase mass transfer coefficient; and
$k_{g,in}$	air-phase mass transfer velocity at the excavation floor., effectively applicable at the top of the excavation.

For wind speeds of less than 3.25 m/s (appropriate for the bottom of an excavation), the liquid-phase mass transfer coefficient is:

$$k_l = 2.78 \times 10^{-6} \left(\frac{D_w}{D_{ether}} \right)^{2/3}$$

where D_w and D_{ether} are the diffusion coefficients for the chemical in water (in cm²/s) and for ether in water (8.61×10^{-6} cm²/s), respectively.

The gas-phase mass transfer velocities $k_{g,in}$ and $k_{g,out}$ are estimated using an empirical correlation developed for flow over flat surfaces (Incropera and DeWitt, 1981):

$$k_g = 0.664 \left(\frac{D_a}{L} \right) R_e^{1/2} S_g^{1/3}$$

where the terms additional terms are:

D_a	diffusion coefficient for the chemical in air (m^2/s);
L	diameter of the manhole/width of the excavation (m);
R_e	Reynolds number, which depends on a flow velocity (as defined below); and
S_g	Schmidt number (dimensionless, as defined below).

[6] The Henry's Law Constant H in this equation requires the non-dimensional form. Values of the Henry's Law Constant are typically provided in atm-m^3/mol. Such values are made non-dimensional by multiplying by the product of the Universal Gas Constant and an assumed standard temperature; a value of 24.45, corresponding to a temperature of 25˚C, is used in these screening-level calculations.

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The Reynolds number R_e and Schmidt number S_g are given by:

$$R_e = \frac{U_g \rho_a L}{\mu_a}$$

$$S_g = \frac{\mu_a}{\rho_a D_a}$$

where the additional terms are:

U_g	the flow velocity that serves as the convective driving force for mass transfer;
ρ_a	density of air; and
μ_a	viscosity of air.

The Reynolds numbers for inside and outside the excavation differ because of an estimated ten-fold decrease in wind speed inside the excavation as opposed to outside the excavation. The convective flow velocity within the excavation $U_{g,in}$ is assumed to be related to the flow velocity outside of the excavation ($U_{g,out}$, the atmospheric windspeed) based on experimental tests of flow over a circular opening (*e.g.*, a manhole) (Schlichting, 1979):

$$\frac{U_{g,out}}{U_{g,in}} = 10$$

Parameter values are selected to represent those of a typical excavation anticipated at the site. In conjunction with site-specific considerations, general parameter values assumed are:

$U_{g,out}$	5 m/s (typical wind speed in Massachusetts);
μ_a	1.77×10^{-5} kg/m-s (viscosity of air at standard atmospheric conditions);
ρ_a	1.2 kg/m^3 (density of air at standard atmospheric conditions); and
L	1 m (excavation width of approximately 3 ft).

With these assumptions, the concentration within the manhole C_{mh} can be related with the measured concentration in groundwater C_{gw} as:

$$\frac{C_{mh}}{C_{gw}} = \frac{K}{k_{g,out} + \frac{K}{H}}$$

Screening-level calculations are developed for all of the chemicals that (1) were detected in groundwater sampling and (2) are included in the MA DEP Short Form risk assessment spreadsheets. As an additional screening-level measure designed to estimate worst-case risks, calculations are based on the maximum detected groundwater concentrations in any well (as indicated in Table 7). Chemical properties (Henry's Law Constants and diffusion coefficients) for the chemicals are presented with other chemical-specific toxicity data in Table 7, along with

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calculated values of C_{mh}/C_{gw} from the model equations and screening-level non-cancer and incremental cancer risk estimates, estimated as:

$$\text{Non} - \text{cancer Hazard Index} = \frac{C_{cw}}{R_{fc}}$$

$$\text{Incremental Cancer Risk} = C_{cw} \times \frac{T_{\exp}}{T_{life}} \times U_{rf}$$

where the additional terms are:

R_{fc}	sub-chronic reference concentration (same units as C_{cw});
U_{rf}	carcinogenic unit risk factor (inverse units as C_{cw});
T_{exp}	exposure period, assumed to be 6 months (0.5 years, the DEP default value); and
T_{life}	average human lifetime (75 years *per* the DEP default value).

As can be seen from the highlighted values in Table 7, the conservative screening-level calculations result in a number of risk estimates greater than the DEP target levels of 1 for non-cancer hazard indices and 1×10^{-5} for incremental cancer risk. Given the deliberate efforts to overestimate risks in the screening-level calculations, it is likely that actual risks will be smaller in most practical situations. The values in excess of DEP acceptability limits, however, indicate that risks to construction workers may be excessive under worst-case conditions, and that pre-emptive mitigation measures such as ventilation and/or the use of respiratory protection may be warranted in excavation activities at the site.

5.5. Utility workers

Utility workers would be exposed to contaminants in soil and groundwater in much the same way as construction workers. Utility workers would be exposed to contaminants for a shorter period of time. The construction worker exposure scenarios assume 6 months of exposure as a construction worker, while a typical utility worker is only present at a site for a day or two. Because construction worker exposure to contaminants in soil does not pose a significant risk, it can also be assumed that utility worker exposure to contaminants in soil does not pose a significant risk to health.

As was the case for construction workers, pre-emptive mitigation measures such as ventilation and/or the use of respiratory protection may be warranted for work in excavations or manholes.

5.6. Future residential use of the GCC property

Though future use of the GCC property is anticipated to remain industrial for the foreseeable future, the MCP requires consideration of future residential use. Hypothetical future residential exposure to soil is evaluated using DEP's ShortForms for human health risk characterization (DEP, 2008). Exposure to soil is evaluated for the two sets of exposure point concentrations derived in Section 3.2.1 — average concentrations over the southeastern portion of the GCC property and the petroleum hydrocarbons hot spot. The risk characterization also considers possible future vapor intrusion to residences.

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The DEP ShortForms indicate that the hazard indices for hypothetical future residents exposed to soil from the southeastern part of the GCC property and the petroleum hydrocarbons hot spot are 0.4 and 2, respectively. The estimated lifetime incremental cancer risk is 5×10^{-6}. Incremental cancer risk is not evaluated for the petroleum hydrocarbon hot spot, because none of the contaminants detected in soil at that location are known or suspected carcinogens. The hazard index of 2 for residents exposed to soil in the petroleum hydrocarbon hot spot exceeds DEP's guideline of 1, indicating a potential future risk to human health in a hypothetical residential scenario.

Vapor intrusion is also a potentially significant exposure pathway for future residential development. Concentrations of chlorinated VOCs on the GCC property substantially exceed GW-2 standards. The concentration of cis-1,2-dichloroethene, for example, at MW-16 (a shallow groundwater well on the GCC property) is 17,700 µg/l, while the GW-2 standard is 100 µg/l. DEP's (2010) Vapor Intrusion Guidance recommends the use of multiple lines of evidence in evaluating potential contaminant migration to indoor air. While no residences currently exist on the property, making it impossible to analyze soil gas or indoor air, the concentrations of chlorinated VOCs in groundwater on the property indicate that if residential redevelopment were to occur, measures should be taken to reduce or eliminate potential contaminant migration to indoor air. An AUL restricting residential redevelopment of the site or soil and groundwater remediation could potentially eliminate this exposure pathway.

5.7. School children and nearby residents

The primary groundwater flow direction at the GCC site is toward the south (Envirotech & FS, 2008). No VOCs were detected in the most downgradient groundwater wells in this direction, including wells CDW-14, GZ-15S, GZ-17S, and GZ-18S. Given the locations of these wells, there is no current risk of vapor intrusion to the Century Estates Condominiums or residences south of these monitoring locations. There is no indication that further migration of contaminants is occurring in this area; conditions have been stable over the last several sampling events. Future remedial actions will serve to reduce the upgradient source area at the GCC property and anaerobic bioremediation is proposed for areas further downgradient of the source area in this vicinity.

As discussed in Section 3.2.6, groundwater mounding caused by the injection of groundwater in Infiltration Galleys #1 and #2 caused groundwater contaminants to migrate north and east of the GCC property in 2007 and 2008. Use of the galleys was discontinued in December 2008. Recent groundwater data indicate very low concentrations of chlorinated VOCs at groundwater sampling locations MW-13 (near the 155-157 Leland Street residences) and GZ-6 (near the Woodrow Wilson School). Only one contaminant (1,1,2-trichlorotrifluoroethane) was detected at MW-13 in July 2011. Five contaminants were detected at GZ-6 in July 2011, but the concentrations of all contaminants were a factor of 5 or more less than GW-2 standards, indicating that contaminant migration to indoor air is unlikely. Infiltration Galleys #1 and #2 were abandoned as part of a prior remediation system. They should not be used in the future for any injection process, and measures should be taken to ensure that any future groundwater injection does not cause contaminant migration to residential areas or the school.

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5.8. Resident/trespasser contact with surface water and sediment

Direct contact with sediment and surface water is evaluated for children and adults coming into direct contact with sediment and surface water in the drainage ditch west of the GCC property.

The average daily dose due to the incidental ingestion of contaminated sediment at the GCC site is calculated using the model recommended in DEP's guidance (DEP, 1995):

$$e_{si} = \frac{C_s \; R_s \; f_y \; R_{AF}}{W}$$

where the terms are:

- e_{si} average daily dose due to incidental ingestion of sediment (mg/kg-d);
- C_s concentration of the contaminant in sediment (kg/kg);
- R_s rate of sediment ingestion (mg/d);
- f_y fraction of the year during which exposure occurs (unitless);
- R_{AF} relative absorption factor (unitless, chemical specific); and
- W body weight (kg).

The exposure point concentrations are the maximum concentrations of contaminants measured in sediment. All exposure parameters and chemical specific values used in estimating sediment exposure are summarized in Table 8 and Table 9. All exposure parameters are based in DEP and EPA guidance and/or professional judgment. When estimating incremental cancer risks, it is necessary to average doses over a lifetime. Thirty years of exposure (from ages 7 to 36) are averaged over a 75-year lifetime.

Average child and lifetime average sediment ingestion exposures are summarized in Table 9.

Dermal absorption of contaminants in sediment was also evaluated for children and adults exposed to sediment. The average daily dose due to dermal absorption of contaminants from sediment is calculated using the method recommended in DEP's guidance (1995):

$$e_{sd} = \frac{C_s \; S_A \; A_F \; f_y \; R_{AF}}{W}$$

where the terms are:

- e_{sd} average daily dose due to dermal absorption from sediment (mg/kg-d);
- C_s concentration of the contaminant in sediment (kg/kg);
- S_A skin surface area in daily contact with sediment in square centimeters (cm^2/d);
- A_F sediment adherence factor (mg/cm^2);
- f_y fraction of the year during which exposure occurs (unitless);
- R_{AF} relative absorption factor (chemical specific); and
- W body weight (kg).

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The exposure point concentrations are again the maximum concentrations measured in sediment. All exposure parameters and chemical specific values used in estimating sediment exposure are summarized in Table 8 and Table 9.

Exposure to contaminants in surface water via ingestion and dermal absorption is calculated similarly according to the following two equations (DEP, 1995):

$$e_{swi} = \frac{C_{sw}\ R_{sw}\ R_{AF}\ f_y}{W}$$

$$e_{swd} = \frac{C_{sw}\ S_A\ K_p\ f_y\ E_d\ C_f}{W}$$

where the terms not previously defined are:

- e_{swi} average daily dose due to surface water ingestion (mg/kg-d);
- e_{swd} average daily dose due to dermal absorption from surface water (mg/kg-d);
- C_{sw} concentration of the contaminant in surface water (mg/l);
- R_{sw} rate of surface water ingestion (l/d);
- K_p permeability constant (cm/hr);
- E_d exposure duration (hrs/d); and
- C_f conversion factor (0.001 l/cm³).

The exposure point concentrations are the maximum concentrations measured in surface water. All exposure parameters and chemical specific values used in estimating surface water exposure are summarized in Table 8 and Table 10.

Table 11, Table 12, and Table 13 summarize the health risk estimates for exposure to sediment and surface water by a resident living near the GCC site. The total hazard index for a child from all four exposure pathways is 0.4. The total incremental cancer risk for 30 years of exposure is 6×10^{-6}. These risk estimates are below DEP's guidelines of 1 and 1×10^{-5}, indicating the exposure to contaminated sediment and surface water does not pose a significant risk to nearby residents.

5.9. Ingestion of drinking water from the MWRA aqueduct

The MWRA aqueduct south of the GCC property is a 17.4 mile water supply conduit connecting the Framingham Reservoir system to the Chestnut Hill Reservoir. The aqueduct is a brick-lined structure constructed between 1875 and 1878. The aqueduct is not currently in use, but is in standby mode and can be used in emergencies.

Because the aqueduct is a potential indirect drinking water supply, the potential risks associated with drinking water that has been transported through the aqueduct are evaluated in the risk characterization. Concentrations of contaminants measured in the aqueduct in the vicinity of the GCC site were presented in Section 3.2.5. The use of these concentrations to evaluate risks associated with drinking water is extremely conservative and greatly overestimates actual risks if the aqueduct were returned to use. The MWRA inspection estimated that groundwater infiltration and leakage from sluice gates at the Framingham reservoirs resulted in a flow rate through the aqueduct of approximately 90,000 gpd. The design capacity of the aqueduct when in use is 90,000,000 gpd (GZA, 2000). Hence, if the aqueduct were returned to service, the flow

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rate through the aqueduct would increase by a factor of approximately 1,000, diluting contaminant concentrations to negligible, undetectable levels.

Table 14 compares contaminant concentrations measured in the aqueduct to applicable drinking water standards and guidelines – Massachusetts Maximum Contaminant Levels (MMCLs) and Office of Research and Standard Guidelines (ORSGLs). The concentrations of all contaminants are less than drinking water standards.

Risks associated with drinking water use are further evaluated using the Massachusetts DEP ShortForm for residents exposed to chemicals in drinking water (DEP, 2009) in Appendix B. The hazard index estimated for a resident exposed to drinking water at the levels measured in the aqueduct is 1 and the estimated lifetime incremental cancer risk is 9×10^{-6}. Neither risk estimate exceeds DEP guidelines, indicating that ingestion of drinking water directly from the aqueduct poses no significant risk to human health. If the aqueduct is returned to service, dilution due to the increased flow would reduce contaminant concentrations and potential health risks to negligible levels.

6. Characterization of risks to safety

A characterization of risks to safety serves to "identify conditions that have resulted or may result in a release of oil and/or hazardous material (OHM) currently or in the foreseeable future that will pose a threat of physical harm or bodily injury to people" (310 CMR 40). During a site visit conducted on September 1, 2011, Cambridge Environmental observed no rusted or corroded drums or containers, open pits, lagoons, or other dangerous structures on the site that would pose a risk to safety. Additionally, there are no uncontained materials which exhibit the characteristics of corrosivity, reactivity, or flammability as described in the MCP.

To further assess potential risks to safety associated with on-site contamination, the risk characterization evaluates (1) risk of ignition or explosion of chemicals and (2) the potential for chemicals to accumulate to hazardous concentrations in confined areas such as a manhole or an excavation due to the volatilization of compounds from soil and groundwater.

6.1. Ignition or explosion hazard

This section evaluates the worst-case potential for contaminant concentrations in confined spaces (*e.g.*, basements or manhole shafts) to approach Lower Explosive Limits (LELs) (National Institute for Occupational Safety and Health [NIOSH], 2005). Vapor concentrations in excess of LELs may pose a risk to safety in the presence of an ignition source. To be conservative maximum photoionization detector (PID) readings are compared to LELs.[7] The lowest LELs are approximately 1% by volume, or 10,000 ppm. LELs for the contaminants of greatest concern at the GCC site (chlorinated VOCs) are significantly higher. The LELs for 1,1,1-trichloroethane,

[7] PID readings do not provide a true measure of actual contaminant concentrations. The instrument is frequently calibrated to an isobutylene response, and the measurements depend on the lamp used in the PID. It is not clear what lamp was used for all PID readings at the GCC site. A typical 10.6 eV PID calibrated to isobutylene, however, will overestimate concentrations of perchloroethylene, trichloroethylene, and cis-1,2-dichloroethylene. The approach described herein is conservative for those compounds. A 10.6 eV PID will not respond, however, to 1,1,1-trichloroethane or methylene chloride because of their higher ionization potential. An 11.7 eV lamp, however, would, however, accurately characterize those compounds. (RAE Systems, 2011)

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1,2-dichloroethene, and trichloroethene are 75,000 ppm, 56,000 ppm, and 80,000 ppm, respectively. Tetrachloroethene is considered to be a noncombustible liquid.

The 2000 CARP (GZA, 2000) reports maximum PID readings of 2,000 ppm at GZ-3 and >2,500 ppm at ERM-2.[8] The 2008 CARP (Envirotech & FS, 2008) reports a maximum PID reading at location B-6 of 4,455 ppm. In 2011 sampling at MW-15, MW-16, MW-17, MW-22, and MW-23, the maximum reported PID reading is >2,000 ppm. These maximum PID readings are all less than the lowest LEL identified above (56,000 ppm for 1,2-dichloroethene) by at least an order of magnitude. Therefore, the risk characterization concludes that there is no significant risk of explosion at the GCC site.

6.2. Occupational exposure during excavation

The Occupational Safety and Health Administration (OSHA) recommends Permissible Exposure Limits (PELs) for occupational exposure (29 CFR 1910). PELs are the maximum time-averaged concentrations of substances that a person may be exposed to during an 8-hour work day. Table 15 summarizes PELs (29 CFR 1910) for the chlorinated VOCs detected at the highest concentrations in soil and groundwater at the site.

PID readings are used as an indicator of concentrations a worker might experience while working in a manhole or excavation on the GCC site. While it is unlikely that a construction or utility worker would spend an entire 8-hour workday in a manhole or trench, PID readings of greater than 1,000 ppm have been recorded at a number of locations on the GCC site. PELs for the chlorinated VOCs observed most frequently at the GCC site range from 25 ppm to 350 ppm. PID readings based on a mixture of chlorinated VOCs do not correspond directly to the concentration of any one compound. Furthermore, the use of active ventilation would decrease contaminant concentrations experienced by workers in a manhole or excavation. Nevertheless, the elevated PID measurements observed in the source area and on the northern portion of the CSX property (north of the railroad tracks) suggest that precautionary measures including adequate ventilation should be taken to ensure that workers entering confined spaces do not experience contaminant concentrations exceeding PELs.

7. Characterization of risks to public welfare

A characterization of risks to public welfare is conducted as part of a Method 3 MCP risk characterization. The risk of harm to public welfare is characterized by evaluating the existence of nuisance conditions, the unilateral restriction of the use of another person's property, and any monetary or non-pecuniary costs due to the degradation of public or private resources. To evaluate potential future risks to public welfare, concentrations of contaminants in soil and groundwater are compared to UCLs listed in the MCP.

No nuisance conditions exist at the site. The breathing zone of ambient and indoor air is free from persistent odors, and all properties in the vicinity have access to clean public drinking water.

[8] The latter PID reading was recorded only at depths greater than 15 feet, a depth unlikely to be reached in a confined space.

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Table 16 and Table 17 compare maximum site concentrations in soil and groundwater to UCLs. The maximum soil concentrations are maximum concentrations detected in any sample collected between December 1996 and July 2011. The maximum groundwater concentrations are maximum concentrations measured in July, August, and September 2011. As demonstrated in the tables, no contaminants of concern are present in soil or groundwater at concentrations exceeding UCLs.

The presence of non-aqueous phase liquids (NAPL) having a thickness equal to or greater than one-half inch is also considered to exceed a UCL. NAPL was detected in well WMW-8D in June 2009 at a thickness of 0.51 feet, but has not been detected at that location in several rounds of data collected since then. NAPL has also been detected historically at locations WMW-6 (most recently at 0.14 feet in October 2008), RW-3 (0.17 feet in June 2009), and RW-4 (0.24 feet in September 2007). NAPL was not detected in the most recent comprehensive round of sampling, though it could still be present in the formation at wells where the concentrations of total VOCs are highest (CDW-6, MW-22, and MW-23). Additional future data will confirm the presence or absence of NAPL.

If data confirm the absence of NAPL at the GCC site, the concentrations of all contaminants at the site are less than UCLs, and the GCC site poses no significant risk to public welfare for both current and future site conditions. If NAPL is present at an average thickness greater than one-half inch, this would be an exceedance of a UCL, and would indicate a potential significant risk of harm to public welfare under future conditions. In that case, NAPL would have to be mitigated and/or controlled to prevent significant risk under the MCP.

8. Characterization of risks to the environment

A characterization of risks to the environment was performed to evaluate potential risks to environmental receptors at the site.

8.1. Stage I Environmental Screening

The Stage I Environmental Screening consists of evaluating quantitatively or qualitatively all available evidence to determine whether there is current or potential future exposure of environmental receptors to site-related contamination. If no current or potential future exposure exists, or if potential exposure is deemed minimal based on comparisons of site contaminant levels to screening levels, then the site poses no significant risk to environmental receptors and no further evaluation is necessary. If environmental risks are clearly evident, then the site clearly does pose a significant risk to the environment, and no further evaluation is necessary. If, however, contaminants levels exceed screening levels, but environmental harm is not readily apparent, then further evaluation is required in a Stage II Environmental Risk Characterization to determine whether there is significant risk of environmental harm.

As part of the Comprehensive Site Assessment Report (GZA, 2000), GZA performed a Stage I Environmental Screening for the GCC site. GZA summarized the results as follows.

> GZA completed a Method 3, Stage I Ecological Risk Screening (ERS) for the Site. The ERS was conducted in accordance with the MCP and DEP guidance documents. The screening consisted of the following tasks: 1) a review of available documents describing the habitats near the Site;

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2) an inspection of these habitats by GZA biologists; 3) identification of potentially exposed receptor organisms; 4) estimation of COC exposure levels for these organisms; and 5) assessment of potential risks to these organisms due to exposure to COCs in environmental media. To evaluate the potential for potentially significant exposures to aquatic and semi-aquatic organisms, contaminants concentrations detected in surface water and sediment samples were compared to toxicological benchmark concentrations. Surficial soil contamination at this site, if any, is limited to the facility property, which is not a viable habitat for terrestrial receptors. Therefore, exposure of terrestrial receptors via contact with contaminated surficial soils was not evaluated by the ERS.

Concentrations of several chlorinated VOCs in surface water and sediment exceeded their respective toxicological benchmark concentrations, which are intended to be protective of exposed aquatic organisms. Therefore, site contaminant concentrations in surface water and sediment represent potentially significant exposures and warrant a site specific, Stage II ERC in accordance with the MCP at 310 CMR 40.0995(4).

Cambridge Environmental's Stage I Screening updates the evaluation performed by GZA to reflect new site data and updated surface water and sediment standards. A review of the Natural Heritage and Endangered Species Program Atlas (NHESP, 1999) and the most recent DEP Priority Resource Map (MassGIS, 2011) indicates that there are no Areas of Critical Environmental Concern, estimated habitats of rare wildlife, vernal pools, or priority habitats of rare species in the vicinity of the site. Course Brook, and therefore the drainage ditch flowing into Course Brook, is a Class B water body designated as habitat for fish and other aquatic wildlife. It is also designated for primary and secondary contact recreation.

8.1.1. Surface water screening

The 2000 Stage I Screening compared concentrations of contaminants identified in surface water samples collected between June 1998 and April 2000 to surface water benchmarks from several EPA sources as well as benchmarks published by Oak Ridge National Laboratory (Suter and Tsao, 1996). Since the time of that report, DEP has identified a list of surface water benchmarks, based on many of the same sources referenced in the previous screening and additional sources of information. This updated Stage I Screening compares 2011 surface water concentrations to the DEP surface water benchmarks.

Table 18 compares the most recent round of 2011 surface water data to surface water benchmarks. While many of the benchmarks differ from those used in the 2000 assessment, the conclusion is the same. The concentrations of some contaminants exceed surface water benchmarks. The concentrations of 1,1,1-trichloroethane and trichloroethene at sampling location SW-10 exceed their respective benchmarks. These exceedances do not indicate "readily apparent harm" as defined by the MCP, but indicate that the potential exists for significant exposure by environmental receptors. Therefore a quantitative evaluation of environmental risks is recommended in a Stage II Environmental Risk Characterization.

8.1.2. Sediment screening

The 2000 CARP (GZA, 2000) presented a comparison of contaminant concentrations in sediment to ecological benchmarks. At that time, no benchmarks for chlorinated VOCs based on bulk sediment concentrations could be identified. The screening therefore relied on conservative

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screening level sediment benchmarks based on the Equilibrium Partitioning Model. The Stage I Screening provided the following justification for using these values (GZA, 2000):

> Recent research has shown that the bioavailable (and thus the toxic) portion of sediment contaminants is largely limited to the concentration in sediment pore water (*i.e.*, water held in the pore spaces between sediment particulates). Furthermore, the toxicity of sediment contaminants, express in terms of pore water concentrations, has been found to be in close agreement with toxicity results of water-only toxicity tests. The EqP method is used to estimate protective sediment pore water concentrations of COCs based on site-specific sediment characteristics and water quality toxicity benchmarks.
>
> For nonpolar organic contaminants, the main binding phase determining the concentrations in pore water is the total organic carbon (TOC) content of the sediment. Given the chemical's water quality benchmark (WQB), organic carbon partitioning coefficient (K_{oc}) and the TOC content of sediment, EPA's EqP approach can be used to calculate a sediment specific benchmark (EPA, 1991). These benchmarks are calculated as: (TOC fraction of sediment) × K_{oc} × WQB. The recommended range of TOC values for use with the method is 1 percent to 12 percent.
>
> Sediment Quality Benchmarks (SQBs) calculated using the EqP method are presented in Jones *et al.* (1997), based on sediments with a TOC content of 1 percent. Because the Site-specific TOC content of sediments ranged from 16.8 percent to 47.6 percent, we adjusted the values of Jones *et al.* (1997) to the recommended maximum value of 12 percent.

Cambridge Environmental further researched sediment quality benchmarks for use in Stage I Screenings. While DEP has developed sediment screening guidelines for a number of chemicals, DEP has not developed any guidelines for chlorinated organic compounds. Oak Ridge National Laboratory's (ORNL's) Risk Assessment Information System (RAIS; ORNL, 2011) identifies sediment screening criteria from a number of different sources. Three sources provide ecological sediment criteria for chlorinated VOCs: the Office of Solid Waste and Emergency Response (OSWER) Ecotox Thresholds Sediment Screening Benchmark, the EPA Region 5 Ecological Screening Levels (ESLs) Sediment Screening Benchmark, and the EPA Region 3 Biological Technical Assistance Group (BTAG) freshwater sediment screening benchmarks. The OSWER and Region 5 criteria for chlorinated VOCs are also based on an equilibrium partitioning method.

To maintain consistency with the previous Stage I Environmental Screening, the sediment benchmarks identified in that report (GZA, 2000) are maintained in this evaluation. Use of any of the additional screening levels identified in the RAIS, however, would result in the same conclusions.

Table 19 is based closely on Table H-10 of the 2000 CARP (GZA, 2000) and compares the concentrations of contaminants identified in 17 sediment samples to sediment screening criteria. Because no sediment samples have been collected since 2000, the data presented herein are identical to those presented in the 2000 CARP. Both average and maximum concentrations of 1,1,1-Trichloroethane and 1,1-Dichloroethane exceed the sediment screening criteria. Maximum concentrations of 1,1-Dichloroethene and cis-1,2-Dichloroethene also exceed screening criteria. These exceedances do not indicate "readily apparent harm" as defined by the MCP, but indicate that the potential exists for significant exposure by environmental receptors. Therefore a

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quantitative evaluation of environmental risks is recommended in a Stage II Environmental Risk Characterization.

8.2. Upper Concentration Limits

UCLs in soil and groundwater are concentrations of contaminants that, if exceeded, indicate the potential for significant risk of harm to public welfare and the environment under future conditions. Concentrations of contaminants in soil and groundwater are compared to UCLs as part of the environmental risk characterization.

As discussed in Section 7, the concentrations of contaminants in soil and groundwater are less than the UCLs for all contaminants. DNAPL may be present at the site, but has not been detected in the most recent comprehensive round of groundwater sampling. If DNAPL is present at an average thickness greater than one-half inch (the UCL), this would indicate that there is a potential future risk to environmental receptors. If DNAPL is not present (or is present only at a level less than the UCL), then no UCLs would be exceeded at the site.

9. Uncertainties

The uncertainties involved in performing a Method 3 risk characterization are diverse in nature and sometimes large. The methodology is designed to account for uncertainties by incorporating safety factors and assumptions that ensure that risk estimates are health protective. Some sources of uncertainty in the risk characterization are discussed below along with the methods used to account for them.

- Toxicological data

Toxicological data and chemical-specific parameters in the risk characterization are sources of uncertainty. Reference doses and reference concentrations used in the risk calculations are derived by regulatory agencies such as EPA or DEP as upper-bound estimates of how the chemicals affect members of the general population. Similarly, cancer potencies are derived as upper-bound estimates of carcinogenicity. For most chemicals and most people, more realistic reference doses would be higher and more realistic cancer potencies would be lower than those promulgated by EPA or DEP. This would result in lower hazard indices and incremental cancer risks. It is also possible, of course, that certain individuals may be hypersensitive to certain chemicals and might experience adverse effects at levels closer to or even lower than the regulatory reference dose. For such individuals, it is presumed that conservative estimates of exposure compensate for less than conservative estimates in dose-response.

- Sampling bias

When sampling at contaminated sites such as the GCC site, there is a tendency to collect samples from the most contaminated portions of the site, to ensure that these areas are adequately characterized. Because of this sampling bias, exposure point concentrations based on samples collected from the most contaminated portions of a site tend to overestimate the average concentrations to which individuals on the site will likely be exposed. The true average concentration of contaminants to which individuals will be exposed is almost certainly lower.

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Risk estimates based on the true average concentration of contaminants would therefore be correspondingly lower.

- Samples CDW9 and P7 (soil)

Samples CDW-9 and P7 contain concentrations of chlorinated VOCs exceeding the S-1/GW-2 standards. They were, however, excluded from the calculation of exposure point concentrations because they are not contiguous with the main body of contamination. Hypothetical future residential exposure to soil in these two areas, as well as construction worker exposure to soil in these areas was evaluated using DEP's ShortForms (2008). Risk estimates for both residents and construction workers associated with these two soil samples were less than DEP guidelines, indicating that exposure to soil at these two locations poses no significant risk to health.

10. Conclusions

Risks to human health, safety, public welfare, and the environment due to the presence of chlorinated VOCs and petroleum hydrocarbons in soil, groundwater, surface water, and sediment at the GCC site in Framingham, Massachusetts (RTN 3-19174) have been evaluated according to the MCP (310 CMR 40). Method 3 was selected as the most appropriate method by which to conduct the human health assessment, augmented, as required, by separate assessments of risks to safety, public welfare, and the environment.

The conclusions of the risk characterization are:

- For current site conditions, exposure to site-related contamination on the GCC property itself is limited. Soil contamination is located at depth, groundwater is not in use, and a vapor barrier and SSDS in the warehouse prevents contaminant migration to indoor air. Hence, there is no significant risk to workers at the GCC facility.

- Construction worker exposure to contaminated soil poses no significant health risk. The maximum hazard index estimated for the construction worker is 0.1, and the incremental cancer risk is 1×10^{-7}. Both values are less than DEP guidelines. Volatilization of contaminants from groundwater in an open excavation could, however, pose a significant risk to construction workers which could be mitigated through ventilation or the use of respiratory protection.[9]

- Utility workers would experience similar exposure to construction workers, but for a shorter duration. Hence, utility worker exposure to contaminated soil also poses no significant risk.

- It is anticipated that the GCC facility will remain an industrial facility for the foreseeable future. In a hypothetical future residential scenario, however, vapor intrusion to future residences would pose potentially significant health risks. Groundwater remediation and/or an Activity and Use Limitation (AUL) restricting future residential development of the site should be placed on the property to prevent future residential exposure to

[9] This applies to workers entering an open excavation only. Activities such as drilling and constructing monitoring wells do not involve entry into an excavation are pose no significant risk to human health.

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contaminants of concern. Direct contact with contaminants remaining in soil results in a hazard index of 2, exceeding DEP's guideline of 1, indicating that direct contact with soil also poses a potentially significant risk to hypothetical future residents.

- Due to groundwater injection at Infiltration Galleys #1 and #2, chlorinated VOC containing groundwater migrated to the north and east in 2007 and 2008, causing contaminants to be detected at sampling locations near the 155-157 Leland Street residences and the Woodrow Wilson School at concentrations that could possibly cause vapor intrusion to the residences or school. Groundwater injection at these locations no longer occurs, and contaminant concentrations at those locations have greatly decreased to levels that are unlikely to affect indoor air.

- Children and adults could come into contact with contaminants that have migrated to sediment and surface water in the drainage ditch to the west of the GCC property. The total hazard index and incremental cancer risk associated with sediment and surface water exposure are 0.4 and 6×10^{-6}, respectively, indicating no significant risk from this pathway.

- The hazard index estimated for a resident exposed to drinking water at the levels measured in the aqueduct is 1 and the estimated lifetime incremental cancer risk is 9×10^{-6}. Neither risk estimate exceeds DEP guidelines, indicating that direct ingestion of drinking water from the aqueduct poses no significant risk to human health. If the aqueduct is returned to service, dilution due to the increased flow would greatly reduce contaminant concentrations and potential health risks to negligible levels.

- The characterization of risks to safety demonstrates that workers entering manholes or confined spaces on the GCC property and northern portion of the CSX property may be exposed to contaminants in air at concentrations exceeding occupational exposure limits. Precautionary measures should be taken to ensure that contaminant concentrations in confined spaces do not exceed occupational exposure limits. The site otherwise poses no significant risk to safety.

- The characterization of risks to public welfare demonstrates that if future sampling confirms that non-aqueous phase liquid (NAPL) at the site is no longer present or has been reduced in thickness to less than one-half inch (the upper concentration limit (UCL) for NAPL), the site poses no significant risk to public welfare.

- The Stage I Environmental Screening finds that the concentrations of several contaminants in sediment and surface water in the drainage ditch southwest of the GCC property exceed screening levels. A Stage II Environmental Risk Characterization is recommended to determine whether there is significant risk of environmental harm.

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Table 1 Exposure point concentrations for contaminants in soil

Contaminant	Exposure point concentration (mg/kg)	MW-15 (8') petroleum hot spot (mg/kg)
MassDEP VPH		
C_5-C_8 Aliphatics	7.90E+01	2.02E+02
C_9-C_{12} Aliphatics	8.21E+01	2.08E+03
C_9-C_{10} Aromatics	9.45E+01	2.65E+03
Toluene	9.09E-01	ND
Ethylbenzene	1.40E+00	ND
Total Xylenes	4.64E+00	7.34E+00
Naphthalene	3.53E+00	ND
MassDEP EPH		
Naphthalene	6.38E-01	4.14E+00
2-Methylnaphthalene	1.42E+00	ND
C_9-C_{18} Aliphatics	3.33E+02	3.91E+03
C_{19}-C_{36} Aliphatics	2.48E+02	2.07E+01
C_{11}-C_{22} Aromatics	8.61E+01	5.64E+02
Select VOCs by MCP CAM Method 8260		
tert-Butylbenezene	ND	8.67E-01
n-Butylbenzene	7.25E-01	2.62E+01
sec-Butylbenzene	6.65E-01	1.34E+01
1,2-Dichlorobenzene	4.60E-01	ND
1,4-Dichlorobenzene	3.13E-01	ND
1,1-Dichloroethane	8.53E-01	ND
1,1-Dichloroethene	3.03E-01	ND
trans-1,2-Dichloroethene	2.92E-01	ND
cis-1,2-Dichloroethene	7.96E+00	ND
Ethylbenzene	1.32E+00	5.72E-01
Hexachlorobutadiene	2.77E-01	ND
Isopropylbenzene	5.44E-01	2.56E+00
p-Isopropyltoluene	8.54E-01	ND
Methylene Chloride	5.95E-01	ND
Naphthalene	1.91E+00	1.20E+01
n-Propylbenzene	8.12E-01	5.39E+00
Tetrachloroethene	9.66E+01	ND
Toluene	1.21E+00	ND
1,1,1-Trichloroethane	2.40E+01	1.99E+00
Trichloroethene	9.95E+01	ND
Trichlorofluoromethane	5.27E-01	ND
1,1,2-Trifluorotrichloroethane	1.13E+00	1.44E+01
1,2,4-Trimethylbenzene	5.88E+00	4.52E+01
1,3,5-Trimethylbenzene	2.46E+00	6.33E+00
Vinyl Chloride	4.61E-01	ND
Xylenes (Total)	1.03E+01	ND
Total Metals by EPA 6010C		
Iron	1.13E+04	5.91E+03
Manganese	1.04E+02	5.66E+01
Select Semivolatile Organic Compounds by EPA Method 8270D		
Naphthalene	ND	5.27E+00
Bis(2-ethylhexyl)phthalate	2.82E-01	ND
2-Methylnaphthalene	3.38E-01	1.96E+01
1,2-Dichlorobenzene	2.37E-01	ND
Notes: ND indicates not detected.		

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Table 2 Concentrations of contaminants in surface water

Contaminant	SW-1 9/3/11 (µg/l)	SW-2 9/3/11 (µg/l)	SW-3 9/3/11 (µg/l)	SW-10 8/25/11 (µg/l)
Volatile Organic Compounds (VOCs) by EPA Method 8260B				
Acetone	<10.0	<10.0	<10.0	23.5
Chloroethane	<1.00	<1.00	<1.00	1.82
1,1-Dichloroethane	2.3	10.3	6.2	199
1,1-Dichloroethene	<1.00	6.3	3.27	108
trans-1,2-Dichloroethene	<1.00	<1.00	<1.00	50.3
cis-1,2-Dichloroethene	4.4	160	90.3	3520
Tetrachloroethene (PCE)	<1.00	48.8	27.8	538
1,1,1-Trichloroethane	<1.00	49.4	26.4	1050
1,1,2-Trichloroethane	<1.00	<1.00	<1.00	1.72
Trichloroethene (TCE)	1.4	31.6	17.5	2480
1,1,2-Trichlorotrifluoroethane	<1.00	10	6.71	105
Vinyl Chloride	<1.00	5.81	2.5	<1.00
Xylenes	<2.00	<2.00	<2.00	108

Notes:
"<" indicates not detected and is followed by the reporting detection limit.
Contaminants not detected in the August/September 2011 round of surface water sampling are not included in the table.
DEP surface water benchmarks from DEP's spreadsheets for the development of the MCP standards (DEP, 2009).
NA indicates not available.

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Table 3 Concentrations of contaminants in sediment

Contaminant	SED-1 6/2/98 (µg/kg)	SED-1 DUP 6/2/98 (µg/kg)	SED-2 6/2/98 (µg/kg)	SED-3 6/2/98 (µg/kg)	SED-4 6/2/98 (µg/kg)	SED-5 6/2/98 (µg/kg)	SED-6 6/2/98 (µg/kg)	SED-1D 12/22/99 (µg/kg)	SED-1D DUP 12/22/99 (µg/kg)
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	<100	<100
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	<100	<100
cis-1,2-Dichloroethylene	ND	ND	ND	1200	ND	ND	ND	<100	<100
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	ND	<100	<100
Trichloroethylene	ND	ND	ND	ND	ND	ND	ND	<100	<100
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	<200	<200
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	<100	<100

Notes: ND indicates not detected with no detection limit available. "<" also means not detected and is followed by the method detection limit.

Contaminant	SED-1D2 12/22/99 (µg/kg)	SED-1S 12/22/99 (µg/kg)	SED-2D 12/22/99 (µg/kg)	SED-2S 12/22/99 (µg/kg)	SED-3D 12/22/99 (µg/kg)	SED-3S 12/22/99 (µg/kg)	SED-4D 12/22/99 (µg/kg)	SED-4S 12/22/99 (µg/kg)
1,1,1-Trichloroethane	<100	270	<100	<450	<150	<2000	76	7700
1,1-Dichloroethane	<100	<600	<100	<450	<150	1600	60	7200
cis-1,2-Dichloroethylene	<100	1400	<100	<450	<150	7300	580	41000
Tetrachloroethylene	<100	330	<100	<450	<150	<2000	<100	<850
Trichloroethylene	<100	<600	87	<450	<150	<2000	280	<850
Vinyl chloride	<200	<1200	<200	<900	<300	<4000	<200	6000
1,1-Dichloroethene	<100	<600	<100	<450	<150	<2000	<100	890

Notes: ND indicates not detected with no detection limit available. "<" also means not detected and is followed by the method detection limit.

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Table 4 Concentrations of contaminants measured in aqueduct water in the vicinity of the GCC site

Contaminant	Location 67+00 (µg/l)
MTBE	(5.5) 6.0
1,1-Dichloroethane	0.6
1,1-Dichloroethene	1
Cis-1,2-Dichloroethene	31
Tetrachloroethene	1.7
1,1,1-Trichloroethane	12
Trichloroethene	3.2

Notes:
Parentheses indicate that the value was measured using DEP Method 1.0. Other VOC results were analyzed by EPA Method 524.2.

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Table 5 Toxicological data for contaminants not included in DEP's risk assessment ShortForms

Contaminant	Footnotes	Chronic reference dose (mg/kg-d)	Subchronic reference dose (mg/kg-d)	Chronic reference concentration (mg/m³)	Cancer slope factor (kg-d/mg)	Unit risk (m³/mg)	Cancer class	Source of Chronic reference dose	Source of Subchronic reference dose	Source of Chronic reference concentration	Source of Cancer slope factor	Source of Unit risk	Source of Cancer class
tert-Amyl methyl ether		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene		3.00E-02	3.00E-01	5.00E-02	NA	NA	NA	DEP 2008	DEP 2008	DEP 2008	NA	NA	NA
n-Butylbenzene		3.00E-02	3.00E-01	5.00E-02	NA	NA	NA	DEP 2008	DEP 2008	DEP 2008	NA	NA	NA
sec-Butylbenzene		3.00E-02	3.00E-01	5.00E-02	NA	NA	NA	DEP 2008	DEP 2008	DEP 2008	NA	NA	NA
Carbon disulfide		1.00E-01	1.00E-01	7.00E-01	NA	NA	NA	IRIS 2011	HEAST 1997	IRIS 2006	NA	NA	NA
Chloroethane		4.00E-01	4.00E-01	1.00E+01	2.90E-03	8.29E-04	NA	EPA 2003	calculated	IRIS 2011	EPA 2003	calculated	NA
Chloromethane	B	2.57E-02	2.57E-02	9.00E-02	NA	NA	D	calculated	calculated	IRIS 2011	NA	NA	IRIS 2011
Diethyl ether		2.00E-01	2.00E+00	7.00E-01	NA	NA	NA	IRIS 2011	HEAST 1997	calculated	NA	NA	NA
Isopropylbenzene		3.00E-02	3.00E-01	5.00E-02	NA	NA	NA	DEP 2008	DEP 2008	DEP 2008	NA	NA	NA
p-Isopropyltoluene		3.00E-02	3.00E-01	5.00E-02	NA	NA	NA	DEP 2008	DEP 2008	DEP 2008	NA	NA	NA
n-Propyl benzene		3.00E-02	3.00E-01	5.00E-02	NA	NA	NA	DEP 2008	DEP 2008	DEP 2008	NA	NA	NA
Trichlorofluoromethane	A	3.00E-01	7.00E-01	7.00E-01	NA	NA	NA	IRIS 2011	HEAST 1997	EPA 2011	NA	NA	NA
1,1,2-Trichlorotrifluoroethane	A, C	3.00E+01	3.00E+00	3.00E+01	NA	NA	NA	IRIS 2011	HEAST 1997	EPA 2011	NA	NA	NA
1,2,4-Trimethylbenzene		3.00E-02	3.00E-01	5.00E-02	NA	NA	NA	DEP 2008	DEP 2008	DEP 2008	NA	NA	NA
1,3,5-Trimethylbenzene		3.00E-02	3.00E-01	5.00E-02	NA	NA	NA	DEP 2008	DEP 2008	DEP 2008	NA	NA	NA

NA indicates not available.

The sources of toxicological data are (in order of priority):
IRIS - EPA's Integrated Risk Information System
DEP 2008 - DEP's ShortForm spreadsheets - vlookup version v0808
EPA 2011 - EPA Regional Screening Level Summary Table - June 2011
EPA 2005 - EPA Regions III's October 25, 2005 Risk Based Concentration Table, EPA 2002 - EPA Region III's October 9, 2002 Risk Based Concentration Table, or EPA 2003 - EPA Region III's October 15, 2003 Risk Based Concentration Table
HEAST 1997 - EPA's Health Effects Assessment Summary Tables - last updated in 1997
EPA 2004 - EPA Region IX's October 2004 Preliminary Remediation Goal Table
All relative absorption factors are from DEP's 2006 toxicity spreadsheet (or the older 2001 spreadsheet).

Footnotes:
A The reference concentration is a chronic inhalation reference dose converted from mg/kg-d to mg/m³ by multiplying by 70 kg and dividing by 20 m³/d.
B The cancer class D is provided here as specified in IRIS (2006). HEAST (1997) provides a cancer class of C, a cancer slope factor of 1.30E-02 mg/kg-d, and a unit risk of 1.80E-03 m³/mg.
C The subchronic reference dose provided by HEAST (1997) is less than the chronic reference dose provided by IRIS (2002) for 1,1,2-trichloro-1,2,2-trifluoroethane.

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Table 6 Relative absorption factors for contaminants not included in DEP's ShortForms

Contaminant	Relative Absorption Factors			Notes
	Soil ingestion	Dermal absorption	Water ingestion	
Chloroethane	NE	NE	1	The basis for the tox value is unknown. The RAF for water ingestion is assumed to be 1 (a typical value for many chlorinated VOCs).
Trichlorofluoromethane	0.99	0.11	NE	The tox value is based on a gavage study (IRIS, 2011). RAFs are calculated using DEP (1995) default values for VOCs.
1,1,2-Trichlorotrifluoroethane	1.09	0.12	1.09	The tox value is based on an inhalation study (IRIS, 2011). RAFs are calculated using DEP (1995) default values for VOCs.

Notes:
NE indicates not estimated.

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Table 7 Estimated risks to construction workers from exposure to contaminated groundwater based on screening-level modeling

Contaminant	Maximum Concentration Detected in Groundwater (µg/l)	Monitoring Well of Maximum Detect	Henry's Law Constant (atm-m^3/mol)	Diffusion Coefficient (cm^2/s) in:		$\frac{C_{mh}}{C_{gw}}$ (l/m^3)	Subchronic R_{fc} (mg/ m^3)	Hazard Index	Unit Risk Factor (m^3/µg)	Incremental Cancer Risk
				Air	Water					
Volatile Organic Compounds (VOCs) by EPA Method 8260B										
Acetone	475	MW-22	3.97E-05	1.24E-01	1.14E-05	1.72E-01	8.00E-01	2.44E-02	NC	NC
tert-Amyl Methyl Ether	14.7	EMPZ-2S	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Benzene	9.56	RW-5S	5.55E-03	8.80E-02	9.80E-06	7.33E-01	9.00E-02	1.85E-02	1.11E-02	8.68E-08
tert-Butylbenzene	1.53	WMW-4	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
n-Butylbenzene	9.73	WMW-4	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
sec-Butylbenzene	4.7	WMW-4	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Carbon Disulfide	7.7	EMPZ-2S	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Chlorobenzene	7.14	CDW-6	3.11E-03	7.30E-02	8.70E-06	7.52E-01	2.00E-02	6.39E-02	NC	NC
Chloroethane	28.4	WMW-6	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Chloroform	19.1	EMPZ-2S	3.67E-03	1.04E-01	1.00E-05	6.59E-01	6.60E-01	4.54E-03	2.00E-02	4.60E-07
Chloromethane	29	EMPZ-2S	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
1,2-Dichlorobenzene	133	MW-16	1.92E-03	6.90E-02	7.90E-06	7.15E-01	2.00E-01	1.13E-01	NC	NC
1,2-Dichloroethane	50.9	MW-18M	1.18E-03	1.04E-01	9.90E-06	6.15E-01	5.50E-02	1.36E-01	4.97E-02	1.29E-06
1,1-Dichloroethane	2610	MW-16	5.62E-03	7.42E-02	1.05E-05	8.57E-01	5.00E+00	1.07E-01	NC	NC
1,1-Dichloroethene	3740	MW-22	2.61E-02	9.00E-02	1.04E-05	7.65E-01	2.00E-01	**3.41E+00**	NC	NC
trans-1,2-Dichloroethene	3570	RW-5S	9.38E-03	7.07E-02	1.19E-05	9.70E-01	7.00E-01	**1.18E+00**	NC	NC
cis-1,2-Dichloroethene	58500	RW-5S	4.08E-03	7.36E-02	1.13E-05	8.94E-01	3.50E-02	**3.56E+02**	NC	NC
Diethyl Ether	7.24	WMW-6	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
1,4-Dioxane	1630	RW-5S	4.80E-06	2.30E-01	1.00E-05	2.63E-02	1.20E-01	8.52E-02	6.82E-02	2.79E-07
Ethylbenzene	189	MW-22	7.88E-03	7.50E-02	7.80E-06	7.06E-01	1.00E+00	3.18E-02	NC	NC
Isopropylbenzene (Cumene)	19.1	MW-22	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
p-Isopropyltoluene	8.25	MW-14	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Methyl tert-Butyl Ether (MTBE)	22.2	EMPZ-2S	5.87E-04	2.37E-03	8.63E-06	2.38E+00	3.00E+00	4.19E-03	NC	NC
Methylene Chloride	23300	RW-5S	3.25E-03	1.01E-01	1.17E-05	7.40E-01	3.00E+00	**1.37E+00**	2.74E+01	**1.29E-05**
4-Methyl-2-pentanone (MIBK)	26.7	RW-5S	5.87E-04	2.37E-03	8.63E-06	2.38E+00	3.00E+00	5.04E-03	NC	NC
Naphthalene	156	MW-22	4.40E-04	5.90E-02	7.50E-06	6.22E-01	3.00E-03	**7.70E+00**	NC	NC
n-Propylbenzene	23.6	WMW-4	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
1,1,2,2-Tetrachloroethane	80	EMPZ-2S	3.67E-04	7.10E-02	7.90E-06	5.56E-01	9.30E-02	1.14E-01	7.06E-02	4.10E-06
1,1,1,2-Tetrachloroethane	46.8	EMPZ-2S	2.45E-03	7.10E-02	7.90E-06	7.12E-01	1.05E-01	7.56E-02	5.29E-02	3.92E-07
Tetrachloroethene (PCE)	63300	CDW-6	1.77E-02	7.20E-02	8.20E-06	7.56E-01	4.60E+00	**2.48E+00**	7.59E+01	**7.59E-04**

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Contaminant	Maximum Concentration Detected in Groundwater (µg/l)	Monitoring Well of Maximum Detect	Henry's Law Constant (atm-m^3/mol)	Diffusion Coefficient (cm^2/s) in:		$\frac{C_{mh}}{C_{gw}}$ (l/m^3)	Subchronic R_{fc} (mg/ m^3)	Hazard Index	Unit Risk Factor (m^3/µg)	Incremental Cancer Risk
				Air	Water					
Volatile Organic Compounds (VOCs) by EPA Method 8260B										
Toluene	314	MW-22	6.64E-03	8.70E-02	8.60E-06	6.81E-01	5.00E+00	1.02E-02	NC	NC
1,1,1-Trichloroethane	51700	WMW-6	1.72E-02	7.80E-02	8.80E-06	7.51E-01	5.20E+00	**1.78E+00**	NC	NC
1,1,2-Trichloroethane	40.6	RW-5S	8.24E-04	7.80E-02	8.80E-06	6.54E-01	7.40E-02	8.55E-02	4.22E-02	6.75E-07
Trichloroethene (TCE)	15300	MW-22	9.85E-03	7.90E-02	9.10E-06	7.57E-01	1.80E-01	**1.53E+01**	1.84E+01	**3.13E-05**
Trichlorofluoromethane	28.4	MW-22	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
1,1,2-Trichlorotrifluoroethane (Freon 113)	7160	RW-5S	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
1,2,4-Trimethylbenzene	192	MW-22	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
1,3,5-Trimethylbenzene	83.6	MW-22	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Vinyl Chloride	448	MW-14	2.78E-02	1.06E-01	1.23E-06	1.66E-01	1.00E-01	1.77E-01	1.18E-01	1.04E-06
Xylenes	622	MW-22	6.63E-03	7.69E-02	8.44E-06	7.29E-01	3.00E-01	3.60E-01	NC	NC
VPH and Target VOCs										
C_5-C_8 Aliphatics	74100	CDW-6	1.30E+00	8.00E-02	1.00E-06	1.74E-01	2.00E-01	**1.54E+01**	NC	NC
C_9-C_{12} Aliphatics	530	WMW-4	1.56E+00	7.00E-02	1.00E-06	1.91E-01	6.00E-01	4.01E-02	NC	NC
C_9-C_{10} Aromatics	1100	WMW-4	1.66E+00	7.00E-02	5.00E-06	5.58E-01	6.00E-01	2.43E-01	NC	NC
Benzene	5.76	CDW-6	5.55E-03	8.80E-02	9.80E-06	7.33E-01	9.00E-02	1.12E-02	6.70E-03	5.23E-08
Toluene	155	CDW-6	6.64E-03	8.70E-02	8.60E-06	6.81E-01	5.00E+00	5.02E-03	NC	NC
Ethylbenzene	71.8	CDW-6	7.88E-03	7.50E-02	7.80E-06	7.06E-01	1.00E+00	1.21E-02	NC	NC
Xylenes (total)	184.4	CDW-6	6.63E-03	7.69E-02	8.44E-06	7.29E-01	3.00E-01	1.07E-01	NC	NC
Naphthalene	94.4	CDW-6	4.40E-04	5.90E-02	7.50E-06	6.22E-01	3.00E-03	**4.66E+00**	NC	NC
EPH and Target PAHs										
C_9-C_{18} Aliphatics	2260	WMW-4	1.66E+00	7.00E-02	5.00E-06	5.58E-01	6.00E-01	5.00E-01	NC	NC
C_{19}-C_{36} Aliphatics	1700	WMW-4	1.66E+00	7.00E-02	5.00E-06	5.58E-01	6.00E-01	3.76E-01	NC	NC
C_{11}-C_{22} Aromatics	1510	WMW-4	7.20E-04	6.00E-02	1.00E-06	2.01E-01	5.00E-01	1.45E-01	NC	NC
2-Methylnapthalene	179	WMW-4	5.18E-04	6.29E-02	7.20E-06	6.11E-01	5.00E-01	5.20E-02	NC	NC
Naphthalene	57.8	CDW-6	4.40E-04	5.90E-02	7.50E-06	6.22E-01	3.00E-03	**2.85E+00**	NC	NC
SVOCs via EPA Method 8270D/8270D SIM										
1,4-Dioxane	200	MW-22	4.80E-06	2.30E-01	1.00E-05	2.63E-02	1.20E-01	1.05E-02	8.36E-03	3.43E-08

Note: All chemical property and toxicity values from MA DEP Short Form spreadsheet v0808.xls; #N/A indicates chemical is not included in MA DEP Short Forms

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Table 8 Exposure parameters used in the calculation of sediment and surface water risks

Value	Parameter	Reference
50	Sediment ingestion rate (mg/d)	DEP, 1995
35	Body weight - ages 7 to 13 (kg)	DEP, 1995
58	Body weight - ages 7 to 36 (kg)	DEP, 1995
0.0849	Fraction of year during which exposure occurs (31 days per year)	Professional judgment
3615	Body surface area - ages 7 to 13 (cm^2/d) - hands, forearms, lower legs, & feet	DEP, 1995
5234	Body surface area - ages 7 to 36 (cm^2/d) - hands, forearms, lower legs, & feet	DEP, 1995
0.51	Sediment adherence factor (mg/cm^2)	DEP, 1995
30	Exposure duration (yrs)	DEP, 1995
75	Lifetime (yrs)	DEP, 1995
50	Surface water ingestion (ml/hr) - child	EPA, 2008
27	Surface water ingestion (ml/hr) - child & adult (7 yrs at 50 ml/hr and 23 yrs at 20 ml/hr)	EPA, 2008
1	Event duration (hrs/event)	Professional judgment

Table 9 Calculation of exposure to contaminants in sediment

Contaminant	Maximum Sediment concentration (mg/kg)	RAF (soil ingestion)	RAF (dermal)	Child Sediment ingestion (mg/kg-d)	Lifetime Sediment ingestion (mg/kg-d)	Child Sediment dermal (mg/kg-d)	Lifetime Sediment dermal (mg/kg-d)
1,1,1-Trichloroethane	7.70E+00	1.00E+00	1.00E-01	9.34E-07	2.26E-07	3.44E-06	1.20E-06
1,1-Dichloroethane	7.20E+00	1.30E+00	1.30E-01	1.14E-06	2.74E-07	4.19E-06	1.46E-06
cis-1,2-Dichloroethylene	4.10E+01	1.00E+00	1.00E-01	4.97E-06	1.20E-06	1.83E-05	6.41E-06
Tetrachloroethylene	3.30E-01	1.00E+00	1.00E-01	4.00E-08	9.66E-09	1.48E-07	5.16E-08
Trichloroethylene	2.80E-01	1.00E+00	1.00E-01	3.40E-08	8.20E-09	1.25E-07	4.38E-08
Vinyl chloride	6.00E+00	1.00E+00	1.00E-01	7.28E-07	1.76E-07	2.68E-06	9.38E-07
1,1-Dichloroethene	8.90E-01	1.00E+00	1.00E-01	1.08E-07	2.61E-08	3.98E-07	1.39E-07

Notes:
RAFs are those use in DEP's ShortForms (DEP, 2008).

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Table 10 Calculation of exposure to contaminants in surface water

Contaminant	Maximum Surf. water concentration (µg/l)	RAF (water ing)	Permeability constant (cm/hr)	Child Surf. water ingestion (mg/kg-d)	Lifetime Surf. water ingestion (mg/kg-d)	Child Surf. water dermal (mg/kg-d)	Lifetime Surf. water dermal (mg/kg-d)
Acetone	2.35E+01	1.00E+00	5.21E-04	2.85E-06	3.72E-07	1.07E-07	3.75E-08
Chloroethane	1.82E+00	1.00E+00	6.06E-03	2.21E-07	2.88E-08	9.68E-08	3.38E-08
1,1-Dichloroethane	1.99E+02	1.30E+00	6.71E-03	3.14E-05	4.09E-06	1.17E-05	4.10E-06
1,1-Dichloroethene	1.08E+02	1.00E+00	1.16E-02	1.31E-05	1.71E-06	1.09E-05	3.82E-06
trans-1,2-Dichloroethene	5.03E+01	1.00E+00	7.66E-03	6.10E-06	7.95E-07	3.38E-06	1.18E-06
cis-1,2-Dichloroethene	3.52E+03	1.00E+00	7.66E-03	4.27E-04	5.57E-05	2.37E-04	8.27E-05
Tetrachloroethene (PCE)	5.38E+02	1.00E+00	3.27E-02	6.53E-05	8.51E-06	1.54E-04	5.39E-05
1,1,1-Trichloroethane	1.05E+03	1.00E+00	1.25E-02	1.27E-04	1.66E-05	1.16E-04	4.04E-05
1,1,2-Trichloroethane	1.72E+00	1.00E+00	6.43E-03	2.09E-07	2.72E-08	9.70E-08	3.39E-08
Trichloroethene (TCE)	2.48E+03	1.00E+00	1.16E-02	3.01E-04	3.92E-05	2.52E-04	8.80E-05
1,1,2-Trichlorotrifluoroethane	1.05E+02	1.09E+00	1.72E-02	1.39E-05	1.81E-06	1.59E-05	5.55E-06
Vinyl Chloride	5.81E+00	1.00E+00	5.56E-03	7.05E-07	9.19E-08	2.83E-07	9.90E-08
Xylenes	1.08E+02	1.00E+00	5.23E-02	1.31E-05	1.71E-06	4.95E-05	1.73E-05

Notes:
RAFs are those used in DEP's ShortForms with the exception of those for chloroethane and 1,1,1-trichlorotrifluoroethane which are based on DEP defaults (DEP, 1995).
Permeability constants are also those used in DEP's ShortForms with the exception of those for chloroethane and 1,1,1-trichlorotrifluoroethane.
Permeability constants for these two chemicals are estimated using the empirical formula used in the ShortForms:
10^[-2.8+0.66*(log Kow)-0.0056*(molecular weight)]
The values for log Kow for chloroethane and 1,1,2-trichlorotrifluoroethane are 1.43 and 3.16, respectively.
The molecular weights for chloroethane and 1,1,2-trichlorotrifluoroethane are 64.51 and 187.38 g/mole, respectively.

Table 11 Health risk estimates for exposure to contaminated sediment

Contaminant	Chronic reference dose (mg/kg-d)	Cancer potency (kg-d/mg)	Hazard indices		Incremental cancer risks	
			Sediment ingestion	Sediment dermal	Sediment ingestion	Sediment dermal
1,1,1-Trichloroethane	9.00E-02	NC	1.04E-05	3.83E-05	NC	NC
1,1-Dichloroethane	1.00E-01	NC	1.14E-05	4.19E-05	NC	NC
cis-1,2-Dichloroethylene	1.00E-02	NC	4.97E-04	1.83E-03	NC	NC
Tetrachloroethylene	1.00E-02	5.10E-02	4.00E-06	1.48E-05	4.93E-10	2.63E-09
Trichloroethylene	2.00E-03	1.10E-02	1.70E-05	6.26E-05	9.02E-11	4.82E-10
Vinyl chloride	3.00E-03	1.40E+00	2.43E-04	8.95E-04	2.46E-07	1.31E-06
1,1-Dichloroethene	5.00E-02	NC	2.16E-06	7.96E-06	NC	NC
Total			**7.85E-04**	**2.89E-03**	**2.47E-07**	**1.32E-06**

Notes:
NC indicates that the chemical is not a known carcinogen.
Toxicological data are those used in the DEP ShortForms (DEP, 2008).

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Table 12 Health risk estimates for exposure to contaminated surface water

Contaminant	Chronic reference dose (mg/kg-d)	Cancer potency (kg-d/mg)	Hazard indices		Incremental cancer risks	
			Surface water ingestion	Surface water dermal	Surface water ingestion	Surface water dermal
Acetone	9.00E-01	NC	3.17E-06	1.19E-07	NC	NC
Chloroethane	4.00E-01	2.90E-03	5.52E-07	2.42E-07	8.35E-11	9.81E-11
1,1-Dichloroethane	1.00E-01	NC	3.14E-04	1.17E-04	NC	NC
1,1-Dichloroethene	5.00E-02	NC	2.62E-04	2.19E-04	NC	NC
trans-1,2-Dichloroethene	2.00E-02	NC	3.05E-04	1.69E-04	NC	NC
cis-1,2-Dichloroethene	1.00E-02	NC	4.27E-02	2.37E-02	NC	NC
Tetrachloroethene (PCE)	1.00E-02	5.10E-02	6.53E-03	1.54E-02	4.34E-07	2.75E-06
1,1,1-Trichloroethane	9.00E-02	NC	1.42E-03	1.28E-03	NC	NC
1,1,2-Trichloroethane	4.00E-03	5.70E-02	5.22E-05	2.43E-05	1.55E-09	1.93E-09
Trichloroethene (TCE)	2.00E-03	1.10E-02	1.50E-01	1.26E-01	4.31E-07	9.68E-07
1,1,2-Trichlorotrifluoroethane (Freon 113)	3.00E+01	NC	4.63E-07	5.29E-07	NC	NC
Vinyl Chloride	3.00E-03	1.40E+00	2.35E-04	9.44E-05	1.29E-07	1.39E-07
Xylenes	2.00E-01	NC	6.55E-05	2.48E-04	NC	NC
Total			**2.02E-01**	**1.67E-01**	**9.96E-07**	**3.86E-06**

Notes:
NC indicates that the chemical is not a known carcinogen.
Toxicological data are those used in the DEP ShortForms (DEP, 2008) or those presented in Chapter 4 for chemicals not included in the ShortForms.

Table 13 Summary of risk estimates for sediment and surface water exposure

Pathway	Hazard index	Incremental cancer risk
Sediment ingestion	7.85E-04	2.47E-07
Sediment - dermal absorption	2.89E-03	1.32E-06
Surface water ingestion	2.02E-01	9.96E-07
Surface water - dermal absorption	1.67E-01	3.86E-06
Total	**4.E-01**	**6.E-06**

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Table 14 Comparison of contaminant concentrations in the aqueduct to drinking water standards

Contaminant	Location 67+00 (µg/l)	Drinking water standard (µg/l)	Type of standard
MTBE	(5.5) 6.0	70	ORSGL
1,1-Dichloroethane	0.6	70	ORSGL
1,1-Dichloroethene	1	7	MMCL
cis-1,2-Dichloroethene	31	70	MMCL
Tetrachloroethene	1.7	5	MMCL
1,1,1-Trichloroethane	12	200	MMCL
Trichloroethene	3.2	5	MMCL

Notes:
Parentheses indicate that the value was measured using DEP Method 1.0. Other VOC results were analyzed by EPA Method 524.2.
MMCL indicates Massachusetts Maximum Contaminant Level.
ORSGL indicates Office of Research and Standards Guideline.
Drinking water standards are those reported in DEP's spreadsheets for the development of the MCP Numerical Standards (DEP, 2009).

Table 15 Permissible exposure limits (29 CFR 1910) for chlorinated VOCs

Contaminant	Permissible exposure limit (ppm)	Permissible exposure limit (mg/m³)	Notes
1,1-Dichloroethane	100	400	
1,1-Dichloroethene	NA	NA	A
trans-1,2-Dichloroethene	200	790	
cis-1,2-Dichloroethene	200	790	
Methylene Chloride	25	87	B
Tetrachloroethene (PCE)	100	678	B
1,1,1-Trichloroethane	350	1900	
Trichloroethene (TCE)	100	537	B
1,1,2-Trichlorotrifluoroethane (Freon 113)	1000	7600	

Notes:
A NA indicates that a PEL is not available.
B The PEL for these chemicals is an 8 hour time-weighted average. Permissible shorter duration ceiling concentrations are higher.

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Table 16 Comparison of maximum contaminant concentrations in soil to UCLs

Contaminant	Maximum soil concentration (mg/kg)	Upper concentration limit (mg/kg)
MassDEP VPH		
C_5-C_8 Aliphatics	299	5000
C_9-C_{12} Aliphatics	2080	20000
C_9-C_{10} Aromatics	2650	5000
Toluene	2.96	10000
Ethylbenzene	4.64	10000
Total Xylenes	16.19	10000
Naphthalene	7.73	10000
MassDEP EPH		
Naphthalene	4.14	10000
2-Methylnaphthalene	6.1	5000
C_9-C_{18} Aliphatics	3910	20000
C_{19}-C_{36} Aliphatics	826	20000
C_{11}-C_{22} Aromatics	564	10000
Select VOCs by MCP CAM Method 8260		
tert-Butylbenezene	0.867	1000[a]
n-Butylbenzene	26.2	1000[a]
sec-Butylbenzene	13.4	1000[a]
1,2-Dichlorobenzene	3.36	10000
1,4-Dichlorobenzene	0.849	10000
1,1-Dichloroethane	10	10000
1,1-Dichloroethene	1.06	10000
trans-1,2-Dichloroethene	0.126	10000
cis-1,2-Dichloroethene	130	5000
Ethylbenzene	14	10000
Hexachlorobutadiene	0.16	1000
Isopropylbenzene	5.7	1000[a]
p-Isopropyltoluene	7.9	1000[a]
Methylene Chloride	52.2	10000
Methyl isobutyl ketone	3.7	10000
Naphthalene	27.2	10000
n-Propylbenzene	10	1000[a]
Tetrachloroethene	830	10000
Toluene	10.5	10000
1,1,1-Trichloroethane	113.7	10000
Trichloroethene	1228.4	10000
Trichlorofluoromethane	1.9	1000[a]
1,1,2-Trifluorotrichloroethane	16.6	1000[a]
1,2,4-Trimethylbenzene	92.7	1000[a]
1,3,5-Trimethylbenzene	38.9	1000[a]
Vinyl Chloride	0.0929	300
Xylenes (Total)	147.9	10000
Total Metals by EPA 6010C		
Iron	17400	NA[b]
Manganese	177	1000[a]
Select Semivolatile Organic Compounds by EPA Method 8270D		
Naphthalene	5.27	10000
Bis(2-ethylhexyl)phthalate	0.631	10000
2-Methylnaphthalene	19.6	5000
1,2-Dichlorobenzene	0.414	10000

Notes:
[a] Because no chemical specific UCL is available for this chemical, the DEP default of 1,000 mg/kg was used (310 CMR 40.0996).
[b] NA indicates not available. The MCP (310 CMR 40.0996) states that no UCL is required for iron.
Chemicals reported multiple times in the table were measured using multiple independent analytical techniques.

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Table 17 Comparison of maximum concentrations in groundwater (2011 data) to UCLs

Contaminant	Maximum groundwater concentration (µg/l)	Upper concentration limit (µg/l)
Volatile Organic Compounds		
Acetone	475	100000
tert-Amyl Methyl Ether	14.7	10000[a]
Benzene	9.56	100000
tert-Butylbenzene	1.53	10000[a]
n-Butylbenzene	9.73	10000[a]
sec-Butylbenzene	4.7	10000[a]
Carbon Disulfide	7.7	10000[a]
Chlorobenzene	7.14	10000
Chloroethane	28.4	10000[a]
Chloroform	19.1	100000
Chloromethane	29	10000[a]
1,2-Dichlorobenzene	133	20000
1,2-Dichloroethane	50.9	100000
1,1-Dichloroethane	2610	100000
1,1-Dichloroethene	3740	100000
trans-1,2-Dichloroethene	3570	100000
cis-1,2-Dichloroethene	58500	100000
Diethyl Ether	7.24	10000[a]
1,4-Dioxane	1630	100000
Ethylbenzene	189	100000
Isopropylbenzene (Cumene)	19.1	10000[a]
p-Isopropyltoluene	8.25	10000[a]
Methyl tert-Butyl Ether (MTBE)	22.2	100000
Methylene Chloride	23300	100000
4-Methyl-2-pentanone (MIBK)	26.7	100000
Naphthalene	156	100000
n-Propylbenzene	23.6	10000[a]
1,1,2,2-Tetrachloroethane	80	100000
1,1,1,2-Tetrachloroethane	46.8	100000
Tetrachloroethene (PCE)	63300	100000
Toluene	314	100000
1,1,1-Trichloroethane	51700	100000
1,1,2-Trichloroethane	40.6	100000
Trichloroethene (TCE)	15300	50000
Trichlorofluoromethane	28.4	10000[a]
1,1,2-Trichlorotrifluoroethane (Freon 113)	7160	10000[a]
1,2,4-Trimethylbenzene	192	10000[a]
1,3,5-Trimethylbenzene	83.6	10000[a]
Vinyl Chloride	448	100000
Xylenes	622	100000
VPH and Target VOCs		
C_5-C_8 Aliphatics	74100	100000

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Contaminant	Maximum groundwater concentration (µg/l)	Upper concentration limit (µg/l)
C_9-C_{12} Aliphatics	530	100000
C_9-C_{10} Aromatics	1100	100000
Benzene	5.76	100000
Toluene	155	100000
Ethylbenzene	71.8	100000
Xylenes (total)	184.4	100000
Naphthalene	94.4	100000
EPH and Target PAHs		
C_9-C_{18} Aliphatics	2260	100000
C_{19}-C_{36} Aliphatics	1700	100000
C_{11}-C_{22} Aromatics	1510	100000
2-Methylnapthalene	179	100000
Naphthalene	57.8	100000
Semivolatile Organic Compounds		
1,4-Dioxane	200	100000

Notes:

[a] Because no chemical specific UCL is available for this chemical, the DEP default of 10,000 µg/l was used (310 CMR 40.0996).

Chemicals reported multiple times in the table were measured using multiple independent analytical techniques.

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Table 18 Compoarison of surface water concentrations to ecological benchmarks

Contaminant	SW-1 9/3/11 (µg/l)	SW-2 9/3/11 (µg/l)	SW-3 9/3/11 (µg/l)	SW-10 8/25/11 (µg/l)	DEP Surface Water Benchmark (µg/l)
Volatile Organic Compounds (VOCs) by EPA Method 8260B					
Acetone	<10.0	<10.0	<10.0	23.5	3400
Chloroethane	<1.00	<1.00	<1.00	1.82	NA
1,1-Dichloroethane	2.3	10.3	6.2	199	990
1,1-Dichloroethene	<1.00	6.3	3.27	108	1200
trans-1,2-Dichloroethene	<1.00	<1.00	<1.00	50.3	22000
cis-1,2-Dichloroethene	4.4	160	90.3	3520	14000
Tetrachloroethene (PCE)	<1.00	48.8	27.8	538	1100
1,1,1-Trichlroethane	<1.00	49.4	26.4	1050	900
1,1,2-Trichloroethane	<1.00	<1.00	<1.00	1.72	15000
Trichloroethene (TCE)	1.4	31.6	17.5	2480	190
1,1,2-Trichlorotrifluoroethane	<1.00	10	6.71	105	NA
Vinyl Chloride	<1.00	5.81	2.5	<1.00	41000
Xylenes	<2.00	<2.00	<2.00	108	200

Notes:
"<" indicates not detected and is followed by the reporting detection limit.
Contaminants not detected in the August/September 2011 round of surface water sampling are not included in the table.
DEP surface water benchmarks from DEP's spreadsheets for the development of the MCP standards (DEP, 2009).
NA indicates not available.

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Table 19 Comparison of sediment concentrations to ecological benchmarks

Contaminant	Frequency of detection	Range detected (µg/kg)	Arithmetic mean conc. (µg/kg)	Sediment EqP benchmark (µg/kg)
1,1,1-Trichloroethane	3 / 17	76 - 7700	643	360
1,1-Dichloroethane	3 / 17	60 - 7200	653	324
1,1-Dichloroethene	1 / 17	890	243	372
cis-1,2-Dichloroethene	5 / 17	580 - 41000	3131	4800
Tetrachloroethene	1 / 17	330	217	4920
Trichloroethene	2 / 17	87 - 280	231	2640
Vinyl chloride	1 / 10	6000	970	NA

Notes:
This table was initially presented in the 2000 CARP (GZA, 2000). NA indicates not available.
Arithmetic average concentrations assume contaminants are present at one-half the detection limit when not detected.
Sediment EqP benchmarks were presented in the 2000 CARP (GZA, 2000). They are based on the equilibrium partitioning method using an organic carbon content of 12%. The benchmarks are presented in Jones et al. (1997).

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Appendix A Toxicological Profiles

Acetone

Acetone (CAS RN 67-64-1) is a volatile chemical made naturally by many organisms. It is also produced commercially, used widely in manufacturing, and is found in some consumer products. Acetone evaporates readily and produces a sharp odor. Acetone is easily absorbed through the lungs and across the gastrointestinal tract and can penetrate skin. It is quickly metabolized and eliminated from the body.

High concentrations of acetone vapor can be irritating to the eyes, nose, throat, and respiratory tract; it can cause dizziness, headache, confusion, gastrointestinal distress, and even coma at levels of 900 ppm or more. Acute inhalation exposures have also been linked to hematologic changes in humans and animals. Other toxic effects seen only in animals following acute inhalation or oral exposure include developmental toxicity, neurologic changes, liver enlargement and enzyme induction. The effects of longer-term inhalation exposures to acetone have not been extensively investigated, and EPA has not established a chronic inhalation reference concentration. However, DEP has set a reference concentration of acetone of 0.8 mg/m^3.

Oral exposures to acetone for intermediate durations have produced macrocytic anemia in rodents and increased white blood cells in men. Male rats have also developed lesions in the kidney following oral exposures of 200 mg/kg-d or more; such lesions were not seen in female rats or mice, suggesting that the male sex may be more susceptible to this toxic effect.

EPA has established a chronic oral reference dose for acetone of 0.9 mg/kg-d and a subchronic reference dose of 1 mg/kg-d. The chronic reference dose, deemed safe for humans, was derived from a study in which rats were given acetone by gavage for 90 days at doses of 100 mg/kg-d or more. No adverse effects were observed at the low dose, but at 500 mg/kg-d, indications of kidney toxicity were noted, as well as increases in liver and kidney weights. The NOEL was divided by an uncertainty factor of 1000 to compensate for possible differences in sensitivity between species and individuals and to adjust for chronic duration.

Acetone has not been evaluated for carcinogenic potential by EPA.

References:

ATSDR (1992). *Toxicological Profile for Acetone*. Atlanta, GA: Agency for Toxic Substances and Disease Registry.

DEP (1994). *Background Documentation for the Development of the MCP Numerical Standards*. Massachusetts Department of Environmental Protection: Bureau of Waste Site Cleanup and Office of Research and Standards. April 1994.

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EPA (1997). *Health Effects Assessment Summary Tables: FY 1997 Update*. United States Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA-540-R-97-036. July 1997.

IRIS (1998). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine.

Benzene

Benzene (CAS RN 71-43-2) is a widely-used industrial chemical and is found in some consumer goods such as glues, adhesives, and solvents. It is a component of gasoline, and occurs also in cigarette smoke. It is a clear, colorless liquid that evaporates quickly, and most exposures to it occur by inhalation of contaminated air.

Benzene can be lethal to humans if encountered at sufficiently high concentrations. It has been estimated that 5 to 10 minutes of exposure to 20,000 ppm of benzene in air is usually fatal. These concentrations that are highly unlikely to occur outside the workplace. Lethal oral doses have been estimated at approximately 125 mg/kg. Preliminary evaluations show that garage mechanics who regularly use gasoline to clean parts and wash hands may have an increased risk of death.

"The carcinogenicity of benzene is well documented in exposed workers. Epidemiological studies and case reports provide clear evidence of a causal relationship between occupational exposure to benzene and benzene-containing solvents and the occurrence of acute myelogenous leukemia (AML). The epidemiological studies are generally limited by confounding chemical exposures and methodological problems, including inadequate or lack of exposure monitoring and low statistical power, but a consistent excess risk of leukemia across studies indicates that benzene is the causal factor." (ATSDR, 2005)

Benzene has also been observed in humans or animals to be genotoxic, to damage the humoral and cellular components of the immune system, to arrest the development of blood cells, and to cause the life-threatening disorder aplastic anemia. Limited information is available on other systemic effects of high-level benzene exposure (ATSDR, 2005).

Benzene is a known human carcinogen, an evaluation based on numerous reports of leukemia in workers exposed to benzene in the air. EPA (IRIS, 2006) considered several epidemiologic studies in deriving a range of inhalation unit risks for lifetime exposure to benzene of 2.2×10^{-6} $m^3/\mu g$ to 7.8×10^{-6} $m^3/\mu g$. It is assumed, but not known, that inhalation of low concentrations imposes an increased risk of leukemia. The cancer potency of benzene is estimated to be in a range of 1.5×10^{-2} kg-d/mg to 5.5×10^{-2} kg-d/mg for the oral exposure route. EPA has derived a chronic reference dose of 4×10^{-3} mg/kg-d and a chronic reference concentration of 3×10^{-2} mg/m^3 for benzene. DEP has also established a subchronic reference dose of 1×10^{-2} mg/kg-d.

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References:

ATSDR (2005). *Draft Toxicological Profile for Benzene*. Atlanta, GA: Agency for Toxic Substances and Disease Registry.

DEP (2006). *Spreadsheets Detailing the Development of the MCP Numerical Standards*. Massachusetts Department of Environmental Protection. January 12, 2006. Available as mcp-spreads-0106.zip at http://www.mass.gov/dep/cleanup/laws/pubnot04.htm.

IRIS (2006). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine.

n-, s-, and t-Butylbenzene

n-Butylbenzene (CAS RN 104-51-8) and *s*-butylbenzene (CAS RN 135-98-8) are also known as 1-phenylbutane and 2-phenylbutane. *t*-Butylbenzene (CAS RN 98-06-6) is also known as (1,1-dimethylethyl)benzene. These three compounds are insoluble in water and miscible with alcohol, ether, and benzene. They are sometimes used as a solvent or in organic synthesis.

Neither EPA nor the Massachusetts Department of Environmental Protection has established reference doses, reference concentrations, or cancer potency factors for *n*-, *s*-, and *t*-butylbenzene. EPA Region III (EPA III, 2000) has established a chronic reference dose of 0.04 mg/kg-d for *s*- and *t*-butylbenzene. A chronic reference concentration of 140 $\mu g/m^3$ can be calculated for these two chemicals from the reference dose by multiplying by a typical body weight of 70 kg and dividing by a typical inhalation rate of 20 m^3/day. No reference dose or reference concentration for *n*-butylbenzene has been established by EPA Region III. Because of the structural similarities between *n*-butylbenzene and ethylbenzene, one may wish to use the reference dose and reference concentration for ethylbenzene when evaluating risks posed by *n*-butylbenzene in the context of a risk assessment. The reference dose and reference concentration established by EPA for ethylbenzene are 0.1 mg/kg-d and 1000 $\mu g/m^3$ respectively (IRIS, 2001).

References

IRIS (2001). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine.

EPA Region III (2000). *EPA Region III Risk-Based Concentrations*. EPA Region III. Philadelphia, Pennsylvania. April 13, 2000. http://www.epa.gov/reg3hwmd/risk/rbc.pdf.

Windholz, M. (Ed.), Budavari, S. (Co-Ed.), Blumetti, R.F. (Assoc. Ed.), and Otterbein, E.S. (Assoc. Ed.). *The Merck Index: An Encyclopedia of Chemicals, Drugs, and Biologicals: Tenth Edition*. Merck & Co., Inc. Rahway, NJ.

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Carbon disulfide

Carbon disulfide (CAS RN 75-15-0) is a colorless, volatile, highly explosive and volatile liquid whose odor resembles that of chloroform. Carbon disulfide is used mainly in the viscose rayon, cellophane, carbon tetrachloride, pesticide, and tire manufacturing processes, but is also emitted naturally at low levels from marshes and volcanoes. The human body generally completely rids itself of carbon disulfide within four days.

Carbon disulfide primarily targets the nervous system. Chronic exposure to carbon disulfide at levels that can range as low as 14.0 mg/m^3 has been shown to slow nerve conduction in studies of viscose rayon plant workers . It has been shown that exposure to high concentrations of carbon disulfide can affect the heart, liver, and brain of animals. While a number of studies of viscose rayon plant workers have reported higher incidences of mortality due to coronary heart disease as compared with control groups, a NOAEL cannot be derived from any of the studies of heart disease mortality due to lack of adequate data on exposure levels, failure to control for other heart disease-causing factors such as diet, obesity, etc., and possible simultaneous exposure to other harmful chemicals with similar effects. One study reported a small but statistically significant increase in mean plasma creatinine concentration in viscose rayon workers as compared with the control group, but the resultant levels were still within the normal range. Gastrointestinal disturbances in some studies of exposed plant workers have been reported, but these studies possess significant flaws. Some evidence exists that points to possible reproductive and developmental effects in humans, but these studies possess a number of problems such as lack of adequate exposure analysis, failure to control for exposure to other chemicals, and inappropriate choice of control group.

EPA has set a chronic reference dose for carbon disulfide of 0.1 mg/kg-d based on no observed adverse affects during fetal development in an inhalation study of rabbits exposed to 20 ppm (NOAEL), with an uncertainty factor of 100 for inter- and intraspecies variation. The chronic RfC is 0.7 mg/m^3 based on a NOAEL of 5.7 mg/m^3 determined by a study of viscose rayon plant workers experiencing peripheral nervous system dysfunction. HEAST (1997) also derives a subchronic RfD of 1×10^{-1}.

Sufficient evidence for carcinogenicity in either humans or animals does not exist for carbon disulfide.

References:

ATSDR (1994). *Toxicological Profile for Carbon Disulfide*. Draft for public comment. Atlanta, GA: Agency for Toxic Substances and Disease Registry.

HEAST (1997). *Health Effects Assessment Summary Tables: FY 1997 Update*. United States Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA-540-R-97-036. July 1997.

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IRIS (1996). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine. Available at http://www.epa.gov/iris/subst/index.html.

Chlorobenzene

Chlorobenzene (CAS RN 108-90-7) is a clear liquid with an almond-like odor. It is used in industry as a solvent, in the manufacture of aniline, phenol and chloronitrobenzene, dyestuffs, and pesticides.

Chlorobenzene is assumed to be absorbed in the same manner as benzene, due to its structural similarity - readily absorbed *via* ingestion, moderately absorbed through inhalation and poorly absorbed through the skin.

Acute exposure in the workplace has produced irritation of the eyes and nose, skin irritation, and central nervous system depression with symptoms such as drowsiness, incoherence, numbness, nausea and vomiting. However, the presence of other solvents in the workplace make it difficult to discern whether chlorobenzene is responsible for these effects.

Chlorobenzene's acute lethality in animals is low. However, animal studies indicate that inhalation and ingestion exposure to chlorobenzene produces severe kidney and liver damage. Manifestations of liver damage reported include increased serum enzymes, changes in liver weights, degeneration, necrosis and interference with porphyrin metabolism, and evidence of kidney damage include degeneration or focal necrosis of proximal tubules and increased kidney weights. Chlorobenzene has been shown to be immunotoxic in animals exposed via ingestion with the potential of producing thymic necrosis and lymphoid or myeloid depletion of bone marrow, spleen or thymus. Neurological effects have been shown in animals acutely exposed via inhalation. The limited data available on the developmental and reproductive effects of chlorobenzene have not indicated any negative effects.

EPA has established a chronic RfD for chlorobenzene of 0.02 mg/kg-d. Although EPA has not established a chronic RfC for this compound, DEP has set this value at 0.02 mg/m^3. DEP has also established a subchronic RfD of 0.2 mg/kg-d. EPA has classified chlorobenzene as a Class D carcinogen because of "inadequate evidence of carcinogenicity in both humans and animals".

References:

DEP (1994). *Background Documentation for the Development of the MCP Numerical Standards*. Massachusetts Department of Environmental Protection: Bureau of Waste Site Cleanup and Office of Research and Standards. April 1994.

IRIS (2001). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine. Available at http://www.epa.gov/iris/subst/index.html.

Chloroethane

Chloroethane (CAS RN 75-00-3), also known as ethyl chloride, is a very volatile liquid. It is used as a surgical anesthetic. In industry, chloroethane is used as a refrigerant, solvent, alkylating agent, and as a starting point in the manufacturing of tetraethyl lead.

There are no data concerning the toxicity of chlorethane when administered orally. Inhalation exposure in animals has been studied. One study shows that exposure to chloroethane results in fetotoxicity. This study is the basis for the RfC for this compound. The NOEL of 4000 mg/m^3 was established due to the observation of a statistically significant delayed ossifications in the fetuses of mice exposed to chloroethane.

The toxicological effects of chloroethane in humans are based on the symptoms observed in instances of abuse. Symptoms including ataxia, tremors, dysarthria (speech difficulties), slowed reflexes, nystagmus (involuntary movement of the eyeball), hallucinations and, in one case, an enlargement of the liver were reported.

References:

Budavari, S. (Ed.), O'Neil M.J. (Assoc. Ed.), Smith, A. (Assist. Ed.), and Heckelman, P.E. (Ed. Assistant) (1989). *The Merck Index: An Encyclopedia of Chemicals, Drugs, and Biologicals: Eleventh Edition*. Merck & Co., Inc. Rahway, NJ.

IRIS (2001). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine. Available at http://www.epa.gov/iris/subst/index.html.

Chloroform

Chloroform (CAS RN 67-66-3) is a clear, colorless, liquid with a characteristic odor, existing both naturally and as a man-made compound. Before the toxic effects of chloroform were discovered, it was used as a general anesthetics. Chloroform is currently used in the production of fluorocarbon 22, a coolant. In addition, chloroform is used as a solvent, in the extraction and purification of pharmaceuticals, in the manufacture of pesticides and dyes, and in many other products. Chloroform is also widely found in drinking water supplies as a by-product of chlorination.

Chloroform is readily absorbed via inhalation and ingestion and poorly absorbed through the skin, unless the dose is occluded, in which case it is readily absorbed. Being lipid-soluble, chloroform passes through cell membranes easily reaching the central nervous system and crossing the placental barrier. "Chloroform is metabolized via cytochrome P450 by oxidative dechlorination to form phosgene. The phosgene either reacts with glutathione to form

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diglutathionyl dithiocarbonate or causes cytotoxicity directly by reacting with other cellular constituents. Inorganic chloride ion and carbon monoxide are minor metabolites of chloroform metabolism."

Dermal contact with chloroform in humans can cause burns. Acute exposure to chloroform has also produced central nervous system symptoms include fatigue, dizziness, headache, digestive disturbance and mental dullness, as well as coma. Chronic exposure in humans has produced liver and kidney enlargement and jaundice.

Chloroform is acutely toxic via inhalation, with an LC50 of 10,000 ppm for 4 hours in rats, and 1025 ppm for 1-3 hours for mice. Another study reported an oral LD50 of 444 mg/kg. Rats exposed orally for 90 days had an increased mortality at 350 mg/kg/day. "Chloroform has been found to target the liver, kidney and central nervous system in animal studies. Central nervous system effects found in animals via inhalation exposure include disturbed equilibrium (cats) at 7,200 ppm, deep narcosis (mice) at 4,000 ppm and slight narcosis (mice) at 2,500 ppm. Liver effects found in lab animals include fatty infiltration, focal necrosis, lobular granular degeneration and increased enzyme levels (SGOT, SGPT). Kidney effects include cloudy swelling, increased weight, tubular necrosis and tubular regeneration. Developmental effects observed after inhalation exposure include increased incidence of missing ribs, imperforate anus, subcutaneous edema and delayed and abnormal ossifications. In a questionable study, pregnant rats treated during gestation via gavage with 126 mg/kg/day were found to produce fetuses with reduced body weight. Reproductive effects found in lab animals include a significant increase in percentage abnormal sperm and gonadal atrophy."

Animal studies have indicated that oral exposure to chloroform is carcinogenic. An increased incidence in kidney tumors have been demonstrated in some of these studies. One gavage study found an increased incidence of hepatocellular carcinoma in mice. Based on the above data, the EPA has designated chloroform a B2 carcinogen "probable human carcinogen".

EPA has derived a chronic reference dose of 0.01 mg/kg-d for chloroform and has not developed a chronic reference concentration. EPA has not derived an oral cancer potency, but states that the 0.01 mg/kg-d reference dose can be considered protective against cancer risk. EPA has derived an inhalation unit risk of 2.3×10^{-2} m^3/mg (IRIS, 2001). Massachusetts DEP (DEP, 2006) has identified a chronic reference concentration of 660 $\mu g/m^3$.

References:

ATSDR (1997). *Toxicological Profile for Chloroform*. Atlanta, GA: Agency for Toxic Substances and Disease Registry. September 1997.

DEP (2006). *Spreadsheets Detailing the Development of the MCP Numerical Standards.* Massachusetts Department of Environmental Protection. January 12, 2006. Available as mcp-spreads-0106.zip at http://www.mass.gov/dep/cleanup/laws/pubnot04.htm.

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IRIS (2006). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine. Available at http://www.epa.gov/iris/subst/index.html.

Chloromethane (ACGIH, 1991)

Chloromethane (CAS RN 74-87-3) is a colorless gas at room temperature which possesses a sweet odor. Phosgene is one of its products from combustion. It is used as a methylating agent in a number of industries, including in the manufacture of silicone, plastics, pesticides, ether, pharmaceuticals, Grignard reagents, methylene chloride, and butyl rubber. Additionally, it is also used as a blowing agent for some polystyrene and polyurethane foams and has been used as a local anesthetic.

Although inhalation is the main route of exposure, chloromethane can also be absorbed through the skin. Acute exposure to chloromethane in mice has induced ataxia, pulmonary, renal, brain, and liver damage, with rats exhibiting greater resistance to harmful effects. Chronically-exposed workers report a range of symptoms from fatigue, confusion, headaches, blurred vision, dizziness, sleep disturbance, weakness, prolonged vomiting, incoordination, slight fevers, and tachycardia. A series of studies lasting up to four months in duration of workers exposed to a TWA (time-weighted average) concentration of 78 ppm found no evidence of overexposure to chloromethane among the workers. There have be no incidences of permanent damage or symptoms resulting from repeated exposures at 100 to 200 ppm. ACGIH recommends a TLV-TWA of 50 ppm with an STEL of 100 ppm. The EPA has calculated a reference concentration of 9×10^{-2} mg/m^3 (IRIS, 2006).

One study in which mice were repeatedly exposed to 1000 ppm over 2 years reported a statisically significant increase in renal tumors in male mice, but was judged inconclusive by IARC. No adequate data on chloromethane's carcinogenicity in humans exists. It has been classed as a carcinogen by NIOSH.

References:

ACGIH (1991). *Documentation of the Threshold Limit Values and Biological Exposure Indices: Sixth Edition*. Cincinnati, OH: American Conference of Governmental Industrial Hygienists (ACGIH).

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IRIS (2006). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine.

1,2-Dichlorobenzene

1,2-Dichlorobenzene (CAS RN 95-50-1) is a colorless liquid at room temperature. It is used mainly as an intermediate in the synthesis of pesticides and other chemicals. The release of 1,2-dichlorobenzene into the environment occurs mainly during manufacture and through the dispersive nature of its uses. When released to the aquatic environment, 1,2-dichlorobenzene will redistribute preferentially to the air and soil. Limited evidence suggests that when bound to soil or sediment, 1,2-dichlorobenzene may bioaccumulate in plants and aquatic invertebrates.

EPA has established a reference dose for 1,2-dichlorobenzene, also known as ortho-dichlorobenzene, of 9×10^{-2} mg/kg/day based on a 1985 study of rats and mice performed by the National Toxicology Program (NTP). In this study, rats and mice were given 1,2-dichlorobenzene in corn oil by gavage. Groups of rats and mice (50 males and 50 females in each group) were exposed to doses of 0, 60, or 120 mg/kg/day for 5 days/week for 103 weeks. A slight decrease in survival and an increase in renal tubular regeneration were observed in the highest dose group, but these results were of questionable significance. The highest dose in the study, 120 mg/kg/day was chosen for the reference dose. Adjusting this number for the fact that the animals were exposed to 1,2-dichlorobenzene only 5 days a week and dividing by an uncertainty factor of 1000 yields the reference dose for humans calculated by EPA.

Additional studies support EPA's calculated reference dose. In a second NTP study performed in 1985, groups of rats and mice (10 males and 10 females in each group) were given 1,2-dichlorobenzene by gavage at doses of 0, 30, 60, 125, 250, or 500 mg/kg/day 5 days a week for 13 weeks. Animals in the 250 mg/kg/day dose group experienced liver necrosis, while animals in the highest dose group experienced death, degeneration and necrosis in the liver, lymphocyte depletion in the spleen and thymus, renal tubular degeneration, and slight decreases in hemoglobin, hematocrit, and red blood cell counts. Studies in other species, rats, guinea pigs, monkeys, and rabbits also support this reference dose.

No human carcinogenicity data exists for 1,2-dichlorobenzene, and animal carcinogenicity studies have yielded inconclusive results. Therefore, EPA has given 1,2-dichlorobenzene a cancer classification of D, not classifiable as to human carcinogenicity.

References:

IPCS (International Programme on Chemical Safety) 1991. *Environmental Health Criteria 128 Chlorobenzenes other than Hexachlorobenzene*. World Health Organization. Geneva, Switzerland.

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IRIS (2001). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine. Available at http://www.epa.gov/iris/subst/index.html.

1,4-Dichlorobenzene

The chemical 1,4-dichlorobenzene (CAS RN 106-46-7) is a white solid with a strong odor that slowly sublimes when exposed to air. The vapor acts as a deodorizer and insecticide. Major uses for 1,4-dichlorobenzene include mothballs, deodorant blocks in restrooms, and odor control in animal holding facilities.

Most 1,4-dichlorobenzene which enters the environment is the result of the use of mothballs and restroom deodorizers. Hazardous waste sites make only a very minor contribution to the total amount of 1,4-dichlorobenzene in the environment. Once in the environment, the major source of human exposure to the chemical are through inhalation. 1,4-Dichlorobenzene is not very soluble in water, and the small amounts that do dissolve in water quickly evaporate into the air. Soil concentrations of the compound are rarely large because it vaporizes easily.

Approximately 20% of the 1,4-dichlorobenzene which enters a person's body through inhalation will enter the bloodstream, and almost all of the chemical will enter the bloodstream if one consumes contaminated food or water. Most of the chemical which enters the body will leave the body through urine, feces, and exhaled air.

People who have consumed very large amounts of 1,4-dichlorobenzene products have experienced blotches on the skin and problems with red blood cells. Workers who breathe high levels of the chemical have reported nose and eye irritation. In laboratory animals, animals exposed to 1,4-dichlorobenzene experience detrimental effects in the liver, kidney, and blood. Rats and mice which have been exposed to 1,4-dichlorobenzene in life-long studies have experienced increased incidence of cancer when compared to control groups.

A reference concentration of 0.8 mg/m^3 has been established by EPA for 1,4-dichlorobenzene based upon a study of rats exposed to 0, 301, 902, and 2705 mg/m^3 for 6 hours a day 7 days a week. In the two generation study used to calculate the reference concentration, rats in the largest two dose groups experienced an increase in liver and kidney weights, a decrease in body weight and weight gain, increased incidence of tremors, unkempt appearance, and increased nasal and ocular discharges. The rats exposed to 301 mg/m^3 did not experience any observable effects, and 301 mg/m^3 was chosen as the NOAEL. This number was adjusted for the fact that the rats only experienced the concentrations for 6 hours a day, and then divided by an uncertainty factor of 90 to arrive at the reference concentration reported by EPA.

DEP has established a reference dose of 0.09 mg/kg-d for 1,4-dichlorobenzene (DEP, 2006).

Limited evidence suggests that 1,4-dichlorobenzene is carcinogenic in rats and mice, and EPA has determined that 1,4-dichlorobenzene is a possible human carcinogen, class C. DEP (2006) has established a cancer slope factor of 2.4×10^{-2} kg-d/mg and a unit risk of 6.86×10^{-3} m^3/mg.

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ATSDR (1998). *Toxicological Profile for 1,4-Dichlorobenzene (Update)*. Atlanta, GA: Agency for Toxic Substances and Disease Registry. December 1998.

DEP (2006). *Spreadsheets Detailing the Development of the MCP Numerical Standards.* Massachusetts Department of Environmental Protection. January 12, 2006. Available as mcp-spreads-0106.zip at http://www.mass.gov/dep/cleanup/laws/pubnot04.htm.

IRIS (2006). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine. Available at http://www.epa.gov/iris/subst/index.html.

1,1-Dichloroethane

1,1-Dichloroethane (1,1-DCA; CAS RN 75-34-3) is a colorless, oily, lipophilic liquid having an ether-like odor. It readily evaporates at room temperature and its liquid and vapor forms ignite easily. 1,1-DCA is used primarily as an industrial solvent and as a dissolving agent for paint, varnish, finish removers and grease. In the past, 1,1-DCA has been used as an anesthetic.

Based on the chemical and physical properties of 1,1-DCA, it is predicted to be readily absorbed and distributed to body tissues, especially those with high lipid content. "A large percentage of an administered dose is exhaled unchanged. The remainder undergoes biotransformation mediated by the microsomal mixed function oxidase enzyme system to yield reactive acylchloride metabolite(s) which covalently bind to cellular macromolecules. An alternative MFO-mediated pathway yields 2,2-dichloroethanol which undergoes subsequent oxidation to dichloroacetaldehyde and dichloroacetic acid. These metabolites are excreted through urine or further metabolized to CO_2."

In humans, inhalation of 1,1-dichloroethane depresses the central nervous system and acts as an anesthetic. It has been shown to induced cardiac arrhythmias in humans at anesthetic doses. Exposure of animals to 1,1-DCA also results in central nervous system depression, and can be fatal at high levels. One animal study showed in utero exposure retarded fetal development. EPA has set an RfD of 0.1 mg/kg-day for 1,1-dichloroethane (HEAST, 1997), but has not set an RfC. DEP has determined these values to be 0.1 mg/kg-day and 0.5 mg/m^3, respectively (DEP, 2006).

1,1-DCA tested negative in the Ames assay and in yeast cells but did increase the transformation frequency in hamster embryo cells. In *in-vivo* studies it was found to covalently bind to DNA. EPA has designated 1,1-DCA as a class C carcinogen "possible human carcinogen" (IRIS, 2006).

References:

HEAST (1997). *Health Effects Assessment Summary Tables: FY 1997 Update*. United States Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA-540-R-97-036. July 1997.

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DEP (2006). *Spreadsheets Detailing the Development of the MCP Numerical Standards*. Massachusetts Department of Environmental Protection. January 12, 2006. Available as mcp-spreads-0106.zip at http://www.mass.gov/dep/cleanup/laws/pubnot04.htm.

IRIS (2006). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine.

1,2-Dichloroethane

1,2-Dichloroethane (CAS RN 107-06-2) is a clear liquid that does not occur naturally in the environment. It evaporates quickly at room temperature and has a pleasant smell and a sweet taste. 1,2-Dichloroethane burns with a smoky flame. The most commone use of 1,2-dichloroethane is to make vinyl chloride, which is used to make a variety of plastic and vinyl products including polyvinyl chloride (PVC) pipes and other construction materials, packaging materials, furniture and automobile upholstery, wall coverings, housewares, and automobile parts. 1,2-Dichloroethane is also used as a solvent and is added to leaded gasoline to remove lead. In the past, it was also found in small quantities in products that industries used to clean cloth, remove grease from metal, and break down oils, faats, waxes, resins, and rubber. In the household, 1,2-dichloroethane was formerly a component of some cleaning solutions, pesticides, adhesives, and paint varnish.

IRIS (2000) categorizes 1,2-dichloroethane as a probable human carcinogen (class B2). The cancer slope factor reported by IRIS is 9.1×10^{-2} kg-d/mg, and the unit risk is 2.6×10^{-5} $m^3/\mu g$. IRIS does not report a reference dose or reference concentration for this chemical. The Massachusetts Department of Environmental Protection (DEP, 1994) reports a chronic reference dose of 2×10^{-2} mg/kg-d and a reference concentration of 5.5×10^{-2} mg/m^3.

References:

ATSDR (1999). *Toxicological Profile for 1,2-Dichloroethane (Update)*. Atlanta, GA: Agency for Toxic Substances and Disease Registry.

DEP (1994). *Background Documentation for the Development of the MCP Numerical Standards*. Massachusetts Department of Environmental Protection: Bureau of Waste Site Cleanup and Office of Research and Standards. April 1994.

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IRIS (2000). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine.

1,1-Dichloroethene

1,1-Dichloroethene (DCE; CAS RN 75-35-4) is a clear, colorless liquid used in the production of some plastic products such as SARAN wrap, and in the production of flame retardant fabrics. DCE is highly volatile and evaporates quickly at room temperature, creating a mild, sweet smelling vapor.

Low levels of DCE have been detected in the air, in water, and in soil. DCE in plastic food wrappings measures about 0.2–1.26 ppm and in food wrapped therein about 0.005–0.01 ppm.

The effects of DCE on human health are unknown; most of the data come from studies of laboratory animals. Major target organs for DCE toxicity arising from inhalation exposure are the liver, kidneys, central nervous system (CNS), and lungs. Adverse effects on the heart have also been observed. Mice exposed by inhalation to low concentrations (10 ppm) of DCE for four hours were seen to have renal histological damage. Death of male mice occurred after a single four-hour inhalation exposure to 40 ppm of DCE.

Laboratory animals appear to be less sensitive to oral exposure to DCE than to inhalation exposure. Target organs of ingested DCE are the liver and kidneys. A bioassay on rats of oral exposure to DCE in drinking water for two years (9 mg/kg-d) elicited hepatic lesions. High levels (single dose of 50 mg/kg by gavage) killed fasted laboratory animals, males being more sensitive than females. Fatalities in fed animals were less frequent than in fasted animals.

DCE is not known to cause reproductive or developmental toxicity in humans. In laboratory animals, DCE has caused fetotoxicity; skeletal anomalies were seen in offspring of rats exposed by inhalation to 15 ppm during days 6–16 of gestation for seven hours/day.

The toxicity of DCE appears to depend on the degree to which it is metabolized in the body and what metabolites are formed. People with improperly functioning livers are therefore considered sensitive individuals.

DEP has established chronic reference dose for humans of 5×10^{-2} mg/kg-d, a chronic reference concentration of 2×10^{-1} mg/m^3, and a subchronic reference dose of 5×10^{-2} mg/kg-d.

DCE has been classified as a Group C, possible human carcinogen on the basis of observations of increased cancer incidence in mice exposed to 25 ppm DCE for about one year, and in rats given 3.5 mg DCE/kg-d by the oral route for two years. There is no evidence of increased cancer in humans exposed to DCE. Using the animal studies, EPA calculated an estimate of human cancer potency of 0.6 kg-d/mg (IRIS, 2001). The cancer risk from DCE by inhalation is estimated to be 5.0×10^{-5} (μg/m^3)$^{-1}$ (IRIS, 2001).

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References:

ATSDR (1994). *Toxicological Profile for 1,1-Dichloroethene (Update)*. Atlanta, GA: Agency for Toxic Substances and Disease Registry.

DEP (2001). *Spreadsheets Calculating the Proposed Standards*. Massachusetts Department of Environmental Protection. December 20, 2001. Available as MCPstnds.zip at http://www.state.ma.us/dep/bwsc/files/workgrps/numbers/numbers.htm.

IRIS (2001). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine.

cis- and trans- 1,2-Dichloroethylene

1,2-Dichloroethylene (also called 1,2-dichloroethene; CAS RN 540-59-0) is a man-made solvent that exists in two chemical forms, or isomers, *cis* and *trans*. Very little is known about the toxic effects to humans of either of these chemicals. Because of the lack of information, *trans*-1,2-dichloroethylene has not been evaluated by EPA for its ability to cause cancer. *Cis*-1,2-dichloroethylene has been placed in class D: unclassifiable as to carcinogenicity to humans.

Inhalation of *trans*-1,2-dichloroethylene in the workplace has been associated with nausea, drowsiness, and vertigo. No information regarding effects of oral or dermal exposure of humans to 1,2-dichloroethylene exists, but vapors are likely to be irritating to the eyes.

Toxic effects on laboratory animals of the 1,2-dichloroethylene isomers following exposure by inhalation have been briefly examined. Some aspects of liver activity were found to be inhibited in rats exposed to 790 mg/m^3 *cis*-1,2-dichloroethylene for eight hours. An unpublished study of exposures to 1,975 or 3,950 mg/m^3 of mixed isomers for six months reported no toxic effects in rats, rabbits, guinea pigs or dogs. In rats exposed to *trans*-1,2-dichloroethylene for up to 16 weeks, slight degeneration of liver cells occurred following brief exposure to 790 mg/m^3 of the chemical, while infiltration of the lungs was observed only after prolonged exposure.

Both the *cis* and *trans* isomers have been examined briefly for toxicity by oral exposure in laboratory animals. In one study, rats that received a single dose of 400 or 1500 mg *cis*-1,2-dichloroethylene/kg showed biochemical indicators of hepatotoxicity. Another study using a mixture of *cis* and *trans* isomers dosed animals at unspecified intervals over a seven-week period with up to 1.0 g 1,2-dichloroethylene/kg. No adverse effects were observed.

Trans-1,2-dichloroethylene fed to mice at doses as high as 450 mg/kg/d caused no consistent pattern of changes in various aspects of the immune system. Most immune system parameters either showed no change, no dose-dependent change, or changes of questionable significance, while a few parameters were altered at the highest doses. EPA did not consider these results adequate for derivation of minimal risk levels for human exposure. In a separate experiment intended to examine toxicity to the whole organism, mice were fed *trans*-1,2-dichloroethylene in

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drinking water at levels up to 2.0 mg/L for 90 days. No adverse effects were seen in animals consuming 0.1 mg *trans*-1,2-dichloroethylene/liter, and no obvious pathological changes occurred at any level. Consumption of water containing higher concentrations of the chemical did elicit some biochemical indications of liver response of unknown significance, and the weights of thymus glands and lungs were decreased in females exposed to the highest dose. EPA used the "no observed adverse effect level" of 0.1 mg/L to set a reference dose (RfD) for subchronic oral exposure to *trans*-1,2-dichloroethylene in humans of 0.2 mg/kg/d. In so doing, EPA divided the NOAEL by a safety factor of 100 to adjust for differences of effects in mice and humans and differences in sensitivity among humans.

A subchronic oral reference dose of 0.1 mg/kg-d has been derived for *cis*-1,2-dichloroethylene. The dose was based on a 90-day study in which rats were gavaged with *cis*-1,2-DCE. A NOAEL of 32 mg/kg-d was observed; at higher doses, decreased hematocrit and hemoglobin was detected. The NOAEL was adjusted by a safety factor of 300.

A chronic RfD has been set at 2.00e-2 for the *trans* isomer based on an NOAEL of 17 mg/kg-day for male mice in a 90-day drinking water study (IRIS, 2006). DEP reports an RfD for the *cis* isomer of 1.00e-2 (DEP, 2006).

EPA has not set any inhalation reference doses for these chemicals, but the eight-hour permissible exposure level in the workplace is 790 mg/m^3. DEP has adopted a reference concentration of 0.035 mg/m^3 for the *cis* isomer and 0.07 mg/m^3 for the *trans* isomer. *Trans*-1,2-DCE has not been evaluated for carcinogenic effect, while the *cis* isomer has been rated as D — not classifiable as to carcinogenicity.

References:

ATSDR (1996). *Toxicological Profile for 1,2-Dichloroethene (Update)*. Atlanta, GA: Agency for Toxic Substances and Disease Registry.

DEP (2006). *Spreadsheets Detailing the Development of the MCP Numerical Standards*. Massachusetts Department of Environmental Protection. January 12, 2006. Available as mcp-spreads-0106.zip at http://www.mass.gov/dep/cleanup/laws/pubnot04.htm.

IRIS (2006). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine. Available at http://www.epa.gov/iris/subst/index.html.

Ethylbenzene

Ethylbenzene (CAS RN 100-41-4) is a colorless, flammable liquid that is primarily manufactured from benzene. Its predominant use is in the production of styrene and synthetic polymers, but it is also used as a solvent and is a component of automotive and aviation fuels.

Human exposure to ethylbenzene is of concern because of its potential to cause irritation to skin, eyes, and mucous membranes and its adverse effects on the central nervous system. Erythema

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and inflammation of the skin may result from skin contact with the liquid. The current workplace limit for ethylbenzene in air is 435 mg/m^3 as an eight-hour average.

Laboratory animal studies have also revealed ethylbenzene's ability to cause irritation to tissues that it contacts and depression of the central nervous system. Repeated application of liquid ethylbenzene to the skin of rabbits caused reddening, exfoliation, and blistering. The ACGIH reported that a narcotic dose in animals was reached after exposure to 43,500 mg/m^3 for 18 minutes. Although similar in structure to benzene, ethylbenzene is not toxic to bone marrow. However, histopathologic changes in the liver and kidneys of rats were observed during subchronic treatment with oral doses. Developmental abnormalities have also been reported in offspring of rats exposed to mildly toxic levels of ethylbenzene during pregnancy.

Based on the effects of ethylbenzene in rats EPA has derived a chronic oral reference dose (RfD) of 1×10^{-1} mg/kg-day and a reference concentration (RfC) of 1 mg/m^3. The Agency's assessment was based on the results of a 182-day oral bioassay in which rats were given doses of ethylbenzene ranging from 13.6 to 680 mg/kg/day, 5 days/week. No significant adverse effects were found in rats that received doses of ethylbenzene less than 408 mg/kg/day. A dose of 136 mg/kg/day was identified as a no-effect level in rats as it produced no liver or kidney toxicity. The daily dose rate equivalent to this apparently benign experimental dose is 97.1 mg/kg/day. EPA divided the daily dose by an uncertainty factor of 1,000 to account for intraspecies and interspecies extrapolations and for extrapolation of a subchronic effect level to its chronic equivalent. DEP also established a subchronic reference dose for ethylbenzene of 1 mg/kg-d.

There is no information on the carcinogenicity of ethylbenzene in animals or humans. EPA has assigned ethylbenzene to carcinogenicity class D, "not classifiable as to human carcinogenicity".

References:

ATSDR (1990). *Toxicological Profile for Ethylbenzene*. Atlanta, GA: Agency for Toxic Substances and Disease Registry.

IRIS (2001). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and the U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine.

Ethyl ether

Ethyl ether (CAS RN 60-29-7) is primarily used as a solvent for waxes, fats, oils, perfumes, alkaloids, gums, and nitrocellulose (when mixed with alcohol). It is used in the manufacture of gunpowder and as a primer for gasoline engines. It is sometimes used as a reagent for organic syntheses. It is a colorless, volatile liquid with a sweet, pungent odor.

A reference dose of 0.2 mg/kg-d was derived for ethyl ether by EPA based on an oral study in rats. Rats were gavaged with doses between 0 mg/kg-d and 3,500 mg/kg-d for 13 weeks. Marked toxicity was noted at the highest dose, and body weight loss was identified at 2,000 mg/kg-d and 3,500 mg/kg-d. Based on the study, 500 mg/kg-d was considered a no-observed

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adverse effects level (NOAEL) and 2,000 mg/kg-d was considered a lowest observed adverse effects level (LOAEL). The reference dose was based on the NOAEL divided by a safety factor of 3,000.

No chronic reference concentration or cancer potency was identified for ethyl ether by EPA.

References:

HEAST (1997). *Health Effects Assessment Summary Tables: FY 1997 Update*. United States Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA-540-R-97-036. July 1997.

HSDB (2003). Hazardous Substances Data Bank. Supported by the U.S. Department of Health and Human Services and the U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine. Available at http://toxnet.nlm.nih.gov.

IRIS (2003). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and the U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine.

Hexachlorobutadiene

Hexachlorobutadiene (CAS RN 87-68-3) is a colorless liquid with a turpentine-like odor. It does not occur naturally in the environment, and is formed during the processing of other chemicals such as tetrachloroethylene, trichloroethylene, and carbon tetrachloride. Hexachlorobutadiene is also used in manufacturing rubber, as a fluid for gyroscopes, as a heat transfer liquid, and as a hydraulic fluid.

In one study of workers at a solvent production plant, hexachlorobutadiene was found to affect the function of the liver, but the workers were also exposed to other solvents that may have contributed to the effect. Studies of rats have shown that inhalation of high concentrations of hexachlorobutadiene produces nasal irritation. Ingestion of hexachlorobutadiene damaged the kidneys of rats and mice and, to a lesser extent, the liver of rats. Kidney, brain, and liver damage were also seen in rabbits after contact of their skin with the compound for a short period. Studies in rats also indicate that hexachlorobutadiene may increase the risk of kidney cancer if exposures occur for long periods.

EPA withdrew its reference dose for hexachlorobutadiene from its Integrated Risk Information System (IRIS, 2001) on May 1, 1993, pending further study. EPA's Health Effects Assessment Summary Tables establish a chronic reference dose of 2×10^{-4} mg/kg-d based on effects on renal tubules in mice, incorporating a safety/uncertainty factor of 1,000.

EPA considers hexachlorobutadiene to be a possible human carcinogen (cancer class C) with an oral slope factor of 7.8×10^{-2} kg-d/mg and a unit risk of 2.2×10^{-5} $m^3/\mu g$ (IRIS, 2001). These cancer potencies are based on a study that found renal tubular adenomas and adenocarcinomas in rats.

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ATSDR (1994). *Toxicological Profile for Hexachlorobutadiene*. Atlanta, GA: Agency for Toxic Substances and Disease Registry.

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Iron

Iron (CAS RN 7439-89-6) is a silvery-white or gray metal, and is the second most abundant metal in the earth's crust. It is an essential nutrient, needed for proper functioning of many enzyme systems, and is normally found in all body tissues.

EPA Region III (2002) provides a chronic reference dose for iron of 0.3 mg/kg-d. We assume a subchronic reference dose equivalent to the chronic reference dose. We also derive a reference concentration from the chronic reference dose of 1.05 mg/m^3 by multiplying the reference dose by 70 kg, a typical body weight, and dividing by 20 m^3, a typical inhalation rate.

References:

Budavari, S. (Ed.), O'Neil M.J. (Assoc. Ed.), Smith, A. (Assist. Ed.), and Heckelman, P.E. (Ed. Assistant) (1989). *The Merck Index: An Encyclopedia of Chemicals, Drugs, and Biologicals: Eleventh Edition*. Merck & Co., Inc. Rahway, NJ.

EPA Region III (2002). *EPA Region III Risk-Based Concentrations*. EPA Region III. Philadelphia, Pennsylvania. October 9, 2002. Available at http://www.epa.gov/reg3hwmd/risk/rbc1002.pdf.

Isopropanol [9]

The most likely acute toxic effects in humans following exposure to high levels of isopropanol (CAS RN 67-63-0) by ingestion or inhalation are alcoholic intoxication and narcosis (71). Isopropanol is considered to be twice as toxic as ethanol (2). A dose of 250 ml of isopropanol via ingestion is a fatal dose, following the manifestation of central nervous system (CNS) depression. Other toxic effects caused by inhalation, ingestion, or skin absorption include persistent nausea, vomiting, abdominal pain, hematemesis, refractory CNS depression, areflexia,

[9] source: RTI

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depressed respirations, and oliguria followed by diuresis. Animal studies have also demonstrated that isopropanol is approximately twice as intoxicating as ethanol (71). The results of two short-term rat studies, including inhalation exposure (500 mg/m3 for 4 h/day, 5 days per week, for 4 months) and oral exposure (600-3,900 mg/kg in drinking water), suggest that exposures to isopropanol at very high levels should be avoided. Rats that ingested 0.5 to 10% isopropanol in their drinking water for 27 weeks showed decreased body weight gain, but no gross or microscopic abnormalities of the brain, pituitary, lung, heart, liver, spleen, kidneys, or adrenals were observed (2). Besides inadequate animal studies available to evaluate human health risks associated with repeated exposures to isopropanol, conflicting results have been reported in animal reproduction studies (71).

Isopropanol is considered to have low toxicity based on a reported oral LD50 of 5,045 mg/kg in rats (5).

The USEPA has not established a reference dose for chronic oral exposure (RfD) nor a reference concentration for chronic inhalation exposure (RfC).

Limited data suggest that isopropanol is not mutagenic. Negative results were obtained in a test at 0.18 mg of isopropanol per plate for point mutations in Salmonella typhimurium and in a test for sister chromatid exchange in Chinese hamster lung fibroblasts (71). Isopropanol induced mitotic abnormalities in rat bone marrow cells and in onion root tip cells in vivo. No other mutagenicity data were located.

Although increases in paranasal sinus cancer in humans has been associated with isopropanol production, the cause is probably due to exposure to the intermediate, di-2-propyl sulfate, an alkylating agent or sulfuric acid fumes, and not to isopropanol itself (2). In one animal study in which groups of 3 month old male C3H, ABC and C57BL mice were exposed for 3 to 7 hour/day, 5 days/wk for a period of 5 to 8 months to 7,000 mg/m3 of isopropanol, indicated no increase in the incidence of lung tumors compared to the controls. The data available are considered inadequate to assess the carcinogenicity of isopropanol (71).

Isopropylbenzene

Isopropylbenzene (CAS RN 98-82-8), also known as cumene, is used in the manufacture of phenol, acetone, acetophenone, and α-methylstyrene. Isopropylbenzene is insoluble in water, but soluble in alcohol and many other organic solvents. In high concentrations, isopropylbenzene is a narcotic.

The LD_{50} in rats for ispropylbenzene is 2.91 g/kg (Windholz *et al.*, 1983). The United States Environmental Protection Agency has established a chronic reference dose of 0.1 mg/kg-d for ispropylbenzene (IRIS, 1996). The U.S. EPA has established a chronic reference concentration of 400 $\mu g/m^3$. EPA has not established a cancer slope factor for this chemical.

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References:

IRIS (2001). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine.

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p-Isopropyltoluene

p-Isopropyltoluene (CAS RN 99-87-6), also known as *p*-Cymene or Dolcymene occurs in a number of essential oils. The chemical is practically insoluble in water, but is miscible with alochol and ether. *p*-Isopropyltoluene (and the other two isomers of ispropyltoluene) is usually prepared by alkylation of toluene followed by gas chromatography to separate the three isomers (Windholz *et al*., 1983).

No toxicological data are available for *p*-isopropyltoluene. By structural similarity to isopropylbenzene, one may wish to assess health risks posed by *p*-isopropyltoluene using the reference dose for isopropylbenzene (0.1 mg/kg-day; IRIS, 1996).

References

IRIS (2001). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine.

Windholz, M. (Ed.), Budavari, S. (Co-Ed.), Blumetti, R.F. (Assoc. Ed.), and Otterbein, E.S. (Assoc. Ed.). *The Merck Index: An Encyclopedia of Chemicals, Drugs, and Biologicals: Tenth Edition*. Merck & Co., Inc. Rahway, NJ.

Manganese

Manganese (CAS RN 7439-96-5) occurs naturally in the environment as salts or oxides. It is known to be required for good health in laboratory animals, and is assumed to be essential to humans as well. The recommended daily allowance of manganese, 2.5-5 mg, is usually delivered in the diet.

High levels of inhalation exposure to manganese have caused toxic effects in people. Workers chronically exposed to manganese dust have developed inflammatory lung responses causing cough, bronchitis, and perhaps an increased susceptibility to lung infections. These effects are likely due to physical actions of particles, rather than the chemical nature of manganese itself. One illness observed in workers, manganism, does appear to be a toxic effect of the metal. People chronically inhaling manganese in mines and factories have developed serious and

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disabling neurologic conditions such as clumsy gait, speech disturbance, tremor, hallucination, and psychosis. Manganism, which bears similarities to Parkinson's disease, seems irreversible. The doses required to cause the disease have not been accurately determined, but one study suggests that an average concentration of 0.14 mg/m^3 is associated with preclinical signs of illness. There is some limited evidence that oral exposure may cause neurological changes.

Most studies show that manganese is not particularly toxic to other organ systems. However, dermal contact with or ingestion of certain magnesium salts may cause corrosion at the point of contact. Information on developmental effects is too limited for evaluations. Animal and human data suggest that occupational exposures to manganese may affect male fertility. Less information is available regarding effects in females.

Six investigations were identified in which rodents and monkeys demonstrated no adverse respiratory responses to 0.1 mg/m^3 manganese over exposure periods lasting weeks or months. At a level of about 0.7 mg/m^3, rhesus monkeys and mice exhibited pathologic and x-ray changes in the lungs. The lowest-observed-adverse-effect level of 0.1 mg/m^3 was selected as the basis for calculation of a chronic exposure concentration for humans. The LOAEL was converted to an inhaled dose, divided by an uncertainty factor of 500, and then converted to an exposure level for people of $3 \times 10^{-4} mg/m^3$. This concentration is equal to the chronic minimal risk level determined by the Agency for Toxic Substances and Disease Registry based on neurological effects in humans. EPA has determined the RfD for manganese to be 1.4e-04 mg/kg-day and the RfC to be 5.0e-05 mg/m^3.

EPA has found data on manganese toxicity inadequate for an evaluation of carcinogenicity. No evidence of carcinogenic action in humans is reported, class D.

References:

ATSDR (2000). *Toxicological Profile for Manganese (Update), 2000*. Atlanta, GA: Agency for Toxic Substances and Disease Registry.

IRIS (2003). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and the U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine.

Methylene chloride (dichloromethane)

The toxic effects of methylene chloride (CAS RN 75-09-2) are varied. Methylene chloride may cause acute lethality when animals are administered large doses orally, intraperitoneally, subcutaneously, or by inhalation. Fatty degenerative changes, glycogen depletion in the liver, and kidney damage were seen in rodents after inhalation exposure to large doses of methylene chloride. Methylene chloride was toxic to the cardiovascular system at high doses. Decreased blood pressure and increased heart rate were reported in primates.

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Inhalation of methylene chloride by humans produced neurotoxicity in the form of decreased visual and auditory functions and decreased performance at various psychomotor tasks. CNS effects have also been noted in animal inhalation studies.

Chronic oral exposure of rodents to methylene chloride via drinking water resulted in hepatic histopathological alterations, decreased body weight gain, and biochemical changes in the blood of rats. In animals, no prominent teratogenic potential has been shown to exist for methylene chloride. Results were negative in a two-generation reproduction study.

Mutagenic activity has been observed in some strains of bacteria and yeast and in a mammalian cell culture line. Results were largely negative in mammalian cells in vivo. Chronic oral exposure to methylene chloride via drinking water produced a borderline statistical increase in the incidence of hepatic neoplastic nodules and carcinomas (combined) in female Fischer 344 rats and B6C3F1 mice. Sarcomas have been reported in the salivary gland region of male rats. The NTP reported clear evidence of the carcinogenicity of methylene chloride in female F344/N rats and in B6C3F1 mice of both sexes in a chronic inhalation carcinogenicity bioassay. Methylene chloride induced increased incidences of benign neoplasms in the mammary gland in rats and of alveolar/bronchiolar neoplasms and hepatocellular neoplasms in mice of both sexes. Epidemiologic studies of workers exposed via inhalation to methylene chloride have failed to demonstrate significantly increased risk of cancer as a result of their exposure.

EPA recommends a chronic reference dose of 0.06 mg/kg-d (IRIS, 2006), and DEP recommends a chronic reference concentration of 3 mg/m^3 for methylene chloride (DEP, 2006). The subchronic reference dose is also 0.06 mg/kg-d (DEP, 2006). EPA considers this chemical a class B2 carcinogen, and recommends a cancer slope factor of 0.0075 kg-d/mg and a unit risk of 4.7×10^{-7} $m^3/\mu g$.

References:

ATSDR (1987). *Toxicological Profile for Methylene Chloride*. Atlanta, GA: Agency for Toxic Substances and Disease Registry.

DEP (2006). *Spreadsheets Detailing the Development of the MCP Numerical Standards.* Massachusetts Department of Environmental Protection. January 12, 2006. Available as mcp-spreads-0106.zip at http://www.mass.gov/dep/cleanup/laws/pubnot04.htm.

HEAST (1997). *Health Effects Assessment Summary Tables: FY 1997 Update*. United States Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA-540-R-97-036. July 1997.

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IRIS (2006). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and the U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine.

Methyl isobutyl ketone

Methyl isobutyl ketone (MIBK, CAS RN 108-10-1) is a colorless liquid with a sweet odor also known as hexone and 4-methyl-2-pentanone. MIBK is used as a solvent in paints, lacquers, varnishes, adhesives, rubber cements, and aircraft dopes. It is also used as an additive to ethanol to make the ethanol impotable and as an extractant for pharmaceuticals and uranium fission products.

In humans, MIBK is an irritant to the eyes, mucous membranes, and skin. High concentrations of MIBK can cause narcotic effects that could lead to death. In animal experiments, high oral doses of MIBK have led to deaths in rats and mice and high levels of inhalational exposure have led to death in rats. High doses can also cause maternal toxicity in mice and rats. At lower doses, inhalational exposure to MIBK has led to kidney damage in rats and possible neurological damage in baboons.

EPA withdrew its oral reference dose for MIBK in 1991 due to a lack of oral toxicity data. However, EPA has established a LOAEL of 3073 mg/m^3 and a NOAEL of 1026 mg/m^3 for inhalational exposure to MIBK. From the NOAEL, EPA derives a reference concentration for MIBK of 3 mg/m^3. The LOAEL is based on skeletal variations in rats and mice and reduced fetal body weight and fetal death in mice. In addition to these adverse health effects, hypoactivity, ataxia, and lacrimation in mouse and rat dams and reduced maternal body weight in rats were observed at the LOAEL. In contrast to EPA's decision, DEP establishes a chronic reference dose of 8×10^{-2} mg/kg-d and a subchronic reference dose of 8×10^{-1} mg/kg-d. We use the DEP reference doses in this risk assessment.

EPA finds that the data for assessment of carcinogenic potential of MIBK are inadequate due to a lack of evidence for MIBK carcinogencity in humans and negative genotoxic response to MIBK *in vivo* and *in vitro*.

References:

ACGIH (2002). *Documentation of the Threshold Limit Values and Biological Exposure Indices: Seventh Edition*. Cincinnati, OH: American Conference of Governmental Industrial Hygienists (ACGIH).

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IRIS (2004). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine. http://www.epa.gov/iris.

Methyl tertiary butyl ether

Methyl Tertiary Butyl Ether (MTBE; CAS RN 1634-04-4) has come into use within the past decade as an additive to gasoline. It frequently enters the environment through accidental releases of gasoline. MTBE is used to treat some medical problems and is effective in dissolving cholesterol gallstones.

Information on human exposure to MTBE is very limited. Exposures to high levels of MTBE in medical processes has caused nausea, vomiting, and sleepiness in patients. There is currently no information available concerning the effects on humans of airborne MTBE.

EPA has established a reference concentration for inhalation exposure to MTBE of 3 mg/m^3 based upon studies in rats. In a 1992 chronic inhalation study performed by Chun, groups of rats were exposed to MTBE at concentrations of 1,453, 10,899, and 28,760 mg/m^3 6 hours a day, 5 days a week for 2 years. Each group of rats consisted of 50 rats of each sex. The 1,453 mg/m^3 concentration was chosen as the NOAEL. Rats exposed to higher concentrations experienced several different effects. Female rats experienced increased liver and kidney weights, increased severity of spontaneous renal lesions, and increased prostration. Additionally, both sexes experienced swollen periocular tissue. DEP has established a reference dose for MTBE of 0.1 mg/kg-d.

No information is currently available as to possible carcinogenic effects of MTBE.

References:

DEP (1994). *Background Documentation for the Development of the MCP Numerical Standards*. Massachusetts Department of Environmental Protection: Bureau of Waste Site Cleanup and Office of Research and Standards. April 1994.

IRIS (1998). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and the U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine.

Naphthalene and 2-Methylnaphthalene

Naphthalene (CAS RN 91-20-3) is white and crystalline having a strong coal tar odor, and an odor threshold of 0.084 ppm. It occurs naturally in coal tar and is used in wood preservatives, dyes, explosives, antiseptics, lubricants, tanning agents, emulsion breakers, moth repellents, and other industrial and household products.

Workers exposed to naphthalene vapor have reported headaches, loss of appetite, nausea, optical neuritis, corneal injuries, and kidney damage. Eye irritation has been reported at concentrations

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of 15 ppm. Ingestion of naphthalene has caused severe hemolytic anemia and hemoglobinuria. The acute lethal dose of naphthalene is between 5 and 15 grams. The workplace limit for exposure to naphthalene in air is 10 ppm time-weighted average for an eight-hour day.

Laboratory studies have shown naphthalene to cause optical degeneration in mice and rabbits. Adverse reproductive effects were also observed in mice fed 300 mg/kg/day. One study suggests carcinogenic activity in female mice exposed to naphthalene vapor.

Administration to mice of 2-methylnaphthalene was not lethal at doses up to 800 mg/kg, but 20 to 40% of the dosed mice died at 1,000 mg/kg. Single intraperitoneal injections given to mice of 100 and 400 mg/kg 2-methylnaphthalene resulted in slight to complete exfoliation of bronchial epithelium.

EPA has assigned a carcinogenicity rating of D, "not classifiable as to human carcinogenicity" to naphthalene. This classification is based on a lack of human data and inadequacy of data from animal bioassays.

The Massachusetts Department of Environmental Protection has established a reference dose of 0.02 mg/kg-d for both naphthalene and 2-methylnaphthalene.

References:

ATSDR (1994). *Toxicological Profile for Naphthalene*. Atlanta, GA: Agency for Toxic Substances and Disease Registry.

DEP (1994). *Background Documentation for the Development of the MCP Numerical Standards*. Massachusetts Department of Environmental Protection: Bureau of Waste Site Cleanup and Office of Research and Standards. April 1994.

MADEP (1992). *Documentation for the Risk Assessment Shortform Residential Scenario*. Massachusetts Department of Environmental Protection, Office of Research and Standards and Bureau of Waste Site Cleanup. October 1992. Policy #WSC/ORS-142-92.

n-Propylbenzene

n-Propylbenzene (CAS RN 103-65-1), also known as 1-phenylpropane, is used in textile dying and printing and as a solvent for cellulose acetate. *n*-Propylbenzene is very slightly soluble in water and is soluble in alcohol and ether. The oral LD_{50} for rats is 6,040 mg/kg (Windholz, *et al*., 1983).

No toxicological data are available for *n*-propylbenzene from the United States Environmental Protection Agency's IRIS (2001) database or the Massachusetts Department of Environmental Protection. EPA Region III, however, has derived a reference dose of 0.04 mg/kg-d for *n*-propylbenzene (EPA III, 2000). A reference concentration of 140 $\mu g/m^3$ can be estimated from

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this value by multiplying by a body weight of 70 kg and dividing by a standard inhalation rate of 20 m^3/day. *n*-Propylbenzene is not known to be a human carcinogen.

References

EPA Region III (2000). *EPA Region III Risk-Based Concentrations*. EPA Region III. Philadelphia, Pennsylvania. April 13, 2000. http://www.epa.gov/reg3hwmd/risk/rbc.pdf.

IRIS (2001). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine.

Windholz, M. (Ed.), Budavari, S. (Co-Ed.), Blumetti, R.F. (Assoc. Ed.), and Otterbein, E.S. (Assoc. Ed.). *The Merck Index: An Encyclopedia of Chemicals, Drugs, and Biologicals: Tenth Edition*. Merck & Co., Inc. Rahway, NJ.

1,1,1,2-Tetrachloroethane

1,1,1,2-Tetrachloroethane (CAS RN 630-20-6) is a colorless, nonflammable liquid used primarily as a solvent for wood stains and varnishes. EPA has derived a reference dose of 3×10^{-2} mg/kg-d for 1,1,1,2-tetrachloroethane based on mineralization of the kidneys and hepatic clear cell change in rats. EPA has not derived a reference concentration for 1,1,1,2-tetrachloroethane, but an estimated reference concentration of 0.105 mg/m^3 can be calculated if one assumes a typical inhalation rate of 20 m^3/d and a typical body weight of 70 kg.

EPA has classified 1,1,1,2-tetrachloroethane as a Class C carcinogen, *i.e.*, a possible human carcinogen. This classification is based on an increased incidence of combined hepatocellular adenomas and carcinomas in female mice. Human data are inadequate. EPA has derived an oral slope factor of 2.6×10^{-2} and a unit risk of 7.4×10^{-6} m^3/µg for 1,1,1,2-tetrachloroethane.

References:

IRIS (2001). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and the U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine. (http://www.epa.gov/ngispgm3/iris/index.html)

1,1,2,2-Tetrachloroethane

1,1,2,2-Tetrachloroethane (CAS RN 79-34-5) is a colorless, nonflammable, sweet-smelling liquid formerly used as a solvent. It is currently in limited use as a chemical intermediate in the production of tri- and tetrachloroethylene, although its use is on the decline due to the availability of less toxic solvents and new processes. Although most studies are of exposure by inhalation, 1,1,2,2-tetrachloroethane is also readily absorbed through skin.

A number of deaths due to occupational exposure to 1,1,2,2-tetrachloroethane have been recorded. Acute exposure to 1,1,2,2-tetrachloroethane is known to depress the CNS and may be

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fatal within 12 hours. Hepatotoxicity, gastrointestinal disturbances, headaches, dizziness, and tremors have all been reported to arise from chronic exposure to 1,1,2,2-tetrachloroethane. One study done on two male volunteers reported no effects after 10-minute exposure to levels between 0.2 and 0.9, but that 20-minute exposure to 0.8 ppm produced dizziness and vomiting. A study of about 50 workers in a penicillin plant exposed to levels ranging from 1.5 to 247 ppm over three years reported that 50% of the workers developed hepatitis within the first year. A study of chronic exposure of rabbits reported liver and kidney morphological changes after a 7 to 11 month exposure (3 to 4 hours per day) at 1.5 and 14.6 ppm. 1,1,2,2-tetrachloroethane is considered to be "some nine times more toxic than carbon tetrachloride" and "one of the more hepatotoxic chlorinated hydrocarbon solvents."

The IARC deemed the evidence for carcinogenicity in animals to be limited. Positive evidence of carcinogenicity in mice has been reported by the National Cancer Institute, but carcinogenicity in rats has not been demonstrated. Based on the results of a 1978 NCI study on mice, IRIS reports an Oral Potency Slope Factor of 2.0e-1 kg-day/mg. An Inhalation Unit Risk of 5.8e-5 is calculated from the oral slope factor and is not valid if air concentrations exceed 2.00e+2 $\mu g/m^3$. Studies of carcinogenicity in humans are not available.

References:

ATSDR (1990). *Toxicological Profile for 1,1,2,2-Tetrachloroethane*. Atlanta, GA: Agency for Toxic Substances and Disease Registry.

DEP (1995). *Documentation for the Inhalation Cancer Unit Risk Value for Tetrachloroethylene* (ORS-DEP, 5/18/95). Massachusetts Department of Environmental Protection; Office of Research and Standards.

IRIS (2001). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine.

Tetrachloroethene

Tetrachlorothene (CAS RN 127-18-4), also called perchloroethylene or PCE, is a moderately volatile compound used in commercial dry cleaning and metal degreasing. It has been detected at low levels in ambient air (68 $\mu g/m^3$), drinking water (1-2 $\mu g/l$), and soil. There have been a few reports of exposure to PCE in drinking water, but most data regarding effects on humans come from the workplace, where PCE vapors may be encountered. The permitted occupational exposure to PCE is 678 mg/m^3 as an eight-hour average.

The predominant toxic effects associated with acute inhalation exposure to PCE fumes in the workplace occur in the central nervous system (CNS): dizziness, confusion, nausea, headache, and irritation of the eyes and mucous tissue. Chronic exposures to PCE have also resulted in short-term memory loss, disorientation, irritability, uncoordination, and sleep disturbance. Few well-controlled studies of laboratory animals have been conducted, but it appears that laboratory animals display adverse effects similar to those seen in humans. Rats, for example, exposed to

1,360 mg/m^3 PCE by inhalation, six hours/day for four days, were observed to have CNS disorders.

Exposures to PCE in the workplace at high levels for a short period of time have been associated with biochemical changes in the liver and kidney. Studies using laboratory animals also suggest reversible injuries to the liver and kidney (congestion and fatty infiltration) after chronic exposure by inhalation to 1,360 mg/m^3 PCE. A single inhalation dose of 27,200 mg/m^3 was lethal to rats.

Little information regarding oral exposure to PCE by man has been reported. An incident in which a man ingested a dose of 500 mg/kg did not prove lethal. Experiments of long-term oral exposure to PCE by rats, mice, rabbits, cats, and dogs demonstrated CNS disorders, histopathological changes and weight increases in the liver and kidney, and biochemical changes in the liver after PCE exposure.

EPA has noted no significant teratogenic potential of PCE towards laboratory animals, and the teratogenic potential of PCE towards humans is still unknown.

Conclusive data concerning the carcinogenic risk from PCE exposure to humans have not been ascertained, although bioassays have detected an increased risk of hepatocellular cancer in mice exposed for two years to PCE by inhalation (680 or 1,360 mg/m^3, six hours/day, five days/week) or orally (536 and 1072 mg/kg/day). EPA has withdrawn its earlier designation of PCE as a B2 carcinogen and has not issued a new finding. However, DEP (2006) has assigned to PCE a cancer slope factor of 5.1e-2 kg-day/mg and a unit risk to 5.5e-5 m^3/µg.

A chronic reference dose (RfD) of 1 x 10^{-2} mg/kg-day for non-cancer effects has been established by EPA, based on a study in which hepatotoxicity and weight gain were observed in mice and rats, respectively. The experimental animals were administered up to 2,000 mg/kg PCE by gavage for five days/week for six weeks. Increased liver weights and biochemical changes were observed in mice at levels beginning at 71 mg/kg/day. EPA calculated the oral RfD by dividing the dose producing no changes in body weights in rats by an uncertainty factor of 1,000. The uncertainty factor of 1,000 was applied to compensate for intra- and interspecies variability, and extrapolations from a subchronic effect level to its chronic equivalent. The subchronic oral reference dose of 0.1 mg/kg-d, the NOAEL divided by 100, has been estimated by DEP. DEP also estimates a reference concentration of 4.6 mg/m^3.

References:

ATSDR (1990). *Toxicological Profile for Tetrachloroethylene*. Atlanta, GA: Agency for Toxic Substances and Disease Registry.

DEP (1995). Office of Research and Standards. *Documentation for the Inhalation Cancer Unit Risk Value for Tetrachloroethylene* (ORS-DEP, 5/18/95).

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IRIS (2006). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine.

Toluene

Toluene (CAS RN 108-88-3) is an organic liquid occurring naturally in coal tar and petroleum products, is manufactured from benzene, and is formed during the burning of organic material. It is widely used as an intermediate in the manufacture of pharmaceuticals and industrial chemicals and as a solvent in paints, lacquers, adhesives, and printing inks. Consumer products containing toluene include gasoline, nail polish, cosmetics, rubber cement, inks, and stain removers.

The primary health concerns of toluene exposure to humans are its narcotic and toxic effects on the central nervous system. Unlike benzene, which it resembles, toluene is not toxic to bone marrow. Acute inhalation exposure to toluene causes depression of the central nervous system, but these acute effects are reversible. Toluene exposures that have produced unconsciousness are not known to cause residual damage to organs in humans. Permanent neurological damage has been occasionally reported in persons ("glue-sniffers") who are long-term abusers of toluene. In such cases, however, there is concurrent exposure to other chemicals, so it is difficult to attribute neurological damage to a specific agent.

Chronic exposure to moderate to high levels of toluene (>750 mg/m^3) is similarly associated with the reversible CNS disturbances described above as well as impairment of neuromuscular function. The average level of toluene permitted by OSHA in workplace air is 200 ppm (about 770 mg/m^3).

Adverse developmental effects have been reported following exposure of pregnant women to mixed solvents containing toluene either occupationally or as a result of solvent abuse. Toluene itself has been reported to induce adverse developmental effects in experimental animals exposed to >750 mg/m^3.

As in humans, toluene's principal target in laboratory animals is the central nervous system. Depression of the central nervous system was observed at high levels of exposure, while more subtle neurological effects were exhibited at low-level exposures. Changes in liver and kidney weights have also been observed in rats chronically exposed to high concentrations of toluene. However, no effects on the liver have been observed in people.

In a study of the toxicity and carcinogenicity of toluene in rats and mice, animals received oral doses of up to 5,000 mg/kg, 5 days/week for 13 weeks. No behavioral changes indicative of neurotoxicity were observed in animals that received less than 1250 mg/kg. Pathologic changes were found in the urinary bladder and brain as well as changes in the weights of the liver and

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kidneys of male rats that received doses greater than 625 mg/kg. Similar pathologies were found in female animals exposed to higher doses of toluene.

EPA has set the chronic RfC to be 0.4 mg/m^3 and the chronic RfD to be 0.2 mg/kg-d. DEP has established a subchronic reference dose of 2 mg/kg-d.

There is no evidence from either animal bioassay studies or epidemiological investigations that toluene can cause cancer. Toluene is thus placed in carcinogenicity class D, "unclassifiable as to human carcinogenicity".

References:

ATSDR (1989). *Toxicological Profile for Toluene*. Atlanta, GA: Agency for Toxic Substances and Disease Registry.

DEP (2001). *Spreadsheets Calculating the Proposed Standards*. Massachusetts Department of Environmental Protection. December 20, 2001. Available as MCPstnds.zip at http://www.state.ma.us/dep/bwsc/files/workgrps/numbers/numbers.htm.

IRIS (2001). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine.

1,1,1-Trichloroethane

1,1,1-Trichloroethane (CAS RN 71-55-6) is a man-made organic solvent, used widely in industry to clean greased metal parts. The largest exposures to 1,1,1-trichloroethane occur in the workplace where 1,1,1-trichloroethane is used, but the general public may encounter trace amounts of the solvent in urban air and in drinking water. In the workplace, average levels of 1900 mg/m^3 over an eight-hour period are permitted.

Acute exposure to high concentrations of 1,1,1-trichloroethane in air has been associated with deaths in the workplace. Less severe inhalational exposures may depress the central nervous system in a transient fashion. In laboratory animals, chronic exposures have led to liver damage. A reference dose (RfD) for chronic oral exposure of humans to 1,1,1-trichloroethane was recently revoked by EPA. DEP has provided a chronic RfD of 9e-1 mg/kg-day, a chronic RfC of 5.2 mg/m^3, and a subchronic RfD of 9e-1.

EPA has found 1,1,1-trichloroethane unclassifiable as to human carcinogenicity (class D). This evaluation is based on an absence of data regarding cancer in humans exposed to 1,1,1-trichloroethane and on animal studies that show no evidence of carcinogenicity. In an experiment conducted by the National Cancer Institute, rats and mice were treated with 750 to 5600 mg 1,1,1-trichloroethane/kg/day five times per week for 18 months and observed for another six months. No increased frequencies of cancers were noted. A two-year study of effects of inhalational exposure also observed no increase in cancers.

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References:

ATSDR (1990). *Toxicological Profile for 1,1,1-Trichloroethane*. Atlanta, GA: Agency for Toxic Substances and Disease Registry.

DEP (1992). *Documentation for the Risk Assessment Shortform Residential Scenario*. Massachusetts Department of Environmental Protection, Office of Research and Standards and Bureau of Waste Site Cleanup. October 1992. Policy #WSC/ORS-142-92.

IRIS (2001). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine.

1,1,2-Trichloroethane [18]

1,1,2-Trichloroethane (CAS RN 79-00-5) is a colorless, nonflammable, sweet-smelling liquid produced in the U.S. for use predominantly in vinylidine chloride production. It is also used as a solvent for oils, resins, waxes, and fats, and in the pharmaceutical industry.

1,1,2-Trichloroethane has been shown to depress CNS function and cause narcosis in animals and is considered to be more toxic to animals than chloroform. It has also been shown to cause sedation, liver, kidney, and lung damage, and gastric irritation in mice. Death resulted for four out of six rats exposed to 500 ppm in air for 8 hours. Regular application of 0.5 ml to guinea pig skin resulted in death of all test animals within a few days. An RfD of 4e-3 mg/kg-day was calculated from an NOAEL of 20 mg/L in a drinking water using mice with an Uncertainty Factor of 1000 due to interspecies and intrahuman variability and extrapolation from a ninety-day exposure time to lifetime exposure. The study reported "adverse effects on liver and erythrocytes", (the latter condition for female mice only) at 200 and 2000 mg/l, but no effect at 20 mg/l.

Evidence of carcinogenicity has been found in studies of mice, but studies of rats were negative. In one study, no mutagenic activity of 1,1,2-TCE was recorded in *Salmonella typhimurium*. Another study found 1,1,2-TCE (or its derivatives) bound to mouse and rat tissue and calf thymus DNA.

[18] source: ACGIH, 1991

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Due to evidence of carcinogenicity in mice and its resemblance to 1,2 dichloroethane (a probable human carcinogen) in structure, 1,1,2-trichloroethane has been designated class C, a possible human carcinogen. No data exists on its carcinogenicity in humans. IRIS reports a oral slope factor of 5.7e-2 kg-day/mg based on interspecies extrapolation from a 1978 study on mice (gavage). The inhalation unit risk of 1.6e-5 $m^3/\mu g$ reported by IRIS was calculated from the oral slope factor and is not valid at 1,1,2-TCE air concentrations exceeding 6.00e+2 $\mu g/m^3$.

Trichloroethene

Trichloroethene (TCE; CAS RN 79-01-6) is widely used as an industrial solvent. It is also used for dry-cleaning, as a low-temperature heat exchange fluid, as a fumigant, as a diluent in paints and adhesives, in aerospace operations, and in textile processing. Previously, TCE was used as an extractant in food-processing and an anesthetic.

TCE is readily absorbed from the gastrointestinal and respiratory tracts and is metabolized in humans to trichloroethanol, trichloroethanol glucuronide, and trichloroacetic acid. Although the liver is the primary site of TCE metabolism, there is evidence for extrahepatic metabolism in the lungs and kidneys.

Accidental ingestion of TCE has caused death in humans. TCE has been shown to affect the central nervous system. Short-term exposure to high concentrations of TCE caused dizziness, headache, nausea, confusion, blurred vision, and, at high levels, unconsciousness. Longer exposures cause ataxia, decreased appetite, and sleep disturbances.

Rat and mouse studies indicate that TCE may cause liver, kidney, or lung cancer. Some human studies also indicate that TCE in drinking water or workplace exposure to TCE may be linked with higher cancer cancer rates.

DEP (2006) lists a chronic reference dose of 0.002 mg/kg-d, a chronic reference concentration of 180 $\mu g/m^3$, a subchronic reference dose of 0.02 mg/kg-d, a cancer potency of 0.011 kg-d/mg, and a unit risk of 1.70×10^{-6} $m^3/\mu g$.

References:

DEP (1992). *Documentation for the Risk Assessment Shortform Residential Scenario*. Massachusetts Department of Environmental Protection, Office of Research and Standards and Bureau of Waste Site Cleanup. October 1992. Policy #WSC/ORS-142-92.

DEP (1994). *Background Documentation for the Development of the MCP Numerical Standards*. Massachusetts Department of Environmental Protection: Bureau of Waste Site Cleanup and Office of Research and Standards. April 1994.

DEP (2006). *Spreadsheets Detailing the Development of the MCP Numerical Standards.* Massachusetts Department of Environmental Protection. January 12, 2006. Available as mcp-spreads-0106.zip at http://www.mass.gov/dep/cleanup/laws/pubnot04.htm.

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U.S. EPA Region III (2000). *Risk Based Concentration Table*. Philadelphia, PA. April 13, 2000. http://www.epa.gov/reg3hwmd/risk/rbc.pdf.

Trichlorofluoromethane

A reference dose (RfD) of 0.3 mg/kg/day for trichlorofluoromethane (CAS RN 75-69-4) has been established by EPA (IRIS, 2006). EPA has established this RfD based on a study performed by the National Cancer Institute (NCI). A bioassay was performed on rats and mice exposed to various doses of trichlorofluoromethane by gavage over a period of 78 weeks. A statistically significant positive association between increased dosage and accelerated mortality by the Tarone test in male and female rats and female mice were observed. Elevated incidences of pleuritis and pericarditis were also noted in the exposed rats and not seen in controls. Inhalation studies of multispecies exposures to higher levels of the compound than used by NCI reported no adverse clinical/pathologic signs of toxicity due to subchronic or short-term exposures. The LOAEL of 488 mg/kg/day was determined based on mortality in rats.

EPA Region III has established a chronic reference concentration of 0.7 mg/m^3 for trichlorofluoromethane.

References:

IRIS (2006). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine. Available at http://www.epa.gov/iris/subst/index.html.

U.S. EPA (2005). *EPA Region III Risk-Based Concentrations*. EPA Region III. Philadelphia, Pennsylvania. October 25, 2005. Available at http://www.epa.gov/reg3hwmd/risk/human/rbc/rbc1005.pdf.

1,1,2-Trichloro-1,2,2-trifluoroethane

1,1,2-Trichlorotrifluoroethane (CASRN 76-13-1), also known as Freon 113 or CFC-113 is a colorless, nonflammable liquid. Until approximately 1995, freon 113 was produced in large quantities in the United States and used as an industrial and commercial coolant and aerosol propellent. Due to concerns of ozone depletion, EPA has restricted production of freon 113.

Slight impairment of psychomotor performance was reported in male volunteers exposed to trichlorofluoroethane at a concentration of 19,161 mg/m^3 for 2.75 hours (IRIS, 2001). No apparent adverse effects have been reported in humans occupationally exposed to trichlorotrifluoroethane at either 500 mg/cu.m levels for 11 years or 5358 mg/cu.m levels for 2.77 years. Based on these studies and applying a safety factor of 10, EPA derived an oral reference dose of 30 mg/kg-d.

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References:

IRIS (2001). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine.

Trimethylbenzenes

Trimethylbenzenes are clear liquids with a pleasant aromatic odor. Trimethylbenzenes occur in three isomeric forms (1,2,3-, 1,2,4-, and 1,3,5-trimethylbenzene). 1,3,5-trimethylbenzene has an odor threshold of 0.55 ppm. The isomers of trimethylbenzene are found in petroleum and coal tar. 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene are chemically similar and are presumed to be toxicologically similar.

One account of human exposure to trimethylbenzenes has been reported. Exposed workers suffered from nervousness, tension, anxiety, and asthmatic bronchitis. Hypochromic anemia and a deviation from normal in the coagulability of blood was observed in these workers, although benzene contamination may have been responsible for the blood abnormalities. ACGIH's TLV for trimethylbenzene is 25 ppm.

Rats exposed to 1700 ppm of a mixture of the three trimethylbenzene isomers for four months suffered reduced body weight gain, increasing lymphopenia and neutrophilia, and depression of the CNS. Again, contamination with benzene may have been responsible for blood abnormalities. Twenty-four hour exposure at 2,400 ppm of 1,3,5-trimethylbenzene caused death in rats from respiratory arrest.

The toxicity of 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzenes has been very poorly characterized, particularly for exposures by oral ingestion, and EPA has not established RfDs for trimethylbenzenes. U.S. EPA has derived a "provisional" oral RfD for 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene. In addition to labelling the reference dose "provisional", the authors marked the document "DRAFT — Do not cite or quote" and "For internal use only." The label and these markings apparently express the author's uncertainty about the validity of the oral reference doses derived therein.

The derivation of the oral reference dose for both compounds derives from a study by Battig *et al*. conducted in 1957. In addition to citing the original research, which was published in German, the document cites three U.S. EPA documents: (1) U.S. EPA (1987a), a "Health Effects Assessment for Trimethylbenzenes", (2) U.S. EPA (1987b), a "Drinking Water Health Advisory for 1,3,5-Trimethylbenzene", and (3) U.S. EPA (1987c), a "Drinking Water Health Advisory for 1,2,4-Trimethylbenzene." We obtained the first of these from U.S. EPA. Neither the U.S. EPA nor the National Technical Information Service were able to locate the second or third of these three. Given that the original article was published in German, and that two of the three other citations were unavailable, we had only the first of the three U.S. EPA documents to rely upon for a review of the quality of the evidence supporting the derivation of the provisional reference dose.

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Nonetheless, review of that document provides ample evidence that the study is not a suitable basis for the oral reference dose. U.S. EPA (1987a) summarized the Battig *et al*. (1957) study as follows:

> Battig *et al*. (1957) reported symptoms of nervousness, tension, anxiety and asthmatic bronchitis in a "significant number" of 27 people who worked for several years with "Fleet-x-DV-99," a solvent containing 30% 1,3,5-trimethylbenzene and 50% 1,2,4-trimethylbenzene. Tendencies towards hyperchromic anemia and blood coagulation were also observed among these individuals. Concentration ranges for hydrocarbon vapor ranged from 10-60 ppm. Gerarde (1960) speculated that a small proportion of benzene in the hydrocarbon vapor was probably responsible for the hematologic effects.

From this summary alone, one can identify the following deficiencies in the Battig *et al*. (1957) study. First, there was no control group for comparison of the incidence of effects, so no way to determine whether those exposed had higher frequency of complaints than those not exposed. The absence of a control group precludes any statistical hypothesis testing. Second, the effects measured were simply self-reported complaints of common symptoms. They certainly cannot be considered "adverse effects," without more objective measure, of the type ordinarily used as the basis for risk assessment. Third, 20% of the solvent to which workers were exposed is of unknown chemistry but may have included benzene as a contaminant. This substantial fraction could account for all of the adverse effects, to the extent that any were observed. Fourth, no specific measurements of the concentration of trimethylbenzenes in the workplace atmosphere were made. It is possible that other solvents were used in the workplace, and that these accounted for most of the "hydrocarbon vapor." Clearly, this study is not a sufficient basis for derivation of a reference dose.

This conclusion is consistent with the one reached by the authors of the U.S. EPA (1987a) health advisory. They wrote: "Since a pure chemical was not used in this (Battig *et al*., 1957) study, a LOAEL (lowest observable adverse effect level) cannot be obtained." Under the section heading "Reference Dose," the U.S. EPA (1987a) authors wrote, "There are no adequate subchronic or chronic inhalation data that define dose-specific adverse effects; therefore, an RfD (reference concentration) . . . for trimethylbenzene cannot be derived.
The most recent EPA Region III Risk Based Concentration Table (EPA III, 2001) reports oral reference doses of 5.0e-2 mg/kg-d and inhalation reference doses of 1.7e-3 mg/kg-d for both 1,2,4-Trimethylbenzene and 1,3,5-Trimethylbenzene.

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References:

U.S. EPA Region III, 2001. Risk Based Concentration Table. Philadelphia, PA. May 8, 2001. Available at http://www.epa.gov/reg3hwmd/risk/RBC0501.PDF.

Vinyl chloride

About 90% of the vinyl chloride (CAS RN 75-01-4) produced in the U.S. is used to manufacture polyvinyl chloride (PVC) and other vinyl polymers. PVCs are used in the building and construction industries, in consumer goods, packaging and electrical wire insulation. The remaining 10% of vinyl chloride is used to synthesize 1,1,1-trichloroethane. Vinyl chloride is readily absorbed via respiratory and gastrointestinal systems. It is distributed throughout the body with the highest concentration located in the fat. Metabolism and excretion occur rapidly.

Epidemiologic studies have associated exposure to vinyl chloride with impaired liver function and liver damage. Symptoms include pain or discomfort, hepatomegaly, portal hypertension, thrombocytopenia, esophageal varices. Acute toxicity, at high levels has resulted in lethality, apparently by narcosis, among occupationally exposed workers. Acute inhalation exposure to high levels of vinyl chloride leads to CNS effects. Vinyl chloride disease is the name given to the total clinical syndrome associated with occupational exposure. It includes a syndrome known as acroosteolysis or dissolution of the ends of the distal phalanges of the hands, circulatory disturbance in the extremities, Raynaud syndrome, scleroderma, hematologic effects, and lung and liver effects.

"Patty et al. (1930) reported that narcosis and death occurred within 30 to 60 min in guinea pigs exposed to 10% vinyl chloride. U.S. EPA (1985a) reviewed a number of acute studies in animals and reported 2 hour LC_{50} values ranging from 117 to 500 ppm for mice to 230 to 800 ppm for rabbits. Liver injury is observed in chronically-exposed animals. A study by the Dow Chemical Company (1984) in rats chronically-exposed to vinyl chloride through inhalation established 0.13 mg/kg/day as NOAEL, and 1.3 mg/kg/day as a LOAEL for hepatotoxicity. Animals exposed orally or by inhalation manifest noncancerous liver effects similar to those seen in humans; but other effects seen in humans, such as acroosteolysis, Raynaud syndrome, and scleroderma, have not been reproduced in animals (ATSDR, 1989)."

"Vinyl chloride is mutagenic in S. typhimurium in numerous studies (ATSDR, 1989). Vinyl chloride was positive for recessive lethal effects but negative for dominant lethal effects, chromosomal translocation, and sex chromosome loss in D. melanogaster (Verburgt and Vogel, 1977). Positive results were obtained in mutation and cell transformation tests and in chromosomal aberration tests in vivo and in vitro mammalian systems (Styles, 1977; Laib et al., 1985; Anderson and Richardson, 1981). Genotoxicity studies of vinyl chloride in humans include a large number of chromosomal aberration tests in the peripheral lymphocytes of occupationally exposed workers. These tests have all been positive (ATSDR, 1989). Anderson et al. (1980) observed an increase in lymphocytes with chromosomal aberrations at exposure levels estimated at 50 ppm."

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"Maltoni and associates (1981) conducted vinyl chloride carcinogenicity studies in animals. They exposed rats, mice and hamsters for 4 hours/day, 5 days/week for one year to vapor concentrations of 1 ppm to 30,000 ppm or to 0.03 to 50 mg\kg bw vinyl chloride in olive oil by ingestion, 5 days/week for one year. Liver angiosarcomas were observed in all the animals tested. Bi et al. (1985) exposed adult male Wistar rats to 0, 10, 100, or 3000 ppm, 6 hours/day, 6 days/week for up to 12 months to evaluate effects on the testes. Relative testicular weight was significantly reduced at 100 or 3000 ppm. Vinyl chloride workers are at increased risk for developing cancer. Liver angiosarcomas, brain, skin and lung tumors, and tumors of the lymphatic and blood-forming systems are some of the cancers seen in exposed workers (Tamburro, 1984). Individuals residing near PVC processing plants may also be at risk. Five cases of angiosarcoma of the liver were diagnosed in persons living in the vicinity of vinyl chloride fabrication and polymerization plants for 8 to 62 years prior to the diagnosis of the disease (U.S. EPA, 1980)."

EPA has derived an oral chronic reference dose of 3×10^{-3} mg/kg-d and a chronic reference concentration of 0.1 mg/m^3 for vinyl chloride. EPA has derived a cancer slope factor of 7.2×10^{-1} kg-d/mg for continuous exposure during adulthood and a cancer slope factor of 1.4 kg-d/mg for continuous exposure from birth. EPA has derived a unit risk of 4.4×10^{-6} m^3/µg for continuous adult exposure and a unit risk of 8.8×10^{-6} m^3/µg for continuous lifetime exposure from birth (IRIS, 2006).

References:

DEP (1992). *Documentation for the Risk Assessment Shortform Residential Scenario*. Massachusetts Department of Environmental Protection, Office of Research and Standards and Bureau of Waste Site Cleanup. October 1992. Policy #WSC/ORS-142-92.

IRIS (2006). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine. Available at http://www.epa.gov/iris/subst/index.html.

Volatile/Extractable petroleum hydrocarbons

Petroleum is a mixture of hundreds of hydrocarbon compounds. It would be very time consuming and difficult to identify and quantify all compounds present in petroleum contaminated media. Additionally, toxicological data are unavailable for the vast majority of petroleum constituents. While there are limited data available on the toxicity of some petroleum fuels, the chemistry of "weathered" products typically encountered at contaminated sites may be quite different from the chemistry of the fresh product which was the subject of toxicological evaluation.

Based upon an evaluation of information and data available on the chemistry and toxicity of petroleum products, however, it is possible to make some broad observations and conclusions:

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- petroleum products are comprised mainly of aliphatic/alicyclic and aromatic hydrocarbon compounds;
- aromatic hydrocarbons appear to be more toxic than aliphatic compounds; and
- the toxicity of aliphatic compounds appear to be related to their carbon number/molecular weights.

These three precepts are the foundation for DEP's VPH/EPH approach to assessing petroleum compounds. Specifically, under this approach, the noncancer toxicity of petroleum contaminated soil or water is established by (1) determining the collective concentrations of specified ranges of aliphatic and aromatic hydrocarbons, and (2) assigning a toxicity value (*e.g.*, reference dose) to each range. Toxicity values are determined on the basis of a review and/or extrapolation of available toxicological data on hydrocarbon mixtures and specific hydrocarbon compounds. The complete breakdown for all ranges of interest is summarized in the table below.

Table of reference doses for VPH/EPH hydrocarbon classes

Hydrocarbon fraction	Chronic reference dose (mg/kg-d) (DEP, 2002)
C_5-C_8 Aliphatics	0.04
C_9-C_{12} Aliphatics	0.1
C_9-C_{18} Aliphatics	0.1
C_{19}-C_{36} Aliphatics	2.0
C_9-C_{10} Aromatics	0.03
C_9-C_{22} Aromatics	0.03

References:

DEP (2006). *Spreadsheets Detailing the Development of the MCP Numerical Standards*. Massachusetts Department of Environmental Protection. January 12, 2006. Available as mcp-spreads-0106.zip at http://www.mass.gov/dep/cleanup/laws/pubnot04.htm.

DEP (2002). *Characterizing Risks Posed by Petroleum Contaminated Sites: Implementation of the MADEP VPH/EPH Approach; Final Policy*. Massachusetts Department of Environmental Protection, Bureau of Waste Site Cleanup. October 31, 2002. Available at http://www.state.ma.us/dep/bwsc/vph_eph.htm.

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Xylenes

Xylenes (CAS RN 1330-20-7) are organic solvents occurring naturally in coal tar and petroleum products, are manufactured from benzene, and are formed during the burning of organic material. Commercial xylene is a mixture of three chemical isomers; *o*-, *m*-, and *p*-xylene (CAS RN's 95-47-6, 108-38-3, and 106-42-3, respectively). Industrial applications of xylene include its use as a solvent, cleaning agent, and degreaser. It is also a highly flammable ingredient of aviation fuel and gasoline. Common sources of exposure to xylenes include cigarette smoke, gasoline fumes, car exhaust, paint thinners, varnish, shellac, and rust preservatives.

In humans, short-term exposure to high levels of xylenes causes irritation of the skin, eyes, nose, and throat. Xylenes can also act as central nervous system depressants, producing light-headedness, nausea, headaches, and muscle incoordination at low doses and confusion, respiratory depression, and coma at high doses. Exposures to very high concentrations of xylenes for even short periods can be lethal. The permitted, eight-hour average level of xylenes in workplace air is 435 mg/m^3.

In laboratory animals, xylenes have cause changes in or have had adverse effects on the liver, kidneys, lung, heart, and nervous system. Xylenes have adversely affected reproduction in animals and caused birth defects in the offspring of pregnant animals so exposed.

EPA derived a chronic oral reference dose (RfD) of 0.2 mg/kg-day for xylenes based on the chemicals' ability to cause clinical signs of toxicity in rats including decreased body weight and increased mortality. These observations were made in a bioassay in which rats were given up to 500 mg/kg/day xylenes by gavage five days/week for 103 weeks. EPA divided the level producing no toxicity in rats (250 mg/kg/day) by an uncertainty factor of 1000 and rounded to one significant figure to obtain its estimate for the human oral RfD. Uncertainty factors of 10 were used to account for variations between species, to account for variations among human sub-populations, and to account for database uncertainty. EPA also establishes a chronic reference concentration of 1×10^{-1} mg/m^3, and DEP establishes a subchronic reference dose of 0.2 mg/kg-d.
There is no evidence that xylenes are carcinogenic or genotoxic to humans or laboratory animals. The bioassay cited above found no evidence of carcinogenicity of xylenes for rats or mice of either sex at any dosage tested. Xylenes have therefore been assigned to carcinogenicity class D.

References:

ATSDR (1990). *Toxicological Profile for Xylene*. Atlanta, GA: Agency for Toxic Substances and Disease Registry.

DEP (1992). *Documentation for the Risk Assessment Shortform Residential Scenario*. Massachusetts Department of Environmental Protection, Office of Research and Standards and Bureau of Waste Site Cleanup. October 1992. Policy #WSC/ORS-142-92.

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DEP (2006). *Spreadsheets Detailing the Development of the MCP Numerical Standards.* Massachusetts Department of Environmental Protection. January 12, 2006. Available as mcp-spreads-0106.zip at http://www.mass.gov/dep/cleanup/laws/pubnot04.htm.

IRIS (2006). Integrated Risk Information System. Supported by the U.S. Department of Health and Human Services and U.S. Environmental Protection Agency. Bethesda, MD: National Library of Medicine.

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Appendix B DEP Shortforms

Spreadsheets documenting the pathways evaluated using DEP's MCP Method 3 ShortForms follow. There are five sets of spreadsheets, corresponding to following exposures:

- Construction worker exposure to soil on the southeastern portion of the GCC property and the northern portion of the CSX property;
- Construction worker exposure to the petroleum hydrocarbons hot spot at MW-15;
- Hypothetical future residential exposure to soil on the southeastern portion of the GCC property and the northern portion of the CSX property;
- Hypothetical future residential exposure to the petroleum hydrocarbons hot spot at MW-15; and
- Ingestion of drinking water in emergency situations from the Sudbury Aqueduct.

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Exposure point: Soil on the southeast portion of the GCC property and northern CSX property

Method 3 Risk Assessment for Chemicals in Soil - Construction Worker Shortform 2008 (sf08cw)

Index

Tab	
EPCs	Table CW-1: Select chemicals and enter Exposure Point Concentrations (EPCs). Associated risks are shown to the right.
C Eq	Table CW-2: Equations to calculate cancer risks.
NC Eq	Table CW-3: Equations to calculate noncancer risks.
Exp	Table CW-4: Definitions and exposure factors.
Chem	Table CW-5: Chemical-specific data.

Spreadsheets designed by Andrew Friedmann, MassDEP

Questions and Comments may be addressed to:

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Construction Worker - Soil: Table CW-1
Exposure Point Concentration (EPC) and Risk
Based on Construction Worker 18-25 years of age

ShortForm Version 08-08

Vlookup Version v0808

ELCR (all chemicals) = 1E-07
HI (all chemicals) = 3E-02

****Do not insert or delete any rows****

Click on empty cell below and select OHM using arrow.

Oil or Hazardous Material (OHM)	EPC (mg/kg)	ELCR ingestion	ELCR dermal	ELCR inhalation GI	ELCR inhalation pulmonary	$ELCR_{total}$	Subchronic HQ_{ing}	Subchronic HQ_{derm}	Subchronic HQ_{inh-GI}	Subchronic HQ_{inh}	HQ_{total}
Aliphatics C5 to C8	7.9E+01						2.4E-04	2.4E-03	6.3E-06	1.5E-05	2.7E-03
Aliphatics C9 to C12	8.2E+01						1.0E-04	5.1E-04	2.6E-06	5.1E-06	6.2E-04
Aromatics C9 to C10	9.4E+01						3.9E-04	2.0E-03	1.0E-05	7.0E-06	2.4E-03
Toluene	9.1E-01						1.4E-06	1.7E-06	3.6E-08	6.8E-09	3.1E-06
Ethylbenzene	1.4E+00						1.7E-06	3.5E-06	4.5E-08	5.2E-08	5.3E-06
Xylenes (mixed isomers)	4.6E+00						2.9E-05	3.5E-05	7.4E-07	5.8E-07	6.4E-05
Naphthalene	3.5E+00						7.8E-06	2.2E-05	2.0E-07	4.4E-05	7.4E-05
Naphthalene	6.4E-01						1.4E-06	4.0E-06	3.7E-08	7.9E-06	1.3E-05
Methylnaphthalene, 2-	1.4E+00						1.6E-04	4.4E-04	4.1E-06	1.1E-07	6.0E-04
Aliphatics C9 to C18	3.3E+02						4.1E-04	2.1E-03	1.1E-05	2.1E-05	2.5E-03
Aliphatics C19 to C36	2.5E+02						5.1E-05	5.1E-05	1.3E-06		1.0E-04
Aromatics C11 to C22	8.6E+01						1.3E-04	3.6E-04	3.3E-06	6.4E-06	4.9E-04
Butylbenzene, tert-											
Butylbenzene, n-	7.3E-01						3.0E-06	1.5E-05	7.7E-08	5.4E-08	1.8E-05
Butylbenzene, sec-	6.7E-01						2.7E-06	1.4E-05	7.1E-08	5.0E-08	1.7E-05
Dichlorobenzene, 1,2- (o-DCB)	4.6E-01						6.3E-07	6.3E-07	1.6E-08	8.6E-08	1.4E-06
Dichlorobenzene, 1,4- (p-DCB)	3.1E-01	6.6E-11	6.6E-11	1.7E-12	5.7E-13	1.3E-10	4.3E-07	4.3E-07	1.1E-08	4.9E-09	8.8E-07
Dichloroethane, 1,1-	8.5E-01						1.4E-06	1.4E-06	3.5E-08	6.4E-09	2.8E-06
Dichloroethylene, 1,1-	3.0E-01						7.5E-06	7.5E-06	1.9E-07	5.6E-08	1.5E-05
Dichloroethylene, trans-1,2-	2.9E-01						1.8E-06	1.8E-06	4.7E-08	1.6E-08	3.7E-06
Dichloroethylene, cis-1,2-	8.0E+00						9.8E-05	9.9E-05	2.5E-06	8.5E-06	2.1E-04
Ethylbenzene	1.3E+00						1.6E-06	3.3E-06	4.2E-08	4.9E-08	5.0E-06
Hexachlorobutadiene	2.8E-01	1.9E-10	3.8E-10	4.9E-12	1.6E-12	5.8E-10	1.7E-04	3.4E-04	4.4E-06	1.5E-05	5.3E-04
Isopropylbenzene	5.4E-01						2.2E-06	1.1E-05	5.8E-08	4.1E-08	1.4E-05
Isopropyltoluene, p-	8.5E-01						3.5E-06	1.8E-05	9.1E-08	6.4E-08	2.1E-05
Dichloromethane	5.9E-01	3.9E-11	3.9E-11	1.0E-12	7.4E-14	8.0E-11	1.2E-05	1.2E-05	3.2E-07	7.4E-09	2.5E-05
Naphthalene	1.9E+00						4.2E-06	1.2E-05	1.1E-07	2.4E-05	4.0E-05
Propylbenzene, n-	8.1E-01						3.3E-06	1.7E-05	8.6E-08	6.0E-08	2.0E-05
Tetrachloroethylene	9.7E+01	4.3E-08	4.4E-08	1.1E-09	2.6E-10	8.8E-08	1.2E-03	1.2E-03	3.1E-05	7.8E-07	2.4E-03
Toluene	1.2E+00						1.9E-06	2.3E-06	4.8E-08	9.0E-09	4.2E-06
Trichloroethane, 1,1,1-	2.4E+01						3.3E-05	3.3E-05	8.5E-07	1.7E-07	6.7E-05
Trichloroethylene	1.0E+02	9.6E-09	9.7E-09	2.5E-10	4.5E-11	2.0E-08	6.1E-03	6.2E-03	1.6E-04	2.1E-05	1.2E-02
Trichlorofluoromethane	5.3E-01						9.2E-07	1.0E-06	2.4E-08	2.8E-08	2.0E-06
Trichlorotrifluoroethane, 1,1,2-	1.1E+00						5.1E-07	5.7E-07	1.3E-08	1.4E-09	1.1E-06
Trimethylbenzene, 1,2,4-	5.9E+00						2.4E-05	1.2E-04	6.3E-07	4.4E-07	1.5E-04

Construction Worker - Soil: Table CW-1
Exposure Point Concentration (EPC) and Risk

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Trimethylbenzene, 1,3,5-	2.5E+00						1.0E-05	5.1E-05	2.6E-07	1.8E-07	6.1E-05
Vinyl chloride	4.6E-01	8.7E-09	9.1E-09	2.2E-10	1.1E-12	1.8E-08	1.9E-04	1.9E-04	4.9E-06	1.7E-07	3.8E-04
Xylenes (mixed isomers)	1.0E+01						6.3E-05	7.6E-05	1.6E-06	1.3E-06	1.4E-04
Naphthalene											
Bis(2-ethylhexyl)phthalate	2.8E-01	3.5E-11	7.0E-12	9.0E-13	9.7E-14	4.3E-11	1.7E-05	3.5E-06	4.5E-07	1.5E-06	2.3E-05
Methylnaphthalene, 2-	3.4E-01						3.7E-05	1.0E-04	9.7E-07	2.5E-08	1.4E-04
Dichlorobenzene, 1,2- (o-DCB)	2.4E-01						3.2E-07	3.3E-07	8.4E-09	4.4E-08	7.0E-07

Construction Worker - Soil: Table CW-2
Equations to Calculate Cancer Risk for Construction Worker

Vlookup Version v0808

Cancer Risk from Ingestion

$$ELCR_{ing} = LADD_{ing} * CSF_{oral}$$

$$LADD_{ing} = \frac{EPC * IR * RAF_{c\text{-}ing} * EF * ED_{ing} * EP * C1}{BW * AP_{lifetime}}$$

Cancer Risk from Dermal Absorption

$$ELCR_{derm} = LADD_{derm} * CSF_{oral}$$

$$LADD_{derm} = \frac{EPC * SA * AF * RAF_{c\text{-}derm} * EF * ED_{derm} * EP * C1}{BW * AP_{lifetime}}$$

Cancer Risk from Particulate Inhalation - Gastrointestinal Absorption

$$ELCR_{inh\text{-}GI} = LADD_{inh\text{-}GI} * CSF_{oral}$$

$$LADD_{inh\text{-}GI} = \frac{EPC * RCAF_{inh\text{-}gi} * PM_{10} * VR_{work} * RAF_{c\text{-}ing} * EF * ED_{inh} * EP * C2 * C3 * C4}{BW * AP_{lifetime}}$$

Cancer Risk from Particulate Inhalation - Pulmonary Absorption

$$ELCR_{inh} = LADD_{inh} * CSF_{inhalation}$$

$$LADD = \frac{EPC * RCAF_{inh} * PM_{10} * VR_{work} * RAF_{c\text{-}inh} * EF * ED_{inh} * EP * C2 * C3 * C4}{BW * AP_{lifetime}}$$

Parameter	Value	Units
CSF	OHM-specific	$(mg/kg\text{-}day)^{-1}$
LADD	age/OHM-specific	mg/kg-day
EPC	OHM-specific	mg/kg
IR	100	mg/day
$RAF_{c\text{-}ing}$	OHM-specific	dimensionless
$RAF_{c\text{-}derm}$	OHM-specific	dimensionless
$RAF_{c\text{-}inh}$	OHM-specific	dimensionless
EF	0.714	event/day
$ED_{ing\ \&\ derm}$	1	day/event
ED_{inh}	0.333	day/event
EP	182	days
C1	1.0E-06	kg/mg
C2	1.0E-09	kg/µg
C3	1440	min/days
C4	1.0E-03	m^3/L
BW	58.0	kg
$AP_{(lifetime)}$	25,550	days
VR_{work}	60	L/min
AF	0.29	mg/cm^2
SA	3473	cm^2/day
$RCAF_{inh\text{-}gi}$	1.5	dimensionless
$RCAF_{inh}$	0.5	dimensionless
PM_{10}	60	$\mu g/m^3$

Construction Worker - Soil: Table CW-3
Equations to Calculate Noncancer Risk for Construction Worker

Vlookup Version v0808

Noncancer Risk from Ingestion

$$HQ_{ing} = \frac{ADD_{ing}}{RfD_{oral\text{-}subchronic}}$$

$$ADD_{ing} = \frac{EPC * IR * RAF_{nc\text{-}ing} * EF * ED_{ing} * EP * C1}{BW * AP_{noncancer}}$$

Noncancer Risk from Dermal Absorption

$$HQ_{derm} = \frac{ADD_{derm}}{RfD_{oral\text{-}subchronic}}$$

$$ADD_{dermal} = \frac{EPC * SA * AF * RAF_{nc\text{-}derm} * EF * ED_{dermal} * EP * C1}{BW * AP_{noncancer}}$$

Noncancer Risk from Particulate Inhalation - Gastrointestinal Absorption

$$HQ_{inh\text{-}GI} = \frac{ADD_{inh\text{-}GI}}{RfD_{oral\text{-}subchronic}}$$

$$ADD_{inh\text{-}GI} = \frac{EPC * RCAF_{inh\text{-}gi} * PM_{10} * VR_{work} * RAF_{nc\text{-}ing} * EF * ED_{inh} * EP * C2 * C3 * C4}{BW * AP_{noncancer}}$$

Noncancer Risk from Particulate Inhalation - Pulmonary Absorption

$$HQ_{inh} = \frac{ADD}{RfD_{inhalation\text{-}subchronic}}$$

$$ADD_{inh} = \frac{EPC_{soil} * RCAF_{inh} * PM_{10} * VR_{work} * RAF_{nc\text{-}inh} * EF * ED_{inh} * EP * C2 * C3 * C4}{BW * AP_{noncancer}}$$

Parameter	Value	Units
RfD	OHM-specific	mg/kg-day
ADD	OHM-specific	mg/kg-day
EPC	OHM-specific	mg/kg
IR	100	mg/day
$RAF_{nc\text{-}ing}$	OHM-specific	dimensionless
$RAF_{nc\text{-}derm}$	OHM-specific	dimensionless
$RAF_{nc\text{-}inh}$	OHM-specific	dimensionless
EF	0.714	event/day
$EF_{cyanide}$	1	event/day
$ED_{ing\ \&\ derm}$	1	day/event
ED_{inh}	0.333	day/event
EP	182	days
$EP_{cyanide}$	1.00	day
C1	1.0E-06	kg/mg
C2	1.0E-09	kg/µg
C3	1440	min/days
C4	1.0E-03	m^3/L
BW	58.0	kg
$AP_{noncancer}$	182	days
$AP_{cyanide}$	1	day
VR_{work}	60	L/min
AF	0.29	mg/cm^2
SA	3473	cm^2/day
$RCAF_{inh\text{-}gi}$	1.5	dimensionless
$RCAF_{inh}$	0.5	dimensionless
PM10	60	$\mu g/m^3$

Cyanide can cause a significant health risk from a one-time exposure to concentrations that are often found in the environment. As such, risk is calculated for a single exposure. Thus, for cyanide, the exposure frequency (EF) is 1 event/day, while both the exposure period (EP) and averaging period (AP) are 1 day.

Construction Worker - Soil: Table CW-4
Definitions and Exposure Factors

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Parameter	Value	Units	Notes
ELCR - Excess Lifetime Cancer Risk	chemical specific	dimensionless	Pathway specific (ing =ingestion, derm=dermal, inh=inhalation)
HI - Hazard Index	chemical specific	dimensionless	Pathway specific (ing =ingestion, derm=dermal, inh=inhalation)
CSF - Cancer Slope Factor	chemical specific	$(mg/kg\text{-}day)^{-1}$	see Table CW-5.
RfD - Reference Dose	chemical specific	mg/kg-day	see Table CW-5.
LADD - Lifetime Average Daily Dose	chemical specific	mg/kg-day	Pathway specific. See Table CW-2.
ADD - Average Daily Dose	chemical specific	mg/kg-day	Pathway specific. See Table CW-3.
EPC - Exposure Point Concentration	chemical specific	µg/L	see Table CW-1.
IR - Soil Ingestion Rate	100	mg/day	MADEP. 2002. Technical Update: Calculation of an Enhanced Soil Ingestion Rate. (http://www.mass.gov/dep/ors/orspubs.htm).
RAF_c - Relative Absorption Factor for Cancer Effects	chemical specific	dimensionless	Pathway specific - see Table CW-5.
RAF_{nc} - Relative Absorption Factor for Noncancer Effects	chemical specific	dimensionless	Pathway specific - see Table CW-5.
EF - Exposure Frequency	0.714	event/day	5 events (days) / 7 events (days) in a week; MADEP 1995 Guidance for Disposal Site Risk Characterization pg B-38.
$EF_{cyanide}$ - Exposure Frequency for Cyanide Exposures	1.00	event/day	MADEP. 1995. Guidance for Disposal Site Risk Characterization. Page 5-5.
$ED_{ing,derm}$ - Exposure Duration for ingestion or dermal exposure	1	day/event	
ED_{inh} - Exposure Duration for inhalation exposure	0.333	day/event	Represents 8 hours / event.
EP - Exposure Period	182	days	6 months; MADEP 1995 Guidance for Disposal Site Risk Characterization.
$EP_{cyanide}$ - Exposure period for cyanide exposure	1	day	MADEP. 1995. Guidance for Disposal Site Risk Characterization. Page 5-5.
BW - Body Weight	58.0	kg	U.S. EPA. 1997. Exposure Factors Handbook. Table 7-7, Females, ages 18 - 25.
$AP_{(lifetime)}$ - Averaging Period for lifetime	25,550	days	Represents 70 years
$AP_{(noncancer)}$ - Averaging Period for noncancer	182	days	6 months; MADEP 1995 Guidance for Disposal Site Risk Characterization.
$AP_{cyanide}$ - Averaging period for assessing cyanide exposure	1	day	MADEP. 1995. Guidance for Disposal Site Risk Characterization. Page 5-5.
AF - Adherence Factor	0.29	mg/cm^2	MA DEP. 2002 Technical Update: Weighted Skin-Soil Adherence Factors. (http://www.mass.gov/dep/ors/orspubs.htm)
VR_{work} - Ventilation Rate during work (heavy exertion)	60	L/min	Table B-4 MADEP 1995 Guidance for Disposal Site Risk Characterization.
SA - Surface Area	3473	cm^2/day	MADEP. 1995. Guidance for Disposal Site Risk Characterization. 50th percentile for females. Appendix Table B-2.
$RCAF_{inh\text{-}gi}$ - Relative Concentration Adjustment Factor, gastrointestinal	1.5	dimensionless	MADEP 2007. Characterization of Risks Due to Inhalation of Particulates by Construction Workers
$RCAF_{inh}$ - Relative Concentration Adjustment Factor, inhalation	0.5	dimensionless	MADEP 2002. Characterization of Risks Due to Inhalation of Particulates by Construction Workers
PM10 - Concentration of PM_{10}	60	$\mu g/m^3$	MADEP 1995 Guidance for Disposal Site Risk Characterization pg B-11

Construction Worker - Soil: Table CW-5
Chemical-Specific Data

Vlookup Version v0808

Oil or Hazardous Material	Oral CSF $(mg/kg\text{-}day)^{-1}$	$RAF_{c\text{-}ing}$	$RAF_{c\text{-}derm}$	$RAF_{c\text{-}inh}$	Inhalation CSF $(mg/kg\text{-}day)^{-1}$	Subchronic Oral RfD mg/kg-day	Subchronic $RAF_{nc\text{-}ing}$	Subchronic $RAF_{nc\text{-}derm}$	Subchronic $RAF_{nc\text{-}inh}$	Subchronic Inhalation RfD
Aliphatics C5 to C8						4.0E-01	1	1	1	5.7E-02
Aliphatics C9 to C12						1.0E+00	1	0.5	1	1.7E-01
Aromatics C9 to C10						3.0E-01	1	0.5	1	1.4E-01
Toluene						8.0E-01	1	0.12	1	1.4E+00
Ethylbenzene						1.0E+00	1	0.2	1	2.9E-01
Xylenes (mixed isomers)						2.0E-01	1	0.12	1	8.6E-02
Naphthalene						2.0E-01	0.36	0.1	1	8.6E-04
Naphthalene						2.0E-01	0.36	0.1	1	8.6E-04
Methylnaphthalene, 2-						4.0E-03	0.36	0.1	1	1.4E-01
Aliphatics C9 to C18						1.0E+00	1	0.5	1	1.7E-01
Aliphatics C19 to C36						6.0E+00	1	0.1		
Aromatics C11 to C22						3.0E-01	0.36	0.1	1	1.4E-01
Butylbenzene, tert-						3.0E-01	1	0.5	1	1.4E-01
Butylbenzene, n-						3.0E-01	1	0.5	1	1.4E-01
Butylbenzene, sec-						3.0E-01	1	0.5	1	1.4E-01
Dichlorobenzene, 1,2- (o-DCB)						9.0E-01	1	0.1	1	5.7E-02
Dichlorobenzene, 1,4- (p-DCB)	2.4E-02	1	0.1	1	2.4E-02	9.0E-01	1	0.1	1	6.9E-01
Dichloroethane, 1,1-						1.0E+00	1.3	0.13	1	1.4E+00
Dichloroethylene, 1,1-						5.0E-02	1	0.1	1	5.7E-02
Dichloroethylene, trans-1,2-						2.0E-01	1	0.1	1	2.0E-01
Dichloroethylene, cis-1,2-						1.0E-01	1	0.1	1	1.0E-02
Ethylbenzene						1.0E+00	1	0.2	1	2.9E-01
Hexachlorobutadiene	7.8E-02	1	0.2	1	7.7E-02	2.0E-03	1	0.2	1	2.0E-04
Isopropylbenzene						3.0E-01	1	0.5	1	1.4E-01
Isopropyltoluene, p-						3.0E-01	1	0.5	1	1.4E-01
Dichloromethane	7.5E-03	1	0.1	1	1.6E-03	6.0E-02	1	0.1	1	8.6E-01
Naphthalene						2.0E-01	0.36	0.1	1	8.6E-04
Propylbenzene, n-						3.0E-01	1	0.5	1	1.4E-01
Tetrachloroethylene	5.1E-02	1	0.1	1	3.5E-02	1.0E-01	1	0.1	1	1.3E+00
Toluene						8.0E-01	1	0.12	1	1.4E+00
Trichloroethane, 1,1,1-						9.0E-01	1	0.1	1	1.5E+00
Trichloroethylene	1.1E-02	1	0.1	1	6.0E-03	2.0E-02	1	0.1	1	5.1E-02
Trichlorofluoromethane						7.0E-01	0.99	0.11	1	2.0E-01
Trichlorotrifluoroethane, 1,1,2-						3.0E+00	1.08791209	0.12087912	1	8.6E+00
Trimethylbenzene, 1,2,4-						3.0E-01	1	0.5	1	1.4E-01
Trimethylbenzene, 1,3,5-						3.0E-01	1	0.5	1	1.4E-01
Vinyl chloride	1.4E+00	1.53	0.16	1	3.1E-02	3.0E-03	1	0.1	1	2.9E-02
Xylenes (mixed isomers)						2.0E-01	1	0.12	1	8.6E-02

Construction Worker - Soil: Table CW-5
Chemical-Specific Data

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Oil or Hazardous Material	Oral CSF $(mg/kg\text{-}day)^{-1}$	$RAF_{c\text{-}ing}$	$RAF_{c\text{-}derm}$	$RAF_{c\text{-}inh}$	Inhalation CSF $(mg/kg\text{-}day)^{-1}$	Subchronic Oral RfD mg/kg-day	Subchronic $RAF_{nc\text{-}ing}$	Subchronic $RAF_{nc\text{-}derm}$	Subchronic $RAF_{nc\text{-}inh}$	Subchronic Inhalation RfD
Naphthalene						2.0E-01	0.36	0.1	1	8.6E-04
Bis(2-ethylhexyl)phthalate	1.4E-02	1	0.02	1	4.6E-03	2.0E-02	1	0.02	1	2.0E-03
Methylnaphthalene, 2-						4.0E-03	0.36	0.1	1	1.4E-01
Dichlorobenzene, 1,2- (o-DCB)						9.0E-01	1	0.1	1	5.7E-02

Exposure point: MW-15 Petroleum Hydrocarbons Hot Spot

Method 3 Risk Assessment for Chemicals in Soil - Construction Worker Shortform 2008 (sf08cw)

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C Eq	Table CW-2: Equations to calculate cancer risks.
NC Eq	Table CW-3: Equations to calculate noncancer risks.
Exp	Table CW-4: Definitions and exposure factors.
Chem	Table CW-5: Chemical-specific data.

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Construction Worker - Soil: Table CW-1
Exposure Point Concentration (EPC) and Risk
Based on Construction Worker 18-25 years of age

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ELCR (all chemicals) =

HI (all chemicals) = 1E-01

****Do not insert or delete any rows****

Click on empty cell below and select OHM using arrow.

Oil or Hazardous Material (OHM)	EPC (mg/kg)	ELCR ingestion	ELCR dermal	ELCR inhalation GI	ELCR inhalation pulmonary	$ELCR_{total}$	Subchronic HQ_{ing}	Subchronic HQ_{derm}	Subchronic HQ_{inh-GI}	Subchronic HQ_{inh}	HQ_{total}
Aliphatics C5 to C8	2.0E+02						6.2E-04	6.3E-03	1.6E-05	3.8E-05	6.9E-03
Aliphatics C9 to C12	2.1E+03						2.6E-03	1.3E-02	6.6E-05	1.3E-04	1.6E-02
Aromatics C9 to C10	2.7E+03						1.1E-02	5.5E-02	2.8E-04	2.0E-04	6.6E-02
Toluene											
Ethylbenzene											
Xylenes (mixed isomers)	7.3E+00						4.5E-05	5.5E-05	1.2E-06	9.1E-07	1.0E-04
Naphthalene											
Naphthalene	4.1E+00						9.2E-06	2.6E-05	2.4E-07	5.1E-05	8.6E-05
Methylnaphthalene, 2-											
Aliphatics C9 to C18	3.9E+03						4.8E-03	2.4E-02	1.2E-04	2.4E-04	2.9E-02
Aliphatics C19 to C36	2.1E+01						4.2E-06	4.3E-06	1.1E-07		8.6E-06
Aromatics C11 to C22	5.6E+02						8.3E-04	2.3E-03	2.2E-05	4.2E-05	3.2E-03
Butylbenzene, tert-	8.7E-01						3.6E-06	1.8E-05	9.2E-08	6.5E-08	2.2E-05
Butylbenzene, n-	2.6E+01						1.1E-04	5.4E-04	2.8E-06	2.0E-06	6.5E-04
Butylbenzene, sec-	1.3E+01						5.5E-05	2.8E-04	1.4E-06	1.0E-06	3.3E-04
Dichlorobenzene, 1,2- (o-DCB)											
Dichlorobenzene, 1,4- (p-DCB)											
Dichloroethane, 1,1-											
Dichloroethylene, 1,1-											
Dichloroethylene, trans-1,2-											
Dichloroethylene, cis-1,2-											
Ethylbenzene	5.7E-01						7.0E-07	1.4E-06	1.8E-08	2.1E-08	2.2E-06
Hexachlorobutadiene											
Isopropylbenzene	2.6E+00						1.1E-05	5.3E-05	2.7E-07	1.9E-07	6.4E-05
Isopropyltoluene, p-											
Dichloromethane											
Naphthalene	1.2E+01						2.7E-05	7.4E-05	6.9E-07	1.5E-04	2.5E-04
Propylbenzene, n-	5.4E+00						2.2E-05	1.1E-04	5.7E-07	4.0E-07	1.3E-04
Tetrachloroethylene											
Toluene											
Trichloroethane, 1,1,1-	2.0E+00						2.7E-06	2.7E-06	7.1E-08	1.4E-08	5.6E-06
Trichloroethylene											
Trichlorofluoromethane											
Trichlorotrifluoroethane, 1,1,2-	1.4E+01						6.4E-06	7.2E-06	1.7E-07	1.8E-08	1.4E-05
Trimethylbenzene, 1,2,4-	4.5E+01						1.9E-04	9.3E-04	4.8E-06	3.4E-06	1.1E-03

Construction Worker - Soil: Table CW-1
Exposure Point Concentration (EPC) and Risk

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Trimethylbenzene, 1,3,5-	6.3E+00	2.6E-05	1.3E-04	6.7E-07	4.7E-07	1.6E-04
Vinyl chloride						
Xylenes (mixed isomers)						
Naphthalene	5.3E+00	1.2E-05	3.3E-05	3.0E-07	6.5E-05	1.1E-04
Bis(2-ethylhexyl)phthalate						
Methylnaphthalene, 2-	2.0E+01	2.2E-03	6.1E-03	5.6E-05	1.5E-06	8.3E-03
Dichlorobenzene, 1,2- (o-DCB)						

Construction Worker - Soil: Table CW-2
Equations to Calculate Cancer Risk for Construction Worker

Vlookup Version v0808

Cancer Risk from Ingestion

$$ELCR_{ing} = LADD_{ing} * CSF_{oral}$$

$$LADD_{ing} = \frac{EPC * IR * RAF_{c\text{-}ing} * EF * ED_{ing} * EP * C1}{BW * AP_{lifetime}}$$

Cancer Risk from Dermal Absorption

$$ELCR_{derm} = LADD_{derm} * CSF_{oral}$$

$$LADD_{derm} = \frac{EPC * SA * AF * RAF_{c\text{-}derm} * EF * ED_{derm} * EP * C1}{BW * AP_{lifetime}}$$

Cancer Risk from Particulate Inhalation - Gastrointestinal Absorption

$$ELCR_{inh\text{-}GI} = LADD_{inh\text{-}GI} * CSF_{oral}$$

$$LADD_{inh\text{-}GI} = \frac{EPC * RCAF_{inh\text{-}gi} * PM_{10} * VR_{work} * RAF_{c\text{-}ing} * EF * ED_{inh} * EP * C2 * C3 * C4}{BW * AP_{lifetime}}$$

Cancer Risk from Particulate Inhalation - Pulmonary Absorption

$$ELCR_{inh} = LADD_{inh} * CSF_{inhalation}$$

$$LADD = \frac{EPC * RCAF_{inh} * PM_{10} * VR_{work} * RAF_{c\text{-}inh} * EF * ED_{inh} * EP * C2 * C3 * C4}{BW * AP_{lifetime}}$$

Parameter	Value	Units
CSF	OHM-specific	$(mg/kg\text{-}day)^{-1}$
LADD	age/OHM-specific	mg/kg-day
EPC	OHM-specific	mg/kg
IR	100	mg/day
$RAF_{c\text{-}ing}$	OHM-specific	dimensionless
$RAF_{c\text{-}derm}$	OHM-specific	dimensionless
$RAF_{c\text{-}inh}$	OHM-specific	dimensionless
EF	0.714	event/day
$ED_{ing\ \&\ derm}$	1	day/event
ED_{inh}	0.333	day/event
EP	182	days
C1	1.0E-06	kg/mg
C2	1.0E-09	kg/µg
C3	1440	min/days
C4	1.0E-03	m^3/L
BW	58.0	kg
$AP_{(lifetime)}$	25,550	days
VR_{work}	60	L/min
AF	0.29	mg/cm^2
SA	3473	cm^2/day
$RCAF_{inh\text{-}gi}$	1.5	dimensionless
$RCAF_{inh}$	0.5	dimensionless
PM_{10}	60	$\mu g/m^3$

Construction Worker - Soil: Table CW-3
Equations to Calculate Noncancer Risk for Construction Worker

Vlookup Version v0808

Noncancer Risk from Ingestion

$$HQ_{ing} = \frac{ADD_{ing}}{RfD_{oral\text{-}subchronic}}$$

$$ADD_{ing} = \frac{EPC * IR * RAF_{nc\text{-}ing} * EF * ED_{ing} * EP * C1}{BW * AP_{noncancer}}$$

Noncancer Risk from Dermal Absorption

$$HQ_{derm} = \frac{ADD_{derm}}{RfD_{oral\text{-}subchronic}}$$

$$ADD_{dermal} = \frac{EPC * SA * AF * RAF_{nc\text{-}derm} * EF * ED_{dermal} * EP * C1}{BW * AP_{noncancer}}$$

Noncancer Risk from Particulate Inhalation - Gastrointestinal Absorption

$$HQ_{inh\text{-}GI} = \frac{ADD_{inh\text{-}GI}}{RfD_{oral\text{-}subchronic}}$$

$$ADD_{inh\text{-}GI} = \frac{EPC * RCAF_{inh\text{-}gi} * PM_{10} * VR_{work} * RAF_{nc\text{-}ing} * EF * ED_{inh} * EP * C2 * C3 * C4}{BW * AP_{noncancer}}$$

Noncancer Risk from Particulate Inhalation - Pulmonary Absorption

$$HQ_{inh} = \frac{ADD}{RfD_{inhalation\text{-}subchronic}}$$

$$ADD_{inh} = \frac{EPC_{soil} * RCAF_{inh} * PM_{10} * VR_{work} * RAF_{nc\text{-}inh} * EF * ED_{inh} * EP * C2 * C3 * C4}{BW * AP_{noncancer}}$$

Parameter	Value	Units
RfD	OHM-specific	mg/kg-day
ADD	OHM-specific	mg/kg-day
EPC	OHM-specific	mg/kg
IR	100	mg/day
$RAF_{nc\text{-}ing}$	OHM-specific	dimensionless
$RAF_{nc\text{-}derm}$	OHM-specific	dimensionless
$RAF_{nc\text{-}inh}$	OHM-specific	dimensionless
EF	0.714	event/day
$EF_{cyanide}$	1	event/day
$ED_{ing\ \&\ derm}$	1	day/event
ED_{inh}	0.333	day/event
EP	182	days
$EP_{cyanide}$	1.00	day
C1	1.0E-06	kg/mg
C2	1.0E-09	kg/µg
C3	1440	min/days
C4	1.0E-03	m^3/L
BW	58.0	kg
$AP_{noncancer}$	182	days
$AP_{cyanide}$	1	day
VR_{work}	60	L/min
AF	0.29	mg/cm^2
SA	3473	cm^2/day
$RCAF_{inh\text{-}gi}$	1.5	dimensionless
$RCAF_{inh}$	0.5	dimensionless
PM10	60	$\mu g/m^3$

Cyanide can cause a significant health risk from a one-time exposure to concentrations that are often found in the environment. As such, risk is calculated for a single exposure. Thus, for cyanide, the exposure frequency (EF) is 1 event/day, while both the exposure period (EP) and averaging period (AP) are 1 day.

Construction Worker - Soil: Table CW-4
Definitions and Exposure Factors

Vlookup Version v0808

Parameter	Value	Units	Notes
ELCR - Excess Lifetime Cancer Risk	chemical specific	dimensionless	Pathway specific (ing =ingestion, derm=dermal, inh=inhalation)
HI - Hazard Index	chemical specific	dimensionless	Pathway specific (ing =ingestion, derm=dermal, inh=inhalation)
CSF - Cancer Slope Factor	chemical specific	$(mg/kg\text{-}day)^{-1}$	see Table CW-5.
RfD - Reference Dose	chemical specific	mg/kg-day	see Table CW-5.
LADD - Lifetime Average Daily Dose	chemical specific	mg/kg-day	Pathway specific. See Table CW-2.
ADD - Average Daily Dose	chemical specific	mg/kg-day	Pathway specific. See Table CW-3.
EPC - Exposure Point Concentration	chemical specific	µg/L	see Table CW-1.
IR - Soil Ingestion Rate	100	mg/day	MADEP. 2002. Technical Update: Calculation of an Enhanced Soil Ingestion Rate. (http://www.mass.gov/dep/ors/orspubs.htm).
RAF_c - Relative Absorption Factor for Cancer Effects	chemical specific	dimensionless	Pathway specific - see Table CW-5.
RAF_{nc} - Relative Absorption Factor for Noncancer Effects	chemical specific	dimensionless	Pathway specific - see Table CW-5.
EF - Exposure Frequency	0.714	event/day	5 events (days) / 7 events (days) in a week; MADEP 1995 Guidance for Disposal Site Risk Characterization pg B-38.
$EF_{cyanide}$ - Exposure Frequency for Cyanide Exposures	1.00	event/day	MADEP. 1995. Guidance for Disposal Site Risk Characterization. Page 5-5.
$ED_{ing,derm}$ - Exposure Duration for ingestion or dermal exposure	1	day/event	
ED_{inh} - Exposure Duration for inhalation exposure	0.333	day/event	Represents 8 hours / event.
EP - Exposure Period	182	days	6 months; MADEP 1995 Guidance for Disposal Site Risk Characterization.
$EP_{cyanide}$ - Exposure period for cyanide exposure	1	day	MADEP. 1995. Guidance for Disposal Site Risk Characterization. Page 5-5.
BW - Body Weight	58.0	kg	U.S. EPA. 1997. Exposure Factors Handbook. Table 7-7, Females, ages 18 - 25.
$AP_{(lifetime)}$ - Averaging Period for lifetime	25,550	days	Represents 70 years
$AP_{(noncancer)}$ - Averaging Period for noncancer	182	days	6 months; MADEP 1995 Guidance for Disposal Site Risk Characterization.
$AP_{cyanide}$ - Averaging period for assessing cyanide exposure	1	day	MADEP. 1995. Guidance for Disposal Site Risk Characterization. Page 5-5.
AF - Adherence Factor	0.29	mg/cm^2	MA DEP. 2002 Technical Update: Weighted Skin-Soil Adherence Factors. (http://www.mass.gov/dep/ors/orspubs.htm)
VR_{work} - Ventilation Rate during work (heavy exertion)	60	L/min	Table B-4 MADEP 1995 Guidance for Disposal Site Risk Characterization.
SA - Surface Area	3473	cm^2/day	MADEP. 1995. Guidance for Disposal Site Risk Characterization. 50th percentile for females. Appendix Table B-2.
$RCAF_{inh\text{-}gi}$ - Relative Concentration Adjustment Factor, gastrointestinal	1.5	dimensionless	MADEP 2007. Characterization of Risks Due to Inhalation of Particulates by Construction Workers
$RCAF_{inh}$ - Relative Concentration Adjustment Factor, inhalation	0.5	dimensionless	MADEP 2002. Characterization of Risks Due to Inhalation of Particulates by Construction Workers
PM10 - Concentration of PM_{10}	60	$\mu g/m^3$	MADEP 1995 Guidance for Disposal Site Risk Characterization pg B-11

Construction Worker - Soil: Table CW-5
Chemical-Specific Data

Vlookup Version v0808

Oil or Hazardous Material	Oral CSF $(mg/kg\text{-}day)^{-1}$	$RAF_{c\text{-}ing}$	$RAF_{c\text{-}derm}$	$RAF_{c\text{-}inh}$	Inhalation CSF $(mg/kg\text{-}day)^{-1}$	Subchronic Oral RfD mg/kg-day	Subchronic $RAF_{nc\text{-}ing}$	Subchronic $RAF_{nc\text{-}derm}$	Subchronic $RAF_{nc\text{-}inh}$	Subchronic Inhalation RfD
Aliphatics C5 to C8						4.0E-01	1	1	1	5.7E-02
Aliphatics C9 to C12						1.0E+00	1	0.5	1	1.7E-01
Aromatics C9 to C10						3.0E-01	1	0.5	1	1.4E-01
Toluene						8.0E-01	1	0.12	1	1.4E+00
Ethylbenzene						1.0E+00	1	0.2	1	2.9E-01
Xylenes (mixed isomers)						2.0E-01	1	0.12	1	8.6E-02
Naphthalene						2.0E-01	0.36	0.1	1	8.6E-04
Naphthalene						2.0E-01	0.36	0.1	1	8.6E-04
Methylnaphthalene, 2-						4.0E-03	0.36	0.1	1	1.4E-01
Aliphatics C9 to C18						1.0E+00	1	0.5	1	1.7E-01
Aliphatics C19 to C36						6.0E+00	1	0.1		
Aromatics C11 to C22						3.0E-01	0.36	0.1	1	1.4E-01
Butylbenzene, tert-						3.0E-01	1	0.5	1	1.4E-01
Butylbenzene, n-						3.0E-01	1	0.5	1	1.4E-01
Butylbenzene, sec-						3.0E-01	1	0.5	1	1.4E-01
Dichlorobenzene, 1,2- (o-DCB)						9.0E-01	1	0.1	1	5.7E-02
Dichlorobenzene, 1,4- (p-DCB)	2.4E-02	1	0.1	1	2.4E-02	9.0E-01	1	0.1	1	6.9E-01
Dichloroethane, 1,1-						1.0E+00	1.3	0.13	1	1.4E+00
Dichloroethylene, 1,1-						5.0E-02	1	0.1	1	5.7E-02
Dichloroethylene, trans-1,2-						2.0E-01	1	0.1	1	2.0E-01
Dichloroethylene, cis-1,2-						1.0E-01	1	0.1	1	1.0E-02
Ethylbenzene						1.0E+00	1	0.2	1	2.9E-01
Hexachlorobutadiene	7.8E-02	1	0.2	1	7.7E-02	2.0E-03	1	0.2	1	2.0E-04
Isopropylbenzene						3.0E-01	1	0.5	1	1.4E-01
Isopropyltoluene, p-						3.0E-01	1	0.5	1	1.4E-01
Dichloromethane	7.5E-03	1	0.1	1	1.6E-03	6.0E-02	1	0.1	1	8.6E-01
Naphthalene						2.0E-01	0.36	0.1	1	8.6E-04
Propylbenzene, n-						3.0E-01	1	0.5	1	1.4E-01
Tetrachloroethylene	5.1E-02	1	0.1	1	3.5E-02	1.0E-01	1	0.1	1	1.3E+00
Toluene						8.0E-01	1	0.12	1	1.4E+00
Trichloroethane, 1,1,1-						9.0E-01	1	0.1	1	1.5E+00
Trichloroethylene	1.1E-02	1	0.1	1	6.0E-03	2.0E-02	1	0.1	1	5.1E-02
Trichlorofluoromethane						7.0E-01	0.99	0.11	1	2.0E-01
Trichlorotrifluoroethane, 1,1,2-						3.0E+00	1.08791209	0.12087912	1	8.6E+00
Trimethylbenzene, 1,2,4-						3.0E-01	1	0.5	1	1.4E-01
Trimethylbenzene, 1,3,5-						3.0E-01	1	0.5	1	1.4E-01
Vinyl chloride	1.4E+00	1.53	0.16	1	3.1E-02	3.0E-03	1	0.1	1	2.9E-02
Xylenes (mixed isomers)						2.0E-01	1	0.12	1	8.6E-02

Construction Worker - Soil: Table CW-5
Chemical-Specific Data

Vlookup Version v0808

Oil or Hazardous Material	Oral CSF $(mg/kg\text{-}day)^{-1}$	$RAF_{c\text{-}ing}$	$RAF_{c\text{-}derm}$	$RAF_{c\text{-}inh}$	Inhalation CSF $(mg/kg\text{-}day)^{-1}$	Subchronic Oral RfD mg/kg-day	Subchronic $RAF_{nc\text{-}ing}$	Subchronic $RAF_{nc\text{-}derm}$	Subchronic $RAF_{nc\text{-}inh}$	Subchronic Inhalation RfD
Naphthalene						2.0E-01	0.36	0.1	1	8.6E-04
Bis(2-ethylhexyl)phthalate	1.4E-02	1	0.02	1	4.6E-03	2.0E-02	1	0.02	1	2.0E-03
Methylnaphthalene, 2-						4.0E-03	0.36	0.1	1	1.4E-01
Dichlorobenzene, 1,2- (o-DCB)						9.0E-01	1	0.1	1	5.7E-02

Exposure point: Soil on the southeast portion of the GCC property and northern CSX property

Method 3 Risk Assessment for Resident Exposed to Chemicals in Soil - Shortform 2006 (sf06rs)

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cNC Eq	Table RS-3: Equations to calculate chronic noncancer risks.
scNC Eq	Table RS-4: Equations to calculate subchronic noncancer risks.
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Produce	Table RS-6: Equations to calculate produce ingestion rate.
Chem	Table RS-7: Chemical-specific data.

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Resident - Soil: Table RS-1
Exposure Point Concentration (EPC)
Based on Resident Ages 1-31 (Cancer), 1-8 (Chronic Noncancer), and 1-2 (Subchronic Noncancer)

ShortForm Version 4-06

Vlookup Version v0808

ELCR (all chemicals) = 5E-06
Chronic HI (all chemicals) = 4E-01
Subchronic HI (all chemicals) = 1E-01

****Do not insert or delete any rows****

Click on empty cell below and select OHM using arrow.

Oil or Hazardous Material	EPC (mg/kg)	$ELCR_{ingestion}$	$ELCR_{dermal}$	$ELCR_{vegetable}$	$ELCR_{total}$	Chronic HQ_{ing}	Chronic HQ_{derm}	Chronic $HQ_{vegetable}$	HQ_{total}	Subchronic HQ_{ing}	Subchronic HQ_{derm}	Subchronic $HQ_{vegetable}$	HQ_{total}
Aliphatics C5 to C8	7.9E+01					4.8E-03	4.1E-02		4.6E-02	1.3E-03	7.7E-03		9.0E-03
Aliphatics C9 to C12	8.2E+01					2.0E-03	8.5E-03		1.0E-02	5.5E-04	1.6E-03		2.1E-03
Aromatics C9 to C10	9.4E+01					7.6E-03	3.2E-02		4.0E-02	2.1E-03	6.1E-03		8.2E-03
Toluene	9.1E-01					2.8E-05	2.8E-05		5.6E-05	7.6E-06	5.3E-06		1.3E-05
Ethylbenzene	1.4E+00					3.4E-05	5.8E-05		9.1E-05	9.3E-06	1.1E-05		2.0E-05
Xylenes (mixed isomers)	4.6E+00					5.6E-05	5.7E-05		1.1E-04	1.5E-04	1.1E-04		2.6E-04
Naphthalene	3.5E+00					1.5E-04	3.6E-04		5.2E-04	4.2E-05	6.9E-05		1.1E-04
Naphthalene	6.4E-01					2.8E-05	6.6E-05		9.4E-05	7.7E-06	1.2E-05		2.0E-05
Methylnaphthalene, 2-	1.4E+00					3.1E-04	7.3E-04		1.0E-03	8.5E-04	1.4E-03		2.2E-03
Aliphatics C9 to C18	3.3E+02					8.1E-03	3.4E-02		4.2E-02	2.2E-03	6.5E-03		8.7E-03
Aliphatics C19 to C36	2.5E+02					3.0E-04	2.6E-04		5.6E-04	2.8E-04	1.6E-04		4.4E-04
Aromatics C11 to C22	8.6E+01					2.5E-03	5.9E-03		8.4E-03	6.9E-04	1.1E-03		1.8E-03
Butylbenzene, tert-													
Butylbenzene, n-	7.3E-01					5.9E-05	2.5E-04		3.1E-04	1.6E-05	4.7E-05		6.3E-05
Butylbenzene, sec-	6.7E-01					5.4E-05	2.3E-04		2.8E-04	1.5E-05	4.3E-05		5.8E-05
Dichlorobenzene, 1,2- (o-DCB)	4.6E-01					1.2E-05	1.1E-05		2.3E-05	3.4E-06	2.0E-06		5.4E-06
Dichlorobenzene, 1,4- (p-DCB)	3.1E-01	2.8E-09	2.9E-09		5.7E-09	8.4E-06	7.2E-06		1.6E-05	2.3E-06	1.4E-06		3.7E-06
Dichloroethane, 1,1-	8.5E-01					2.7E-05	2.3E-05		5.0E-05	7.4E-06	4.3E-06		1.2E-05
Dichloroethylene, 1,1-	3.0E-01					1.5E-05	1.2E-05		2.7E-05	4.0E-05	2.4E-05		6.4E-05
Dichloroethylene, trans-1,2-	2.9E-01					3.5E-05	3.0E-05		6.5E-05	9.7E-06	5.7E-06		1.5E-05
Dichloroethylene, cis-1,2-	8.0E+00					1.9E-03	1.6E-03		3.6E-03	5.3E-04	3.1E-04		8.4E-04
Ethylbenzene	1.3E+00					3.2E-05	5.4E-05		8.6E-05	8.8E-06	1.0E-05		1.9E-05
Hexachlorobutadiene	2.8E-01	8.1E-09	1.7E-08		2.5E-08	3.4E-03	5.7E-03		9.1E-03	9.2E-04	1.1E-03		2.0E-03
Isopropylbenzene	5.4E-01					4.4E-05	1.9E-04		2.3E-04	1.2E-05	3.5E-05		4.7E-05
Isopropyltoluene, p-	8.5E-01					6.9E-05	2.9E-04		3.6E-04	1.9E-05	5.6E-05		7.5E-05
Dichloromethane	5.9E-01	1.7E-09	1.7E-09		3.4E-09	2.4E-05	2.0E-05		4.4E-05	6.6E-05	3.9E-05		1.0E-04
Naphthalene	1.9E+00					8.3E-05	2.0E-04		2.8E-04	2.3E-05	3.7E-05		6.0E-05
Propylbenzene, n-	8.1E-01					6.6E-05	2.8E-04		3.4E-04	1.8E-05	5.3E-05		7.1E-05
Tetrachloroethylene	9.7E+01	1.8E-06	1.9E-06		3.8E-06	2.3E-02	2.0E-02		4.3E-02	6.4E-03	3.8E-03		1.0E-02
Toluene	1.2E+00					3.7E-05	3.7E-05		7.4E-05	1.0E-05	7.1E-06		1.7E-05
Trichloroethane, 1,1,1-	2.4E+01					6.5E-04	5.5E-04		1.2E-03	1.8E-04	1.0E-04		2.8E-04
Trichloroethylene	1.0E+02	4.1E-07	4.2E-07		8.3E-07	1.2E-01	1.0E-01		2.2E-01	3.3E-02	1.9E-02		5.3E-02
Trichlorofluoromethane	5.3E-01					4.2E-06	4.0E-06		8.2E-06	5.0E-06	3.2E-06		8.2E-06
Trichlorotrifluoroethane, 1,1,2-	1.1E+00					1.0E-07	9.4E-08		1.9E-07	2.7E-06	1.8E-06		4.5E-06
Trimethylbenzene, 1,2,4-	5.9E+00					4.7E-04	2.0E-03		2.5E-03	1.3E-04	3.8E-04		5.1E-04
Trimethylbenzene, 1,3,5-	2.5E+00					2.0E-04	8.5E-04		1.0E-03	5.5E-05	1.6E-04		2.1E-04
Vinyl chloride	4.6E-01	3.7E-07	4.0E-07		7.7E-07	3.7E-04	3.2E-04		6.9E-04	1.0E-03	6.0E-04		1.6E-03

Resident - Soil: Table RS-1
Exposure Point Concentration (EPC)

ShortForm Version 4-06

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Xylenes (mixed isomers)	1.0E+01				1.2E-04	1.3E-04	2.5E-04	3.4E-04	2.4E-04	5.8E-04
Naphthalene										
Bis(2-ethylhexyl)phthalate	2.8E-01	1.5E-09	3.1E-10	1.8E-09	3.4E-05	5.8E-06	4.0E-05	9.4E-05	1.1E-05	1.1E-04
Methylnaphthalene, 2-	3.4E-01				7.4E-05	1.7E-04	2.5E-04	2.0E-04	3.3E-04	5.3E-04
Dichlorobenzene, 1,2- (o-DCB)	2.4E-01				6.4E-06	5.4E-06	1.2E-05	1.8E-06	1.0E-06	2.8E-06

Resident - Soil: Table RS-2
Equations to Calculate Cancer Risk for Resident (Age 1-31 years)

Vlookup Version v0808

Cancer Risk from Ingestion

$$ELCR_{ing} = LADD_{ing(1-31)} * CSF$$

$$LADD_{ing\ (1-31)} = LADD_{ing\ (1-8)} + LADD_{ing\ (8-15)} + LADD_{ing\ (15-31)}$$

$$LADD_{ing\ (age\ group\ x)} = \frac{[OHM]_{soil} * IR_x * RAF_{c-ing} * EF_{ing} * ED * EP_x * C}{BW_x * AP_{lifetime}}$$

Cancer Risk from Dermal Absorption

$$ELCR_{derm} = LADD_{derm} * CSF$$

$$LADD_{derm\ (1-31)} = LADD_{derm\ (1-8)} + LADD_{derm\ (8-15)} + LADD_{derm\ (15-31)}$$

$$LADD_{derm(age\ group\ x)} = \frac{[OHM]_{soil} * SA_x * RAF_{c-derm} * SAF_x * EF_{derm} * ED * EP_x * C}{BW_x * AP_{lifetime}}$$

Cancer Risk from Homegrown Produce

$$ELCR_{produce} = LADD_{produce(1-31)} * CSF$$

$$LADD_{produce(1-31)} = LADD_{produce(1-8)} + LADD_{produce(8-15)} + LADD_{produce(15-31)}$$

$$LADD_{produce(age\ x)} = \frac{[OHM_{soil}] * PUF * PIR_x * RAF_{produce} * EF_{produce} * ED * EP_x * C}{BW_x * AP_{lifetime}}$$

Parameter	Value	Units
CSF	OHM specific	$(mg/kg\text{-}day)^{-1}$
LADD	age/OHM specific	mg/kg-day
$[OHM]_{soil}$	OHM specific	mg/kg
$IR_{(1-8)}$	100	mg/day
$IR_{(8-15)}$	50	mg/day
$IR_{(15-31)}$	50	mg/day
$PIR_{(1-8)}$	12,099	mg/day
$PIR_{(8-15)}$	17,809	mg/day
$PIR_{(15-31)}$	24,420	mg/day
RAF_{c-ing}	OHM specific	dimensionless
RAF_{c-derm}	OHM specific	dimensionless
$RAF_{c-produce}$	OHM specific	dimensionless
$EF_{ing,derm}$	0.412	event/day
$EF_{produce}$	1.00	event/day
ED	1	day/event
$EP_{(1-8)}$	7	years
$EP_{(8-15)}$	7	years
$EP_{(15-31)}$	16	years
C	0.000001	kg/mg
$BW_{(1-8)}$	17.0	kg
$BW_{(8-16)}$	39.9	kg
$BW_{(16-31)}$	58.7	kg
$AP_{(lifetime)}$	70	years
$SA_{(1-8)}$	2431	cm^2 / day
$SA_{(8-15)}$	4427	cm^2 / day
$SA_{(15-31)}$	5653	cm^2 / day
$SAF_{(1-8)}$	0.35	mg/cm^2
$SAF_{(8-15)}$	0.14	mg/cm^2
$SAF_{(15-31)}$	0.13	mg/cm^2
PUF	OHM specific	$(mg/mg)(mg/mg)^{-1}$

Resident - Soil: Table RS-3
Equations to Calculate Chronic Noncancer Risk for Resident Child (Age 1-8 years)

Vlookup Version v0808

Chronic Noncancer Risk from Ingestion

$$HQ_{ing} = \frac{ADD_{ing}}{RfD}$$

$$ADD_{ing} = \frac{[OHM]_{soil} * IR * RAF_{nc\text{-}ing} * EF_{ing} * ED * EP * C}{BW * AP}$$

Chronic Noncancer Risk from Dermal Absorption

$$HQ_{derm} = \frac{ADD_{ing,derm}}{RfD}$$

$$ADD_{derm} = \frac{[OHM]_{soil} * SA * RAF_{nc\text{-}derm} * SAF * EF_{derm} * ED * EP * C}{BW * AP}$$

Chronic Noncancer Risk from Homegrown Produce

$$HQ_{produce} = \frac{ADD_{produce}}{RfD}$$

$$ADD_{produce} = \frac{[OHM_{soil}] * PUF * PIR * RAF_{produce} * EF_{produce} * ED * EP * C}{BW * AP}$$

Parameter	Value	Units
RfD	OHM specific	mg/kg-day
ADD	OHM specific	mg/kg-day
$[OHM]_{soil}$	OHM specific	mg/kg
IR	100	mg/day
PIR	12,099	mg/day
$RAF_{nc\text{-}ing}$	OHM specific	dimensionless
$RAF_{nc\text{-}derm}$	OHM specific	dimensionless
$RAF_{nc\text{-}produce}$	OHM specific	dimensionless
$EF_{ing,derm}$	0.412	event/day
$EF_{produce}$	1.00	event/day
$EF_{cyanide}$	1.00	event/day
ED	1	day/event
EP	7	years
$EP_{cyanide}$	1	day
C	0.000001	kg/mg
BW	17.0	kg
AP	7	year
$AP_{cyanide}$	1	day
SA	2431	cm^2 / day
SAF	0.35	mg/cm^2
PUF	OHM specific	$(mg/mg)(mg/mg)^{-1}$

Cyanide can cause a significant health risk from one-time exposure to concentrations that are often found in the environment. As such, risk is calculated for a single exposure. Thus, for cyanide, the exposure frequency (EF) is 1 event/day, while both the exposure period (EP) and averaging period (AP) are 1 day.

Resident - Soil: Table RS-4
Equations to Calculate Subchronic Noncancer Risk for Resident Child (Age 1-2 years)

Vlookup Version v0808

Subchronic Noncancer Risk from Ingestion

$$HQ_{ing} = \frac{ADD_{ing}}{RfD_{subchronic}}$$

$$ADD_{ing} = \frac{[OHM]_{soil} * IR * RAF_{nc\text{-}ing} * EF_{ing} * ED * EP * C}{BW * AP}$$

Subchronic Noncancer Risk from Dermal Absorption

$$HQ_{derm} = \frac{ADD_{derm}}{RfD_{subchronic}}$$

$$ADD_{derm} = \frac{[OHM]_{soil} * SA * RAF_{nc\text{-}derm} * SAF * EF_{derm} * ED * EP * C}{BW * AP}$$

Subchronic Noncancer Risk from Homegrown Produce

$$HQ_{produce} = \frac{ADD_{produce}}{RfD_{subchronic}}$$

$$ADD_{produce} = \frac{[OHM_{soil}] * PUF * PIR * RAF_{produce} * EF_{produce} * ED * EP * C}{BW * AP}$$

Parameter	Value	Units
RfD	OHM specific	mg/kg-day
ADD	OHM specific	mg/kg-day
$[OHM]_{soil}$	OHM specific	mg/kg
IR	100	mg/day
PIR	10,900	mg/day
$RAF_{nc\text{-}ing}$	OHM specific	dimensionless
$RAF_{nc\text{-}derm}$	OHM specific	dimensionless
$RAF_{nc\text{-}produce}$	OHM specific	dimensionless
$EF_{ing,derm}$	0.714	event/day
$EF_{produce}$	1.00	event/day
$EF_{cyanide}$	1.00	event/day
ED	1	day/event
$EP_{cyanide}$	1	day
EP	0.577	years
C	0.000001	kg/mg
BW	10.7	kg
AP	0.577	year
$AP_{cyanide}$	1	day
SA	1670	cm^2 / day
SAF	0.35	mg/cm^2
PUF	OHM specific	$(mg/mg)(mg/mg)^{-1}$

Cyanide can cause a significant health risk from one-time exposure to concentrations that are often found in the environment. As such, risk is calculated for a single exposure. Thus, for cyanide, the exposure frequency (EF) is 1 event/day, while both the exposure period (EP) and averaging period (AP) are 1 day.

Resident - Soil: Table RS-5
Definitions and Exposure Factors

Vlookup Version v0808

Parameter	Value	Units	Notes
ELCR - Excess Lifetime Cancer Risk	chemical specific	dimensionless	Pathway specific (ing =ingestion, derm=dermal, inh=inhalation)
CSF - Cancer Slope Factor	chemical specific	$(mg/kg\text{-}day)^{-1}$	see Table RS-7
LADD - Lifetime Average Daily Dose	chemical specific	mg/kg-day	Pathway specific
LADE - Lifetime Average Daily Exposure	chemical specific	$\mu g/m^3$	
HQ - Hazard Quotient	chemical specific	dimensionless	Pathway specific (ing =ingestion, derm=dermal, inh=inhalation)
RfD - Reference Dose	chemical specific	mg/kg-day	see Table RS-7
ADD - Average Daily Dose	chemical specific	mg/kg-day	Pathway specific
ADE - Average Daily Exposure	chemical specific	mg/m^3	
EPC - Exposure Point Concentration	chemical specific	mg/kg	
PUF - Plant Uptake Factor	chemical specific	$(mg/mg)(mg/mg)^{-1}$	See Table RS-7; $(mg_{OHM}/mg_{plant})/(mg_{OHM}/mg_{soil})^{-1}$
$IR_{(1-2)}$ - Soil Ingestion Rate for age group 1-2	100	mg/day	MADEP. 2002. Technical Update: Calculation of an Enhanced Soil Ingestion Rate. (http://www.mass.gov/dep/ors/orspubs.htm)
$IR_{(1-8)}$ - Soil Ingestion Rate for age group 1-8	100	mg/day	Ibid
$IR_{(8-15)}$ - Soil Ingestion Rate for age group 8-15	50	mg/day	Ibid
$IR_{(15-31)}$ - Soil Ingestion Rate for age group 15-31	50	mg/day	Ibid
$PIR_{(1-2)}$ = Produce Ingestion Rate for age group 1-2	10,900	mg/day	see Table RS-6
$PIR_{(1-8)}$ = Produce Ingestion Rate for age group 1-8	12,099	mg/day	see Table RS-6
$PIR_{(8-15)}$ = Produce Ingestion Rate for age group 8-15	17,809	mg/day	Ibid
$PIR_{(15-31)}$ = Produce Ingestion Rate for age group 15-31	24,420	mg/day	Ibid
RAF_c - Relative Absorption Factor for Cancer Effects	chemical specific	dimensionless	
$EF_{subchronic}$ - Exposure Frequency for subchronic ingestion or dermal exposure	0.714	event/day	5 days/week
$EF_{chronic}$ - Exposure Frequency for chronic ingestion or dermal exposure	0.412	event/day	5 days/week, 30 weeks/year
EF_{cancer} - Exposure Frequency for cancer, ingestion or dermal exposure	0.412	event/day	5 days/week, 30 weeks/year
$EF_{produce}$ - Exposure Frequency for produce ingestion, cancer and noncancer	1.00	event/day	
$EF_{cyanide}$ - Exposure Frequency for subchronic and chronic non-cancer cyanide	1.00	event/day	
ED - Exposure Duration	1	day/event	
$EP_{(1-2)}$ - Exposure Period for age group 1-2	0.577	years	30 weeks
$EP_{(1-8)}$ - Exposure Period for age group 1-8	7	years	
$EP_{(8-15)}$ - Exposure Period for age group 8-15	7	years	
$EP_{(15-31)}$ - Exposure Period for age group 15-31	16	years	
$EP_{cyanide}$ - Exposure period for cyanide exposure	1	day	MADEP. 1995. Guidance for Disposal Site Risk Characterization. Page 5-5.
$BW_{(1-2)}$ - Body Weight for age group 1-2	10.7	kg	U.S. EPA. 1997. Exposure Factors Handbook. Table 7-7, females.
$BW_{(1-8)}$ - Body Weight for age group 1-8	17.0	kg	Ibid
$BW_{(8-15)}$ - Body Weight for age group 8-15	39.9	kg	Ibid
$BW_{(15-31)}$ - Body Weight for age group 15-31	58.7	kg	Ibid
$AP_{subchronic}$ - Averaging Period for subchronic noncancer	0.577	years	30 weeks
$AP_{chronic}$ - Averaging Period for chronic noncancer	7	years	
AP_{cancer} - Averaging Period for lifetime	70	years	
$AP_{cyanide}$ - Averaging period for assessing cyanide exposure	1	day	MADEP. 1995. Guidance for Disposal Site Risk Characterization. Page 5-5.
$SA_{(1-2)}$ - Surface Area for age group 1-2	1670	cm^2 / day	50th percentile of face (1/3 head), forearms, hands, lower legs, and feet for females MADEP. 1995. Guidance for Disposal Site Risk Characterization. Appendix Table B-2.
$SA_{(1-8)}$ - Surface Area for age group 1-8	2431	cm^2 / day	Ibid
$SA_{(8-15)}$ - Surface Area for age group 8-15	4427	cm^2 / day	Ibid
$SA_{(15-31)}$ - Surface Area for age group 15-31	5653	cm^2 / day	Ibid
$SAF_{(1-2)}$ - Surface Adherence Factor for age group 1-2	0.35	mg/cm^2	All SAFs developed for ShortForm according to procedure outlined in MA DEP Technical Update: Weighted Skin-Soil Adherence Factors, April 2002
$SAF_{(1-8)}$ - Surface Adherence Factor for age group 1-8	0.35	mg/cm^2	
$SAF_{(8-15)}$ - Surface Adherence Factor for age group 8-15	0.14	mg/cm^2	
$SAF_{(15-31)}$ - Surface Adherence Factor for age group 15-31	0.13	mg/cm^2	

Resident - Soil: Table RS-6
Homegrown Produce Ingestion Rate

Vlookup Version v0808

Data on mean produce ingestion rates (wet weight, ww) in the Northeast was obtained from the 1994-1996 Continuing Survey of Food Intakes by Individuals (USDA). Data for both genders were used for children under 6, while data for males was used for individuals 6 and older. The mean ingestion rates presented in the survey represent the arithmetic average of all individuals surveyed, regardless of whether or not they had consumed the produce item (e.g., an individual that did not consume the produce item was assigned a rate of 0 g/day). To determine the mean ingestion rate for individuals who ate each produce item, the ingestion rate for all individuals (consumers and nonconsumers) was divided by the percentage of individuals who ate the item (Table RS-6A). These mean ingestion rates for the produce consumers were summed to determine the total produce ingestion rate for each age-group and converted to dry weight assuming the produce items were all 90% water.

To convert mean ingestion rates for the age-groups studied in the survey to age-groups used in risk calculations, each age-group ingestion rate from the survey (i.e., 1 - 2 year olds, 3 - 5 year olds, 6 - 11 year olds, 12 - 19 year olds, and 20 - 39 year olds) was weighted according to the number of years spent in the risk calculation age group (i.e., 1 - 8 year olds, 8 - 15 year olds, and 15 - 31 year olds) (Table RS-6B). It was assumed that 25% of produce ingested was home-grown (Table RS-6C).

Table RS-6A

	White Potatoes			Dark-green vegetables			Deep-yellow vegetables		
Age-groups studied in survey	Ingestion Rate for All g/d (ww)	% of individuals that consumed item.	Ingestion Rate for Consumers g/d (ww)	Ingestion Rate for All g/d (ww)	% of individuals that consumed item.	Ingestion Rate for Consumers g/d (ww)	Ingestion Rate for All g/d (ww)	% of individuals that consumed item.	Ingestion Rate for Consumers g/d (ww)
1-2	28	40.3	69.5	6	10.1	59.4	5	12.7	39.4
3-5	30	37.1	80.9	5	6.5	76.9	7	12.7	55.1
6-11	47	44.2	106.3	6	9.1	65.9	2	8.5	23.5
12-19	59	40.3	146.4	2	2.3	87.0	11	15.8	69.6
20-39	76	45.1	168.5	25	14.7	170.1	4	5.7	70.2

	Tomatoes			Lettuce			Green Beans		
Age-groups studied in survey	Ingestion Rate for All g/d (ww)	% of individuals that consumed item.	Ingestion Rate for Consumers g/d (ww)	Ingestion Rate for All g/d (ww)	% of individuals that consumed item.	Ingestion Rate for Consumers g/d (ww)	Ingestion Rate for All g/d (ww)	% of individuals that consumed item.	Ingestion Rate for Consumers g/d (ww)
1-2	10	27.9	35.8	1	6	16.7	7	12.1	57.9
3-5	10	37.1	27.0	4	14	28.6	3	5.7	52.6
6-11	20	42	47.6	8	14.9	53.7	1	2	50.0
12-19	29	45.2	64.2	19	28.7	66.2	2	2.4	83.3
20-39	48	50.9	94.3	18	29.6	60.8	4	3.7	108.1

Table RS-6A (continued)

Age-groups studied in survey	Corn, Green peas, Lima beans: Ingestion Rate for All g/d (ww)	% of individuals that consumed item.	Ingestion Rate for Consumers g/d (ww)	Melons, berries: Ingestion Rate for All g/d (ww)	% of individuals that consumed item.	Ingestion Rate for Consumers g/d (ww)	Totals Wet Weight WWI g/day	Totals Dry Weight DWI g/day
1-2	12	15	80.0	7	9	77.8	436.4	43.6
3-5	14	21.7	64.5	14	11.6	120.7	506.3	50.6
6-11	9	13.6	66.2	5	5.9	84.7	498.0	49.8
12-19	14	9.9	141.4	17	5	340.0	998.1	99.8
20-39	12	7.3	164.4	6	4.5	133.3	969.7	97.0

Table RS-6B

Age-groups studied in survey	Years spent in age-group for 1-8 year old	Years spent in age-group for 8-15 year old	Years spent in age-group for 15-31 year old
1-2	2		
3-5	3		
6-11	2	4	
12-19		3	4
20-39			12
	7	7	16

Table RS-6C

	Produce Intake, dry weight			
	Child 1-2 years g/day	Child 1-8 years g/day	Child 8-15 years g/day	Adult 15-31 g/day
All Produce:	43.6	48.4	71.2	97.7
Homegrown:	10.9	12.1	17.8	24.4

Resident - Soil: Table RS-7
Chemical-Specific Data

Vlookup Version v0808

Oil or Hazardous Material	CSF $(mg/kg\text{-}day)^{-1}$	$RAF_{c\text{-}ing}$	$RAF_{c\text{-}derm}$	$RAF_{c\text{-}prod}$	Chronic RfD mg/kg-day	Subchronic RfD mg/kg-day	Chronic $RAF_{nc\text{-}ing}$	Chronic $RAF_{nc\text{-}derm}$	Subchronic $RAF_{nc\text{-}ing}$	Subchronic $RAF_{nc\text{-}derm}$	$RAF_{nc\text{-}prod}$	PUF
Aliphatics C5 to C8					4.0E-02	4.0E-01	1	1	1	1		
Aliphatics C9 to C12					1.0E-01	1.0E+00	1	0.5	1	0.5		
Aromatics C9 to C10					3.0E-02	3.0E-01	1	0.5	1	0.5		
Toluene					8.0E-02	8.0E-01	1	0.12	1	0.12		
Ethylbenzene					1.0E-01	1.0E+00	1	0.2	1	0.2		
Xylenes (mixed isomers)					2.0E-01	2.0E-01	1	0.12	1	0.12		
Naphthalene					2.0E-02	2.0E-01	0.36	0.1	0.36	0.1		
Naphthalene					2.0E-02	2.0E-01	0.36	0.1	0.36	0.1		
Methylnaphthalene, 2-					4.0E-03	4.0E-03	0.36	0.1	0.36	0.1		
Aliphatics C9 to C18					1.0E-01	1.0E+00	1	0.5	1	0.5		
Aliphatics C19 to C36					2.0E+00	6.0E+00	1	0.1	1	0.1		
Aromatics C11 to C22					3.0E-02	3.0E-01	0.36	0.1	0.36	0.1		
Butylbenzene, tert-					3.0E-02	3.0E-01	1	0.5	1	0.5	#N/A	#N/A
Butylbenzene, n-					3.0E-02	3.0E-01	1	0.5	1	0.5	#N/A	#N/A
Butylbenzene, sec-					3.0E-02	3.0E-01	1	0.5	1	0.5	#N/A	#N/A
Dichlorobenzene, 1,2- (o-I					9.0E-02	9.0E-01	1	0.1	1	0.1		
Dichlorobenzene, 1,4- (p-I	2.4E-02	1.00	0.10		9.0E-02	9.0E-01	1	0.1	1	0.1		
Dichloroethane, 1,1-					1.0E-01	1.0E+00	1.3	0.13	1.3	0.13		
Dichloroethylene, 1,1-					5.0E-02	5.0E-02	1	0.1	1	0.1		
Dichloroethylene, trans-1,2					2.0E-02	2.0E-01	1	0.1	1	0.1		
Dichloroethylene, cis-1,2-					1.0E-02	1.0E-01	1	0.1	1	0.1		
Ethylbenzene					1.0E-01	1.0E+00	1	0.2	1	0.2		
Hexachlorobutadiene	7.8E-02	1.00	0.20		2.0E-04	2.0E-03	1	0.2	1	0.2		
Isopropylbenzene					3.0E-02	3.0E-01	1	0.5	1	0.5	#N/A	#N/A
Isopropyltoluene, p-					3.0E-02	3.0E-01	1	0.5	1	0.5	#N/A	#N/A
Dichloromethane	7.5E-03	1.00	0.10		6.0E-02	6.0E-02	1	0.1	1	0.1		
Naphthalene					2.0E-02	2.0E-01	0.36	0.1	0.36	0.1		
Propylbenzene, n-					3.0E-02	3.0E-01	1	0.5	1	0.5	#N/A	#N/A
Tetrachloroethylene	5.1E-02	1.00	0.10		1.0E-02	1.0E-01	1	0.1	1	0.1		
Toluene					8.0E-02	8.0E-01	1	0.12	1	0.12		
Trichloroethane, 1,1,1-					9.0E-02	9.0E-01	1	0.1	1	0.1		
Trichloroethylene	1.1E-02	1.00	0.10		2.0E-03	2.0E-02	1	0.1	1	0.1		
Trichlorofluoromethane					3.0E-01	7.0E-01	0.99	0.11	0.99	0.11	#N/A	#N/A
Trichlorotrifluoroethane, 1,					3.0E+01	3.0E+00	1.087912	0.12087912	1.087912088	0.120879121	#N/A	#N/A
Trimethylbenzene, 1,2,4-					3.0E-02	3.0E-01	1	0.5	1	0.5	#N/A	#N/A
Trimethylbenzene, 1,3,5-					3.0E-02	3.0E-01	1	0.5	1	0.5	#N/A	#N/A
Vinyl chloride	1.4E+00	1.53	0.16		3.0E-03	3.0E-03	1	0.1	1	0.1		
Xylenes (mixed isomers)					2.0E-01	2.0E-01	1	0.12	1	0.12		

Resident - Soil: Table RS-7
Chemical-Specific Data

Vlookup Version v0808

Oil or Hazardous Material	CSF $(mg/kg\text{-}day)^{-1}$	$RAF_{c\text{-}ing}$	$RAF_{c\text{-}derm}$	$RAF_{c\text{-}prod}$	Chronic RfD mg/kg-day	Subchronic RfD mg/kg-day	Chronic $RAF_{nc\text{-}ing}$	Chronic $RAF_{nc\text{-}derm}$	Subchronic $RAF_{nc\text{-}ing}$	Subchronic $RAF_{nc\text{-}derm}$	$RAF_{nc\text{-}prod}$	PUF
Naphthalene					2.0E-02	2.0E-01	0.36	0.1	0.36	0.1		
Bis(2-ethylhexyl)phthalate	1.4E-02	1.00	0.02		2.0E-02	2.0E-02	1	0.02	1	0.02		
Methylnaphthalene, 2-					4.0E-03	4.0E-03	0.36	0.1	0.36	0.1		
Dichlorobenzene, 1,2- (o-I					9.0E-02	9.0E-01	1	0.1	1	0.1		

Exposure point: MW-15 Petroleum Hydrocarbons Hot Spot

Method 3 Risk Assessment for Resident Exposed to Chemicals in Soil - Shortform 2006 (sf06rs)

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Exp	Table RS-5: Definitions and exposure factors.
Produce	Table RS-6: Equations to calculate produce ingestion rate.
Chem	Table RS-7: Chemical-specific data.

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Resident - Soil: Table RS-1
Exposure Point Concentration (EPC)
Based on Resident Ages 1-31 (Cancer), 1-8 (Chronic Noncancer), and 1-2 (Subchronic Noncancer)

ShortForm Version 4-06

Vlookup Version v0808

ELCR (all chemicals) =

Chronic HI (all chemicals) = 2E+00

Subchronic HI (all chemicals) = 5E-01

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Click on empty cell below and select OHM using arrow.

Oil or Hazardous Material	EPC (mg/kg)	$ELCR_{ingestion}$	$ELCR_{dermal}$	$ELCR_{vegetable}$	$ELCR_{total}$	Chronic HQ_{ing}	Chronic HQ_{derm}	Chronic $HQ_{vegetable}$	HQ_{total}	Subchronic HQ_{ing}	Subchronic HQ_{derm}	Subchronic $HQ_{vegetable}$	HQ_{total}
Aliphatics C5 to C8	2.0E+02					1.2E-02	1.0E-01		1.2E-01	3.4E-03	2.0E-02		2.3E-02
Aliphatics C9 to C12	2.1E+03					5.0E-02	2.1E-01		2.6E-01	1.4E-02	4.1E-02		5.4E-02
Aromatics C9 to C10	2.7E+03					2.1E-01	9.1E-01		1.1E+00	5.9E-02	1.7E-01		2.3E-01
Toluene													
Ethylbenzene													
Xylenes (mixed isomers)	7.3E+00					8.9E-05	9.1E-05		1.8E-04	2.4E-04	1.7E-04		4.2E-04
Naphthalene													
Naphthalene	4.1E+00					1.8E-04	4.3E-04		6.1E-04	5.0E-05	8.1E-05		1.3E-04
Methylnaphthalene, 2-													
Aliphatics C9 to C18	3.9E+03					9.5E-02	4.0E-01		5.0E-01	2.6E-02	7.6E-02		1.0E-01
Aliphatics C19 to C36	2.1E+01					2.5E-05	2.1E-05		4.6E-05	2.3E-05	1.3E-05		3.6E-05
Aromatics C11 to C22	5.6E+02					1.6E-02	3.9E-02		5.5E-02	4.5E-03	7.3E-03		1.2E-02
Butylbenzene, tert-	8.7E-01					7.0E-05	3.0E-04		3.7E-04	1.9E-05	5.6E-05		7.6E-05
Butylbenzene, n-	2.6E+01					2.1E-03	9.0E-03		1.1E-02	5.8E-04	1.7E-03		2.3E-03
Butylbenzene, sec-	1.3E+01					1.1E-03	4.6E-03		5.7E-03	3.0E-04	8.7E-04		1.2E-03
Dichlorobenzene, 1,2- (o-DCB)													
Dichlorobenzene, 1,4- (p-DCB)													
Dichloroethane, 1,1-													
Dichloroethylene, 1,1-													
Dichloroethylene, trans-1,2-													
Dichloroethylene, cis-1,2-													
Ethylbenzene	5.7E-01					1.4E-05	2.4E-05		3.7E-05	3.8E-06	4.5E-06		8.3E-06
Hexachlorobutadiene													
Isopropylbenzene	2.6E+00					2.1E-04	8.8E-04		1.1E-03	5.7E-05	1.7E-04		2.2E-04
Isopropyltoluene, p-													
Dichloromethane													
Naphthalene	1.2E+01					5.2E-04	1.2E-03		1.8E-03	1.4E-04	2.3E-04		3.8E-04
Propylbenzene, n-	5.4E+00					4.4E-04	1.9E-03		2.3E-03	1.2E-04	3.5E-04		4.7E-04
Tetrachloroethylene													
Toluene													
Trichloroethane, 1,1,1-	2.0E+00					5.4E-05	4.6E-05		9.9E-05	1.5E-05	8.6E-06		2.3E-05
Trichloroethylene													
Trichlorofluoromethane													
Trichlorotrifluoroethane, 1,1,2-	1.4E+01					1.3E-06	1.2E-06		2.5E-06	3.5E-05	2.3E-05		5.7E-05
Trimethylbenzene, 1,2,4-	4.5E+01					3.7E-03	1.6E-02		1.9E-02	1.0E-03	2.9E-03		3.9E-03
Trimethylbenzene, 1,3,5-	6.3E+00					5.1E-04	2.2E-03		2.7E-03	1.4E-04	4.1E-04		5.5E-04
Vinyl chloride													

Resident - Soil: Table RS-1
Exposure Point Concentration (EPC)

ShortForm Version 4-06

Vlookup Version v0808

Xylenes (mixed isomers)

Naphthalene	5.3E+00	2.3E-04	5.4E-04	7.7E-04	6.3E-05	1.0E-04	1.7E-04
Bis(2-ethylhexyl)phthalate							
Methylnaphthalene, 2-	2.0E+01	4.3E-03	1.0E-02	1.4E-02	1.2E-02	1.9E-02	3.1E-02
Dichlorobenzene, 1,2- (o-DCB)							

Resident - Soil: Table RS-2
Equations to Calculate Cancer Risk for Resident (Age 1-31 years)

Vlookup Version v0808

Cancer Risk from Ingestion

$$ELCR_{ing} = LADD_{ing(1-31)} * CSF$$

$$LADD_{ing\ (1-31)} = LADD_{ing\ (1-8)} + LADD_{ing\ (8-15)} + LADD_{ing\ (15-31)}$$

$$LADD_{ing\ (age\ group\ x)} = \frac{[OHM]_{soil} * IR_x * RAF_{c-ing} * EF_{ing} * ED * EP_x * C}{BW_x * AP_{lifetime}}$$

Cancer Risk from Dermal Absorption

$$ELCR_{derm} = LADD_{derm} * CSF$$

$$LADD_{derm\ (1-31)} = LADD_{derm\ (1-8)} + LADD_{derm\ (8-15)} + LADD_{derm\ (15-31)}$$

$$LADD_{derm(age\ group\ x)} = \frac{[OHM]_{soil} * SA_x * RAF_{c-derm} * SAF_x * EF_{derm} * ED * EP_x * C}{BW_x * AP_{lifetime}}$$

Cancer Risk from Homegrown Produce

$$ELCR_{produce} = LADD_{produce(1-31)} * CSF$$

$$LADD_{produce(1-31)} = LADD_{produce(1-8)} + LADD_{produce(8-15)} + LADD_{produce(15-31)}$$

$$LADD_{produce(age\ x)} = \frac{[OHM_{soil}] * PUF * PIR_x * RAF_{produce} * EF_{produce} * ED * EP_x * C}{BW_x * AP_{lifetime}}$$

Parameter	Value	Units
CSF	OHM specific	$(mg/kg\text{-}day)^{-1}$
LADD	age/OHM specific	mg/kg-day
$[OHM]_{soil}$	OHM specific	mg/kg
$IR_{(1-8)}$	100	mg/day
$IR_{(8-15)}$	50	mg/day
$IR_{(15-31)}$	50	mg/day
$PIR_{(1-8)}$	12,099	mg/day
$PIR_{(8-15)}$	17,809	mg/day
$PIR_{(15-31)}$	24,420	mg/day
RAF_{c-ing}	OHM specific	dimensionless
RAF_{c-derm}	OHM specific	dimensionless
$RAF_{c-produce}$	OHM specific	dimensionless
$EF_{ing,derm}$	0.412	event/day
$EF_{produce}$	1.00	event/day
ED	1	day/event
$EP_{(1-8)}$	7	years
$EP_{(8-15)}$	7	years
$EP_{(15-31)}$	16	years
C	0.000001	kg/mg
$BW_{(1-8)}$	17.0	kg
$BW_{(8-16)}$	39.9	kg
$BW_{(16-31)}$	58.7	kg
$AP_{(lifetime)}$	70	years
$SA_{(1-8)}$	2431	cm^2 / day
$SA_{(8-15)}$	4427	cm^2 / day
$SA_{(15-31)}$	5653	cm^2 / day
$SAF_{(1-8)}$	0.35	mg/cm^2
$SAF_{(8-15)}$	0.14	mg/cm^2
$SAF_{(15-31)}$	0.13	mg/cm^2
PUF	OHM specific	$(mg/mg)(mg/mg)^{-1}$

Resident - Soil: Table RS-3
Equations to Calculate Chronic Noncancer Risk for Resident Child (Age 1-8 years)

Vlookup Version v0808

Chronic Noncancer Risk from Ingestion

$$HQ_{ing} = \frac{ADD_{ing}}{RfD}$$

$$ADD_{ing} = \frac{[OHM]_{soil} * IR * RAF_{nc\text{-}ing} * EF_{ing} * ED * EP * C}{BW * AP}$$

Chronic Noncancer Risk from Dermal Absorption

$$HQ_{derm} = \frac{ADD_{ing,derm}}{RfD}$$

$$ADD_{derm} = \frac{[OHM]_{soil} * SA * RAF_{nc\text{-}derm} * SAF * EF_{derm} * ED * EP * C}{BW * AP}$$

Chronic Noncancer Risk from Homegrown Produce

$$HQ_{produce} = \frac{ADD_{produce}}{RfD}$$

$$ADD_{produce} = \frac{[OHM_{soil}] * PUF * PIR * RAF_{produce} * EF_{produce} * ED * EP * C}{BW * AP}$$

Parameter	Value	Units
RfD	OHM specific	mg/kg-day
ADD	OHM specific	mg/kg-day
$[OHM]_{soil}$	OHM specific	mg/kg
IR	100	mg/day
PIR	12,099	mg/day
$RAF_{nc\text{-}ing}$	OHM specific	dimensionless
$RAF_{nc\text{-}derm}$	OHM specific	dimensionless
$RAF_{nc\text{-}produce}$	OHM specific	dimensionless
$EF_{ing,derm}$	0.412	event/day
$EF_{produce}$	1.00	event/day
$EF_{cyanide}$	1.00	event/day
ED	1	day/event
EP	7	years
$EP_{cyanide}$	1	day
C	0.000001	kg/mg
BW	17.0	kg
AP	7	year
$AP_{cyanide}$	1	day
SA	2431	cm^2 / day
SAF	0.35	mg/cm^2
PUF	OHM specific	$(mg/mg)(mg/mg)^{-1}$

Cyanide can cause a significant health risk from one-time exposure to concentrations that are often found in the environment. As such, risk is calculated for a single exposure. Thus, for cyanide, the exposure frequency (EF) is 1 event/day, while both the exposure period (EP) and averaging period (AP) are 1 day.

Resident - Soil: Table RS-4
Equations to Calculate Subchronic Noncancer Risk for Resident Child (Age 1-2 years)

Vlookup Version v0808

Subchronic Noncancer Risk from Ingestion

$$HQ_{ing} = \frac{ADD_{ing}}{RfD_{subchronic}}$$

$$ADD_{ing} = \frac{[OHM]_{soil} * IR * RAF_{nc\text{-}ing} * EF_{ing} * ED * EP * C}{BW * AP}$$

Subchronic Noncancer Risk from Dermal Absorption

$$HQ_{derm} = \frac{ADD_{derm}}{RfD_{subchronic}}$$

$$ADD_{derm} = \frac{[OHM]_{soil} * SA * RAF_{nc\text{-}derm} * SAF * EF_{derm} * ED * EP * C}{BW * AP}$$

Subchronic Noncancer Risk from Homegrown Produce

$$HQ_{produce} = \frac{ADD_{produce}}{RfD_{subchronic}}$$

$$ADD_{produce} = \frac{[OHM_{soil}] * PUF * PIR * RAF_{produce} * EF_{produce} * ED * EP * C}{BW * AP}$$

Parameter	Value	Units
RfD	OHM specific	mg/kg-day
ADD	OHM specific	mg/kg-day
$[OHM]_{soil}$	OHM specific	mg/kg
IR	100	mg/day
PIR	10,900	mg/day
$RAF_{nc\text{-}ing}$	OHM specific	dimensionless
$RAF_{nc\text{-}derm}$	OHM specific	dimensionless
$RAF_{nc\text{-}produce}$	OHM specific	dimensionless
$EF_{ing,derm}$	0.714	event/day
$EF_{produce}$	1.00	event/day
$EF_{cyanide}$	1.00	event/day
ED	1	day/event
$EP_{cyanide}$	1	day
EP	0.577	years
C	0.000001	kg/mg
BW	10.7	kg
AP	0.577	year
$AP_{cyanide}$	1	day
SA	1670	cm^2 / day
SAF	0.35	mg/cm^2
PUF	OHM specific	$(mg/mg)(mg/mg)^{-1}$

Cyanide can cause a significant health risk from one-time exposure to concentrations that are often found in the environment. As such, risk is calculated for a single exposure. Thus, for cyanide, the exposure frequency (EF) is 1 event/day, while both the exposure period (EP) and averaging period (AP) are 1 day.

Resident - Soil: Table RS-5
Definitions and Exposure Factors

Vlookup Version v0808

Parameter	Value	Units	Notes
ELCR - Excess Lifetime Cancer Risk	chemical specific	dimensionless	Pathway specific (ing =ingestion, derm=dermal, inh=inhalation)
CSF - Cancer Slope Factor	chemical specific	$(mg/kg\text{-}day)^{-1}$	see Table RS-7
LADD - Lifetime Average Daily Dose	chemical specific	mg/kg-day	Pathway specific
LADE - Lifetime Average Daily Exposure	chemical specific	$\mu g/m^3$	
HQ - Hazard Quotient	chemical specific	dimensionless	Pathway specific (ing =ingestion, derm=dermal, inh=inhalation)
RfD - Reference Dose	chemical specific	mg/kg-day	see Table RS-7
ADD - Average Daily Dose	chemical specific	mg/kg-day	Pathway specific
ADE - Average Daily Exposure	chemical specific	mg/m^3	
EPC - Exposure Point Concentration	chemical specific	mg/kg	
PUF - Plant Uptake Factor	chemical specific	$(mg/mg)(mg/mg)^{-1}$	See Table RS-7; $(mg_{OHM}/mg_{plant})/(mg_{OHM}/mg_{soil})^{-1}$
$IR_{(1-2)}$ - Soil Ingestion Rate for age group 1-2	100	mg/day	MADEP. 2002. Technical Update: Calculation of an Enhanced Soil Ingestion Rate. (http://www.mass.gov/dep/ors/orspubs.htm)
$IR_{(1-8)}$ - Soil Ingestion Rate for age group 1-8	100	mg/day	Ibid
$IR_{(8-15)}$ - Soil Ingestion Rate for age group 8-15	50	mg/day	Ibid
$IR_{(15-31)}$ - Soil Ingestion Rate for age group 15-31	50	mg/day	Ibid
$PIR_{(1-2)}$ = Produce Ingestion Rate for age group 1-2	10,900	mg/day	see Table RS-6
$PIR_{(1-8)}$ = Produce Ingestion Rate for age group 1-8	12,099	mg/day	see Table RS-6
$PIR_{(8-15)}$ = Produce Ingestion Rate for age group 8-15	17,809	mg/day	Ibid
$PIR_{(15-31)}$ = Produce Ingestion Rate for age group 15-31	24,420	mg/day	Ibid
RAF_c - Relative Absorption Factor for Cancer Effects	chemical specific	dimensionless	
$EF_{subchronic}$ - Exposure Frequency for subchronic ingestion or dermal exposure	0.714	event/day	5 days/week
$EF_{chronic}$ - Exposure Frequency for chronic ingestion or dermal exposure	0.412	event/day	5 days/week, 30 weeks/year
EF_{cancer} - Exposure Frequency for cancer, ingestion or dermal exposure	0.412	event/day	5 days/week, 30 weeks/year
$EF_{produce}$ - Exposure Frequency for produce ingestion, cancer and noncancer	1.00	event/day	
$EF_{cyanide}$ - Exposure Frequency for subchronic and chronic non-cancer cyanide	1.00	event/day	
ED - Exposure Duration	1	day/event	
$EP_{(1-2)}$ - Exposure Period for age group 1-2	0.577	years	30 weeks
$EP_{(1-8)}$ - Exposure Period for age group 1-8	7	years	
$EP_{(8-15)}$ - Exposure Period for age group 8-15	7	years	
$EP_{(15-31)}$ - Exposure Period for age group 15-31	16	years	
$EP_{cyanide}$ - Exposure period for cyanide exposure	1	day	MADEP. 1995. Guidance for Disposal Site Risk Characterization. Page 5-5.
$BW_{(1-2)}$ - Body Weight for age group 1-2	10.7	kg	U.S. EPA. 1997. Exposure Factors Handbook. Table 7-7, females.
$BW_{(1-8)}$ - Body Weight for age group 1-8	17.0	kg	Ibid
$BW_{(8-15)}$ - Body Weight for age group 8-15	39.9	kg	Ibid
$BW_{(15-31)}$ - Body Weight for age group 15-31	58.7	kg	Ibid
$AP_{subchronic}$ - Averaging Period for subchronic noncancer	0.577	years	30 weeks
$AP_{chronic}$ - Averaging Period for chronic noncancer	7	years	
AP_{cancer} - Averaging Period for lifetime	70	years	
$AP_{cyanide}$ - Averaging period for assessing cyanide exposure	1	day	MADEP. 1995. Guidance for Disposal Site Risk Characterization. Page 5-5.
$SA_{(1-2)}$ - Surface Area for age group 1-2	1670	cm^2 / day	50th percentile of face (1/3 head), forearms, hands, lower legs, and feet for females MADEP. 1995. Guidance for Disposal Site Risk Characterization. Appendix Table B-2.
$SA_{(1-8)}$ - Surface Area for age group 1-8	2431	cm^2 / day	Ibid
$SA_{(8-15)}$ - Surface Area for age group 8-15	4427	cm^2 / day	Ibid
$SA_{(15-31)}$ - Surface Area for age group 15-31	5653	cm^2 / day	Ibid
$SAF_{(1-2)}$ - Surface Adherence Factor for age group 1-2	0.35	mg/cm^2	All SAFs developed for ShortForm according to procedure outlined in MA DEP Technical Update: Weighted Skin-Soil Adherence Factors, April 2002
$SAF_{(1-8)}$ - Surface Adherence Factor for age group 1-8	0.35	mg/cm^2	
$SAF_{(8-15)}$ - Surface Adherence Factor for age group 8-15	0.14	mg/cm^2	
$SAF_{(15-31)}$ - Surface Adherence Factor for age group 15-31	0.13	mg/cm^2	

Resident - Soil: Table RS-6
Homegrown Produce Ingestion Rate

Vlookup Version v0808

Data on mean produce ingestion rates (wet weight, ww) in the Northeast was obtained from the 1994-1996 Continuing Survey of Food Intakes by Individuals (USDA). Data for both genders were used for children under 6, while data for males was used for individuals 6 and older. The mean ingestion rates presented in the survey represent the arithmetic average of all individuals surveyed, regardless of whether or not they had consumed the produce item (e.g., an individual that did not consume the produce item was assigned a rate of 0 g/day). To determine the mean ingestion rate for individuals who ate each produce item, the ingestion rate for all individuals (consumers and nonconsumers) was divided by the percentage of individuals who ate the item (Table RS-6A). These mean ingestion rates for the produce consumers were summed to determine the total produce ingestion rate for each age-group and converted to dry weight assuming the produce items were all 90% water.

To convert mean ingestion rates for the age-groups studied in the survey to age-groups used in risk calculations, each age-group ingestion rate from the survey (i.e., 1 - 2 year olds, 3 - 5 year olds, 6 - 11 year olds, 12 - 19 year olds, and 20 - 39 year olds) was weighted according to the number of years spent in the risk calculation age group (i.e., 1 - 8 year olds, 8 - 15 year olds, and 15 - 31 year olds) (Table RS-6B). It was assumed that 25% of produce ingested was home-grown (Table RS-6C).

Table RS-6A

	White Potatoes			Dark-green vegetables			Deep-yellow vegetables		
Age-groups studied in survey	Ingestion Rate for All g/d (ww)	% of individuals that consumed item.	Ingestion Rate for Consumers g/d (ww)	Ingestion Rate for All g/d (ww)	% of individuals that consumed item.	Ingestion Rate for Consumers g/d (ww)	Ingestion Rate for All g/d (ww)	% of individuals that consumed item.	Ingestion Rate for Consumers g/d (ww)
1-2	28	40.3	69.5	6	10.1	59.4	5	12.7	39.4
3-5	30	37.1	80.9	5	6.5	76.9	7	12.7	55.1
6-11	47	44.2	106.3	6	9.1	65.9	2	8.5	23.5
12-19	59	40.3	146.4	2	2.3	87.0	11	15.8	69.6
20-39	76	45.1	168.5	25	14.7	170.1	4	5.7	70.2

	Tomatoes			Lettuce			Green Beans		
Age-groups studied in survey	Ingestion Rate for All g/d (ww)	% of individuals that consumed item.	Ingestion Rate for Consumers g/d (ww)	Ingestion Rate for All g/d (ww)	% of individuals that consumed item.	Ingestion Rate for Consumers g/d (ww)	Ingestion Rate for All g/d (ww)	% of individuals that consumed item.	Ingestion Rate for Consumers g/d (ww)
1-2	10	27.9	35.8	1	6	16.7	7	12.1	57.9
3-5	10	37.1	27.0	4	14	28.6	3	5.7	52.6
6-11	20	42	47.6	8	14.9	53.7	1	2	50.0
12-19	29	45.2	64.2	19	28.7	66.2	2	2.4	83.3
20-39	48	50.9	94.3	18	29.6	60.8	4	3.7	108.1

Table RS-6A (continued)

Age-groups studied in survey	Corn, Green peas, Lima beans: Ingestion Rate for All g/d (ww)	% of individuals that consumed item.	Ingestion Rate for Consumers g/d (ww)	Melons, berries: Ingestion Rate for All g/d (ww)	% of individuals that consumed item.	Ingestion Rate for Consumers g/d (ww)	Totals Wet Weight WWI g/day	Totals Dry Weight DWI g/day
1-2	12	15	80.0	7	9	77.8	436.4	43.6
3-5	14	21.7	64.5	14	11.6	120.7	506.3	50.6
6-11	9	13.6	66.2	5	5.9	84.7	498.0	49.8
12-19	14	9.9	141.4	17	5	340.0	998.1	99.8
20-39	12	7.3	164.4	6	4.5	133.3	969.7	97.0

Table RS-6B

Age-groups studied in survey	Years spent in age-group for 1-8 year old	Years spent in age-group for 8-15 year old	Years spent in age-group for 15-31 year old
1-2	2		
3-5	3		
6-11	2	4	
12-19		3	4
20-39			12
	7	7	16

Table RS-6C

	Produce Intake, dry weight			
	Child 1-2 years g/day	Child 1-8 years g/day	Child 8-15 years g/day	Adult 15-31 g/day
All Produce:	43.6	48.4	71.2	97.7
Homegrown:	10.9	12.1	17.8	24.4

Resident - Soil: Table RS-7
Chemical-Specific Data

Vlookup Version v0808

Oil or Hazardous Material	CSF $(mg/kg\text{-}day)^{-1}$	$RAF_{c\text{-}ing}$	$RAF_{c\text{-}derm}$	$RAF_{c\text{-}prod}$	Chronic RfD mg/kg-day	Subchronic RfD mg/kg-day	Chronic $RAF_{nc\text{-}ing}$	Chronic $RAF_{nc\text{-}derm}$	Subchronic $RAF_{nc\text{-}ing}$	Subchronic $RAF_{nc\text{-}derm}$	$RAF_{nc\text{-}prod}$	PUF
Aliphatics C5 to C8					4.0E-02	4.0E-01	1	1	1	1		
Aliphatics C9 to C12					1.0E-01	1.0E+00	1	0.5	1	0.5		
Aromatics C9 to C10					3.0E-02	3.0E-01	1	0.5	1	0.5		
Toluene					8.0E-02	8.0E-01	1	0.12	1	0.12		
Ethylbenzene					1.0E-01	1.0E+00	1	0.2	1	0.2		
Xylenes (mixed isomers)					2.0E-01	2.0E-01	1	0.12	1	0.12		
Naphthalene					2.0E-02	2.0E-01	0.36	0.1	0.36	0.1		
Naphthalene					2.0E-02	2.0E-01	0.36	0.1	0.36	0.1		
Methylnaphthalene, 2-					4.0E-03	4.0E-03	0.36	0.1	0.36	0.1		
Aliphatics C9 to C18					1.0E-01	1.0E+00	1	0.5	1	0.5		
Aliphatics C19 to C36					2.0E+00	6.0E+00	1	0.1	1	0.1		
Aromatics C11 to C22					3.0E-02	3.0E-01	0.36	0.1	0.36	0.1		
Butylbenzene, tert-					3.0E-02	3.0E-01	1	0.5	1	0.5	#N/A	#N/A
Butylbenzene, n-					3.0E-02	3.0E-01	1	0.5	1	0.5	#N/A	#N/A
Butylbenzene, sec-					3.0E-02	3.0E-01	1	0.5	1	0.5	#N/A	#N/A
Dichlorobenzene, 1,2- (o-I					9.0E-02	9.0E-01	1	0.1	1	0.1		
Dichlorobenzene, 1,4- (p-I	2.4E-02	1.00	0.10		9.0E-02	9.0E-01	1	0.1	1	0.1		
Dichloroethane, 1,1-					1.0E-01	1.0E+00	1.3	0.13	1.3	0.13		
Dichloroethylene, 1,1-					5.0E-02	5.0E-02	1	0.1	1	0.1		
Dichloroethylene, trans-1,2					2.0E-02	2.0E-01	1	0.1	1	0.1		
Dichloroethylene, cis-1,2-					1.0E-02	1.0E-01	1	0.1	1	0.1		
Ethylbenzene					1.0E-01	1.0E+00	1	0.2	1	0.2		
Hexachlorobutadiene	7.8E-02	1.00	0.20		2.0E-04	2.0E-03	1	0.2	1	0.2		
Isopropylbenzene					3.0E-02	3.0E-01	1	0.5	1	0.5	#N/A	#N/A
Isopropyltoluene, p-					3.0E-02	3.0E-01	1	0.5	1	0.5	#N/A	#N/A
Dichloromethane	7.5E-03	1.00	0.10		6.0E-02	6.0E-02	1	0.1	1	0.1		
Naphthalene					2.0E-02	2.0E-01	0.36	0.1	0.36	0.1		
Propylbenzene, n-					3.0E-02	3.0E-01	1	0.5	1	0.5	#N/A	#N/A
Tetrachloroethylene	5.1E-02	1.00	0.10		1.0E-02	1.0E-01	1	0.1	1	0.1		
Toluene					8.0E-02	8.0E-01	1	0.12	1	0.12		
Trichloroethane, 1,1,1-					9.0E-02	9.0E-01	1	0.1	1	0.1		
Trichloroethylene	1.1E-02	1.00	0.10		2.0E-03	2.0E-02	1	0.1	1	0.1		
Trichlorofluoromethane					3.0E-01	7.0E-01	0.99	0.11	0.99	0.11	#N/A	#N/A
Trichlorotrifluoroethane, 1,					3.0E+01	3.0E+00	1.087912	0.12087912	1.087912088	0.120879121	#N/A	#N/A
Trimethylbenzene, 1,2,4-					3.0E-02	3.0E-01	1	0.5	1	0.5	#N/A	#N/A
Trimethylbenzene, 1,3,5-					3.0E-02	3.0E-01	1	0.5	1	0.5	#N/A	#N/A
Vinyl chloride	1.4E+00	1.53	0.16		3.0E-03	3.0E-03	1	0.1	1	0.1		
Xylenes (mixed isomers)					2.0E-01	2.0E-01	1	0.12	1	0.12		

Resident - Soil: Table RS-7
Chemical-Specific Data

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Oil or Hazardous Material	CSF $(mg/kg\text{-}day)^{-1}$	$RAF_{c\text{-}ing}$	$RAF_{c\text{-}derm}$	$RAF_{c\text{-}prod}$	Chronic RfD mg/kg-day	Subchronic RfD mg/kg-day	Chronic $RAF_{nc\text{-}ing}$	Chronic $RAF_{nc\text{-}derm}$	Subchronic $RAF_{nc\text{-}ing}$	Subchronic $RAF_{nc\text{-}derm}$	$RAF_{nc\text{-}prod}$	PUF
Naphthalene					2.0E-02	2.0E-01	0.36	0.1	0.36	0.1		
Bis(2-ethylhexyl)phthalate	1.4E-02	1.00	0.02		2.0E-02	2.0E-02	1	0.02	1	0.02		
Methylnaphthalene, 2-					4.0E-03	4.0E-03	0.36	0.1	0.36	0.1		
Dichlorobenzene, 1,2- (o-I					9.0E-02	9.0E-01	1	0.1	1	0.1		

Exposure point: Water in the MWRA Aqueduct

Method 3 Risk Assessment for Resident Exposed to Chemicals in Drinking Water - Shortform 2006 (sf06rw)

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EPCs	Table RW-1: Select chemicals and enter Exposure Point Concentrations (EPCs). Associated risks are shown to the right.
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Chem	Table RW-9: Chemical-specific data.

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Resident - Drinking Water: Table RW-1
Exposure Point Concentration (EPC) and Risk
Based on Resident Ages 1-31 (Cancer) and 1-8 (Noncancer)

ShortForm Version 4-06

Vlookup Version v0808

ELCR (all chemicals) = 9E-06
HI (all chemicals) = 1E+00

****Do not insert or delete any rows****

Click on empty cell below and select OHM using arrow.

Oil or Hazardous Material (OHM)	EPC (µg/L)	ELCR ingestion	ELCR dermal	ELCR inhalation	$ELCR_{total}$	Chronic HQ_{ing}	Chronic HQ_{derm}	Chronic HQ_{inh}	HQ_{total}
Methyl tert butyl ether	6.0E+00					3.5E-03	8.7E-05	1.4E-03	5.0E-03
Dichloroethane, 1,1-	6.0E-01					4.6E-04	3.3E-05	9.9E-04	1.5E-03
Dichloroethylene, 1,1-	1.0E+00					1.2E-03	1.4E-04	4.3E-03	5.6E-03
Dichloroethylene, cis-1,2-	3.1E+01					1.8E-01	1.7E-02	7.3E-01	9.3E-01
Tetrachloroethylene	1.7E+00	1.6E-06	8.3E-07	4.4E-06	6.8E-06	1.0E-02	5.3E-03	2.6E-04	1.6E-02
Trichloroethane, 1,1,1-	1.2E+01					7.8E-03	1.3E-03	1.7E-03	1.1E-02
Trichloroethylene	3.2E+00	6.6E-07	9.5E-08	1.5E-06	2.3E-06	9.4E-02	1.4E-02	1.3E-02	1.2E-01

Resident - Drinking Water: Table RW-2
Equations to Calculate Cancer Risk for Resident (Age 1-31 years)

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Cancer Risk from Ingestion

$$ELCR_{ing} = LADD_{ing(1\text{-}31)} * CSF$$

$$LADD_{ing\ (1\text{-}31)} = LADD_{ing\ (1\text{-}8)} + LADD_{ing\ (8\text{-}15)} + LADD_{ing\ (15\text{-}31)}$$

$$LADD_{ing\ (age\ group\ x)} = \frac{EPC * VI_x * RAF_{c\text{-}ing} * EF * ED_{ing} * EP_x * C}{BW_x * AP_{lifetime}}$$

Cancer Risk from Dermal Absorption

$$ELCR_{derm} = LADD_{derm(1\text{-}31)} * CSF$$

$$LADD_{derm\ (1\text{-}31)} = LADD_{derm\ (1\text{-}8)} + LADD_{derm\ (8\text{-}15)} + LADD_{derm\ (15\text{-}31)}$$

$$LADD_{derm(age\ group\ x)} = \frac{DA_x * SA_x * EF * ED_{derm} * EP_x}{OAE_c * BW_x * AP_{lifetime}}$$

or, if outside "Effective Predictive Domain", then

$$LADD_{derm(age\ group\ x)} = DM * LADD_{ing(age\ group\ x)}$$

Cancer Risk from Inhalation

$$ELCR_{inh} = LADE_{(1\text{-}31)} * URF$$

$$LADE_{(1\text{-}31)} = LADE_{(1\text{-}8)} + LADE_{(8\text{-}15)} + LADE_{(15\text{-}31)}$$

$$LADE_{(age\ x)} = \frac{IEC_{S\text{-}x} * EF * ED_{inh\text{-}x} * EP_x}{AP_{lifetime}}$$

Parameter	Value	Units
CSF	OHM-specific	$(mg/kg\text{-}day)^{-1}$
URF	OHM-specific	$(\mu g/m^3)^{-1}$
LADD	age/OHM-specific	mg/kg-day
LADE	age/OHM-specific	$\mu g/m^3$
EPC	OHM-specific	µg/L
$VI_{(1\text{-}8)}$	1	L/day
$VI_{(8\text{-}15)}$	2	L/day
$VI_{(15\text{-}31)}$	2	L/day
$RAF_{c\text{-}ing}$	OHM-specific	dimensionless
EF	1.00	event/day
$ED_{ing\ \&\ derm}$	1	day/event
$ED_{inh(1\text{-}8)}$	0.046	day/event
$ED_{inh(8\text{-}15)}$	0.046	day/event
$ED_{inh(15\text{-}31)}$	0.044	day/event
$EP_{(1\text{-}8)}$	7	years
$EP_{(8\text{-}15)}$	7	years
$EP_{(15\text{-}31)}$	16	years
C	0.001	mg/µg
$BW_{(1\text{-}8)}$	17.0	kg
$BW_{(8\text{-}15)}$	39.9	kg
$BW_{(15\text{-}31)}$	58.7	kg
$AP_{(lifetime)}$	70	years
$IEC_{S\text{-}x}$	age/OHM-specific	$\mu g/m^3$
DA_x	age/OHM-specific	$mg/cm^2\text{-}day$
OAE_c	OHM-specific	dimensionless
$SA_{(1\text{-}8)}$	7130	cm^2
$SA_{(8\text{-}15)}$	12800	cm^2
$SA_{(15\text{-}31)}$	16731	cm^2
DM	OHM-specific	dimensionless

Resident - Drinking Water: Table RW-3
Equations to Calculate Noncancer Risk for Resident Child (Age 1-8 years)

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Noncancer Risk from Ingestion

$$HQ_{ing} = \frac{ADD_{ing}}{RfD}$$

$$ADD_{ing} = \frac{EPC * VI * RAF_{nc\text{-}ing} * EF * ED_{ing} * EP * C}{BW * AP}$$

Noncancer Risk from Dermal Absorption

$$HQ_{derm} = \frac{ADD_{derm}}{RfD}$$

$$ADD_{derm} = \frac{DA * SA * EF * ED_{derm} * EP}{OAE_{nc} * BW * AP}$$

or, if DA is outside the "Effective Predictive Domain" of the dermal model, then

$$ADD_{derm} = DM * ADD_{ing}$$

Noncancer Risk from Inhalation

$$HQ_{inh} = \frac{ADE}{RfC}$$

$$ADE = \frac{IEC_S * EF * ED_{inh} * EP * C}{AP}$$

Parameter	Value	Units
RfD	OHM-specific	mg/kg-day
RfC	OHM-specific	mg/m^3
ADD_{ing}	OHM-specific	mg/kg-day
ADD_{derm}	OHM-specific	mg/kg-day
ADE	OHM-specific	mg/m_3
EPC	OHM-specific	µg/L
VI	1	L/day
$RAF_{nc\text{-}ing}$	OHM-specific	dimensionless
$RAF_{nc\text{-}derm}$	OHM-specific	dimensionless
EF	1.00	event/day
ED_{ing}	1	day/event
ED_{derm}	1	day/event
ED_{inh}	0.046	day/event
EP	7	years
C	0.001	mg/µg
BW	17.0	kg
$AP_{(noncancer)}$	7	years
IEC_S	OHM-specific	$\mu g/m^3$
DA	OHM-specific	mg/cm^2-day
OAE_{nc}	OHM-specific	dimensionless
SA	7130	cm^2
DM	OHM-specific	dimensionless

Resident - Drinking Water: Table RW-4
Equations to Calculate Absorbed Dermal Dose from Showering (DA)

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Model equations obtained from U.S. EPA (2001) Risk Assessment Guidance for Superfund (RAGS), Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim (http://www.epa.gov/oswer/riskassessment/ragse/index.htm).

Steady State versus Non-Steady State for Organic Chemicals: The time for an organic chemical to reach steady state is a function of the chemical's molecular weight (MW) and it's ability to traverse skin (expressed as a permeability constant, Kp). If an organic chemical does not reach steady state before the shower is over (i.e., time to reach steady state, t*, is greater than the shower duration, D_s), Equation (1) is used to calculate the dermal dose for this non-steady state. For organic chemicals that have reached a steady state by the end of the shower, Equation (2) is used to calculate dermal dose.

Effective Predictive Domain: The model is not used for organic chemicals that fall outside its effective predictive domain. Strictly, chemicals with very large or very small Kow values are outside of the EPD. Chemicals outside the Effective Predictive Domain are identified with an asterix in Tables B-2 and B-3 in the above citation as well as in Table V4 in the Vlookup (V) workbook.
For these chemicals, the dermal dose is estimated as a function of the oral dose according to MA DEP (1995) Guidance for Disposal Site Risk Characterization and Equation (3) below. Note that the dermal dose in these cases is calculated as an average daily dose (ADD) or life-time average daily dose (LADD) and expressed in mg/kg-bw. Equation (3) is also presented in Tables DW-2 and DW-3.

(1) Organic Chemicals Inside Effective Predictive Domain - *Non-Steady State*

Equation for estimating dermally absorbed dose (DA) for organic chemicals when the shower duration (D_s) is less than or equal to the time to reach steady state (t*).

$$DA = 2 * FA * C * Kp * Cw * [(6* \tau * D_s)/\pi)]^{1/2}$$

(2) Organic Chemicals Inside Effective Predictive Domain - *Steady State*

Equation for estimating DA for organic chemicals when D_s is greater than the time to reach t*.

$$DA = FA * C * Kp * Cw * [(D_s/(1+B)) + 2 * \tau * ((1+3B+3B^2)/(1+B)^2)]$$

(3) Organic Chemicals Outside Effective Predictive Domain

$$(L)ADD_{derm} = DM * (L)ADD_{ing}$$

(4) Inorganic Chemicals

Equation for estimating DA for inorganic chemicals in water.

$$DA = C * Kp * Cw * D_s$$

Where the equations to calculate the input values are:

(a) Equation for predicting strateum corneum permeability constant (Kp) for organic chemicals

$$Kp = 10^{[-2.8+(0.66*logKow)-(0.0056*MW)]}$$

(b) Equation for calculating ratio of permeability of chemical in strateum corneum to permeability in viable epidermis (B

$$B = Kp * ((MW)^{1/2}/2.6)$$

(c) Calculations for calculating time to reach steady state (t*):

When B is less than or equal to 0.6

$$t^* = 2.4 * \tau$$

When B is greater than 0.6

$$t^* = (b - (b^2 - c^2)^{1/2}) * l_{sc}^2 / D_{sc}$$

Resident - Drinking Water: Table RW-4
Equations to Calculate Absorbed Dermal Dose from Showering (DA)

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(d) Equations for calculating b and c

$$c = (1 + 3B + 3B^2)/(3 * (1+B)) \qquad b = (2(1+B)^2 / \pi) - c$$

(e) Equation for calculating lag time (τ)

$$\tau = l_{sc}^2/(6*D_{sc})$$

(f) Equation for calculating effective diffusivity (D_{sc})

$$D_{sc} = 10^{-2.8-(0.0056*MW)} * l_{sc}$$

Parameter	Value	Units	Notes
DA_{event} - Absorbed dose per event per area skin exposed	calculated	mg/cm^2-day	see Table RW-4 and RW-5
FA - Fraction absorbed	OHM-specific	dimensionless	see Table RW-5
Kp - Strateum corneum (sc) permeability constant	OHM-specific	cm/hr	see Table RW-9
C - Conversion Factor	0.000001	m^3/cm^3	
C_w - [OHM] in water, Exposure Point Concentration	OHM-specific	mg/m^3	see Table RW-1, expressed as µg/L
τ - Lag time	calculated	hrs	Time for chemical to cross strateum corneum (Table RW-5)
D_s - Shower Duration	age-specific	hrs	see Table RW-6
$LogK_{ow}$ - Octanol/water partition coefficient	OHM-specific	dimensionless	see Table RW-9
MW - Molecular Weight	OHM-specific	g/mole	see Table RW-9
t* - Time to reach steady state	calculated	hr	see Table RW-5
b - Empirical variable used to calculate t*	calculated	dimensionless	see Table RW-5
c - Empirical variable used to calculate t*	calculated	dimensionless	see Table RW-5
l_{sc} - Thickness of skin	0.001	cm	MA DEP (1995). Guidance for Disposal Site Risk Characterization. Appendix Table B-9.
D_{sc} - Effective diffusivity for chemical transfer through the skin	calculated	cm^2/hr	see Table RW-5
B - Ratio of permeability of chemical in strateum corneum to permeability of chemical in viable epidermis	calculated	dimensionless	see Table RW-5

Resident - Drinking Water: Table RW-5
Dermal Absorded Dose (DA) from Showering

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Oil or Hazardous Material	Ratio of perm. in strateum corneum to viable epidermis B	Lag Time (tau) hours	Effective Diffusivity of Chemical Transfer Through Skin Dsc (cm^2/hr)	Time to Reach Steady State t* hours	t* when B>0.6 hours	b	c	Absorbed Dose (1-8) DA (mg/cm^2-day)	Absorbed Dose (8-15) DA (mg/cm^2-day)	Absorbed Dose (15-31) DA (mg/cm^2-day)	Outside Effective Predictive Domain	Fraction Absorbed FA	Absorbed Dose (1-8) w/ FA term $DA_{(1-8)}$ (mg/cm^2-day)	Absorbed Dose (8-16) w/ FA term $DA_{(8-16)}$ (mg/cm^2-day)	Absorbed Dose (16-31) w/ FA term $DA_{(16-31)}$ (mg/cm^2-day)	Dermal Mult. DM
Methyl tert butyl ether	9.07E-03	0.327	5.10E-07	0.78		3.1E-01	3.4E-01	2.08E-08	2.00E-08	1.76E-08		1	2.08E-08	2.00E-08	1.76E-08	
Dichloroethane, 1,1-	2.57E-02	0.377	4.42E-07	0.90		3.2E-01	3.5E-01	5.97E-09	5.73E-09	5.06E-09		1	5.97E-09	5.73E-09	5.06E-09	
Dichloroethylene, 1,1-	4.38E-02	0.367	4.54E-07	0.88		3.3E-01	3.6E-01	1.69E-08	1.62E-08	1.43E-08		1	1.69E-08	1.62E-08	1.43E-08	
Dichloroethylene, cis-1,2-	2.90E-02	0.367	4.54E-07	0.88		3.2E-01	3.5E-01	3.47E-07	3.34E-07	2.94E-07		1	3.47E-07	3.34E-07	2.94E-07	
Tetrachloroethylene	1.62E-01	0.894	1.86E-07	2.15		4.1E-01	4.5E-01	1.27E-07	1.22E-07	1.07E-07		1	1.27E-07	1.22E-07	1.07E-07	
Trichloroethane, 1,1,1-	5.57E-02	0.584	2.85E-07	1.40		3.4E-01	3.7E-01	2.78E-07	2.67E-07	2.35E-07		1	2.78E-07	2.67E-07	2.35E-07	
Trichloroethylene	5.10E-02	0.569	2.93E-07	1.37		3.4E-01	3.7E-01	6.74E-08	6.48E-08	5.71E-08		1	6.74E-08	6.48E-08	5.71E-08	

Resident - Drinking Water: Table RW-6
Equations to Calculate Inhalation Exposure Concentration in the Shower (IEC_S)

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Model equations obtained from Foster, S.A. and Chrostowski, P.C. (1987) Inhalation Exposures to Volatile Organic Contaminants in the Shower. Presentation at the 80th Annual Meeting of APCA. New York, NY. June 21-26, 1987.

(1) Inhalation Exposure Concentration in the Shower.

$$IECs = [(S/R_{ae}) * (D_s + (e^{-Rae*Dt}/R_{ae}) - (e^{Rae(Ds-Dt)}/R_{ae}))] / D_t$$

Where the equations to calculate the input values are:

(a) Indoor Air Generation Rate

$$S = (C_{wd} * FR) / SV$$

(b) Concentration Leaving Water Droplet

$$C_{wd} = C_{w0}(1-e^{((-KaL*ts)/60d)})$$

(c) Adjusted Mass Transfer Coefficient

$$K_{aL} = K_{L*} ((T_l * \upsilon_s)/(T_s * \upsilon_l))^{-1/2}$$

(d) Overall Mass Transfer Coefficient

$$K_L = [(1/k_l) + (R * T)/(HLC * k_g)]^{-1}$$

(e) Liquid Film Mass Transfer Coefficient

$$k_l = k_l(CO_2) * ((MW_{CO2})/(MW_{VOC}))^{1/2}$$

(f) Gas Film Mass Transfer Coefficient

$$k_g = k_{g(water)} * (MW_{water}/MW_{VOC})^{1/2}$$

Resident - Drinking Water: Table RW-6
Equations to Calculate Inhalation Exposure Concentration in the Shower (IEC_S)

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Parameter	Value	Units	Notes
IEC_S - Inhalation Exposure Concentration in shower	calculated	µg/m^3	see Table RW-7
S - Indoor air generation rate	calculated	µg/m^3-min	see Table RW-7
R_{ae} - Air Exchange Rate	8.33E-03	1/min	MADEP. 1995. Guidance for Disposal Site Risk Characterization. Appendix Table B-9.
D_s - Shower Duration for age group 1-8	45.7	min	see Table RW-8
	0.762	hour	see Table RW-8
D_t - Total Time in Shower Room for age group 1-8	65.7	min	see Table RW-8
D_s - Shower Duration for age group 8-15	42.1	min	see Table RW-8
	0.702	hr	see Table RW-8
D_t - Total Time in Shower Room for age group 8-15	66.4	min	see Table RW-8
D_s - Shower Duration for age group 15-31	32.8	min	see Table RW-8
	0.547	hr	see Table RW-8
D_t - Total Time in Shower Room for age group 15-31	62.8	min	see Table RW-8
C_{wd} - Concentration leaving water droplet	calculated	µg/l	see Table RW-7
FR - Shower Flow Rate	10	l/min	MADEP. 1995. Guidance for Disposal Site Risk Characterization. Appendix Table B-9.
SV - Shower room air volume	6	m^3	Ibid
C_{w0} - Shower water concentration	OHM-specific	µg/l	EPC. See Table RW-1
K_{aL} - Adjusted mass transfer coefficient	calculated	cm/hr	see Table RW-7
t_s - Shower droplet time	2	seconds	MADEP. 1995. Guidance for Disposal Site Risk Characterization. Appendix Table B-9.
d - Droplet diameter	1	mm	Ibid
60d = Droplet interfacial area	60	cm/hr-seconds	the specific interfacial area, 6/d, for a spherical droplet of diamter d (mm), multiplied by conversion factors, hr/3600 seconds and 100 mm/cm
K_L - Overall mass transfer coefficient	calculated	cm/hr	see Table RW-7
Tl = Calibration water temperature of K_L	293	°K	MADEP. 1995. Guidance for Disposal Site Risk Characterizaiton. Appendix Table B-9.
µs - Water viscosity at Ts	0.596	cp	Ibid
T_s - Shower water temperature	318	°K	Ibid
μ_1 - Water viscosity at T_l	1.002	cp	Ibid
k_l - Liquid film mass transfer coefficient	calculated	cm/hr	see Table RW-7
R - Universal Gas Constant	8.20E-05	atm-m^3/mol-°K	MADEP. 1995. Guidance for Disposal Site Risk Characterizaiton. Appendix Table B-9.
T - Absolute temperature	293	°K	Ibid
HLC - Henry's Law Constant	OHM-specific	atm-m^3/mol	see Table RW-7
k_g - Gas-film mass transfer coefficient	calculated	cm/hr	see Table RW-7
$k_l(CO_2)$ - Liquid-film mass transfer coefficient, CO_2	20	cm/hr	MADEP. 1995. Guidance for Disposal Site Risk Characterizaiton. Appendix Table B-9.
MW_{CO2} - Molecular weight of CO_2	44	g/mole	Ibid
MW_{VOC} - Molecular Weight of OHM	OHM-specific	g/mole	Ibid
$k_g(H_2O)$ - Gas-film mass transfer coefficient, water	3000	cm/hr	Ibid
MW_{H2O} - Molecular weight of water	18	g/mole	Ibid

Resident - Drinking Water: Table RW-7
Inhalation Exposure Concentration in the Shower (IEC_S)

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Oil or Hazardous Material	Henry's Law Constant HLC atm-m3/mol	Molecular Weight MW g/mole	INTERIM CALCULATIONS gas-film mass transfer coefficient k_g (cm/hr)	liquid-film mass transfer coefficient k_l (cm/hr)	Overall Mass Transfer Coefficient K_L (cm/hr)	Adjusted Mass Transfer Coefficient K_{aL} (cm/hr)	Concentration Leaving Water Droplet C_{wd} (µg/l)	Indoor Air Generation Rate S (µg/(m3-min))	**Inhalation Exposure Concentration $IEC_{S(1-8)}$ (µg/m^3)**	**Inhalation Exposure Concentration $IEC_{S(8-15)}$ (µg/m^3)**	**Inhalation Exposure Concentration $IEC_{S(15-31)}$ (µg/m^3)**
Methyl tert butyl ether	5.87E-04	88	1356.80	14.14	9.91	13.39	2.2E+00	3.6E+00	8.90E+01	8.52E+01	7.19E+01
Dichloroethane, 1,1-	5.62E-03	99	1279.20	13.33	12.76	17.24	2.6E-01	4.4E-01	1.08E+01	1.04E+01	8.73E+00
Dichloroethylene, 1,1-	2.61E-02	97	1292.32	13.47	13.34	18.02	4.5E-01	7.5E-01	1.86E+01	1.78E+01	1.50E+01
Dichloroethylene, cis-1,2-	4.08E-03	97	1292.32	13.47	12.69	17.14	1.3E+01	2.2E+01	5.56E+02	5.32E+02	4.49E+02
Tetrachloroethylene	1.77E-02	166	987.88	10.30	10.15	13.71	6.2E-01	1.0E+00	2.57E+01	2.46E+01	2.08E+01
Trichloroethane, 1,1,1-	1.72E-02	133	1103.65	11.50	11.34	15.32	4.8E+00	8.0E+00	1.98E+02	1.89E+02	1.60E+02
Trichloroethylene	9.85E-03	131	1112.04	11.59	11.30	15.27	1.3E+00	2.1E+00	5.26E+01	5.04E+01	4.25E+01

Resident - Drinking Water: Table RW-8
Definitions and Exposure Factors

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Parameter	Value	Units	Notes
ELCR - Excess Lifetime Cancer Risk	chemical specific	dimensionless	Pathway specific (ing =ingestion, derm=dermal, inh=inhalation)
HI - Hazard Index	chemical specific	dimensionless	Pathway specific (ing =ingestion, derm=dermal, inh=inhalation)
CSF - Cancer Slope Factor	chemical specific	$(mg/kg\text{-}day)^{-1}$	see Table RW-9
URF - Unit Risk Factor	chemical specific	$(\mu g/m^3)^{-1}$	see Table RW-9
RfD - Reference Dose	chemical specific	mg/kg-day	see Table RW-9
RfC - Reference Concentration	chemical specific	$\mu g/m^3$	see Table RW-9
LADD - Lifetime Average Daily Dose	chemical specific	mg/kg-day	Pathway specific. See Table RW-2
LADE - Lifetime Average Daily Exposure	chemical specific	$\mu g/m^3$	see Table RW-2
ADD - Average Daily Dose	chemical specific	mg/kg-day	Pathway specific. See Table RW-3.
ADE - Average Daily Exposure	chemical specific	$\mu g/m^3$	Pathway specific. See Table RW-3.
EPC - Exposure Point Concentration	chemical specific	µg/L	see Table RW-1
$VI_{(1-8)}$ - Volume Ingested for age group 1-8	1	L/day	MADEP. 1995. Guidance for Disposal Site Risk Characterization. Appendix B-9.
$VI_{(8-15)}$ - Volume Ingested for age group 8-15	2	L/day	Ibid
$VI_{(15-31)}$ - Volume Ingested for age group 15-31	2	L/day	Ibid
$RAF_{c/nc}$ - Relative Absorption Factor for Cancer/Noncancer Effects	chemical specific	dimensionless	Pathway specific
EF - Exposure Frequency	1.00	event/day	
$ED_{ing,derm}$ - Exposure Duration for ingestion or dermal exposure	1	day/event	
ED_{inh} - Exposure Duration for inhalation exposure for age group 1-8	0.046	day/event	Calculated: Total time in shower room for a 1 - 8 year old (65.7 min) / day (1440 min).
ED_{inh} - Exposure Duration for inhalation exposure for age group 8-15	0.046	day/event	Calculated: Total time in shower room for a 8 - 15 year old (66.4 min) / day (1440 min)
ED_{inh} - Exposure Duration for inhalation exposure for age group 15-31	0.044	day/event	Calculated: Total time in shower room for a 15 - 31 year old (62.8 min) / day (1440 min)
$EP_{(1-8)}$ - Exposure Period for age group 1-8	7	years	
$EP_{(8-15)}$ - Exposure Period for age group 8-15	7	years	
$EP_{(15-31)}$ - Exposure Period for age group 15-31	16	years	
$BW_{(1-8)}$ - Body Weight for age group 1-8	17.0	kg	U.S. EPA. 1997. Exposure Factors Handbook. Table 7-7, females.
$BW_{(8-15)}$ - Body Weight for age group 8-15	39.9	kg	U.S. EPA. 1997. Exposure Factors Handbook. Table 7-7, females.
$BW_{(15-31)}$ - Body Weight for age group 15-31	58.7	kg	U.S. EPA. 1997. Exposure Factors Handbook. Table 7-7, females.
$AP_{(lifetime)}$ - Averaging Period for lifetime	70	years	
$AP_{(noncancer)}$ - Averaging Period for noncancer	7	years	
IEC_S - Inhalation Exposure Concentration from showering	chemical specific	mg/m^3	Age group specific. See Table RW-7.
DA - Dose Absorbed through skin in shower	chemical specific	mg/cm^2-day	Age group specific. See Table RW-5.
$OAE_{c/nc}$ - Oral Absorption Efficiency for Cancer/Noncancer Effects	chemical specific	dimensionless	
$SA_{(1-8)}$ - Surface Area for age group 1-8	7130	cm^2	50th percentile for females. Appendix Table B-2. MADEP. 1995. Guidance for Disposal Site Risk Characterization.
$SA_{(8-15)}$ - Surface Area for age group 8-15	12800	cm^2	50th percentile for females. Appendix Table B-2. MADEP. 1995. Guidance for Disposal Site Risk Characterization.
$SA_{(15-31)}$ - Surface Area for age group 15-31	16731	cm^2	50th percentile for females. Appendix Table B-2. MADEP. 1995. Guidance for Disposal Site Risk Characterization.
D_s - Shower Duration for age group 1-8	45.7 0.76	min hour	U.S. EPA. 1997. Exposure Factors Handbook. Table 15-21. 95th percentile ages 1-8. Weighted average of 1-8 year age groups: ((4x50)+(3x40))/7= 45.7 minutes
D_t - Total Time in Shower Room for age group 1-8	65.7	min	U.S. EPA. 1997. Exposure Factors Handbook. Tables 15-21,23. Equals the shower duration (Ds) plus the number of minutes spent in the shower room immediately after showering (95th percentile): Ds + ((4*20)+(3*20))/7 = 65.7 minutes
D_s - Shower Duration for age group 8-15	42.1 0.70	min hr	U.S. EPA. 1997. Exposure Factors Handbook. Table 15-21. 95th percentile ages 8-15. Weighted average of 8-15 age groups: ((4x40)+(3x45)/7 = 42.1 minutes
D_t - Total Time in Shower Room for age group 8-15	66.4	min	U.S. EPA. 1997. Exposure Factors Handbook. Tables 15-21,23. Equals the shower duration (Ds) plus the number of minutes spent in the shower room immediately after showering (95th percentile): Ds + ((4*20)+(3*30))/7=66.4 minutes
D_s - Shower Duration for age group 15-31	32.8 0.55	min hr	U.S. EPA. 1997. Exposure Factors Handbook. Table 15-21. 95th percentile ages 15-31. Weighted average of 15-31 year age groups: ((3x45)+(13x30)/16 = 32.8 minutes.
D_t - Total Time in Shower Room for age group 15-32	62.8	min	U.S. EPA. 1997. Exposure Factors Handbook. Tables 15-21,23. Equals the shower duration (Ds) plus the number of minutes spent in the shower room immediately after showering (95th percentile): Ds + ((3*30)+(13*30))/16 = 62.8 minutes
DM - Dermal Multiplier	chemical specific	dimensionless	If Kp < 0.5 cm/hr, then 0.2. Otherwise 1.

Resident - Drinking Water: Table RW-9
Chemical-Specific Data

Vlookup Version v0808

Oil or Hazardous Material	CSF $(mg/kg\text{-}day)^{-1}$	URF $(\mu g/m^3)^{-1}$	$RAF_{c\text{-}ing}$	OAE_c	RfD mg/kg-day	RfC mg/m^3	$RAF_{nc\text{-}ing}$	OAE_{nc}	DM	Molecular Weight g/mole	log K_{ow}	Permeability Coefficient Kp cm/hr	Henry's Law Constant HLC $atm\text{-}m^3/mol$
Methyl tert butyl ether					1.0E-01	3.0E+00	1	1		88	1.05	2.51E-03	5.87E-04
Dichloroethane, 1,1-					1.0E-01	5.0E-01	1.3	0.75		99	1.79	6.71E-03	5.62E-03
Dichloroethylene, 1,1-					5.0E-02	2.0E-01	1	1		97	2.13	1.16E-02	2.61E-02
Dichloroethylene, cis-1,2-					1.0E-02	3.5E-02	1	0.84		97	1.86	7.66E-03	4.08E-03
Tetrachloroethylene	5.1E-02	1.0E-05	1	1	1.0E-02	4.6E+00	1	1		166	3.4	3.27E-02	1.77E-02
Trichloroethane, 1,1,1-					9.0E-02	5.2E+00	1	1		133	2.49	1.25E-02	1.72E-02
Trichloroethylene	1.1E-02	1.7E-06	1	1	2.0E-03	1.8E-01	1	1		131	2.42	1.16E-02	9.85E-03

Appendix H

Site-Specific Health and Safety Plan

Site Specific Health and Safety Plan for

General Chemical Corporation

133 Leland St.
Framingham, MA

mapquest

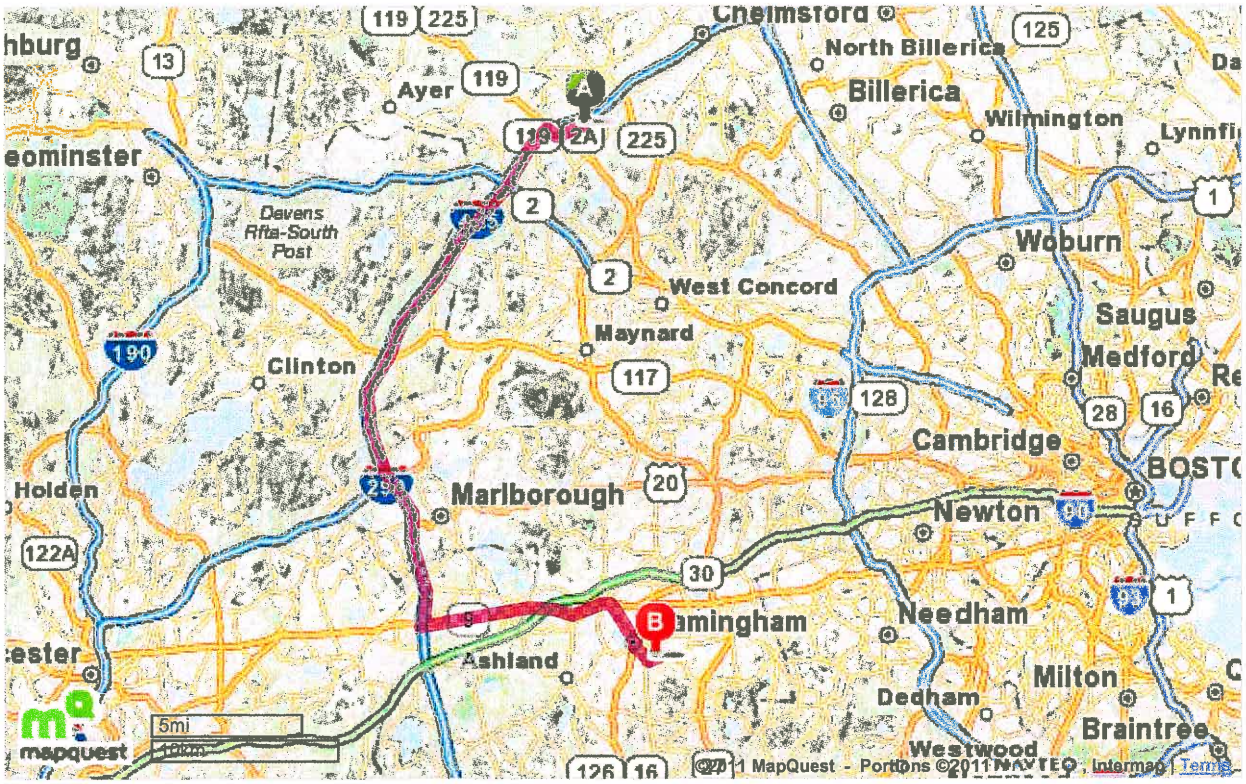
Notes

Trip to:
133 Leland St
Framingham, MA 01702-7463
32.83 miles
43 minutes

	364 Littleton Rd Westford, MA 01886-4056	**Miles Per Section**	**Miles Driven**
	1. Start out going SOUTHWEST on LITTLETON RD / RT-110 toward SHEA ST. Continue to follow RT-110.	**Go 1.1 Mi**	1.1 mi
119	2. Turn RIGHT onto GREAT RD / RT-119. *GREAT RD is just past MEETINGHOUSE RD* *If you reach STEVENS ST you've gone a little too far*	**Go 0.5 Mi**	1.6 mi
SOUTH 495	3. Merge onto I-495 S via the ramp on the LEFT toward MARLBORO. *If you reach CONSTITUTION AVE you've gone a little too far*	**Go 20.8 Mi**	22.4 mi
23A EXIT / EAST 9	4. Merge onto RT-9 E via EXIT 23A toward FRAMINGHAM.	**Go 7.2 Mi**	29.6 mi
RAMP	5. Take the ramp toward EDGELL RD. / MAIN ST. / FRAMINGHAM.	**Go 0.07 Mi**	29.7 mi
	6. Turn SLIGHT LEFT onto HIGH ST.	**Go 0.2 Mi**	29.9 mi
	7. Take the 2nd RIGHT onto MAIN ST. *MAIN ST is 0.1 miles past STATE ST* *If you are on RT-30 E and reach WORCESTER RD you've gone a little too far*	**Go 0.2 Mi**	30.1 mi
	8. Turn SLIGHT RIGHT onto UNION AVE.	**Go 1.5 Mi**	31.6 mi
126	9. Enter next roundabout and take the 1st exit onto RT-126.	**Go 0.2 Mi**	31.8 mi
	10. Turn LEFT onto IRVING ST. *If you are on HOLLIS ST and reach GORDON ST you've gone a little too far*	**Go 0.5 Mi**	32.3 mi
	11. Turn LEFT to stay on IRVING ST.		

	IRVING ST is just past SNOW ST *If you are on LORING DR and reach AARON ST you've gone about 0.2 miles too far*	**Go 0.2 Mi**	32.5 mi
	12. Take the 1st LEFT onto LELAND ST. *If you are on PROSPECT ST and reach PERRY ST you've gone about 0.7 miles too far*	**Go 0.3 Mi**	32.8 mi
	13. 133 LELAND ST is on the RIGHT. *Your destination is 0.1 miles past CROSS ST* *If you reach BEAVER ST you've gone about 0.1 miles too far*		32.8 mi
B	**133 Leland St** Framingham, MA 01702-7463	**32.8 mi**	**32.8 mi**

Total Travel Estimate: **32.83 miles - about 43 minutes**



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SITE HEALTH AND SAFETY PLAN

Prepared for

General Chemical Corporation
133-138 Leland St.
Framingham, MA

Prepared By: **Lisa Leclair** Date: 09/23/2011 Project # 1603978

I. GENERAL INFORMATION

A. Project Identification

1. Office: Westford, MA
2. Site Name: 133-138 Leland St., Framingham, MA General Chemical Corporation
3. Client: General Chemical Corporation
4. Work Location Address: 133-138 Leland St., Framingham, MA

B. Site History

1. Describe briefly:

The GCC facility encompasses approximately 1.75 acres. The site consists of approximately twelve acres in a mixed residential and industrial area. The study area includes the GCC facility, Woodrow Wilson School to the northeast, MWRA (Sudbury) Aqueduct to the south and southeast, CSX Transportation rail line to the south, a drainage ditch and associated wetlands further to the south, residential properties to the southwest and north along Leland Street, and the Exelon facility to the southeast.

C. Scope of Work

1. Describe briefly:

Gauging wells, Groundwater Sampling, Drilling – Soil Boring and Monitoring well installation, Chemical Injection/Remediation using Sodium Persulfate, Hydrogen Peroxide 6%.

☐ Site Visit only, Site HASP not necessary, list personnel here & sign-off below:

D. Hazard Assessment and Regulatory Status

1. Indicate ☒ types of hazards anticipated:

☒	Physio-chemical; Toxic Chemical – Levels	☐	>TLV-TWA, (N) >TLV-ST
☐	>IDLH(Y) Bio-Hazards	☐	Radiation
☒	Physical	☐	Construction type
☒	Industrial type	☐	Nuclear Industry type.

2. Site Regulatory Status. Check all that apply to the site:

☐	CERCLA/SARA	☒	U.S. EPA
☒	State	☐	NPL Site
☒	RCRA	☒	U.S. EPA
☐	State OSHA	☒	OSHA 1910 ☐ OSHA1926
☐	State; NRC	☐	10 CFR 20, Other Federal Agency
☐	DOE	☐	USACE

Based on the Hazard Assessment and Regulatory Status, determine the Standard HASP(s) applicable to this project. Indicate below which Standard Hasp will be used and append the appropriate pages of this Form along with the Standard Plan.

E. Review and Approval Documentation

1. Reviewed By:

a. P.M.	Stefan Sokol	Date: 09/23/2011
b. Site Manager	Felix Perriello	Date: 09/23/2011
c. HSO	Lisa Leclair	Date: 09/23/2011
d. CHS	Tom Baylis	Date: 09/23/2011
e. Engineering	Gerald Cresap	Date: 09/23/2011

2. Approved By: Tom Baylis _____ Date: _____
   i. (x) a. (CHSD)
   ii. ( ) b. Local Health and Safety Officer

Project Start Date: 09/23/2011 End Date: 09/23/2012

This Site HASP <u>must</u> be <u>Reissued/Re-approved</u> for any activities conducted after: 09/23/2012

Amendment Date (s): 1. 09/19/2011 (addition of Chemical Injection Activities) 2._____ 3._____4._____5._____

F. Key Personnel/Identification of Health and Safety Officer

1. <u>Key Personnel</u>

The following personnel and organizations are key to the activities at this site.

Client Representatives:

Organization//Branch	Name/Title	Address	Telephone
General Chemical Corporation	Roy Swartz/Compliance Manager	133 Leland St., Framingham, MA	Main – 508-872-5000 Direct – 508-596-0480
General Chemical Corporation	Stephen Ganley/ General Manager	133 Leland St., Framingham, MA	Main – 508-872-5000 Direct – 617-962-4777

Roles and Responsibilities:

Regulatory Agency Representatives

Organization/Branch	Name/Title	Address	Telephone
N/A			

Roles and Responsibilities:

N/A

GES Personnel

Organization/Branch	Name/Title	Address	Telephone
GES – Westford, MA	Stefan Sokol/PM LSP	364 Littleton Rd., Westford, MA	1-800-221-6119 ext. 3252
GES – Westford, MA	Felix Perriello/SOM	364 Littleton Rd., Westford, MA	1-800-221-6119 ext. 3290
GES – Westford, MA	Lisa Leclair /LHSO	364 Littleton Rd., Westford, MA	1-800-221-6119 ext. 3246
GES – Westford, MA	Gerald Cresap/Engineering	364 Littleton Rd., Westford, MA	1-800-221-6119 ext. 3268
GES – Westford, MA	Tom Baylis/CHSSE	440 Creamery Way, Suite 500, Exton, PA	800-426-9871 ext. 3021

Roles and Responsibilities:

(GES Subcontractors)

Organization/Branch	Name/Title	Address	Telephone
TBD			

Roles and Responsibilities:

II. Health and Safety E

A. Hazard Assessment

1. Background Review Complete ☒ Partial ☐ If partial, why?

2. Activities Covered Under this Plan

No.	Task/Subtask	Description	Schedule
1	Health and Safety	Review Health and safety plan tailgate safety meeting. Prior to commencement of activities, ensure proper personal protective gear in place, establish work zones, inspect electrical and/or mechanical equipment, inspect and calibrate monitoring equipment, document calibration readings, and keep instruments in a safe location.	Upon Entering site.
2	Reconnaissance	Perform site reconnaissance, site walk over, make note of all potential hazards including physical, chemical and or biological.	During each visit
3	Gauge and Sample	Gauge and Sample – Gauge and sample site monitoring wells. Collect samples from surface water.	Monthly
4	Document	Document any change in schedule, unusual or odd occurrences. Obtain appropriate samples for laboratory analysis and submit samples to the approved laboratory specified in the work scope for analysis. Call the office if work scope can not be completed.	During each visit

5	PUL Event	Dig Safe Mark out/ GPR/PUL event	TBD
6	Subsurface Clearance	Air knifing/Pre-clearing and Drilling Activities- Observe and instruct subcontractors on the advancement of soil borings and/or installation of monitoring wells.	TBD
7	Drilling/Monitoring Well Installation/Soil Borings	Drilling – Observe and instruct sub-contractors on the advancement of soil borings and/or the installation of monitoring wells. Take soil headspace readings and soil samples as needed.	TBD
8	Pilot Test	Pilot Test – Perform pilot test to determine system design parameters including collection of compliance samples.	TBD
9	System Installation	System Install – Install remediation system	TBD
10	O&M	O&M – Perform O&M Activities	TBD
11	Chemox	BIO Remediation – Observe and instruct contractors in the injection of Sodium Persulfate and Hydrogen Peroxide into injection wells.	TBD
12	Well Abandonment/Decommissioning	Well Abandonment & Well Repairs – Observe and instruct sub-contractors performing monitoring well decommissioning per state guidelines. If casing cannot be pulled out, it needs to be split in place or over drilled. Tremi/pressure grout bore holes and allow to settle before topping off.	TBD

3. Types of Hazards (Place a ☒ in each box to indicate presence/absence of hazard)

a. PhysioChemical ☐Flammable ☐Explosive ☐Corrosive
☒Reactive ☒O_2 Rich ☐O_2 Deficient [1]*

Chemically Toxic ☒Inhalation ☒Ingestion ☐Cont.
☒Absorb. ☒Carcin. ☐Mutagen
☐Terat. ☐OSHA 1910.1000 Substance
☐OSHA Specific Hazard Sub. Standard, Describe

b. Biological ☐Etiol. Agent ☒Other - Plant, insect, animal, [1]*

c. Radiation Ionizing ☐Internal Exposure ☐External exposure [1]*
Non-ionizing ☒UV ☐IR ☐RF ☐MicroW ☐LASER

d. Physical Hazards ☒[1]*

e. Construction Activities ☒[1]*

* The number in the [ ] refers to one of the following hazard evaluation forms. Complete hazard evaluation forms for each appropriate Hazard Class.

B. Source/Location of Contaminants and Hazardous Substances

1. Directly Related to Tasks

☒ Air ☒ Soil
☐ Other Surface ☒ Surface Water
☒ Groundwater Water ☐ Other _____

2. Indirectly Related to Work - Nearby Process(s) which could affect team members:

☐ Client Facility ☐ Nearby Non-client Facility. Describe:

None expected

☐ Client briefing arranged.

[1] Chemical Hazards

[a] Identify and attach Material Safety Data Sheets for all reagent type chemicals, solutions or other materials identified as or which in normal use could produce hazardous substances used in performing tasks related to tasks related to this project. ☐

[b] Chemical Contaminants of Concern ☐ If present, provide following data.

Hazardous Substance/ Tasks	Physical Properties and Characteristics*	Exposure Limits PEL/TLV**	Route(s)of Exposure***/ Symptoms	Monitoring Instruments/IP+ % Response
Acetone	**Clear, Colorless, fruity 50 ppm**	**500ppm TLV**	**Inhalation, ingestion skin or eye contact**	**Pid, IP – 9.69**

All tasks (*) State: liquid_____
PH _N/A___ FP -4 deg F LEL _2.6%___UEL_12.8%____
Auto. Ig. _869 deg. F___BP 133.2 deg. F____ MP__-139.6 deg. F___
Incompatible with – **Reactive with Oxidizing agents, reducing agents, acides, alkalis.**
Sp. Gr._.79_____Vap. D __2_____
Vap. P. 24 kPa @20deg. C_____ H2O Sol. __Easily Soluble in Water_____
Other _____

Hazardous Substance/ Tasks	Physical Properties and Characteristics*	Exposure Limits PEL/TLV**	Route(s)of Exposure***/ Symptoms	Monitoring Instruments/IP+ % Response
Benzene	**Clear, colorless,liquid, aromatic**	**1 ppm PEL**	**Inhalation, ingestion, skin or eye contact**	**Pid, IP – 9.25**

All tasks (*) State __liquid_____
PH _**NA**___ FP 12deg. F____ LEL __1.2%___ UEL__7.8%___
Auto. Ig. __928 deg F_____BP _176.2 deg. F____ MP__41.9 deg. F___
Incompatible with – **Benzene vapors and chlorine and light causes explosion Reacts explosively with bromine pentafluoride, chlorine, chlorine trifluoride, diborane, nitric acid, nitryl perchlorate, liquid oxygen, ozone, silver perchlorate**
Sp. Gr._.8787 g/cm3 at 15 deg C_____Vap. D ___2.8_____
Vap. P. _10kPa_____ H2O Sol. _Slightly soluble in cold water_____
Other _____

1,1 Dichloroethane	**Clear Colorless Liquid**	**100 ppm PEL**	**Inhalation, ingestion, skin or eye contact**	**Pid, IP – 11.12**

All tasks (*) State ___Liquid_____
PH _N/A___ FP 1.4 deg. F____ LEL _5.6%____ UEL 11.4%_____
Auto. Ig. _856.4 deg. F_____BP _135.1 F____ MP_-142.4 deg. F____
Incompatible with – **Reactive with oxidizing agents, alkalis**_____
Sp. Gr._1.175 _____Vap. D ___3.44_____
Vap. P. __180 mm Hg_____ H2O Sol. Partially soluble in diethyl ether_____
Other _____

1,2 Dichloroethane	**Liquid**	**10 ppm TLV**	**Inhalation,skin or eye contact.**	**Pid, IP – 11.12**

All tasks (*) State __Liquid_____
PH _N/A___ FP 55.4_deg F_ LEL _6.2%____ UEL_15.6%____
Auto. Ig. _775.4_____BP __182.3deg F___ MP___-31.5 deg F__
Incompatible with – **NA.**
Sp. Gr.__1.2351_____Vap. D __3.42_____
Vap. P. __61 mm Hg_____ H2O Sol. __Very slightly in cold water____
Other _____

1,1 Dichloroethylene	**Clear, colorless,liquid, sweet**	**100 ppm PEL**	**Inhalation, ingestion, skin or eye contact**	**Pid, IP - 9.60**

All tasks (*) State __liquid_____
PH _NA___ FP -17.8deg. C____ LEL __7.3%___ UEL__16%___
Auto. Ig. _ 570 deg. C_____BP _31.9 deg. C____ MP__ ___
Incompatible with – **Powdered alkali or alkaline earth metals, strong oxidizing agents**
Sp. Gr._1.218 g/cm3_____Vap. D ___3.25_____
Vap. P. _500 mmHg_____ H2O Sol. _Insoluble_____
Other _____

Hazardous Substance/ Tasks	Physical Properties and Characteristics*	Exposure Limits PEL/TLV**	Route(s)of Exposure***/ Symptoms	Monitoring Instruments/IP+ % Response
1,2 Dichloroethylene	**Clear, colorless,liquid**	**200 ppm**	**Inhalation, ingestion, skin or eye contact**	**Pid, IP -9.65**

All tasks (*) State __**liquid**_____
PH _**NA**___ FP **50deg. F**____ LEL __**6%**___ UEL__**36.5%**___
Auto. Ig. __**NA**_____BP _**65 deg. C**____ MP__**-98deg. C**___
Incompatible with – **Oxidizing agents, chromic anhydride, lead perchlorate, perchloric acid**
Sp. Gr._**.790 g/cm3**_____Vap. D ___**1.10**_____
Vap. P. _**100 mmHg**_____ H2OSol. _**100 %**_____
Other _____

Ethyl Benzene	**Colorless liquid, sweetlike odor**	**100 ppm PEL**	**Inhalation, ingestion, skin Or eye contact**	**Pid, IP-8.77**

All tasks (*) State ___Liquid_____
PH _N/A___ FP 70 deg. F____ LEL _0.8-1.6%____ UEL 6.7-7%_____
Auto. Ig. _809.6 deg. F_____BP _176.8 deg. F____ MP_-138.8 deg. F____
Incompatible with – **Reactive with oxidizing agents**_____
Sp. Gr._0.867_____Vap. D ___3.66_____
Vap. P. __0.9 kPa_____ H2O Sol. _very slightly soluble in water or practically insoluble in water_____
Other _____

Freon 113	**clear colorless liquid, ethereal odor**	**1000ppm PEL**	**Inhalation, Ingestion, skin or eye contact**	**Pid, IP -11.78**

All tasks (*) State __liquid_____
PH _N/A___ FP will not burn__ LEL _N/A____ UEL_N/A____
Auto. Ig. _N/A_____BP __118 deg F___ MP__NA___
Incompatible with – **Alkalai or Alkaline earth metals, powdered Al, Zn, Be, etc.**
Sp. Gr.__1.57_____Vap. D __2.9_____
Vap. P. __6.46_____ H2O Sol. __.02%_____
Other _____

Methylene Chloride	**Liquid, Clear, colorless**	**25 ppm PEL**	**Inhalation, ingestion, skin or eye contact**	**Pid, IP -11.32**

All tasks (*) State __liquid_____
PH _NA___ FP NA ____ LEL __12%___ UEL__19%___
Auto. Ig. _1032.8 deg F_____BP _103.5 deg. F____ MP__-142.1 deg. F___
Incompatible with – **NA**
Sp. Gr._1.3266 g/cm3_____Vap. D __2.93_____
Vap. P. _46.5 kPa_____ H2O Sol. _Partially soluble in cold water_____
Other _____

Hazardous Substance/ Tasks	Physical Properties and Characteristics*	Exposure Limits PEL/TLV**	Route(s)of Exposure***/ Symptoms	Monitoring Instruments/IP+ % Response
Napthalene	**Solid, white aromatic**	**10ppm PEL**	**Inhalation, ingestion, skin or eye contact**	**Pid, IP-8.13**

All tasks (*) State ___Solid_____
PH _**N/A**___ FP 190.4 deg. F____ LEL _0.9%____ UEL 5.9%_____
Auto. Ig. _1052.6 deg. F_____BP _424.4 deg F____ MP_176.4eg. F____
Incompatible with – **Highly reactive with oxidizing agents**_____
Sp. Gr._1.162_____Vap. D ___4.4_____
Vap. P. __NA_____ H2O Sol. _Very slightly soluble in cold water, hot water_____
Other _____

Styrene	**colorless liquid, sweet aromatic**	**20 ppm TLV**	**Inhalation, ingestion, skin or eye contact**	**Pid, IP -8.47**

All tasks (*) State __liquid_____
PH _N/A___ FP 88 deg F__ LEL _1.1%____ UEL_6.1%____
Auto. Ig. _914 deg F_____BP __293.4 deg. F___ MP__NA___
Incompatible with – **NA**
Sp. Gr.__0.906_____Vap. D __3.59_____
Vap. P. __4.5 mm Hg_____ H2O Sol. __Very slightly soluble in cold water____
Other _____

Tetrachloroethylene	**colorless to light yellow Liquid**	**25 ppm PEL**	**Inhalation, ingestion, skin or eye contact**	**Pid, IP -9.32**

All tasks (*) State **__liquid_____**
PH **_N/A___** FP **N/A__** LEL **_N/A____** UEL**_N/A____**
Auto. Ig. **_N/A**_____BP _____ MP_____
Incompatible with – **Oxidizing agents, metals.**
Sp. Gr.**__1.625**_____Vap. D **__5.8**_____
Vap. P. **__N/A**_____ H2O Sol. **__Very slightly**_____
Other _____

Toluene	**colorless liquid, sweet odor**	**50ppm TLV**	**Inhalation, ingestion, skin or eye contact**	**Pid, IP -8.82**

All tasks (*) State __liquid_____
PH _N/A___ FP 40 deg F.__ LEL _1.1%____ UEL_7.1%____
Auto. Ig. 896 deg. F_____BP __231.1 deg. F___ MP___-139 deg. F__
Incompatible with – **Reactive with oxidizing agents**
Sp. Gr.__0.8636_____Vap. D __3.1_____
Vap. P. __3.8 kPa_____ H2O Sol. __Insoluble_____
Other _____

Hazardous Substance/ Tasks	Physical Properties and Characteristics*	Exposure Limits PEL/TLV**	Route(s)of Exposure***/ Symptoms	Monitoring Instruments/IP+ % Response
1,1,1 Trichloroethane	**Liquid**	**350 ppm PEL**	**Inhalation, ingestion, skin or eye contact**	**Pid, IP -11.00**

All tasks (*) State __liquid_____
PH _N/A___ FP NA__ LEL _7.5%____ UEL_12.5%____
Auto. Ig. _998.6 deg F_____BP __165.4 deg. F___ MP__-26.5 deg. F___
Incompatible with – **NA**
Sp. Gr**.__1**.3376_____Vap. D __4.6_____
Vap. P. __**1**00 mmHg_____ H2O Sol. __Very slightly soluble in cold water_____
Other _____

Trichloroethylene	**Clear, Colorless, sweet odor**	**50 ppm 100 ppm STEL**	**Inhalation, ingestion, skin or eye contact**	**Pid, IP -9.47**

All tasks (*) State liquid_____
PH _N/A___ FP NA LEL _12.5____UEL_90.0____
Auto. Ig. _778 deg. F_____BP _189 deg. F____ MP__-121 deg. F___
Incompatible with – **Alkalis, chemically active metals, epoxies and oxidants. Can react violently with aluminum, barium, lithium, magnesium, liquid oxygen, ozone, potassium hydroxide, potassium nitrate, sodium, sodium hydroxide, titanium, and nitrogen dioxide. Reacts with water under heat and pressure to form hydrogen chloride gas.**
Sp. Gr._1.47_____Vap. D __4.53_____
Vap. P. 58 mm Hg @20deg. C_____ H2O Sol. __Insoluble in water._____
Other _____

Vinyl Chloride	**Colorless gas, sweetlike odor**	**1 ppm**	**Inhalation,skin or eye contact**	**Pid, IP-10.00**

All tasks (*) State ___**Gas**_____
PH _**N/A**___ FP **-108deg. F**____ LEL _**3.6%**____ UEL **33%**_____
Auto. Ig. _**882 deg. F**_____BP _**9deg. F**____ MP_**-245deg. F**____
Incompatible with – **Metal carbide, metals, oxidizing materials, peroxides**_____
Sp. Gr._**.9106**_____Vap. D ___**2.2**_____
Vap. P. __**2515.6 mm Hg**_____ H2O Sol. _**.25%**_____
Other _____

Xylenes	**Colorless liquid**	**100 ppm TLV**	**Inhalation, Ingestion, skin or eye contact**	**Pid, IP – 8.50**

All tasks (*) State ___Liquid_____
PH _N/A___ FP 77 deg. F____ LEL _1.1%____ UEL 7%_____
Auto. Ig. _980.6 deg. F_____BP _280.4deg. F____ MP_53.6 deg. F____
Incompatible with – **Reactive with oxidizing agents**_____
Sp. Gr._.0.86_____Vap. D ___3.7_____
Vap. P. __9 mm Hg_____ H2O Sol. Insoluble in cold or hot water_____
Other _____

CHEMICAL INJECTION MATERIALS TO BE USED:

Hazardous Substance/ Tasks	Physical Properties and Characteristics*	Exposure Limits PEL/TLV**	Route(s)of Exposure***/ Symptoms	Monitoring Instruments/IP+ % Response
Sodium Persulfate - Oxidizer	**White, odorless crystals**	**.1 mg/m3**	**Inhalation, Ingestion, skin or eye contact**	**NA**
All tasks (*) State ___Solid_____ PH _5.0-7.0___ FP NA____ LEL _NA___ UEL NA____ Auto. Ig. _NA_____BP _NA___ MP_NA____ Incompatible with – **Acids, alkalis, halides, combustible materials, heavy metals, oxidizable materials, other oxidizers, reducing agents, cleaners, and organic or carbon containing compounds.** Sp. Gr._2.6 _____Vap. D ___NA_____ Vap. P. __NA_____ H2O Sol. 73%_____ Other _____				

Hydrogen Peroxide – Clear,Odorless Liquid (31% highest concentration possible)		**1ppm PEL**	**Inhalation, Ingestion, skin or eye contact**	**NA**
All tasks (*) State ___Liquid_____ PH _NA___ FP NA____ LEL _NA__ UEL NA___ Auto. Ig. _NA_____BP _108 degrees C____ MP_-33 degrees C__ Incompatible with – **Reactive with Reducing agents, combustible materials, organic materials, metals, alkalis.**_____ Sp. Gr._1.1_____Vap. D __1.1_____ Vap. P. __3.1 kPa_____ H2O Sol. Easily soluble in cold water.___ Other _____				

* E = Explosive, F = Flammable, C = Corrosive, R = Reactive, W = Water reactive,
O = Oxidizer, Ra = Radioactive. State = Normal physical state at site/proj. temp.
** Use lowest of two, if no TLV/PEL, use Toxicity data in following order: Lowest Toxic Conc. in humans (LTC-HMN), Lowest Lethal Conc. in humans (LLC-HMN), Lowest Toxic Dose in humans (LTD-HMN), Lowest Lethal Dose in humans (LLD-HMN), LC_{50} or LD_{50} in humans, the Lowest Toxic Concentration or Lowest Toxic Dose in animals, the lowest LC_{50} or LD_{50} in animals.

*** I = Inhalation, G = Ingestion, S = Skin Absorption, C= Contact, D - Direct Penetration
+ IP = Ionization Potential

[2] Biological Hazards of Concern

Hazard	Y/N	LocationTask	Source	Route of Exposure	Team Member(s) Allergic?/Immnunization required?
Poisonous Plants	Y	All	S	S,C,D	Unknown
Snakes, Reptiles	Y	All	S	D	Unknown

Animals	Y	All	S	D	Unknown
Sewage	N				
Etiologic Agents	N				

*List all Task Nos. that would involve potential exposure to these hazard(s).
**K = Known, S = Suspect, I = Inhalation, G = Ingestion, C = Contact, D = Direct Penetration (Bite, Inject., Open wound or sore)

[3] Radiation Hazards of Concern : Not Applicable

TYPE
1. Ionizing

Radionuclide	Location/Source	Type Emitter	Task #	Exposure Limits	Protection Protocol Reference
NA	NA	NA	NA	NA	NA

2. Non-ionizing

Radionuclide	Location/Source	Type Emitter	Task #	Exposure Limits	Protection Protocol Reference
Ultra Violet	All	Sun	All	NA	PPE/Sunscreen
Infra Red					
Microwave					
Radio- Freq					
LASER					

[4] **Physical Hazards of Concern**

	Protection OP(s)	Hazard (Y/N)	Task No.	Protection Protocol Attached
1	Noise	Y	6,7,8,9,10,11,12	X
2	Heat – ambient air	Y	All	X
3	Cold	Y	All	X
4	Rain	Y	All	X
5	Snow	Y	All	X
6	Electric Storms	Y	All	X
7	Confined Space Entry	N		
8	"Hot Work"	Y	6,7,9,12	X
9	Heavy Manual Lifting /Moving	Y	All	X
10	Rough Terrain	Y	All	X
11	Housekeeping	Y	All	X
12	Structural Integrity	N		
13	Neighborhood	Y	All	X
14	Remote Area	Y	All	X
15	Compressed Gases	Y	6,7,8,10,11	X
16	Diving	N		
17	Using Boats	N		
18	Working over Water	N		
19	Traffic	Y	All	X
20	Explosives	N		
21	Heavy Equipment Operation	Y	6,7,8,9,11,12	X
22	Lifting Equipment Operation: Cranes	Y	9	X
	Lifting Equipment Operation: Manlifts	N		
23	Working at Elevation	Y	9	X
24	Using Ladders	Y	9,10	X
25	Using Scaffolding	N		
26	Excavating/Trenching	Y	9	X
27	Materials Handling	Y	3,8,11	X
28	Haz. Mat. Use/Storage: Flam Liq/Gases	N		
	Oxidizers	Y	8,11	X
	Corrosives	Y	3	X
29	Fire Prevention/Response Plan Required	Y	All	X
30	Fire Extinguishers required	Y	6,7,8,9,10,11,12	X
31	Utilities-Underground	Y	6,7,8,9,11,12	X
	Utilities-Overhead	Y	6,7,8,9,11,12	X
32	Electrical – General	Y	6,7,8,9,10,11,12	X
33	Welding/cutting/burning	Y	6,7,9,12	X
34	Hand Tools	Y	All	X
35	Power Hand Tools	Y	6,7,8,9,10,11,12	X
36	High Pressure Water	Y	8,11	X
37	Other			

38	Other			
39	Other			
40	Other			

TASK BY TASK RISK ANALYSIS

TASK DESCRIPTION

See JSA's for each individual TASK

EQUIPMENT REQUIRED/ USED
(Be specific, e.g. hand tools, heavy equipment, instruments, PPE)

POTENTIAL HAZARDS/ RISKS

Chemical

☐ Hazard Present Risk Level ☐ H ☐ M ☐ L

Physical

☐ Hazard Present Risk Level ☐ H ☐ M ☐ L

Biological

☐ Hazard Present Risk Level ☐ H ☐ M ☐ L

Radiological

☐ Hazard Present Risk Level ☐ H ☐ M ☐ L

LEVELS OF PROTECTION/ JUSTIFICATION

SAFETY PROCEDURES REQUIRED AND/OR FIELD OPS UTILIZED

III. PERSONNEL PROTECTION PLAN

A. Engineering Controls

Describe Engineering Controls used as part of Personnel Protection Plan:

B. Administrative Controls

Describe Administrative controls used as part of Personnel Protection Plan:

C. Personnel Protective Equipment *

Action Levels for Changing Levels of Protection:

Task #	Define Action Levels for up or down grade for each task
All	PID level that exceed 5ppm in the breathing zone for sustained 10-15 minute period of time, leave work area. If levels exceed 5 ppm in the breathing zone, all work must stop, the GES Director, Corporate H&S contacted and work cannot continue until a thorough evaluation is conducted. Work activities can only continue if levels fall below 5 ppm. If levels continue above 5 ppm, only individuals who are medically qualified to wear respiratory protection are permitted to consinue work activities. Modified Level C, half Face repiratory protection must be worn; investigate the cause of elevated VOC measurements.

D. Description of Levels

All Tasks

		Level C	**Level D**
Head		Hard hat	Hard hat
Eye & Face		Safety glasses and half face respirator,	Safety glasses, face shield, goggles
Hearing		If levels exceed 85 dBA	If levels exceed 85 dBA
Arms & Legs only		Long pants, sleeved shirt	Long pants, sleeved shirt
Whole Body		Tyvek	Work clothes w/safety vest
Apron			
Hand – gloves		Leather/Nitrile/Kevlar gloves depending on the task. Consult JSA for PPE Requirements	Leather/Nitrile/Kevlar gloves depending on the task. Consult JSA for PPE Requirements
- Gloves			
Foot – boots		Steel toed Shoes/Chemical booties	Steel toed Shoes
APR – Ned. Pres.			NA

Half Face		Half Face Respirator	NA
Cart./Canister		Organic Vapor/HEPA Filter	
Full face			NA
SAR – Airline			NA
SCBA			NA
Comb. Airline/SCBA			NA
Cascade System			NA
Compressor			NA
Fall Protection		Harness and lanyard	Harness and lanyard
Floatation		Live vest	Live vest

IV. SITE OR PROJECT MONITORING PROGRAM

A. Direct Reading Air Monitoring Instruments

Instrument Selection & Initial Check Record

	No.	Task No.(s)	No.	Instrument Checked Upon Receipt Initials
CGI				
O2				
CGI/O2				
CGI/O2/tox-PPM, HXS, HXS/CO	Y	3,6,7,8,9,10,11,12		
RAD-GM,				
- NaI				
- ZnS				
- Other				
PID				
- HNU 10.2				
- HNU 11.7				
- OVM	Y	3,6,7,8,9,10,11,12		
- PHOTOVAC, TMA, OTHER				
FID				
- FOX-128				
- FOX 120GC				
HEATH, AID, OTHER				
RAM, Mini-RAM, Other				
Monitox,-HCN				
H2S				
COCL				
SO2				
OTHER				
Bio-Aerosol Monitor				
Detector Tubes				
Pump – MSA, Draeger,				

Sensidyne				
- Tubes (No./Type)				
- Tubes (No./Type)				

Reporting Format: 1. ☐ Field notebook. 2 ☐ Field data sheets 3 ☐ Air monitoring log 4 ☐ Trip report
5 ☐ Other: Communication with Project Manager, Site Operations Manager and CHIS

B. Action Levels

1. Explosive atmosphere: Tasks:

Action Level	Action
<10% LEL	Continue investigation
10%-20% LEL	Implement continuous on-site monitoring . Eliminate all sources of ignition from work area. Discontinue any confined space work and retreat out of confined space
>20% LEL	Explosion hazard. Retreat from work area.

2. Oxygen: Tasks:

Action Level	Action
<19.5%	Monitor wearing SCBA or retreat from area. NOTE: Combustible gas readings may not be valid in atmospheres with <19.5% oxygen.
19.5%-23.5%	Continue investigation with caution, as Oxygen levels > 21% require extreme caution. Other than normal level may be due to presence of other substances.
>23.5%	Fire hazard potential. Stop work, retreat from area, and consult a fire safety specialist.

3. Radiation: Tasks:

Action Level	Action
3 x Bkg - <2 mR/hr	Radiation above background levels (normally 0.01-0.02 mR/hr)g signifies possible source(s) radiation present. Continue investigation with caution. Perform thorough monitoring. **Consult with a health physicist.**
> 2 mrem/hr	Potential radiation hazard. Evacuate site. Continue investigation only upon the advice of a health physicist.

4. Organic gases and vapors:

5. Inorganic gases and vapors:

Action Level	Action
Depends on chemical	Consult standard reference manuals for air concentration/toxicity data. Action level depends on PEL/REL/TLV.

These Action Levels, if not defined by regulation, is some percent (usually 50%) of the applicable PEL/REL/TLV. That number must also be adjusted to account for instrument response factors.

DECONTAMINATION PLAN

1. Personnel Decontamination

Section III C. lists the tasks and specific levels of protection required for each. Consistent with the levels of protection required, step by step procedures for personnel decontamination for each Level of Protection are attached.

2. Levels of Protection Required for Decontamination Personnel

The levels of protection required for personnel assisting with decontamination will be:
☐Level B ☐Level C ☒Level D

Modifications include:

Personnel will remove contaminated clothing by using an inside method and will remove the most contaminated clothing such as gloves and protective over boots first.

3. Disposition of Decontamination Wastes

(Provide a description of waste disposition including identification of storage area, hauler, and final disposal site if applicable.)

None anticipated.

4. Equipment Decontamination

A procedure for decontamination steps required for non-sampling equipment and heavy machinery follows:

GES Protocol

5. Sampling Equipment Decontamination

Sampling equipment will be decontaminated in accordance with the following procedure:

GES Protocol

V. CONTINGENCIES

A. Emergency Contacts and Phone Numbers

Agency	Contact	Phone Number
Local Medical Emergency Facility	Framingham Union Hospital	911
Fire Department	City of Framingham Fire Department	911
Police Department	City of Framingham Police Department	911
On Site Coordinator		
Site Telephone		
Nearest Telephone (Location)		

B. LOCAL MEDICAL EMERGENCY FACILITY(S)

1. Primary

Name of Hospital: **Framingham Union Hospital**

Address: **115 Lincoln St., Framingham, MA** Phone No.: **508-383-1000**

Name of Contact _____ Phone No. _____

Type of Service - Physical Trauma only ☐ Chemical Exposure only ☐ Physical Trauma & Chemical Exposure ☒ Available 24 Hours ☒

Route to Hospital: (Attach Map)

Take a left onto Leland St., then take a right onto Irving St./Rt. 126. Stay on Rt. 126 through rotary circle. Take a left onto Lincoln St. and follow hospital signs.

Travel Time From Site (Minutes): **5 minutes**
Distance to Hospital (Miles): **1.72 miles**
Name/No. of 24 Hr. Ambulance Service: **911**

2. Secondary or Specialty Services Provider – **Occupational Clinic in area for NON_EMERGENCIES.**

Name of Hospital: **Fallon Clinic**

Address: **85 Lincoln St., Framingham, MA** Phone No. **508-370-7344**

Name of Contact _____ Phone No. _____

Type of Service - Physical Trauma only ☐ Chemical Exposure only ☐ Physical Trauma & Chemical Exposure ☒ Available 24 Hours ☐

Route to Hospital: (Attach Map): **Take a left onto Leland St., then take a right onto Irving St./Rt. 126. Stay on Rt. 126 through rotary circle. Take a left onto Lincoln St.**

Travel Time From Site (Minutes): **5 minutes**
Distance to Hospital (Miles): **1.65 miles**
Name/No. of 24 Hr. Ambulance Service: **911**

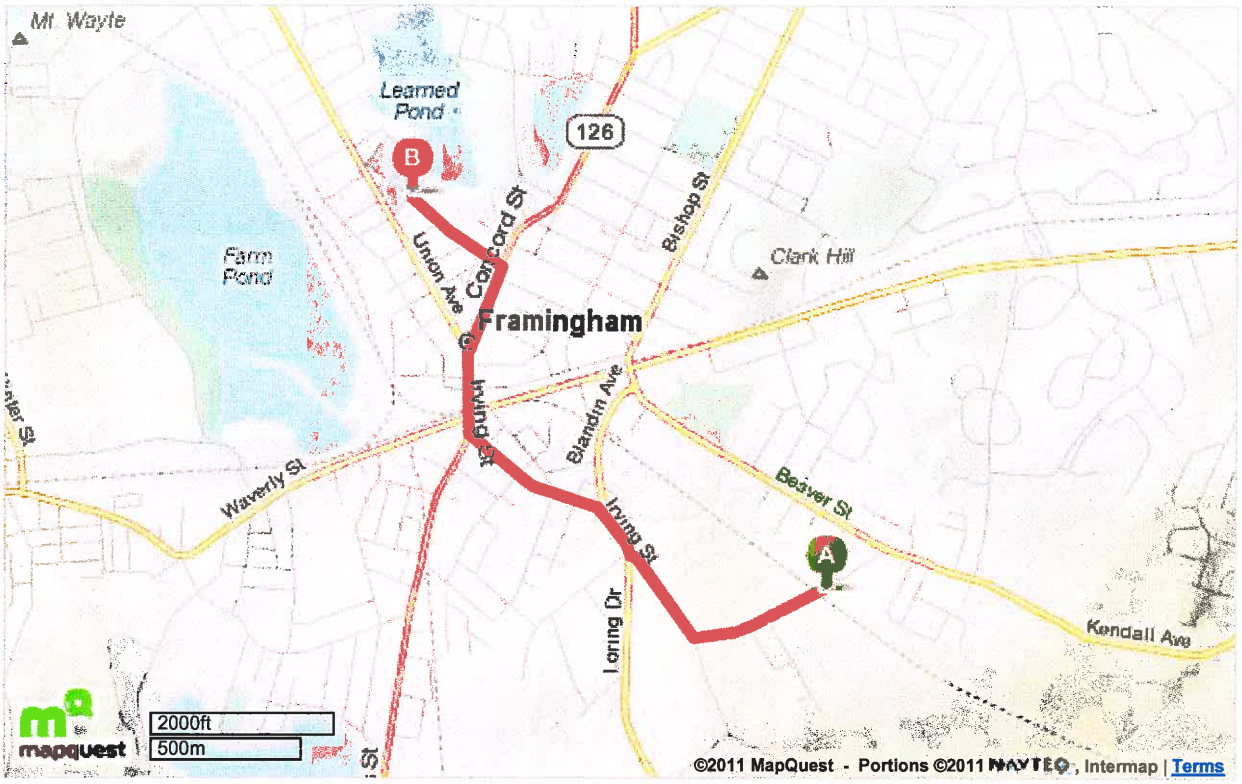
mapquest

Notes

Trip to:
Framingham Union Hospital
115 Lincoln St
Framingham, MA 01702
(508) 875-0012
1.72 miles
5 minutes

	133 Leland St Framingham, MA 01702-7463	**Miles Per Section**	**Miles Driven**
	1. Start out going SOUTHWEST on LELAND ST toward CROSS ST.	**Go 0.3 Mi**	0.3 mi
	2. Turn RIGHT onto IRVING ST.	**Go 0.2 Mi**	0.6 mi
	3. Take the 1st RIGHT to stay on IRVING ST. *If you are on HERBERT ST and reach WELLINGTON AVE you've gone about 0.1 miles too far*	**Go 0.5 Mi**	1.1 mi
126	4. Turn RIGHT onto IRVING ST / RT-126. Continue to follow RT-126.	**Go 0.2 Mi**	1.3 mi
126	5. Enter next roundabout and take the 1st exit onto CONCORD ST / RT-126.	**Go 0.2 Mi**	1.5 mi
	6. Turn LEFT onto LINCOLN ST. *If you reach OLIVER ST you've gone a little too far*	**Go 0.3 Mi**	1.7 mi
	7. 115 LINCOLN ST is on the RIGHT. *Your destination is just past HENRY ST* *If you reach EVERGREEN ST you've gone a little too far*		1.7 mi
	Framingham Union Hospital 115 Lincoln St, Framingham, MA 01702 (508) 875-0012	**1.7 mi**	**1.7 mi**

Total Travel Estimate: **1.72 miles - about 5 minutes**



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V. CONTINGENCIES (Continued)

C. Response Plans

1. Medical - General
2. Special First Aid Procedures
3.

Hydrofluoride on site: Yes ☐ No ☒

a. First Aid Kit - Type - Location

☒ In vehicle
☐
☐

Cyanides on site Yes ☐ No ☒

b. Eyewash required Yes ☒ No ☐

Location
In vehicle

Location

c. Safety Shower Yes ☐ No ☒

Location

Location

3. Plan for Response to Fire/Explosion

If an individual observes the initiation of a fire, he/she should only attempt to control the fire if they feel that they will not place themselves at risk and they are trained to properly use the extinguisher onsite. If not, evacuate from the area by the nearest safest route available.

4. Fire extinguisher

a. Type	b. Location
Dry chemical	Site vehicle
ABC	Drill Rig
	Excavation Equipment

5. Plan for Response to Spill/Release

None Anticipated

6. Spill Response Gear

Description	Location
NA	

7. Plan for Response to Security Problems

None Anticipated

(a)Training - All personnel, including visitors, entering the exclusion or contamination reduction zones must have certifications of completion of training in accordance with OSHA 29 CFR 1910 29, CFR 1926/1910 or 20 CFR 1910.120.

(b)Respirator Fit Testing - All persons, including visitors, entering any area requiring the use or potential use of any negative pressure respirator must have had as a minimum, a qualitative fit test, administered in accordance with OSHA 20 CFR 1910.134 or ANSI within the last 12 months. If site conditions require the use of a full face negative pressure, air purifying respirator for protection from Asbestos or Lead, employees must have had a quantitative fit test, administered according to OSHA 20 CFR 1910.1002 or 1025 within the last 6 months.

(c)Medical Monitoring Requirements - All personnel, including visitors, entering the exclusion or contamination reduction zones must be certified as medically fit to work, and to wear a respirator, if appropriate, in accordance with 29 CFR 1910, 20 CFR 1926/1910 or 29 CFR 1910.120.

The Site Health and Safety Coordinator is responsible for verifying all certifications and fit tests.

VII HEALTH AND SAFETY PLAN APPROVAL/SIGN OFF

1. Site Name 2. WO#

Work Location Address:

I have read, understood, and agreed with the information set forth in this Health and Safety Plan (and attachments) and discussed in the Personnel Health and Safety briefing.

Site Supervisor - Name	**Signature**	**Date**

Site Supervisor - Name	Signature	Date

Site Supervisor - Name	Signature	Date

Site Supervisor - Name	Signature	Date

Site Supervisor - Name	Signature	Date

VIII Training and Briefing Topics

The following items will be covered at the site specific training meeting, daily or periodically.

Site Specific Training Meeting

Daily	Periodically	
☒	☐	Site characterization and analysis, Sec. 3.0, 29 CFR 1910.120 i.
☒	☐	Physical hazards, Table 3.2.
☒	☐	Chemical hazards, Table 3.1.
☒	☐	Animal bites, stings and poisonous plants.
☐	☒	Etiologic (Infectious) agents.
☒	☐	Site control, Sec. 8.0; 29 CFR 1910.120 d.
☒	☐	Engineering controls and work practices, Sec. 8.5; 29 CFR 1910.120 g.
☐	☒	Heavy machinery.
☐	☐	Forklift
☐	☐	Backhoe
☒	☐	Equipment
☒	☐	Tools
☐	☒	Ladder 29 CFR 1910.27 d.
☒	☐	Overhead and underground utilities
☐	☐	Scaffolds
☐	☐	Structural Integrity
☐	☒	Unguarded openings - wall, floor, ceilings (?).
☐	☒	Pressurized Air Cylinders
☒	☐	Personnel protective equipment, 29 CFR 1910.120 g; 29 CFR 1910.134.
☒	☐	Respiratory Protection , 29 CFR 1910.120 g; Z88.2-1980.

☐	☐	Level A
☐	☐	Level B
☐	☒	Level C
☒	☐	Level D
☒	☐	Monitoring, 29 CFR 1910.120 h.
☒	☐	Decontamination, 29 CFR 1910.120 k.
☒	☐	Emergency Response, 29 CFR 1910.120 l.
☒	☐	Elements of an Emergency Response, 29 CFR 1910.120 l.
☒	☐	Procedures for Handling Site Emergency Incidents, 29 CFR 1910.120 l.
☐	☒	Off-site emergency response, 29 CFR 1910.120 l.
☐	☒	Handling drums and containers, 29 CFR 1910.120 j.
☐	☒	Opening Drums and Containers
☐	☒	Electrical Material Handling Equipment.
☐	☐	Radioactive Waste
☐	☐	Shock sensitive waste
☒	☐	Laboratory waste packs.
☒	☐	Sampling drums and containers
☒	☐	Shipping and transport, 49 CFR 172.101
☐	☐	Tank and vault procedures
☐	☒	Illumination, 29 CFR 1910.120 m.
☐	☐	Sanitation, 29 CFR 1910.120 n.

Attachment 1

Level D/Modified Level D Decontamination: **Will be determined prior to work onsite**

[Check indicated Functions or add steps as necessary]

STEP	FUNCTION	DESCRIPTION OF PROCESS, SOLUTION AND CONTAINER
☐	Segregated equipment drop	_____
☐	Boot cover and glove wash	_____
☐	Boot cover and glove rinse	_____
☐	Tape removal - outer glove and boot	_____
☐	Boot cover removal	_____
☐	Outer glove removal	_____

----------HOT LINE----------

☐	Suit/safety boot wash	_____
☐	Suit/boot/glove rinse	_____
☐	Safety boot removal	_____
☐	Suit Removal	_____
☐	Inner glove wash	_____
☐	Inner glove rinse	_____
☐	Inner glove removal	_____
☐	Inner clothing removal	_____

----------CRC/SAFE ZONE BOUNDARY----------

☐	Field wash	_____
☐	Redress	_____

DISPOSAL PLAN

END OF DAY:

END OF WEEK:

END OF PROJECT:

Attachment 2.

LEVEL C DECONTAMINATION

[Check indicated Functions or add steps as necessary]: **Not anticipated**

STEP	FUNCTION	DESCRIPTION OF PROCESS, SOLUTION AND CONTAINER
☐	Segregated equipment drop	_____
☐	Boot cover and glove wash	_____
☐	Boot cover and glove rinse	_____
☐	Tape removal - outer glove/boot	_____
☐	Boot cover removal	_____
☐	Outer glove removal	_____

----------HOT-LINE----------

☐	Suit/safety boot wash	_____
☐	Suit/boot/glove rinse	_____
☐	Safety boot removal	_____
☐	Suit Removal	_____
☐	Inner glove wash	_____
☐	Inner glove rinse	_____
☐	Face piece removal	_____
☐	Inner glove removal	_____
☐	Inner clothing removal	_____

----------CRC/SAFE ZONE BOUNDARY----------

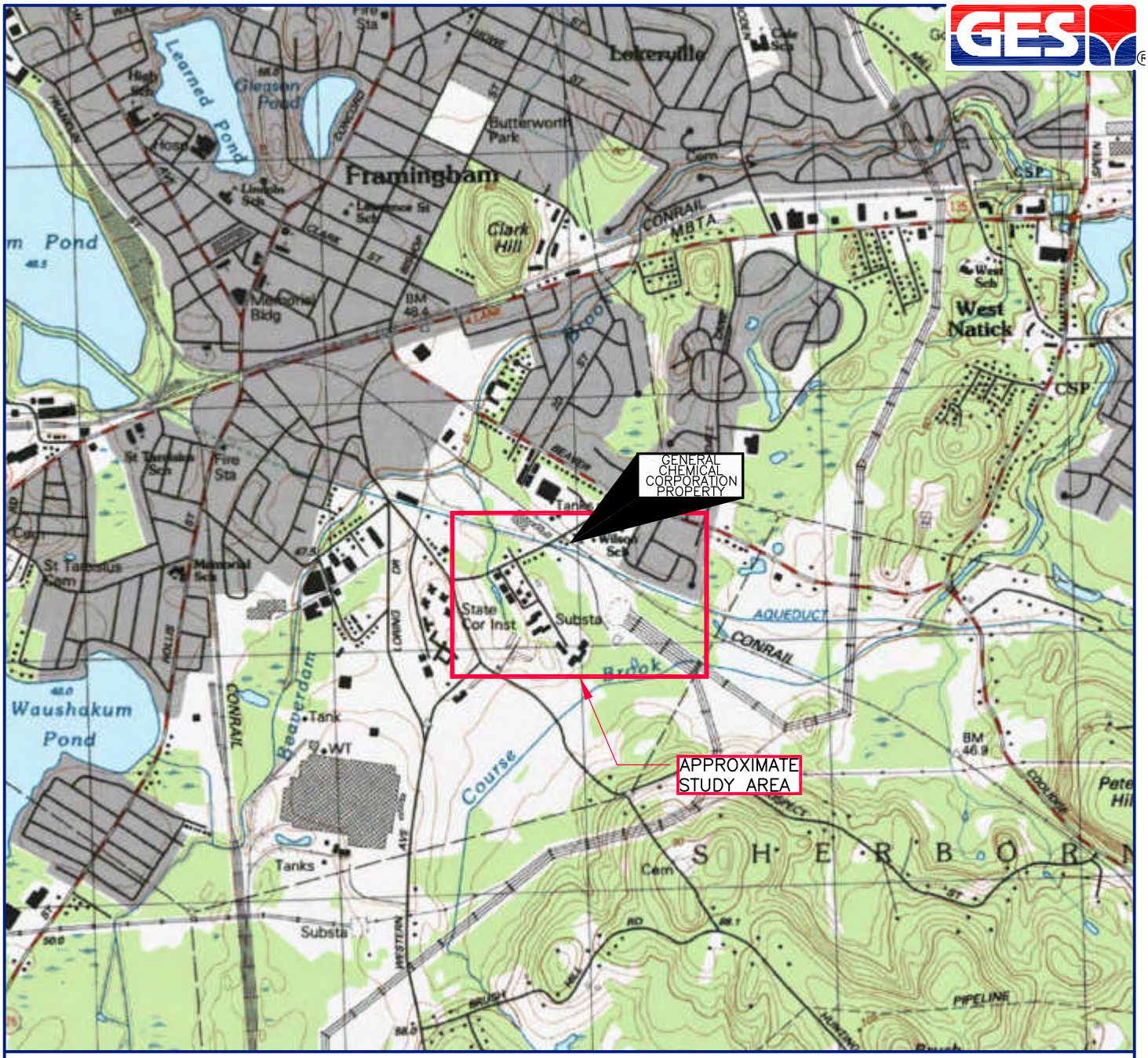
☐	Field wash	_____
☐	Redress	_____

DISPOSAL PLAN

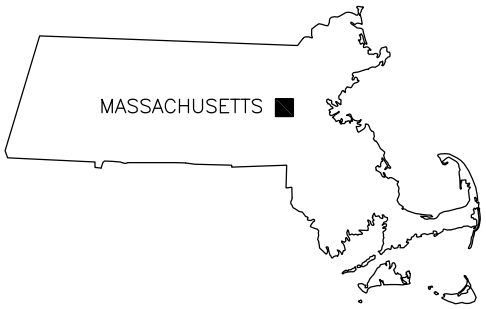
END OF DAY:

END OF WEEK:

END OF PROJECT:



SOURCE: USGS 7.5 MINUTE SERIES
TOPOGRAPHIC QUADRANGLE 1987
FRAMINGHAM, MASSACHUSETTS
CONTOUR INTERVAL = 3 METERS



QUADRANGLE LOCATION

DRAFTED BY: W.G.S. (N.J.)	SITE LOCATION MAP
CHECKED BY: MC	GENERAL CHEMICAL CORPORATION 133-138 LELAND STREET FRAMINGHAM, MASSACHUSETTS
REVIEWED BY: SS	Groundwater & Environmental Services, Inc. 364 LITTLETON ROAD, SUITE 4, WESTFORD, MA 01886
NORTH	SCALE IN FEET: 0 – 2000 / DATE: 9-27-11 / FIGURE: 1

M:\Graphics\1600-Westford\Misc\General Chemical\General Chemical Framingham\General Chemical Framingham SLM.dwg, Layout1, 9/27/2011 7:56:05 AM, WShea

LEGEND

- PROPERTY BOUNDARY
- FENCE
- UTILITY MANHOLE
- FIRE HYDRANT
- UTILITY POLE
- MONITORING WELL
- PIEZOMETER
- RECOVERY WELL
- INJECTION WELL

- OHU — OVERHEAD UTILITIES
- SS — UNDERGROUND SANITARY SEWER LINE
- G — UNDERGROUND GAS LINE

NOTES:

LOCATION OF WELLS MW15–MW23 HAVE NOT BEEN SURVEYED AND SHOULD BE CONSIDERED APPROXIMATE.

SOURCE:

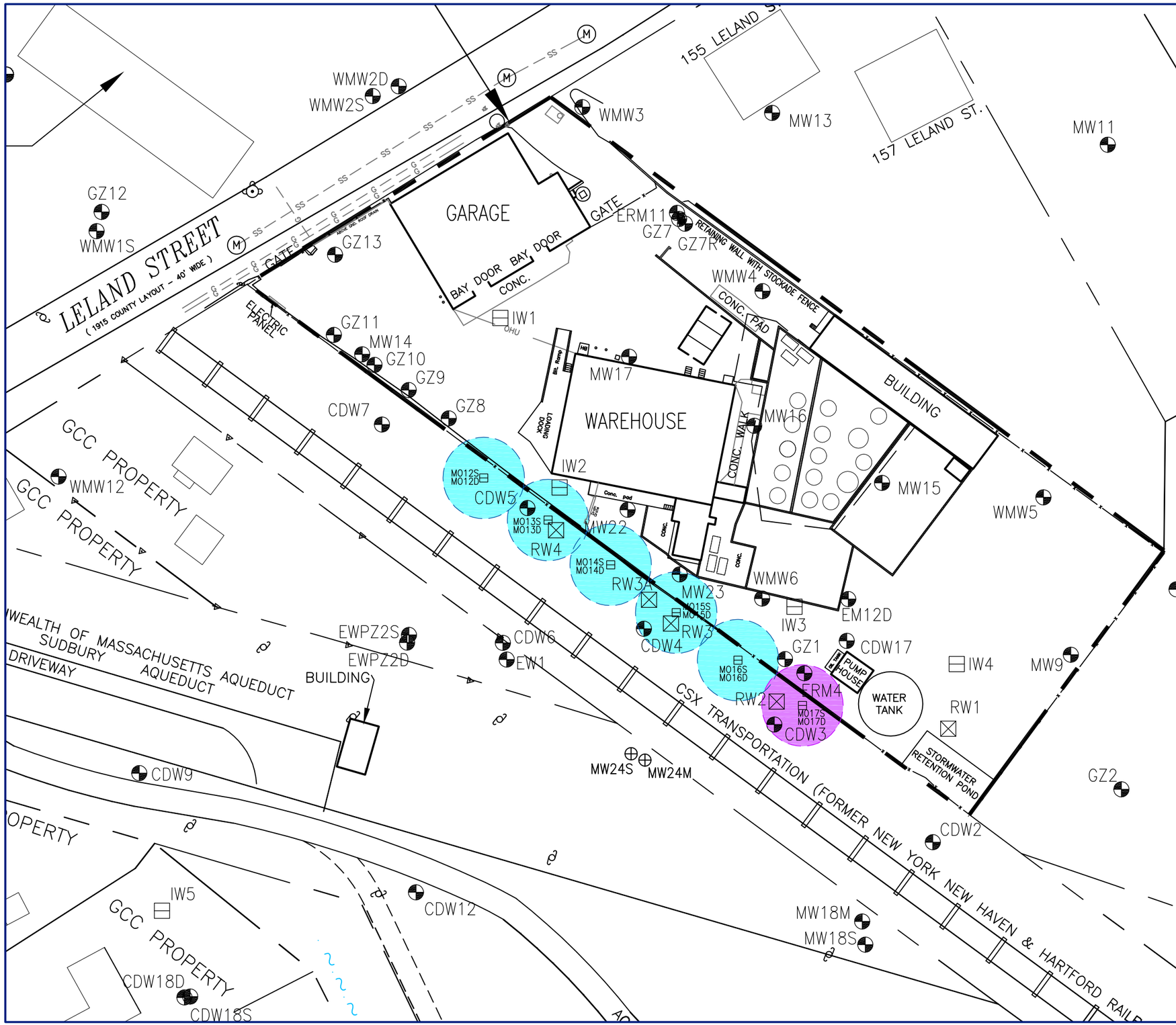
MAP IS BASED ON DRAWING FILE FROM FS ENGINEERS DATED JULY 21, 2008.

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.
(APPROXIMATE)

DRAFTED BY: W.G.S. (N.J.)	EXPANDED SITE MAP
CHECKED BY: MC	GENERAL CHEMICAL CORPORATION 133–138 LELAND STREET FRAMINGHAM, MASSACHUSETTS
REVIEWED BY: SS	Groundwater & Environmental Services, Inc. 364 LITTLETON ROAD, SUITE 4, WESTFORD, MA 01886
NORTH	DATE 9–27–11 / FIGURE 3

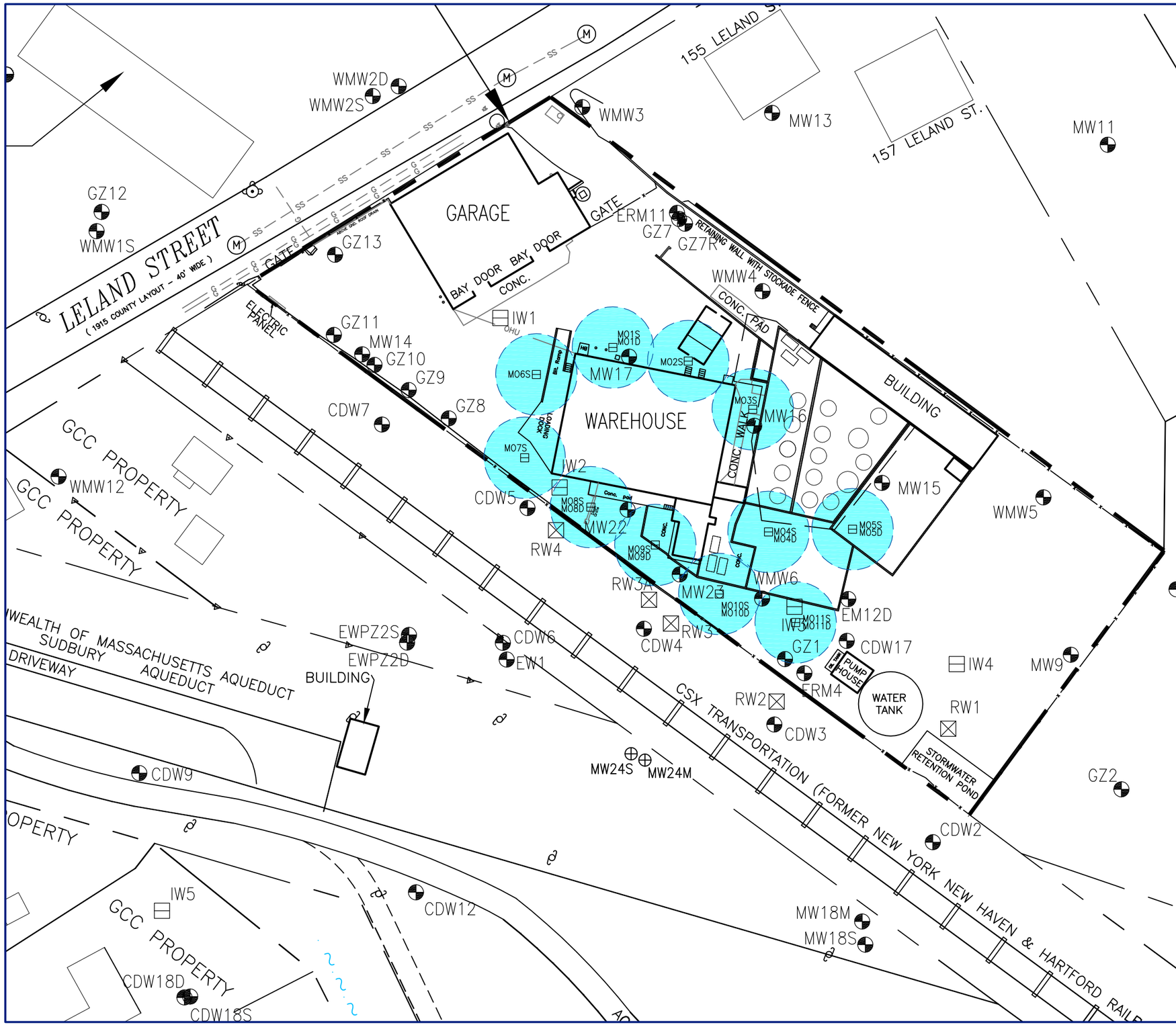


LEGEND

- PROPERTY BOUNDARY
- FENCE
- UTILITY MANHOLE
- FIRE HYDRANT
- UTILITY POLE
- MONITORING WELL
- PIEZOMETER
- RECOVERY WELL
- INJECTION WELL
- PROPOSED MONITORING WELL
- OHU — OVERHEAD UTILITIES
- SS — UNDERGROUND SANITARY SEWER LINE
- G — UNDERGROUND GAS LINE
- PROPOSED INJECTION WELL WITH 20' RADIUS OF INFLUENCE
- POTENTIAL INJECTION WELL WITH 20' RADIUS OF INFLUENCE (NEED FOR THESE LOCATIONS TO BE BASED ON RESULTS FROM OTHER AREAS)
- MO16S — SHALLOW INJECTION WELL
- MO16D — DEEP INJECTION WELL

DRAFTED BY: W.G.S. (N.J.)	INJECTION WELL LOCATION MAP SECOND INJECTION AOC
CHECKED BY: MC	GENERAL CHEMICAL CORPORATION 133–138 LELAND STREET FRAMINGHAM, MASSACHUSETTS
REVIEWED BY: SS	Groundwater & Environmental Services, Inc. 364 LITTLETON ROAD, SUITE 4, WESTFORD, MA 01886
NORTH	SCALE IN FEET: 0 APPROXIMATE 50 · DATE: 9–27–11 · FIGURE: 13

M:\Graphics\1600-Westford\Misc\General Chemical\General Chemical Framingham\General Chemical Framingham SM.dwg, B-50, 9/27/2011 8:24:49 AM, WShea



LEGEND

- PROPERTY BOUNDARY
- FENCE
- UTILITY MANHOLE
- FIRE HYDRANT
- UTILITY POLE
- MONITORING WELL
- PIEZOMETER
- RECOVERY WELL
- INJECTION WELL
- PROPOSED MONITORING WELL
- OHU — OVERHEAD UTILITIES
- SS — UNDERGROUND SANITARY SEWER LINE
- G — UNDERGROUND GAS LINE
- PROPOSED INJECTION WELL WITH 20' RADIUS OF INFLUENCE
- M011S — SHALLOW INJECTION WELL
- M011D — DEEP INJECTION WELL

DRAFTED BY: W.G.S. (N.J.)	INJECTION WELL LOCATION MAP PRIMARY INJECTION AOC
CHECKED BY: MC	GENERAL CHEMICAL CORPORATION 133–138 LELAND STREET FRAMINGHAM, MASSACHUSETTS
REVIEWED BY: SS	Groundwater & Environmental Services, Inc. 364 LITTLETON ROAD, SUITE 4, WESTFORD, MA 01886
NORTH	SCALE IN FEET: 0 APPROXIMATE 50 · DATE: 9–27–11 · FIGURE: 12

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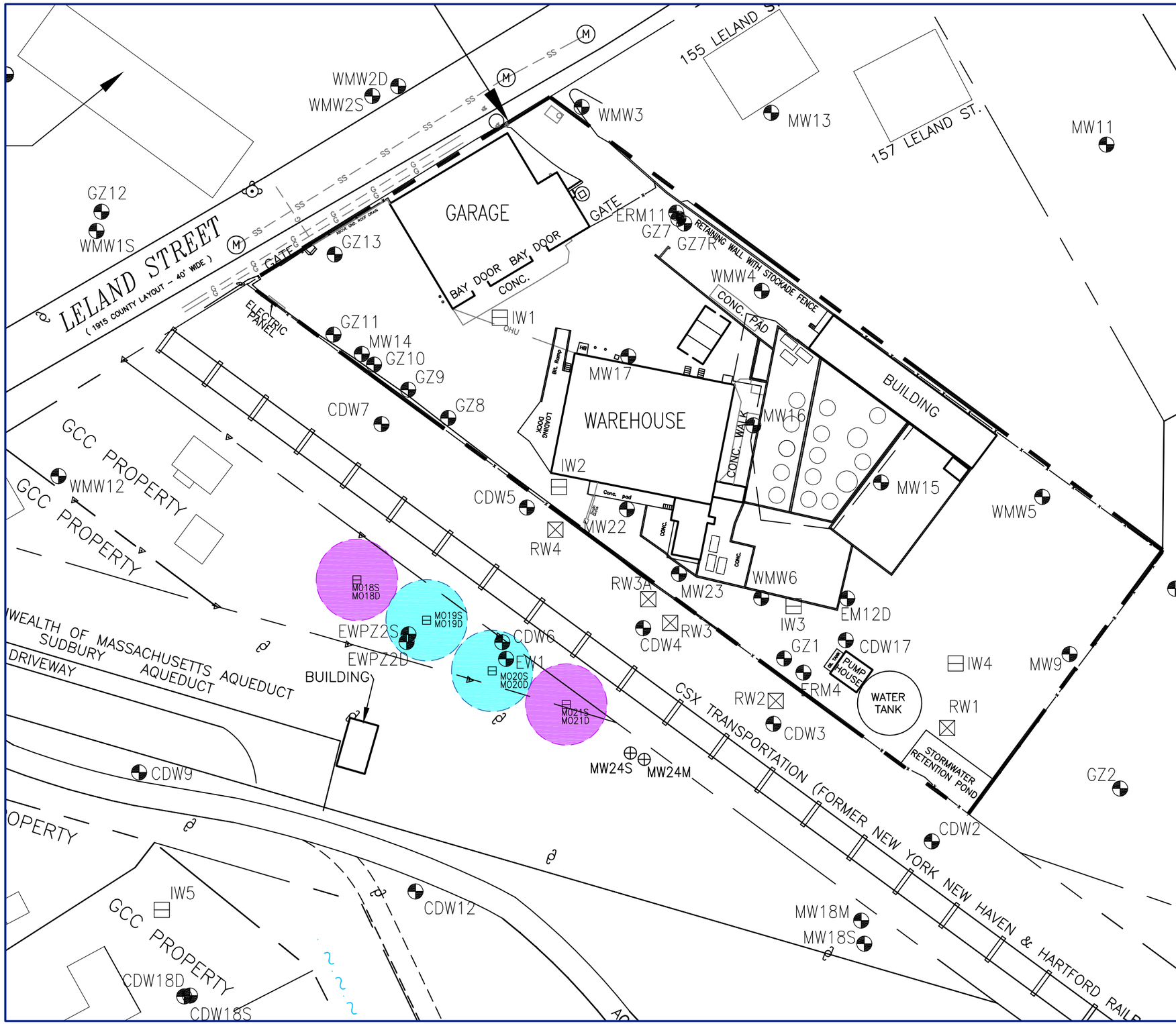

LEGEND

- PROPERTY BOUNDARY
- FENCE
- UTILITY MANHOLE
- FIRE HYDRANT
- UTILITY POLE
- MONITORING WELL
- PIEZOMETER
- RECOVERY WELL
- INJECTION WELL
- PROPOSED MONITORING WELL
- OHU — OVERHEAD UTILITIES
- SS — UNDERGROUND SANITARY SEWER LINE
- G — UNDERGROUND GAS LINE
- PROPOSED INJECTION WELL WITH 20' RADIUS OF INFLUENCE
- POTENTIAL INJECTION WELL WITH 20' RADIUS OF INFLUENCE (NEED FOR THESE LOCATIONS TO BE BASED ON RESULTS FROM OTHER AREAS)
- M018S — SHALLOW INJECTION WELL
- M018D — DEEP INJECTION WELL

DRAFTED BY: W.G.S. (N.J.)	INJECTION WELL LOCATION MAP THIRD INJECTION AOC
CHECKED BY: MC	GENERAL CHEMICAL CORPORATION 133-138 LELAND STREET FRAMINGHAM, MASSACHUSETTS
REVIEWED BY: SS	Groundwater & Environmental Services, Inc. 364 LITTLETON ROAD, SUITE 4, WESTFORD, MA 01886
NORTH	SCALE IN FEET: 0 APPROXIMATE 50 · DATE: 9-27-11 · FIGURE: 14

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Job Safety Analysis (JSA)

JSA Title: **Groundwater Sampling for General Chemical Corporation**

JSA Control #: **032**

Date Developed: 2/8/05	
Latest Revised Date: 4/16/10, 07/22/2011	
Initiated/Changed by: Scott Martin, Project Env Sci, Lisa Leclair - LHSO	
Approved by: Julius Pachy and Thomas Baylis, CIH	

Please complete the below if this JSA is being modified for SITE-SPECIFIC reasons.

Date Form Completed:	**Work Location:**

This JSA has been fully reviewed with all staff members and all activity job steps, hazards, work practices, and PPE are clearly understood and have been implemented. All necessary revisions have been written on this JSA.

REQUIRED PPE: Gloves: nitrile, Kevlar, leather; Hard Hat: if working in an area with low overhead clearance; Hearing Protection: if site activities raise the noise level to 85 dB; PPE Clothing: highly visible clothing such as orange coveralls or reflective safety vest; Safety Glasses; Safety Shoes: steel-toed, HALF FACE RESPIRATOR NEEDS TO BE ON HAND IN THE CASE OF LEVEL C UPGRADE.

REQUIRED AND/OR RECOMMENDED TOOLS AND EQUIPMENT: LEL (to be used if within 35 feet of an ignition source); PID (if organic vapors are probable)

Activity/Sequence of Job Tasks List all tasks required to perform a job in the sequence they are carried out.	**Energy or Biological Sources** *(Check all that apply)*		**What** would be the result of exposure to a biological or energy source? (e.g., slip, trip, fall, exposure, electrocution, injury, death, etc.). **How, where, or when** could an uncontrolled release or unwanted contact with a biological or energy source occur?	**Energy/Biological/Waste Management Plan** Eliminate – Control – Protect **Risk Control Measures** List control measures required to eliminate, control or protect against unwanted contact with an uncontrolled biological or energy source to minimize the risk of injury or environmental impact. Include identification of 'Stop Work' triggers.
A. Locate and Open Onsite Wells 1. Inspect and open wells *The GES SOP for "Groundwater Sampling" must be reviewed. Please note that it is important that the GES vehicle is shut-off or the vehicle positioned so that the vehicle exhaust does not present an exposure concern for staff members or impact sample integrity*	X Motion X Chemical _ Electrical _ Biological	_ Gravity _ Radiation _ Heat/Cold _ Pressure	1a. Pinch points/abrasion 1b. Back strain 1c. Shoulder strain resulting from using a socket wrench to loosen and remove bolts from the lid	1a. Remove and replace manhole covers so that they do not pinch fingers. ➢ Use a screwdriver or crowbar as appropriate and wear work gloves to prevent injuries to hands. ➢ Use kneeling pads when kneeling on hard surfaces. 1b. Utilize proper lifting procedure when removing covers. Bend down at the knees and lift with your legs rather than bending and/or lifting with your back. 1c. Always keep your wrist straight when using a wrench. ➢ Be sure that the opening of the socket is in full contact with the bolt before you apply pressure. ➢ Pull, don't push, and use a slow, steady motion. If the bolt can not be loosened with normal force, use the correct breaking bar and do not place a piece of pipe on the end of the wrench to improve leverage. ➢ Protect yourself from losing your balance if the wrench slips or a bolt breaks. Kneel on a solid surface with one foot planted firmly on the floor and don't lean into the work. ***Note:*** *Never use hand sockets with power or impact wrenches. Replace sockets showing cracks or wear.*
On-site edits:				
B. Conduct Liquid Gauging 1. OPEN WELL AND ALLOW TO VENT FOR 5 MINUTES PRIOR TO GAUGING/SAMPLING. 2. Insert interface probe into well and record liquid level reading in site log book	X Motion X Chemical _ Electrical _ Biological	_ Gravity _ Radiation _ Heat/Cold _ Pressure	1a. Exposure to site contaminants 1b. Inhalation of organic vapors	1a. Wear appropriate PPE (i.e., eye protection, long pants, nitrile sampling gloves, shirt with sleeves, steel-toed boots). 1b. MONITOR BREATHING ZONE WITH PID CONTINUOUSLY DURING GAUGING/SAMPLING ACTIVITIES – IF LEVELS ARE ABOVE 5PPM FOR SUSTAINED 5 MINUTE PERIOD, EVACUATE THE WORK AREA AND CALL INTO OFFICE. ***Note:*** *Be aware that there may be elevated levels of VINYL CHLORIDE IN THESE WELLS.*
On-site edits:				

C. Purge Monitoring Well 1. Set up of equipment; insert bailer/pump into monitoring well and purge water into appropriate container at surface ***Note:*** *When using non-intrinsically safe pumps within 35 feet of a vapor source, within the critical zone as defined by client-specific protocols, or when there are noticeable gasoline vapor odors, the atmosphere must be tested with a combustible gas indicator so that it can be determined if the atmosphere contains less than 10% of the LEL.*	X Motion X Chemical X Electrical _ Biological	X Gravity _ Radiation _ Heat/Cold _ Pressure	1a. Exposure to site contaminants 1b. Exposure to acid from battery that is used to power purge pump 1c. Cuts, pinch points 1d. Hand injuries from cutting polyethylene tubing and bailing string 1e. Repetitive motion injury from bailing purge water 1f. Spill or release of impacted water prior to treatment (if required by local regulations) 1g. Electrical shock hazard 1h. Slip, trip, fall on cords/piping 1i. Back injuries	1a. Refer to PPE required for B.1a. ➢ Do not splash purged water on clothing or skin. 1b. Prior to lifting and carrying battery from GES vehicle to sample location, inspect the battery to ensure that there is no visible sign of leaking acid. ➢ It is recommended that the battery is placed and carried to location in a carrying container that would prevent acid from contacting sampling personnel and equipment. 1c. Don leather gloves during the connection of the battery converter to the car battery. 1d. Use cut resistant gloves when cutting polyethylene tubing to prevent hand injuries. ➢ Use a proper tool, a tubing cutter. ➢ When cutting bailing string to attach to bailer, cut away from the body, not towards. ➢ Wear Kevlar or similar cut resistant gloves. ➢ Use appropriate cutting tool, i.e. scissors, safety knife, etc. 1e. Take frequent breaks as needed to prevent fatigue to shoulder and arm muscles caused by bailing water. ➢ Be aware of the signs and symptoms of repetitive stress injuries and report all symptoms immediately. 1f. Take care to minimize the splash/release of purged water. ➢ If purging activity causes splashing, slow the bailing process to prevent the loss of water. 1g. If using an energy source to power and electric pump, refer to the owner's manual for correct setup procedures. ➢ When using a battery, make sure that the polarity is correct (i.e., positive to positive contact, etc.). ➢ If the connection is loose, repair or replace the cord. 1h. Set up the work area so that all of the cords and piping are in one area. This will help to minimize the possibility of tripping. 1i. Utilize proper lifting procedure (i.e., keep your back straight) when loading coolers and/or equipment back into truck. Bend down at the knees and lift with your legs rather than bending and lifting with your back. ➢ To avoid lifting heavy/awkward coolers, leave cooler on tailgate to load samples and ice into. ➢ Utilize material handling devices when possible to move equipment (i.e., lift gates, pallet jacks, dollies, etc.). ➢ If necessary, utilize a ramp for loading and unloading wheeled devices, ensuring the ramp is properly supported prior to use. ***Note:*** *Tie a rope or line to the pump that can be used to raise and lower pump from the well. Do not lower or raise the pump by pulling on the electrical feeds.* ***Note:*** *No one should ever attempt to lift an object that weighs greater than 50 lbs.*
On-site edits:				
D. Conduct Groundwater Sampling 1. Insert disposable bailer/peristaltic pump into monitoring well to collect water for sampling	X Motion X Chemical X Electrical _ Biological	_ Gravity _ Radiation _ Heat/Cold _ Pressure	1a. Exposure to site contaminants	1a. Refer to PPE required for B.1a.
On-site edits:				
2. Collect groundwater in sampling container	X Motion X Chemical _ Electrical _ Biological	_ Gravity _ Radiation _ Heat/Cold _ Pressure	2a. Pull out bailer/tubing from monitoring well 2b. Burns to the skin/eyes	2a. Refer to PPE required for B.1a. ➢ Do not splash purged water on clothing or skin. ➢ Pull out tubing carefully to avoid hitting the body or face. 2b. Avoid contact with preservatives. These are commonly corrosive and can burn the skin/eyes on contact. ➢ Kevlar and nitrile surgical gloves should be worn when opening a cooler and retrieving sample

			2c. Cuts to the skin 2d. Contact with skin or clothing	collection containers; sample preservative may have leaked from a container or multiple containers; sample preservatives consist of various types of acids that include HCL, HNO3, and H2SO4 – hand and skin protection is necessary. ➢ Flush skin/eyes with water if contact is made. ➢ Refer to the MSDS for more information. 2c. Wear Kevlar gloves under nitrile-surgical gloves when sampling and especially when handling broken glassware. ➢ Wear Kevlar gloves when using a blade to cut bailer twine. ➢ Cut away from the body, not towards. 2d. Place bailer back into well when filling multiple collection containers. ➢ Do not hold bailer under arm or between knees when switching to a new container.
On-site edits:				
E. Decontamination 1. Soak/spray durable equipment to prevent cross-contamination between multiple well locations; properly store disposable equipment	X Motion X Chemical _ Electrical _ Biological	_ Gravity _ Radiation _ Heat/Cold _ Pressure	1a. Exposure to decontamination chemicals	1a. Refer to PPE required for B.1a. ➢ Avoid contact with all decontamination chemicals including Liquinox, Simple Green, Methanol, and any other solvents used on sampling equipment.
On-site edits:				
F. Replace Well Cap and Cover 1. Replace well cap and cover	X Motion _ Chemical _ Electrical _ Biological	_ Gravity _ Radiation _ Heat/Cold _ Pressure	1a. Pinch points	1a. Refer to A.1a above.
On-site edits:				

JOB SAFETY ANALYSIS	DATE 2/9/05, 3/11/05, 3/30/05, 2/22/07, 12/16/08, 7/7/09, 8/4/09, 11/16/09, 12/15/09, 2/8/10	_ NEW X REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)	JSA #
All Work Locations	**Assessment and Remediation**	**Vac-Tron Water/Air Knife Activities**	**071**

INITIATED / CHANGED BY	POSITION / TITLE	APPROVED BY	POSITION / TITLE
Lisa Leclair	HSSE Trng Prog Coord - CT	Thomas Baylis, CIH	Dir, HSSE

REQUIRED PERSONAL PROTECTIVE EQUIPMENT – *Place an "X" next to the appropriate line item and expand on requirement as necessary.*

X AIR PURIFYING RESPIRATOR if levels exceed those set by the HASP	X HEARING PROTECTION _____	X SAFETY SHOES steel-toed
X FACE SHIELD if within 10 feet of a tool which generates flying particles (i.e., splashing water or airborne soil)	_ LIFELINE / HARNESS _____	_ SUPPLIED RESPIRATOR _____
X GLOVES leather/nitrile or equivalent	X PPE CLOTHING highly visible clothing such as orange coveralls, reflective safety vest	X OTHER *HALF FACE RESPIRATOR (ONSITE IF NEED TO UPGRADE TO LEVEL C), DRAGER TUBES AND PUMP FOR VINYL CHLORIDE (.5PPM MINIMUM DETECTION)
_ GOGGLES _____	X SAFETY GLASSES _____	
X HARD HAT _____		

REQUIRED AND/OR RECOMMENDED TOOLS AND EQUIPMENT

1. Lockout/tagout kit 6. DRAGER TUBES FOR VINYL CHLORIDE (.5PPM) AND HAND PUMP	2. PID	3. CGI/O2 or LEL meter	4. Hotwork permit	5. Locking pins and whip checks

[1]JOB STEPS	[2]POTENTIAL HAZARDS	[3]CRITICAL ACTIONS
A. Review "General Site Activities" JSA #028		
B. Review "Cutting Tool Use" JSA #15 if Using a Gasoline Powered Chop Saw		
C. Inspection of Equipment and Common Hazards of Operation		
1. Lockout all possible electrical lines on-site	**1a**. Electrocution/contact with energized electrical lines	**1a**. Locate all sources of electricity to site parking lights, air compressor, vacuum, car wash, and ID sign and if possible de-energize lines by using locks and tags. ➢ If lockout/tagout procedures are used, notify all affected employees on-site of the de-energized condition. ➢ Verify all public and private utility mark outs. ***Note:*** *Any marked underground electrical utilities within 10 feet of a boring, well, geoprobe location, or planned excavation must be de-energized and locked out/tagged out.*
2. Position Vac-Tron tig	**2a**. Injury from or damage to overhead utilities from direct contact with or proximity to (arcing) **2b**. Rig stuck in soft/slippery ground **2c**. Intrusion by 3rd parties	**2a**. Check area for hazards. ➢ While moving the rig on site, keep a minimum 4 foot clearance under any electrical lines. ➢ While planning the working position of the rig, keep a minimum 10 foot clearance away from any electrical lines. ➢ Use a spotter when backing. **2b**. Choose the most level path for travel with the rig. ➢ If needed, consider the use of wood, sand, or crushed stone to create a stable working/traveling platform. **2c**. Observe the site pedestrian and vehicular traffic patterns. Use cones, flags, and caution tape to establish traffic control and exclusion zones.
3. Remove concrete or asphalt by use of jackhammer to open/ cut concrete/asphalt at location	**3a**. Vibrational or contact injuries and excessive noise	**3a**. Wear leather or vibration-absorbing gloves, safety glasses, face shield, hearing protection, and a hard hat. ➢ Use shovels to push debris out of way. ➢ Follow manufacturer's operating procedures for equipment. ➢ Have a stable stance; feet shoulder width apart, hold

GES

[1]JOB STEPS	[2]POTENTIAL HAZARDS	[3]CRITICAL ACTIONS
		jackhammer lightly and balanced. ➢ Do not wear excessively loose, baggy clothing or jewelry. ➢ Take a 10-minute break every hour of operation during operation of jackhammer to prevent vibration/repetitive motion injuries.
	3b. Fire/explosion	**3b**. If sparks are generated within 35 feet of a vapor source (i.e., an operating pump island) a Hotwork permit must be furnished and air monitoring must take place throughout the cutting procedure if the possibility of flammable vapors exists.
	3c. Struck-by injury from disconnected pressurized air lines/hoses	**3c**. All hose connections must be secure. All lines should be inspected prior to use. Locking pins and whip checks must be used for all connections that could fail or become disconnected causing the hose to "whip."
4. Water lance-air knife operation ***Note:*** *A water lance should never be used at a retail gasoline station.* *If any evidence of pea stone is observed during any subsurface activity, all subsurface work* ***MUST*** *stop and the project manager and/or the senior office manager must be contacted immediately.*	**4a**. Bodily injury or hearing damage from air compressor and associated air lines.	**4a**. Safety glasses, hearing protection, and work gloves must be worn at all times when compressor is running. ➢ Keep hands and clothing away from rotating machinery. ➢ All hose connections must be secure. All lines should be inspected prior to use. Locking pins and whip checks must be used for all connections that could fail or become disconnected causing the hose to "whip." ➢ Test all emergency cut-off switches for operation. ***Note:*** *Staff must ensure that prior to turning on the air compressor that it is confirmed that the air knife is manned and that the air valve is closed.*
	4b. Personal injury and property damage from contact with high pressure jet and associated flying debris	**4b**. Do not spray persons with high-pressure jet. ➢ A face shield **and** safety glasses shall be worn in addition to the Level D PPE within a 10 foot area where high-pressure jet is being utilized. Use caution when using high-pressure jet assembly around known underground utilities. ➢ Do not direct high-pressure jet at one point for long periods of time; continually rotate high-pressure spray assembly. ➢ Do not use unit indoors. ➢ Pull the trigger while turning off the machine to make sure piping is not under pressure. ➢ Inform all personnel of restricted area and do not permit unauthorized individuals (i.e., those not properly trained [40-hour OSHA training, etc.] or wearing appropriate PPE) access to the exclusion zone.
	4c. Exposure	**4c**. If there is any gasoline odor, monitor with an LEL. Action levels are defined in the GES HASP. *MONITOR BREATHING ZONE WITH PID CONTINUOUSLY DURING AIRKNIFE/VACTRON ACTIVITIES – IF LEVELS ARE ABOVE 5PPM FOR A SUSTAINED 5 MINUTE PERIOD, EVACUATE THE WORK AREA AND CALL INTO OFFICE TO CONSULT FOR POSSIBLE USE OF DRAGER TUBE TESTING FOR VINYL CHLORIDE. ***Note:*** *Be aware that there may be elevated levels of VINYL CHLORIDE AND RESPIRATORS WILL NOT PROTECT AGAINST VINYL CHLORIDE.*
	4d. Equipment damage/failure due to cold temperatures	**4d**. When temperatures drop below 20°F or when the water used to conduct subsurface clearance freezes, subsurface clearance should stop until warmer temperatures occur or the safe operation of the machinery is no longer impacted.
	4e. Injury from or damage to overhead utilities from direct contact with or proximity to (arcing)	**4e.** Maintain a distance of at least 10 feet from energized overhead power line. For other overhead lines such as phone or cable lines, if there is a chance of contacting and/or damaging the lines, the appropriate service company should be contacted so that the lines can be relocated or protected.
5. Vacuum operation	**5a**. Personal injury (burns, pinch points, cuts, hearing damage) from vacuum blower	**5a**. Keep hands, clothing, and equipment an arms length away from rotating machinery, inlet and discharge openings. ➢ Wear hearing protection when unit is operational. ➢ Avoid contact with blower casing and associated piping; may cause major skin burns on contact.

[1]JOB STEPS	[2]POTENTIAL HAZARDS	[3]CRITICAL ACTIONS
		➢ Ensure guards are in place on external moving parts. ➢ Develop suction line vacuum break mechanism in the event of a vacuum emergency (object caught by the suction hose).
	5b. Fire/explosion from ignition of elevated vapors	**5b**. Air monitoring must take place on ungrounded Vac-Trons ➢ If LEL levels of breathing zone or working zone (air which is traveling through the Vac-Tron) air exceeds 10%, halt Vac-Tron activities. ➢ Vac-Tron is not to be used to vacuum petroleum products.
	5c. Injury from or damage to overhead utilities from direct contact with or proximity to (arcing)	**5c**. Maintain a distance of at least 10 feet from energized overhead power line. For other overhead lines such as phone or cable lines, if there is a chance of contacting and/or damaging the lines, the appropriate service company should be contacted so that the lines can be relocated or protected.

Job Safety Analysis (JSA)

JSA Title: **Drilling/Soil Boring/Monitoring Well Installation**

JSA Control #: **019**

Date Developed: 2/23/05	
Latest Revised Date: 2/15/11	
Initiated/Changed by: Maurice Baron	
Approved by: Thomas Baylis, CIH	

Please complete the below if this JSA is being modified for SITE-SPECIFIC reasons.

Date Form Completed:	**Work Location:**

This JSA has been fully reviewed with all staff members and all activity job steps, hazards, work practices, and PPE are clearly understood and have been implemented. All necessary revisions have been written on this JSA.

REQUIRED PPE: Air Respirator: respirators may be required if conditions or work area air quality exceeds applicable HASP action levels; don a DUST MASK for comfort if inhalation of concrete dust is unavoidable. Face Shield: if flying particles are generated. Gloves: nitrile, Kevlar, leather. Hard Hat. Hearing Protection: if site activities raise the noise level to 85 dB. PPE Clothing: highly visible clothing such as orange coveralls or reflective safety vest. Safety Glasses/ Safety Shoes: steel-toed, non-slip soles

REQUIRED AND/OR RECOMMENDED TOOLS AND EQUIPMENT: PID, GCI/O2 or LEL meter; Sample bottles/jars; Lockout/tagout kit; Spill response kit/spill pad - used under hydraulic equipment when work activities occur on a permeable surface such as grass or gravel; Hotwork Permit; Driller's tools - inspect condition of; Samd and or salt for ice; PVC casing (6-10"), HALF FACE RESPIRATOR (ONSITE IF NEED TO UPGRADE TO LEVEL C), DRAGER TUBES AND PUMP FOR VINYL CHLORIDE (.5PPM MINIMUM DETECTION)

Activity/Sequence of Job Tasks List all tasks required to perform a job in the sequence they are carried out.	**Energy or Biological Sources** *(Check all that apply)*		**What** would be the result of exposure to a biological or energy source? (e.g., slip, trip, fall, exposure, electrocution, injury, death, etc.). **How, where, or when** could an uncontrolled release or unwanted contact with a biological or energy source occur?	**Energy/Biological/Waste Management Plan** Eliminate – Control – Protect **Risk Control Measures** List control measures required to eliminate, control or protect against unwanted contact with an uncontrolled biological or energy source to minimize the risk of injury or environmental impact. Include identification of 'Stop Work' triggers.
Please ensure that all necessary JSAs associated with your work scope have been identified and reviewed.				
A. Prepare for Soil Boring and Well Installation 1. Review, inspect and locate safety equipment including fire extinguisher, first aid kit, insect repellant, ice melt, PPE, etc. ***Note:*** *Show subcontractors location of first aid kit and eye wash; check fire extinguisher on drill rig.*	X Motion _ Chemical _ Electrical _ Biological	X Gravity _ Radiation _ Heat/Cold _ Pressure	1a. Drill rig maintenance, operational safety 1b. Trip, slips, falls 1c. Exertion	1a. Evaluate subcontractor rig maintenance verification form for completeness. ➢ Accompany subcontractor during a visual inspection of the drill rig prior to start up. ➢ Complete GES' Drilling Site Safety Checklist. 1b. Maintain all equipment and tools in designated areas and out of pathways. ➢ Identify and protect all air lines, water lines, electrical cords, and cables. ➢ Inspect work area for uneven ground and terrain. ➢ Watch for the formation of snow covered ice during cold weather. 1c. Use proper lifting techniques; bend at the legs and keep back straight. ➢ Hold item close to body. ➢ Items heavier than 50 lbs or items that are awkward to handle, use mechanical devices or ask for help.
On-site edits:				
2. Ensure that appropriate equipment and materials are available for sampling	_ Motion X Chemical _ Electrical _ Biological	X Gravity _ Radiation _ Heat/Cold _ Pressure	2a. Contact	2a. Identify appropriate safety equipment and PPE. ➢ Time savings to reduce trips for forgotten items. ➢ Ensure proper gloves are worn for the appropriate task and client-specific protocols. ▪ Leather gloves shall be worn at all times while operating the drill rig, handling augers, operating equipment, handling heavy loads, and whenever else deemed appropriate. ▪ Kevlar gloves shall be worn while handling cutting tools or any other sharp objects. ▪ Nitrile gloves shall be worn over Kevlar gloves when there is a potential to contact any contaminated solids or fluids. ➢ Ensure the appropriate layering of gloves (i.e., nitrile gloves are worn under leather gloves while

			2b. Cuts, burns, acid contact	handling augers). 2b. Watch for broken bottles (i.e., when removing from cooler, be careful while filling sample vials/jars, and when placing on ice in cooler).
On-site edits:				
3. Load required equipment on support truck and drill rig	X Motion _ Chemical _ Electrical _ Biological	X Gravity _ Radiation _ Heat/Cold X Pressure	3a. Exertion 3b. Slips, trips, falls 3c. Caught, pinch points	3a. Use proper lifting techniques; this consists of bending your knees and lifting with your back straight. ➢ While carrying, hold objects close to your body. ➢ Items heavier than 50 lbs or items that are awkward to handle, use mechanical devices or ask for help. 3b. Continuously check ground for uneven and slippery terrain. 3c. Position hands 6 inches away from pinch points on lift gate latches and utility boxes. ➢ Use established handles and/or latches while opening and closing.
On-site edits:				
4. Drill rig positioning at drilling location	X Motion _ Chemical X Electrical _ Biological	_ Gravity _ Radiation _ Heat/Cold _ Pressure	4a. Contact with rig supports/ levelers 4b. Electrocution contact with underground energized electrical lines	4a. All staff except those individuals who are responsible for positioning and leveling the rig must remain at least 20 feet away from the rig. ***Note:*** *If the rig is positioned on soft ground or there is any evidence of the levelers or jacks sinking into the soil or other surfaces, all activities must stop and all site staff alerted. The GES oversight person must call into the office, the client notified, and a near loss report must be completed regarding the issue. Prior to restarting activities, approved cribbing and other supports must be placed under each leveler (jack). If there is still evidence of sinking or if the rig appears to be unstable in any way, all work must stop, site staff alerted, and the local GES office and corporate HSSE notified. Work should not begin until all issues have been resolved.* 4b. Locate all sources of electricity to site features. ➢ To the extent possible, LO/TO all sources of electricity in the vicinity of the drilling location. ➢ Position boom a minimum of 10 feet from overhead power lines. ➢ Have an observer watch the raising of mast. ➢ Notify all affected employees on-site of the de-energized condition. ***Note*** *If the mark out locations are not visible (i.e. covered by snow, debris, vehicles, washed away/faded, etc.) stop work and contact the project manager or senior office manager.*
On-site edits:				
5. Drilling area containment construction	X Motion _ Chemical _ Electrical _ Biological	X Gravity _ Radiation _ Heat/Cold X Pressure	5a. Exertion 5b. Pinch points with tools (hammer) and equipment (stakes or other material	5a. See A.3a for guidance when carrying and placing bails of straw or other material for containment. 5b. Use appropriate PPE including safety glasses and nitrile coated or regular work gloves. ***Note:*** *Containment construction must comply with the guidance provided in Attachment 3 of GES' "Drilling Protocol".*
On-site edits:				
B. Drilling 1. Begin drilling soil boring/ monitor well ***Note:*** *When using an air rotary to drill the borehole ensure that the protective skirt is firmly secured to*	X Motion X Chemical _ Electrical _ Biological	X Gravity _ Radiation X Heat/Cold X Pressure	1a. Clearing	1a. Ensure that the use of soft dig protocol creates a borehole clearance that is at least 2 inches wider than the widest drilling tool. ➢ Always clear to at least 5 feet depth outside the exclusion zone and to 8' depth in the exclusion zone. ➢ If soils are collapsing during the soft dig process, insert the appropriate sized PVC casing to keep the hole open to at least 2 inches wider than the widest drilling tool. ***Note:*** *If any evidence of* ***peastone*** *is observed during handclearing, drilling, excavation, or any subsurface activity, all subsurface work must stop and the project manager and/or the senior office*

the drill rig in order to prevent sudden expulsions of potentially impacted groundwater/mud from the open borehole, rapid propulsion of the skirt, and/or potential exposures to on-site personnel.			1b. Contact and caught 1c. Exertion 1d. Exposure 1e. Noise	*manager must be contacted immediately.* 1b. Ensure locations have been cleared. ➢ Stay 2 feet away from moving rotating parts (e.g., augers, drill drive shaft, etc.). ➢ Recommended to keep at least 10 feet away from borehole while drilling is in progress. ➢ Confer with drillers to make sure you are in a good spot (i.e., safe distance and out of their work zone) ***Note:*** *If a jackhammer is used to break concrete or asphalt, wear leather or vibration-absorbing gloves, eye protection, hearing protection, and a hard hat.* ➢ Use shovels to push debris out of way. ➢ Follow manufacturer's operating procedures for equipment. ➢ Have a stable stance; feet shoulder width apart, hold jackhammer lightly and balanced. ➢ Do not wear excessively loose, baggy clothing, or jewelry. ➢ Take breaks (a 10 minute break every hour of operation) during operation of equipment (e.g., jack hammer) to prevent vibration/repetitive motion injuries. 1c. Bend down at the knees and lift with your legs rather than bending and lifting with your back. ➢ Drink plenty of water and Gatorade. 1d. Use nitrile gloves while handling soil samples. *MONITOR BREATHING ZONE WITH PID CONTINUOUSLY DURING DRILLING ACTIVITIES – IF LEVELS ARE ABOVE 5PPM FOR A SUSTAINED 5 MINUTE PERIOD, EVACUATE THE WORK AREA AND CALL INTO OFFICE TO CONSULT FOR POSSIBLE USE OF DRAGER TUBE TESTING FOR VINYL CHLORIDE. ***Note:*** *Be aware that there may be elevated levels of VINYL CHLORIDE AND RESPIRATORS WILL NOT PROTECT AGAINST VINYL CHLORIDE.* 1e. Wear hearing protection (i.e., ear muffs or foam inserts). ***Note:*** *If any drums are filled with soil or any material, the drum can only be filled a maximum of two-thirds (2/3) full.*
On-site edits:				
2. Collecting soil samples if necessary	_ Motion X Chemical _ Electrical _ Biological	X Gravity _ Radiation X Heat/Cold _ Pressure	2a. Exposure 2b. Contact 2c. Slips, trips, falls	2a. Proper PPE nitrile gloves for handling soil samples (e.g., safety glasses, hard hat, nitrile gloves, Level D clothing). ➢ Handle sample jars safely, if a jar is broken make sure leather work gloves are used during clean up. 2b. While logging soil samples, continuously observe all drilling activities and maintain a safe distance from the active drilling. 2c. Maintain work area, keep walk ways clean, pick up tools, and soil in drums. ➢ Watch for ice formation while drilling in winter.
On-site edits:				
3. Auger removal	X Motion _ Chemical _ Electrical _ Biological	X Gravity _ Radiation _ Heat/Cold _ Pressure	3a. Contact and caught 3b. Exertion	3a. Use proper auger removal tools; **NO** J-hooks. ➢ Leather work gloves must be used while handling winch cables. ➢ Only Shackles properly secured to the auger flight should be used for lift augers; shackles should be certified by the manufacturer and appropriately labeled/stamped with model number or other documentation confirming load rating. ➢ The augers should be lifted hydraulically with the drive cap bolted on the auger string; if permitted, the use of a clevace or chain wrap device should be wrapped around the augers so that the augers can be lifted and placed in the proper location safely. 3b. Utilize proper lifting procedures. See A.3a.

On-site edits:				
4. Install well (riser, screen, sand pack, and bentonite)	X Motion X Chemical _ Electrical _ Biological	X Gravity _ Radiation _ Heat/Cold X Pressure	4a. Exertion 4b. Slips, trips, falls 4c. Exposure, inhalation hazard from nuisance dust 4d. Striking and laceration from saw or cutting device while cutting PVC well to finished length. **Note**: Do not use a die grinder tool or similar device to cut casing. An internal plastic pipe cutter, or a tool that could not result in a hand injury is acceptable	4a. Utilize proper lifting procedures while carrying bentonite and sand bags. 4b. Make sure work area is clean, pick up all tools, sweep up all soil, and maintain walk ways. ➢ Fall protection is required whenever individuals are working 6 feet or more above ground level. 4c. Monitor vapor levels in work area and wear nitrile gloves when cleaning up soil. ➢ Position yourself up wind from concrete dust generated while mixing. ➢ Don a dust mask for comfort if inhalation is unavoidable. 4d. Wear cut resistant (Kevlar or similar) gloves during this activity and the appropriate cutting tool plastic pipe cutter or similar tool must be used.
On-site edits:				
5. Pressure grout the steel casing (if open rock well) or PVC riser in place using a tremie pipe	X Motion X Chemical _ Electrical _ Biological	X Gravity _ Radiation _ Heat/Cold X Pressure	5a. Back injury that can result from exertion 5b. Respiratory irritation from nuisance dust, inhalation hazard 5c. Injury from the contact with materials or equipment 5d. Skin irritation from the exposure to grout 5e. Injury from exposure to pinch points 5f. Potential hearing loss from exposure to elevated noise levels.	5a. Utilize proper lifting procedures to add materials to the mixer and while installing or removing the tremie pipe; see A.3a. 5b. Avoid breathing dust generated when opening bags or mixing the grout. ➢ Stay upwind of the dust or wear a dust mask for comfort. 5c. Wear appropriate PPE (e.g., eye protection, long pants, nitrile gloves or nitrile coated work gloves, shirt with sleeves, steel-toed boots). 5d. Avoid contact with grout; grout may cause skin irritation and burns. 5e. Do not reach into the mixer while operating. ➢ Make sure all guards are in place on the mixer prior to operating. 5f. Wear proper hearing protection (e.g., ear muffs or foam inserts) if noise levels exceed 85 dB.
On-site edits:				
6. Install manway and concrete pad	X Motion X Chemical _ Electrical _ Biological	X Gravity _ Radiation _ Heat/Cold X Pressure	6a. Exertion 6b. Slips, trips, falls 6c. Spark/dust reduction 6d. Fire/explosion 6e. Personal injury from contact with vehicles	6a. Utilize proper lifting procedures while carrying concrete bags. ➢ While mixing concrete use a balanced stance and mix slowly to avoid splashing concrete. 6b. Make sure work area is clean, pick up all tools, sweep up all soil, and maintain walk ways. 6c. When possible, perform wet cuts to reduce the explosion and dust hazard. 6d. If sparks are generated within 35 feet of a vapor source (i.e., an operating pump island) a Hotwork Permit must be furnished and air monitoring must take place. 6e. A "spotter" should be used when manually hauling or moving any loads such as using a wheel barrow that could deviate their attention from surrounding hazards.

On-site edits:				
C. Decontamination Procedures 1. Decontamination of augers and drilling tools (use for guideline while drilling and decontaminating split spoons)	X Motion X Chemical _ Electrical _ Biological	X Gravity _ Radiation _ Heat/Cold _ Pressure	1a. Contact 1b. Exertion 1c. Slips, trips, falls	1a. Proper PPE safety glasses, hard hat, ear muffs, work gloves, Level D clothing. 1b. Utilize proper lifting procedures ➢ See A.3a if augers need to be carried to decon area or manually loaded into a truck; use 2 people. 1c. Make sure work area is clean, pick up all tools, sweep up all soil, and maintain walk ways.
On-site edits:				
2. Soak/spray durable equipment to prevent cross-contamination between multiple well locations; properly store disposable equipment	X Motion X Chemical _ Electrical _ Biological	X Gravity _ Radiation _ Heat/Cold _ Pressure	2a. Contact 2b. Exposure 2c. Exertion	2a. Wear appropriate PPE (e.g., eye protection, long pants, nitrile sampling gloves, shirt with sleeves, hard hat, steel-toed boots, rain suit or coated Saranex). ➢ Comply with monitoring and action level requirements in HASP. 2b. Avoid contact with all decontamination chemicals including Liquinox and any other soaps or solvents used on drilling equipment. ➢ Use of face shield during high pressure washing to avoid splashing face. 2c. Utilize proper lifting procedures; see A.3a.
On-site edits:				
E. Mobilization 1. Preparation to mob to next drilling location or leave site	X Motion _ Chemical _ Electrical _ Biological	X Gravity _ Radiation _ Heat/Cold _ Pressure	1a. Contact and caught 1b. Exertion	1a. Ensure an observer is watching the raising and lowering of the drill rig mast so no lines or overhead obstacles are contacted. ➢ Use proper PPE (e.g., hard hat, safety glasses, hearing protection (while rig is operational), steel-toed boots, and leather work gloves. ➢ Prior to lowering rig off of outriggers make sure all tools and personnel are clear of the drill rig. ➢ Prior to driving to next location make sure auger racks are in. ➢ While rig is moving on site have spotters verify clearance so no overhead obstacles are contacted and no obstacles are hit while backing up. 1b. Utilize proper lifting procedures. ➢ See A.3a and drink plenty of water and Gatorade.
On-site edits:				

Job Safety Analysis (JSA)

JSA Title: _____ JSA Control #: ___

Date Developed:	
Latest Revised Date:	
Initiated/Changed by:	
Approved by:	

Please complete the below if this JSA is being modified for SITE-SPECIFIC reasons.	
Date Form Completed:	Work Location:
This JSA has been fully reviewed with all staff members and all activity job steps, hazards, work practices, and PPE are clearly understood and have been implemented. All necessary revisions have been written on this JSA.	

REQUIRED PPE: Gloves, nitrile, Kevlar, leather, Hard Hat, if working in an area with low overhead clearance, Hearing Protection, if site activities raise the noise level to 85 dB, PPE Clothing, highly visible clothing such as orange coveralls or reflective safety vest, Safety Glasses, Safety Shoes, steel toed

REQUIRED AND/OR RECOMMENDED TOOLS AND EQUIPMENT:

Activity/Sequence of Job Tasks List all tasks required to perform a job in the sequence they are carried out.	Energy or Biological Sources *(Check all that apply)*		What would be the result of exposure to a biological or energy source? (e.g., slip, trip, fall, exposure, electrocution, injury, death, etc.). **How, where, or when** could an uncontrolled release or unwanted contact with a biological or energy source occur?	**Energy/Biological/Waste Management Plan** Eliminate – Control – Protect **Risk Control Measures** List control measures required to eliminate, control or protect against unwanted contact with an uncontrolled biological or energy source to minimize the risk of injury or environmental impact. Include identification of 'Stop Work' triggers.
	_ Motion _ Chemical _ Electrical _ Biological	_ Gravity _ Radiation _ Heat/Cold _ Pressure		
On-site edits:				
	_ Motion _ Chemical _ Electrical _ Biological	_ Gravity _ Radiation _ Heat/Cold _ Pressure		
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	_ Motion _ Chemical _ Electrical _ Biological	_ Gravity _ Radiation _ Heat/Cold _ Pressure		
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On-site edits:				

Please ensure that all necessary JSAs associated with your work scope have been identified and reviewed.

GES DAILY SITE SAFETY CHECKLIST

Site Name: _____
Address: _____
_____
_____

Individual's Name: _____ Date: _____

Task and date of entry: _____ _____
_____ _____
_____ _____
_____ _____
_____

This checklist is to be completed on a daily basis. The date should be noted in the space provided. The employee completing the checklist should verify that each item is correct and initial in the last space provided.

Date:

1. Proper training certificates have been obtained from subcontractors.
2. The site-specific HASP has been reviewed and signed by GES employees and GES-hired subcontractors.
3. The daily site-safety meeting has been conducted.
4. Applicable JSAs are onsite, reviewed by Staff to ensure all tasks/jobs are covered, and site specific JSA modifications occur when needed.
5. Fire extinguishers are available for use and are fully charged.
6. A fully-stocked first aid kit and eye wash bottle are readily available.
7. Any potential tripping hazards have been removed from site.
8. All vessels containing flammable or corrosive material are properly labeled.
9. Proper personal protective equipment is being used for present conditions.
10. Equipment on-site is checked and in safe working order.
11. Safety cones and flags or barricades have been utilized to mark out work area.
12. No person on-site has the appearance of being under the influence of motor skill altering substances.
13. All workers on-site are clothed in an appropriate manner (highly visible clothing, no tank tops, muscle shirts or shorts).
14. Electrical power operated tools shall be properly grounded and used with a Ground-Fault Circuit Interrupter (GFCI).
15. All required Permits (GES and/or client) are completed by an authorized individual.
16. When working alone, has a phone call been placed to the PM to discuss site conditions, review the Scope of Work, LPS requirements and coordinate communications for the day. Note: The frequency/ amount of additional calls from the field should be established during the PM's discussion with the individual. A call must always occur prior to leaving the site.
17. Prior to leaving the site for the day, the GES site supervisor has conducted a meeting with onsite staff to review worker condition (possible injuries), JSA revisions, discuss possible Near Losses/Losses, and activities scheduled for the next day.
18. All health and safety concerns have been communicated to the Local Health and Safety Officer and Project Manager

I verify and initial that the above information is correct by initialing in the boxes to the right:

GES DAILY SITE SAFETY CHECKLIST: For Drilling Operations

Site Name: _____
Address: _____
_____

Task and date of entry: _____ _____
_____ _____

This checklist is to be completed on a daily basis. The date should be noted in the space provided. The employee completing the checklist should verify that each item is correct and initial in the last space provided.

Date						
1. Subcontractors have inspected their drill rig.						
2. Excavated soils are properly drummed and stored (or stockpiled at least two feet from the edge of the excavation on plastic and covered).						
3. Air monitoring equipment has been calibrated and documented in field book or in calibration log.						
4. All utility mark-outs have been obtained and are documented and available onsite.						
5. All active utility services to on-site buildings have been identified through field investigations and discussion with client and retail personnel.						
6. All health and safety concerns have been communicated to the Local Health and Safety Officer and Project Manager.						
7. Prior to intrusive activities, verify that all underground electrical lines have been de-energized and locked and tagged out. Complete Lockout/ tagout checklist.						
8. GES or Client Specific Subsurface Clearance Protocol was completed.						
9. I verify and initial that the above information is correct.						

Comments: _____

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5. All active utility services to on-site buildings have been identified through field investigations and discussion with client and retail personnel.					
6. Ladders have been inspected and are the proper type for the job.					
7. Fall protection is available and inspected for use if needed.					
8. Electrical power operated tools shall be properly grounded and used with a Ground-Fault Circuit Interrupter (GFCI).					
9. No employee will enter an excavation greater than 4 feet deep.					
10. All health and safety concerns have been communicated to the Local Health and Safety Officer and the Project Manager					
11. GES or Client Specific Subsurface Clearance protocol has been completed.					
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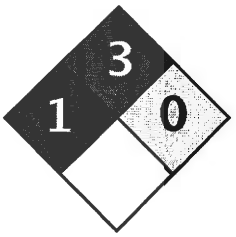
ScienceLab.com
Chemicals & Laboratory Equipment



Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet
Acetone MSDS

Section 1: Chemical Product and Company Identification

Product Name: Acetone

Catalog Codes: SLA3502, SLA1645, SLA3151, SLA3808

CAS#: 67-64-1

RTECS: AL3150000

TSCA: TSCA 8(b) inventory: Acetone

CI#: Not applicable.

Synonym: 2-propanone; Dimethyl Ketone; Dimethylformaldehyde; Pyroacetic Acid

Chemical Name: Acetone

Chemical Formula: C3-H6-O

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Acetone	67-64-1	100

Toxicological Data on Ingredients: Acetone: ORAL (LD50): Acute: 5800 mg/kg [Rat]. 3000 mg/kg [Mouse]. 5340 mg/kg [Rabbit]. VAPOR (LC50): Acute: 50100 mg/m 8 hours [Rat]. 44000 mg/m 4 hours [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male [SUSPECTED].
The substance is toxic to central nervous system (CNS).
The substance may be toxic to kidneys, the reproductive system, liver, skin.
Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 465°C (869°F)

Flash Points: CLOSED CUP: -20°C (-4°F). OPEN CUP: -9°C (15.8°F) (Cleveland).

Flammable Limits: LOWER: 2.6% UPPER: 12.8%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances: Highly flammable in presence of open flames and sparks, of heat.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available.
Slightly explosive in presence of open flames and sparks, of oxidizing materials, of acids.

Fire Fighting Media and Instructions:
Flammable liquid, soluble or dispersed in water.
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use alcohol foam, water spray or fog.

Special Remarks on Fire Hazards: Vapor may travel considerable distance to source of ignition and flash back.

Special Remarks on Explosion Hazards:
Forms explosive mixtures with hydrogen peroxide, acetic acid, nitric acid, nitric acid + sulfuric acid, chromic anydride, chromyl chloride, nitrosyl chloride, hexachloromelamine, nitrosyl perchlorate, nitryl perchlorate, permonosulfuric acid, thiodiglycol + hydrogen peroxide, potassium ter-butoxide, sulfur dichloride, 1-methyl-1,3-butadiene, bromoform, carbon, air, chloroform, thitriazylperchlorate.

Section 6: Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill:
Flammable liquid.
Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, reducing agents, acids, alkalis.

Storage:
Store in a segregated and approved area (flammables area) . Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Keep away from direct sunlight and heat and avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 500 STEL: 750 (ppm) from ACGIH (TLV) [United States]
TWA: 750 STEL: 1000 (ppm) from OSHA (PEL) [United States]
TWA: 500 STEL: 1000 [Austalia]
TWA: 1185 STEL: 2375 (mg/m3) [Australia]
TWA: 750 STEL: 1500 (ppm) [United Kingdom (UK)]
TWA: 1810 STEL: 3620 (mg/m3) [United Kingdom (UK)]
TWA: 1800 STEL: 2400 from OSHA (PEL) [United States]Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Fruity. Mint-like. Fragrant. Ethereal

Taste: Pungent, Sweetish

Molecular Weight: 58.08 g/mole

Color: Colorless. Clear

pH (1% soln/water): Not available.

Boiling Point: 56.2°C (133.2°F)

Melting Point: -95.35 (-139.6°F)

Critical Temperature: 235°C (455°F)

Specific Gravity: 0.79 (Water = 1)

Vapor Pressure: 24 kPa (@ 20°C)

Vapor Density: 2 (Air = 1)

Volatility: Not available.

Odor Threshold: 62 ppm

Water/Oil Dist. Coeff.: The product is more soluble in water; log(oil/water) = -0.2

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water.

Solubility: Easily soluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Excess heat, ignition sources, exposure to moisture, air, or water, incompatible materials.

Incompatibility with various substances: Reactive with oxidizing agents, reducing agents, acids, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE.
Acute oral toxicity (LD50): 3000 mg/kg [Mouse].
Acute toxicity of the vapor (LC50): 44000 mg/m3 4 hours [Mouse].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH.

DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male [SUSPECTED].
Causes damage to the following organs: central nervous system (CNS).
May cause damage to the following organs: kidneys, the reproductive system, liver, skin.

Other Toxic Effects on Humans:
Hazardous in case of skin contact (irritant), of ingestion, of inhalation.
Slightly hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:
May affect genetic material (mutagenicity) based on studies with yeast (S. cerevisiae), bacteria, and hamster fibroblast cells. May cause reproductive effects (fertility) based upon animal studies.
May contain trace amounts of benzene and formaldehyde which may cancer and birth defects. Human: passes the placental barrier.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects:
Skin: May cause skin irritation. May be harmful if absorbed through the skin.
Eyes: Causes eye irritation, characterized by a burning sensation, redness, tearing, inflammation, and possible corneal injury.
Inhalation: Inhalation at high concentrations affects the sense organs, brain and causes respiratory tract irritation. It also may affect the Central Nervous System (behavior) characterized by dizzness, drowsiness, confusion, headache, muscle weakeness, and possibly motor incoordination, speech abnormalities, narcotic effects and coma. Inhalation may also affect the gastrointestinal tract (nausea, vomiting).
Ingestion: May cause irritation of the digestive (gastrointestinal) tract (nausea, vomiting). It may also affect the Central Nevous System (behavior), characterized by depression, fatigue, excitement, stupor, coma, headache, altered sleep time, ataxia, tremors as well at the blood, liver, and urinary system (kidney, bladder, ureter) and endocrine system. May also have musculoskeletal effects.
Chronic Potential Health Effects:
Skin: May cause dermatitis.
Eyes: Eye irritation.

Section 12: Ecological Information

Ecotoxicity:
Ecotoxicity in water (LC50): 5540 mg/l 96 hours [Trout]. 8300 mg/l 96 hours [Bluegill]. 7500 mg/l 96 hours [Fathead Minnow]. 0.1 ppm any hours [Water flea].

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 3: Flammable liquid.

Identification: : Acetone UNNA: 1090 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (male) which would require a warning under the statute: Benzene
California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Benzene
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Benzene, Formaldehyde
Connecticut hazardous material survey.: Acetone
Illinois toxic substances disclosure to employee act: Acetone
Illinois chemical safety act: Acetone
New York release reporting list: Acetone
Rhode Island RTK hazardous substances: Acetone
Pennsylvania RTK: Acetone
Florida: Acetone
Minnesota: Acetone
Massachusetts RTK: Acetone
Massachusetts spill list: Acetone
New Jersey: Acetone
New Jersey spill list: Acetone
Louisiana spill reporting: Acetone
California List of Hazardous Substances (8 CCR 339): Acetone
TSCA 8(b) inventory: Acetone
TSCA 4(a) final test rules: Acetone
TSCA 8(a) IUR: Acetone

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):
R11- Highly flammable.
R36- Irritating to eyes.
S9- Keep container in a well-ventilated place.
S16- Keep away from sources of ignition - No smoking.
S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves.
Lab coat.
Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
Splash goggles.

Section 16: Other Information

References:
-Material safety data sheet issued by: la Commission de la SantÃ© et de la SÃ©curitÃ© du Travail du QuÃ©bec.
-The Sigma-Aldrich Library of Chemical Safety Data, Edition II.
-Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987.
LOLI, RTECS, HSDB databases.
Other MSDSs

Other Special Considerations: Not available.

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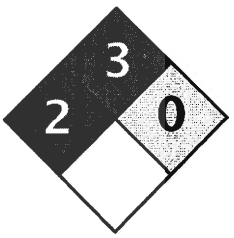

Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet
Benzene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Benzene

Catalog Codes: SLB1564, SLB3055, SLB2881

CAS#: 71-43-2

RTECS: CY1400000

TSCA: TSCA 8(b) inventory: Benzene

CI#: Not available.

Synonym: Benzol; Benzine

Chemical Name: Benzene

Chemical Formula: C6-H6

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Benzene	71-43-2	100

Toxicological Data on Ingredients: Benzene: ORAL (LD50): Acute: 930 mg/kg [Rat]. 4700 mg/kg [Mouse]. DERMAL (LD50): Acute: >9400 mg/kg [Rabbit]. VAPOR (LC50): Acute: 10000 ppm 7 hours [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of eye contact (irritant), of inhalation. Hazardous in case of skin contact (irritant, permeator), of ingestion. Inflammation of the eye is characterized by redness, watering, and itching.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Classified A1 (Confirmed for human.) by ACGIH, 1 (Proven for human.) by IARC.
MUTAGENIC EFFECTS: Classified POSSIBLE for human. Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female [POSSIBLE].
The substance is toxic to blood, bone marrow, central nervous system (CNS).
The substance may be toxic to liver, Urinary System.
Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. WARM water MUST be used. Get medical attention immediately.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 497.78°C (928°F)

Flash Points: CLOSED CUP: -11.1°C (12°F). (Setaflash)

Flammable Limits: LOWER: 1.2% UPPER: 7.8%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances:
Highly flammable in presence of open flames and sparks, of heat.
Slightly flammable to flammable in presence of oxidizing materials.
Non-flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.
Explosive in presence of oxidizing materials, of acids.

Fire Fighting Media and Instructions:
Flammable liquid, soluble or dispersed in water.
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use alcohol foam, water spray or fog.

Special Remarks on Fire Hazards:
Extremely flammable liquid and vapor. Vapor may cause flash fire.
Reacts on contact with iodine heptafluoride gas.

Dioxygenyl tetrafluoroborate is as very powferful oxidant. The addition of a small particle to small samples of benzene, at ambient temperature, causes ignition.
Contact with sodium peroxide with benzene causes ignition.
Benzene ignites in contact with powdered chromic anhydride.
Virgorous or incandescent reaction with hydrogen + Raney nickel (above 210 C) and bromine trifluoride.

Special Remarks on Explosion Hazards:
Benzene vapors + chlorine and light causes explosion.
Reacts explosively with bromine pentafluoride, chlorine, chlorine trifluoride, diborane, nitric acid, nitryl perchlorate, liquid oxygen, ozone, silver perchlorate.
Benzene + pentafluoride and methoxide (from arsenic pentafluoride and potassium methoxide) in trichlorotrifluoroethane causes explosion.
Interaction of nitryl perchlorate with benzene gave a slight explosion and flash.
The solution of permanganic acid (or its explosive anhydride, dimaganese heptoxide) produced by interaction of permanganates and sulfuric acid will explode on contact with benzene.
Peroxodisulfuric acid is a very powferful oxidant. Uncontrolled contact with benzene may cause explosion.
Mixtures of peroxomonsulfuric acid with benzene explodes.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Flammable liquid.
Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, acids.

Storage:
Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 0.5 STEL: 2.5 (ppm) from ACGIH (TLV) [United States]
TWA: 1.6 STEL: 8 (mg/m3) from ACGIH (TLV) [United States]
TWA: 0.1 STEL: 1 from NIOSH
TWA: 1 STEL: 5 (ppm) from OSHA (PEL) [United States]
TWA: 10 (ppm) from OSHA (PEL) [United States]
TWA: 3 (ppm) [United Kingdom (UK)]
TWA: 1.6 (mg/m3) [United Kingdom (UK)]
TWA: 1 (ppm) [Canada]
TWA: 3.2 (mg/m3) [Canada]
TWA: 0.5 (ppm) [Canada]Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor:
Aromatic. Gasoline-like, rather pleasant.
(Strong.)

Taste: Not available.

Molecular Weight: 78.11 g/mole

Color: Clear Colorless. Colorless to light yellow.

pH (1% soln/water): Not available.

Boiling Point: 80.1 (176.2°F)

Melting Point: 5.5°C (41.9°F)

Critical Temperature: 288.9°C (552°F)

Specific Gravity: 0.8787 @ 15 C (Water = 1)

Vapor Pressure: 10 kPa (@ 20°C)

Vapor Density: 2.8 (Air = 1)

Volatility: Not available.

Odor Threshold: 4.68 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; log(oil/water) = 2.1

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether, acetone.

Solubility:
Miscible in alcohol, chloroform, carbon disulfide oils, carbon tetrachloride, glacial acetic acid, diethyl ether, acetone.
Very slightly soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources, incompatibles.

Incompatibility with various substances: Highly reactive with oxidizing agents, acids.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Benzene vapors + chlorine and light causes explosion.
Reacts explosively with bromine pentafluoride, chlorine, chlorine trifluoride, diborane, nitric acid, nitryl perchlorate, liquid oxygen, ozone, silver perchlorate.
Benzene + pentafluoride and methoxide (from arsenic pentafluoride and potassium methoxide) in trichlorotrifluoroethane causes explosion.
Interaction of nitryl perchlorate with benzene gave a slight explosion and flash.
The solution of permanganic acid (or its explosive anhydride, dimaganese heptoxide) produced by interaction of permanganates and sulfuric acid will explode on contact with benzene.
Peroxodisulfuric acid is a very powerful oxidant. Uncontrolled contact with benzene may cause explosion.
Mixtures of peroxomonsulfuric acid with benzene explodes.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE.
Acute oral toxicity (LD50): 930 mg/kg [Rat].
Acute dermal toxicity (LD50): >9400 mg/kg [Rabbit].
Acute toxicity of the vapor (LC50): 10000 7 hours [Rat].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A1 (Confirmed for human.) by ACGIH, 1 (Proven for human.) by IARC.
MUTAGENIC EFFECTS: Classified POSSIBLE for human. Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.
DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female [POSSIBLE].
Causes damage to the following organs: blood, bone marrow, central nervous system (CNS).
May cause damage to the following organs: liver, Urinary System.

Other Toxic Effects on Humans:
Very hazardous in case of inhalation.
Hazardous in case of skin contact (irritant, permeator), of ingestion.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:
May cause adverse reproductive effects (female fertility, Embryotoxic and/or foetotoxic in animal) and birth defects.
May affect genetic material (mutagenic).
May cause cancer (tumorigenic, leukemia))
Human: passes the placental barrier, detected in maternal milk.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects:
Skin: Causes skin irritation. It can be absorbed through intact skin and affect the liver, blood, metabolism,and urinary system.
Eyes: Causes eye irritation.
Inhalation: Causes respiratory tract and mucous membrane irritation. Can be absorbed through the lungs. May affect behavior/Central and Peripheral nervous systems (somnolence, muscle weakness, general anesthetic, and

other symptoms similar to ingestion), gastrointestinal tract (nausea), blood metabolism, urinary system.
Ingestion: May be harmful if swallowed. May cause gastrointestinal tract irritation including vomiting. May affect behavior/Central and Peripheral nervous systems (convulsions, seizures, tremor, irritability, initial CNS stimulation followed by depression, loss of coordination, dizziness, headache, weakness, pallor, flushing), respiration (breathlessness and chest constriction), cardiovascular system, (shallow/rapid pulse), and blood.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 3: Flammable liquid.

Identification: : Benzene UNNA: 1114 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Benzene
California prop. 65 (no significant risk level): Benzene: 0.007 mg/day (value)
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Benzene
Connecticut carcinogen reporting list.: Benzene
Connecticut hazardous material survey.: Benzene
Illinois toxic substances disclosure to employee act: Benzene
Illinois chemical safety act: Benzene
New York release reporting list: Benzene
Rhode Island RTK hazardous substances: Benzene
Pennsylvania RTK: Benzene
Minnesota: Benzene
Michigan critical material: Benzene
Massachusetts RTK: Benzene
Massachusetts spill list: Benzene
New Jersey: Benzene
New Jersey spill list: Benzene
Louisiana spill reporting: Benzene
California Director's list of Hazardous Substances: Benzene

TSCA 8(b) inventory: Benzene
SARA 313 toxic chemical notification and release reporting: Benzene
CERCLA: Hazardous substances.: Benzene: 10 lbs. (4.536 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R11- Highly flammable.
R22- Harmful if swallowed.
R38- Irritating to skin.
R41- Risk of serious damage to eyes.
R45- May cause cancer.
R62- Possible risk of impaired fertility.
S2- Keep out of the reach of children.
S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S39- Wear eye/face protection.
S46- If swallowed, seek medical advice immediately and show this container or label.
S53- Avoid exposure - obtain special instructions before use.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves.
Lab coat.
Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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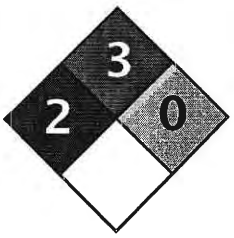

Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet
1,1-Dichloroethane MSDS

Section 1: Chemical Product and Company Identification

Product Name: 1,1-Dichloroethane

Catalog Codes: SLD3280

CAS#: 75-34-3

RTECS: KI0175000

TSCA: TSCA 8(b) inventory: 1,1-Dichloroethane

CI#: Not available.

Synonym:

Chemical Name: 1,1-Dichloroethane

Chemical Formula: C2-H4-Cl2

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
{1,1-}Dichloroethane	75-34-3	100

Toxicological Data on Ingredients: 1,1-Dichloroethane: ORAL (LD50): Acute: 725 mg/kg [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects: Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Classified 2 (Reasonably anticipated.) by NTP. A4 (Not classifiable for human or animal.) by ACGIH.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Classified Development toxin [POSSIBLE].
The substance is toxic to kidneys, lungs, liver, central nervous system (CNS).
Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact: Check for and remove any contact lenses. Do not use an eye ointment. Seek medical attention.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do not induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 458°C (856.4°F)

Flash Points: CLOSED CUP: -17°C (1.4°F). OPEN CUP: -6°C (21.2°F).

Flammable Limits: LOWER: 5.6% UPPER: 11.4%

Products of Combustion: These products are carbon oxides (CO, CO2), halogenated compounds.

Fire Hazards in Presence of Various Substances: Not available.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
Flammable liquid.
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use alcohol foam, water spray or fog.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Flammable liquid.
Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth,

sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/spray. Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes Keep away from incompatibles such as oxidizing agents, alkalis.

Storage:
Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. A refrigerated room would be preferable for materials with a flash point lower than 37.8°C (100°F).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 100 STEL: 250 (ppm) from ACGIH (TLV) [1999]
TWA: 100 (ppm) from OSHA (PEL)
Australia: TWA: 200 (ppm)
Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid. (Oily liquid.)

Odor: Chloroform like odor (Slight.)

Taste: Not available.

Molecular Weight: 98.96 g/mole

Color: Colorless.

pH (1% soln/water): Not available.

Boiling Point: 57.3°C (135.1°F)

Melting Point: -96.9°C (-142.4°F)

Critical Temperature: 261.5°C (502.7°F)

Specific Gravity: 1.175 (Water = 1)

Vapor Pressure: 180 mm of Hg (@ 20°C)

Vapor Density: 3.44 (Air = 1)

Volatility: Not available.

Odor Threshold: 120 ppm

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties:
Partially dispersed in diethyl ether.
See solubility in water, diethyl ether.

Solubility: Partially soluble in diethyl ether.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Reactive with oxidizing agents, alkalis.

Corrosivity: Corrosive in presence of aluminum.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Will attack some forms of plastic and rubber

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

Toxicity to Animals: Acute oral toxicity (LD50): 725 mg/kg [Rat].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified 2 (Reasonably anticipated.) by NTP. A4 (Not classifiable for human or animal.) by ACGIH.
DEVELOPMENTAL TOXICITY: Classified Development toxin [POSSIBLE].
The substance is toxic to kidneys, lungs, liver, central nervous system (CNS).

Other Toxic Effects on Humans: Hazardous in case of skin contact (irritant), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are as toxic as the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification:
CLASS 3: Combustible liquid with a flash point greater than 37.8C (100F).
Marine pollutant

Identification: : 1,1-Dichloroethane : UN2362 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65 (no significant risk level): 1,1-Dichloroethane
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: 1,1-Dichloroethane
Rhode Island RTK hazardous substances: 1,1-Dichloroethane
Pennsylvania RTK: 1,1-Dichloroethane
Florida: 1,1-Dichloroethane
Minnesota: 1,1-Dichloroethane
Massachusetts RTK: 1,1-Dichloroethane
New Jersey: 1,1-Dichloroethane
New Jersey spill list: 1,1-Dichloroethane
TSCA 8(b) inventory: 1,1-Dichloroethane
TSCA 8(a) PAIR: 1,1-Dichloroethane
TSCA 8(d) H and S data reporting: 1,1-Dichloroethane: June 1999
TSCA 12(b) one time export: 1,1-Dichloroethane
SARA 313 toxic chemical notification and release reporting: 1,1-Dichloroethane: 1%
CERCLA: Hazardous substances.: 1,1-Dichloroethane: 1000 lbs. (453.6 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):

R11- Highly flammable.
R22- Harmful if swallowed.
R37/38- Irritating to respiratory system and skin.
R41- Risk of serious damage to eyes.
R52- Harmful to aquatic organisms.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves.
Lab coat.
Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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Last Updated: 10/09/2005 05:07 PM

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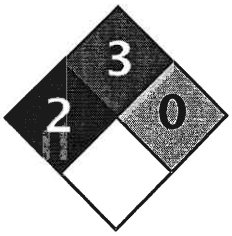

Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet
1,2-Dichloroethane MSDS

Section 1: Chemical Product and Company Identification

Product Name: 1,2-Dichloroethane

Catalog Codes: SLD2521, SLD3721

CAS#: 107-06-2

RTECS: KH9800000

TSCA: TSCA 8(b) inventory: 1,2-Dichloroethane

CI#: Not available.

Synonym: Ethylene dichloride

Chemical Formula: C2H4CL2

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
{1,2-}Dichloroethane	107-06-2	100

Toxicological Data on Ingredients: 1,2-Dichloroethane: ORAL (LD50): Acute: 670 mg/kg [Rat]. 413 mg/kg [Mouse]. DERMAL (LD50): Acute: 2800 mg/kg [Rabbit]. VAPOR (LC50): Acute: 1414.2 ppm 4 hour(s) [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Extremely hazardous in case of ingestion. Very hazardous in case of eye contact (irritant), of inhalation. Hazardous in case of skin contact (irritant). Corrosive to skin and eyes on contact. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Inflammation of the eye is characterized by redness, watering, and itching.

Potential Chronic Health Effects:
Very hazardous in case of ingestion, of inhalation.
CARCINOGENIC EFFECTS: Classified + (PROVEN) by OSHA. Classified 2B (Possible for human.) by IARC. Classified 2 (Reasonably anticipated.) by NTP.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.

The substance is toxic to lungs, the nervous system, liver, mucous membranes.
Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Skin Contact:
If the chemical got onto the clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical got on the victim's exposed skin, such as the hands : Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
Do not induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 413°C (775.4°F)

Flash Points: CLOSED CUP: 13°C (55.4°F). OPEN CUP: 18°C (64.4°F).

Flammable Limits: LOWER: 6.2% UPPER: 15.6%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances:
Flammable in presence of open flames and sparks.
Slightly flammable to flammable in presence of oxidizing materials.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.
Slightly explosive to explosive in presence of oxidizing materials.

Fire Fighting Media and Instructions:

Flammable liquid, soluble or dispersed in water.
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use alcohol foam, water spray or fog.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Flammable liquid. Corrosive liquid.
Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up Keep container dry. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/spray. Never add water to this product In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes

Storage:
Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. A refrigerated room would be preferable for materials with a flash point lower than 37.8°C (100°F).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 10 CEIL: 75 (ppm) from ACGIH (TLV)
TWA: 40 CEIL: 300 (mg/m3) from ACGIHConsult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Not available.

Taste: Not available.

Molecular Weight: 98.96 g/mole

Color: Not available.

pH (1% soln/water): Not available.

Boiling Point: 83.5°C (182.3°F)

Melting Point: -35.3°C (-31.5°F)

Critical Temperature: Not available.

Specific Gravity: 1.2351 (Water = 1)

Vapor Pressure: 61 mm of Hg (@ 20°C)

Vapor Density: 3.42 (Air = 1)

Volatility: Not available.

Odor Threshold: 26 ppm

Water/Oil Dist. Coeff.: The product is equally soluble in oil and water; log(oil/water) = 0

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, methanol, diethyl ether, n-octanol, acetone.

Solubility:
Easily soluble in methanol, diethyl ether, n-octanol, acetone.
Very slightly soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Eye contact. Inhalation. Ingestion.

Toxicity to Animals:

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE.
Acute oral toxicity (LD50): 413 mg/kg [Mouse].
Acute dermal toxicity (LD50): 2800 mg/kg [Rabbit].
Acute toxicity of the vapor (LC50): 1414.2 ppm 4 hour(s) [Rat].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified + (PROVEN) by OSHA. Classified 2B (Possible for human.) by IARC. Classified 2 (Reasonably anticipated.) by NTP.
The substance is toxic to lungs, the nervous system, liver, mucous membranes.

Other Toxic Effects on Humans:
Extremely hazardous in case of ingestion.
Very hazardous in case of inhalation.
Hazardous in case of skin contact (irritant).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Passes through the placental barrier in animal. Excreted in maternal milk in human.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: Class 3: Flammable liquid.

Identification: : Ethylene dichloride : UN1184 PG: II

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: 1,2-Dichloroethane
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: 1,2-Dichloroethane
Pennsylvania RTK: 1,2-Dichloroethane

Massachusetts RTK: 1,2-Dichloroethane
TSCA 8(b) inventory: 1,2-Dichloroethane
CERCLA: Hazardous substances.: 1,2-Dichloroethane

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):
CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC).
CLASS D-2A: Material causing other toxic effects (VERY TOXIC).
CLASS E: Corrosive liquid.

DSCL (EEC):
R11- Highly flammable.
R20/22- Harmful by inhalation and if swallowed.
R38- Irritating to skin.
R41- Risk of serious damage to eyes.
R45- May cause cancer.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves.
Lab coat.
Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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Last Updated: 10/10/2005 08:17 PM

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Scott Specialty Gases

AIR LIQUIDE

Material Safety Data Sheets
MSDS No: 75-35-4
Date: 05/31/2006

SUPPLIER ADDRESS: 6141 Easton Road, Bldg. 1
PO Box 310
Plumsteadville, PA 18949-0310

EMERGENCY PHONE NUMBER: (215) 766-8861

1. CHEMICAL PRODUCT

PRODUCT NAME: 1,1-DICHLOROETHYLENE SYNONYMS: Vinylidene Chloride

2. COMPOSITION, INFORMATION ON INGREDIENTS

Ingredient Name	Formula	CAS #	Concentration	Exposure Limits (PPM) ACGIH TLV	OSHA PEL	MAC	Other STEL
1,1-DICHLORORETHYLENE	C2H2Cl2	75-35-4	99+%	5	1	5	100

Note: NE = NONE ESTABLISHED S/A = SIMPLE ASPHYXIANT

3. HAZARD INDENTIFICATION

* * * EMERGENCY OVERVIEW * * *
Flammable liquid and vapor.
Can form explosive mixtures with air.
May be fatal if inhaled.
May cause heart, liver and kidney damage.
May cause irritation to the respiratory tract and skin.

POTENTIAL HEALTH EFFECTS

ROUTES OF ENTRY: Inhalation, Ingestion, Skin

ACUTE EFFECTS: Inhalation causes irritation of the respiratory tract.Symptoms include shortness of breath, headache, confusion, nausea, dizziness, and unconsciousness.Severe exposure may cause unconsciousness and death.Eye contact may cause irritation, redness, or blurred vision.Skin contact can cause defatting and dermatitis.Can be absorbed through the skin.Ingestion irritates the digestive tract and may cause partial paralysis, unconsciousness and kidney damage.

CHRONIC EFFECTS: Kidney and liver damage.Heart damage.Alteration of genetic material.

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE: None known

OTHER EFFECTS OF OVEREXPORSURE: None

CARCINOGENICITY (US ONLY):

NTP - No
IARC MONOGRAPHS - No
OSHA REGULATED - No

4. FIRST AID MEASURES

INHALATION: Immediately remove victim to fresh air.If breathing has stopped, give artificial respiration.If breathing is difficult, give oxygen.

EYE CONTACT: Immediately flush with copious amounts of water for at least 15 minutes.

SKIN CONTACT: Immediately flush with copious amounts of water for at least 15 minutes while removing contaminated clothing.

INGESTION: Never give anything by mouth to an unconscious person.Have conscious and alert person drink 1 to 2 glasses of water.Induce vomiting after victim drinks water.

IN EVENT OF EXPOSURE, CONSULT A PHYSICIAN

NOTE TO PHYSICIAN: None

5. FIRE FIGHTING MEASURES

FLASH POINT: -17.8 deg. C

AUTOIGNITION TEMPERATURE: 570 deg.C

FLAMMABLE LIMITS: Vol.%

LOWER: 7.3
UPPER: 16

EXTINGUISHING MEDIA: Carbon dioxide, foam, or dry chemical.

SPECIAL FIRE FIGHTING INSTRUCTION AND EQUIPMENT: Wear self-contained breathing apparatus and full protective clothing.Keep fire exposed cylinders cool with water spray.If possible, stop the product flow.

HAZARDOUS COMBUSTION PRODUCTS: Toxic carbon monoxide, hydrogen chloride and phosgene.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Emits toxic fumes under fire conditions.Cylinder rupture may occur under fire conditions.

6. ACCIDENTAL RELEASE MEASURES

CLEAN UP PROCEDURES: Remove leaking cylinder to exhaust hood or safe outdoor area if this can be done safely.Evacuate and ventilate area.Use a self-contained breathing apparatus in case of emergency or non-routine use.Shut off source if possible and remove source of heat.Absorb with sand or vermiculite and place in closed containers for disposal.

SPECIALIZED EQUIPMENT: None

7. HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING: Secure cylinder when using to protect from falling.Use suitable hand truck to move cylinders.Use only in a well-ventilated area.

PRECAUTIONS TO BE TAKEN IN STORAGE: Store in well ventilated areas.Keep valve protection cap on

cylinders when not in use.Store away from heat, flame, and sparks.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS: Provide adequate general and local exhaust ventilation to maintain concentrations below exposure and flammable limits.

EYE / FACE PROTECTION: Goggles.

SKIN PROTECTION: Impervious gloves, coveralls, boots, and/or other resistant protective clothing.

RESPIRATORY PROTECTION: Use a self-contained breathing apparatus in case of emergency or non-routine use.

OTHER PROTECTIVE EQUIPMENT: Safety shoes when handling cylinders.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Colorless

ODOR: Sweet chloroform odor.

PHYSICAL PRESSURE: Liquid

VAPOR PRESSURE: @20 deg. celsius: 500 mm Hg

VAPOR DENSITY (AIR=1): 3.25

BOILING POINT (C): 31.9

SOLUBILITY IN WATER: Insoluble

SPECIFIC GRAVITY (H2O=1): @20 deg. celsius: 1.218

EVAPORATION RATE: N/Av

ODOR THRESHOLD: 500ppm

10. STABILITY AND REACTIVITY

STABILITY: Stable under normal storage conditions.

CONDITIONS TO AVOID: Storage in poorly ventilated areas.Storage near a heat source.Exposure to light, moisture, and ignition sources.

MATERIALS TO AVOID: Powdered alkali or alkaline earth metals, strong oxidizing agents.

HAZARDOUS POLYMERIZATION: Will not occur.

HAZARDOUS DECOMPOSITION: HCl gas, phosgene gas, CO and oxides of chlorine.

11. TOXICOLOGICAL INFORMATION

LETHAL CONCENTRATION (LC50): NONE ESTABLISHED

LETHAL DOSE 50 (LD50): N/Ap

TERATOGENICITY: N/Ap

REPRODUCTIVE EFFECTS: N/Ap

MUTAGENICITY: N/Ap

12. ECOLOGICAL INFORMATION

No adverse ecological effects are expected.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Dispose of non-refillable cylinders in accordance with federal, state and local regulations. Allow gas to vent slowly to atmosphere in an unconfined area or exhaust hood. If the cylinders are the refillable type, return cylinders to supplier with any valve outlet plugs or caps secured and valve protection caps in place.Waste can be burned in an approved incinerator equipped with an afterburner and scrubber.

14. TRANSPORT INFORMATION

CONCENTRATION: 99+%

DOT DESCRIPTION (US ONLY):

PROPER SHIPPING NAME: Vinylidene chloride, inhibited
HAZARD CLASS: 3 (flammable), Packing Group I
INDENTIFICATION NUMBER: UN1303
REPORTABLE QUANTITIES: 100 lb.
LABELING: FLAMMABLE LIQUID

ADR / RID (EU Only): Class 3, 1A

SPECIAL PRECAUTIONS: Cylinders should be transported in a secure upright position in a well ventilated truck.

15. REGULATORY INFORMATION

OSHA: Process Safety Management: Material is not listed in appendix A of 29 CFR 1910.119 as highly hazardous chemical.

TSCA: Material is listed in TSCA inventory.

SARA: The threshold planning quantity for material is 10,000 lbs.

EU NUMBER: 200-864-0

NUMBER IN ANNEX 1 OF DIR 67/548: Material is listed in annex 1.

EU CLASSIFICATION: N/Av

R: 12-20-40

S: 7-16-29

16. OTHER INFORMATION

OTHER PRECAUTIONS: Protect containers from physical damage. Do not deface cylinders or labels. Cylinders should be refilled by qualified producers of compressed gas. Shipment of a compressed gas cylinder which has not been filled by the owner or with his written consent is a violation of federal law (49 CFR).

ABBREVIATIONS: N/Ap - Not Applicable N/Av - Not Available SA - Simple Asphyxiant NE - None Established

DISCLAIMER: Information included in this document is given to the best of our knowledge, however, no warranty is made that the information is accurate or complete. We do not accept any responsibility for damages by the use of the document.

CAS No: 540-59-0
RTECS No: KV9360000
UN No: 1150
EC No: 602-026-00-3

1,2-Dichloroethene
Acetylene dichloride
symmetrical Dichloroethylene
$C_2H_2Cl_2$ / ClCH=CHCl
Molecular mass: 96.95

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/SYMPTOMS	PREVENTION	FIRST AID/FIRE FIGHTING
FIRE	Highly flammable. Gives off irritating or toxic fumes (or gases) in a fire.	NO open flames, NO sparks, and NO smoking.	Powder, water spray, foam, carbon dioxide.
EXPLOSION	Vapour/air mixtures are explosive.	Closed system, ventilation, explosion-proof electrical equipment and lighting. Do NOT use compressed air for filling, discharging, or handling.	In case of fire: keep drums, etc., cool by spraying with water.

EXPOSURE		STRICT HYGIENE!	
Inhalation	Cough. Sore throat. Dizziness. Nausea. Drowsiness. Weakness. Unconsciousness. Vomiting.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
Skin	Dry skin.	Protective gloves.	Remove contaminated clothes. Rinse skin with plenty of water or shower.
Eyes	Redness. Pain.	Safety spectacles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
Ingestion	Abdominal pain. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Give plenty of water to drink. Refer for medical attention.

SPILLAGE DISPOSAL	PACKAGING & LABELLING
Remove all ignition sources. Ventilation. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in dry sand or inert absorbent and remove to safe place. Do NOT wash away into sewer. (Extra personal protection: complete protective clothing including self-contained breathing apparatus.)	F Symbol Xn Symbol R: 11-20-52/53 S: (2-)7-16-29-61 Note: C UN Hazard Class: 3 UN Pack Group: II

EMERGENCY RESPONSE	STORAGE
Transport Emergency Card: TEC (R)-30GF1-I+II NFPA Code: H2; F3; R2	Fireproof. Well closed. See Chemical Dangers.

Prepared in the context of cooperation between the International Programme on Chemical Safety and the European Commission
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IMPORTANT DATA

Physical State; Appearance
COLOURLESS LIQUID, WITH CHARACTERISTIC ODOUR.

Physical dangers
The vapour is heavier than air and may travel along the ground; distant ignition possible.

Chemical dangers
The substance decomposes on heating or under the influence of air, light and moisture producing toxic and corrosive fumes including hydrogen chloride. Reacts with strong oxidants. Reacts with copper or copper alloys, and bases to produce toxic chloroacetylene which is spontaneously flammable in contact with air. Attacks plastic.

Occupational exposure limits
TLV: 200 ppm as TWA; (ACGIH 2003).
MAK: 200 ppm, 800 mg/m^3; Peak limitation category: II(2); (DFG 2002).

Routes of exposure
The substance can be absorbed into the body by inhalation of its vapour and by ingestion.

Inhalation risk
A harmful contamination of the air will be reached quickly on evaporation of this substance at 20°C; on spraying or dispersing, however, much faster.

Effects of short-term exposure
The substance is irritating to the eyes and the respiratory tract. The substance may cause effects on the central nervous system at high levels, resulting in lowering of consciousness.

Effects of long-term or repeated exposure
The liquid defats the skin. The substance may have effects on the liver.

PHYSICAL PROPERTIES

Boiling point: 55°C
Relative density (water = 1): 1.28
Solubility in water: poor
Relative vapour density (air = 1): 3.34

Flash point: 2°C c.c.
Auto-ignition temperature: 460°C
Explosive limits, vol% in air: 9.7-12.8
Octanol/water partition coefficient as log Pow: 2

ENVIRONMENTAL DATA

NOTES

This compound has two isomers, cis and trans. Data for the isomers: cis-isomer (CAS 156-59-2), trans isomer (CAS 156-60-5), other boiling point 60.3, melting point -81.5°C (cis), -49.4°C (trans); flash point c.c. 6°C (cis), 2-4°C (trans); relative density (water = 1) 1.28 (cis), 1.26 (trans); vapour pressure 24.0 kPa (cis), 35.3 kPa (trans) at 20°C; relative density of the vapour/air-mixture at 20°C (air = 1): 1.6 (cis), 1.8 (trans); octanol/water partition coefficient as log Pow: 1.86 (cis), 2.09 (trans).
Depending on the degree of exposure, periodic medical examination is suggested.

ADDITIONAL INFORMATION

LEGAL NOTICE Neither the EC nor the IPCS nor any person acting on behalf of the EC or the IPCS is responsible for the use which might be made of this information

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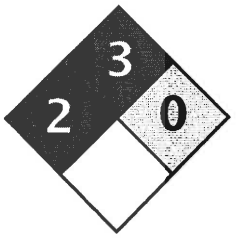

Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet
Ethylbenzene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Ethylbenzene

Catalog Codes: SLE2044

CAS#: 100-41-4

RTECS: DA0700000

TSCA: TSCA 8(b) inventory: Ethylbenzene

CI#: Not available.

Synonym: Ethyl Benzene; Ethylbenzol; Phenylethane

Chemical Name: Ethylbenzene

Chemical Formula: C8H10

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Ethylbenzene	100-41-4	100

Toxicological Data on Ingredients: Ethylbenzene: ORAL (LD50): Acute: 3500 mg/kg [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant, permeator).

Potential Chronic Health Effects:
Slightly hazardous in case of skin contact (irritant, sensitizer).
CARCINOGENIC EFFECTS: Classified 2B (Possible for human.) by IARC.
MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.
The substance may be toxic to central nervous system (CNS).
Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. WARM water MUST be used. Get medical attention.

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 432°C (809.6°F)

Flash Points:
CLOSED CUP: 15°C (59°F). (Tagliabue.) OPEN CUP: 26.667°C (80°F) (Cleveland) (CHRIS, 2001)
CLOSED CUP: 12.8 C (55 F) (Bingham et al, 2001; NIOSH, 2001)
CLOSED CUP: 21 C (70 F) (NFPA)

Flammable Limits: LOWER: 0.8% - 1.6%UPPER: 6.7% - 7%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances: Highly flammable in presence of open flames and sparks, of heat.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.
Slightly explosive in presence of heat.

Fire Fighting Media and Instructions:
Flammable liquid, soluble or dispersed in water.
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use alcohol foam, water spray or fog.

Special Remarks on Fire Hazards:
Vapor may travel considerable distance to source of ignition and flash back. Vapors may form explosive mixtures with air. When heated to decomposition it emits acrid smoke and irritating fumes.

Special Remarks on Explosion Hazards: Vapors may form explosive mixtures in air.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Flammable liquid.
Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Avoid contact with eyes. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents.

Storage:
Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame). Sensitive to light. Store in light-resistant containers.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 100 STEL: 125 (ppm) from OSHA (PEL) [United States]
TWA: 435 STEL: 545 from OSHA (PEL) [United States]
TWA: 435 STEL: 545 (mg/m3) from NIOSH [United States]
TWA: 100 STEL: 125 (ppm) from NIOSH [United States]
TWA: 100 STEL: 125 (ppm) from ACGIH (TLV) [United States]
TWA: 100 STEL: 125 (ppm) [United Kingdom (UK)]
TWA: 100 STEL: 125 (ppm) [Belgium]
TWA: 100 STEL: 125 (ppm) [Finland]
TWA: 50 (ppm) [Norway]
Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Sweetish. Gasoline-like. Aromatic.

Taste: Not available.

Molecular Weight: 106.16 g/mole

Color: Colorless.

pH (1% soln/water): Not available.

Boiling Point: 136°C (276.8°F)

Melting Point: -94.9 (-138.8°F)

Critical Temperature: 617.15°C (1142.9°F)

Specific Gravity: 0.867 (Water = 1)

Vapor Pressure: 0.9 kPa (@ 20°C)

Vapor Density: 3.66 (Air = 1)

Volatility: 100% (v/v).

Odor Threshold: 140 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; log(oil/water) = 3.1

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether.

Solubility:
Easily soluble in diethyl ether.
Very slightly soluble in cold water or practically insoluble in water.
Soluble in all proportions in Ethyl alcohol.
Soluble in Carbon tetrachloride, Benzene.
Insoluble in Ammonia.
Slightly soluble in Chloroform.
Solubility in Water: 169 mg/l @ 25 deg. C.; 0.014 g/100 ml @ 15 deg. C.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ingnition sources (flames, sparks, static), incompatible materials, light

Incompatibility with various substances: Reactive with oxidizing agents.

Corrosivity: Not considered to be corrosive for metals and glass.

Special Remarks on Reactivity:
Can react vigorously with oxidizing materials.
Sensitive to light.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Inhalation.

Toxicity to Animals: Acute oral toxicity (LD50): 3500 mg/kg [Rat].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified 2B (Possible for human.) by IARC.
MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.
May cause damage to the following organs: central nervous system (CNS).

Other Toxic Effects on Humans:
Hazardous in case of ingestion, of inhalation.
Slightly hazardous in case of skin contact (irritant, permeator).

Special Remarks on Toxicity to Animals:
Lethal Dose/Conc 50% Kill:
LD50 [Rabbit] - Route: Skin; Dose: 17800 ul/kg
Lowest Published Lethal Dose/Conc:
LDL[Rat] - Route: Inhalation (vapor); Dose: 4000 ppm/4 H

Special Remarks on Chronic Effects on Humans:
May cause adverse reproductive effects and birth defects (teratogenic) based on animal test data.
May cause cancer based on animals data. IARC evidence for carcinogenicity in animals is sufficient. IARC evidence of carcinogenicity in humans inadequate.
May affect genetic material (mutagenic).

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects:
Skin: Can cause mild skin irritation. It can be absorbed through intact skin.
Eyes: Contact with vapor or liquid can cause severe eye irritation depending on concentration. It may also cause conjunctivitis. At a vapor exposure level of 85 - 200 ppm , it is mildly and transiently irritating to the eyes; 1000 ppm causes further irritation and tearing; 2000 ppm results in immediate and severe irritation and tearing; 5,000 ppm is intolerable (ACGIH, 1991; Clayton and Clayton, 1994). Standard draize test for eye irritation using 500 mg resulted in severe irritation (RTECS)
Inhalation: Exposure to high concentrations can cause nasal, mucous membrane and respiratory tract irritation and can also result in chest constriction and, trouble breathing, respiratory failure, and even death. It can also affect behavior/Central Nervous System. The effective dose for CNS depression in experimental animals was 10,000 ppm (ACGIH, 1991). Symptoms of CNS depression include headache, nausea, weakness, dizziness, vertigo, irritability, fatigue, lightheadedness, sleepiness, tremor, loss of coordination, judgement and conciousness, coma, and death. It can also cause pulmonary edema. Inhalation of 85 ppm can produce fatigue, insomnia, headache, and mild irritation of the respiratory tract (Haley & Berndt, 1987).
Ingestion: Do not drink, pipet or siphon by mouth. May cause gastroinestinal/digestive tract irritation with Abdominal pain, nausea, vomiting. Ethylbenzene is a pulmonary aspiration hazard. Pulmonary aspiration of even small amounts of the liquid may cause fatal pneumonitis. It may also affect behavior/central nervous system with

Section 12: Ecological Information

Ecotoxicity:
Ecotoxicity in water (LC50): 14 mg/l 96 hours [Fish (Trout)] (static). 12.1 mg/l 96 hours [Fish (Fathead Minnow)] (flow-through)]. 150 mg/l 96 hours [Fish (Blue Gill/Sunfish)] (static). 275 mg/l 96 hours [Fish (Sheepshead Minnow)]. 42.3 mg/l 96 hours [Fish (Fathead Minnow)](soft water). 87.6mg/l 96 hours [Shrimp].

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 3: Flammable liquid.

Identification: : Ethylbenzene UNNA: 1175 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Connecticut hazardous material survey.: Ethylbenzene
Illinois toxic substances disclosure to employee act: Ethylbenzene
Illinois chemical safety act: Ethylbenzene
New York release reporting list: Ethylbenzene
Rhode Island RTK hazardous substances: Ethylbenzene
Pennsylvania RTK: Ethylbenzene
Minnesota: Ethylbenzene
Massachusetts RTK: Ethylbenzene
Massachusetts spill list: Ethylbenzene
New Jersey: Ethylbenzene
New Jersey spill list: Ethylbenzene
Louisiana spill reporting: Ethylbenzene
California Director's List of Hazardous Substances: Ethylbenzene
TSCA 8(b) inventory: Ethylbenzene
TSCA 4(a) proposed test rules: Ethylbenzene
TSCA 8(d) H and S data reporting: Ethylbenzene: Effective Date: 6/19/87; Sunset Date: 6/19/97
SARA 313 toxic chemical notification and release reporting: Ethylbenzene

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
CLASS D-2A: Material causing other toxic effects (VERY TOXIC).
CLASSE D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):
R11- Highly flammable.
R20- Harmful by inhalation.
S16- Keep away from sources of ignition - No smoking.
S24/25- Avoid contact with skin and eyes.
S29- Do not empty into drains.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves.
Lab coat.
Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
Splash goggles.

Section 16: Other Information

References:
-Manufacturer's Material Safety Data Sheet.
-Fire Protection Guide to Hazardous Materials, 13th ed., Nationial Fire Protection Association (NFPA)
-Registry of Toxic Effects of Chemical Substances (RTECS)
-Chemical Hazard Response Information System (CHRIS)
-Hazardous Substance Data Bank (HSDB)
-New Jersey Hazardous Substance Fact Sheet
-Ariel Global View
-Reprotext System

Other Special Considerations: Not available.

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The MSDS format adheres to the standards and regulatory requirements of the United States and may not meet regulatory requirements in other countries.

FREON 113 REFRIGERANT

2024FR Revised 20-APR-2004

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

"FREON" is a registered trademark of DuPont.

Corporate MSDS Number : DU000126
Formula : CCl2FCClF2
Molecular Weight : 187.38

Tradenames and Synonyms

TRICHLOROTRIFLUOROETHANE
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE
"FREON" TF SOLVENT
"FREON" TF CLEANING AGENT
"FREON" PRECISION CLEANING AGENT
"FREON" TF
"FREON" PCA
"FREON" TF 113

Company Identification

MANUFACTURER/DISTRIBUTOR
DuPont Fluoroproducts
1007 Market Street
Wilmington, DE 19898

PHONE NUMBERS
Product Information : 1-800-441-7515 (outside the U.S. 302-774-1000)
Transport Emergency : CHEMTREC 1-800-424-9300(outside U.S. 703-527-3887)
Medical Emergency : 1-800-441-3637 (outside the U.S. 302-774-1000)

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
*1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE ("FREON" 113)	76-13-1	100

* Disclosure as a toxic chemical is required under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

HAZARDS IDENTIFICATION

Potential Health Effects

Short-term overexposure by inhalation may cause central nervous system depression with dizziness, confusion, incoordination, drowsiness or unconsciousness. Repeated and/or prolonged exposure may cause suffocation, if air is displaced by vapors, irregular heart beat with a strange sensation in the chest, "heart thumping", apprehension, lightheadedness, feeling of fainting, dizziness, weakness, sometimes progressing to loss of consciousness and death.

Short-term overexposure by skin contact may cause defatting of the skin with itching, redness or rash. Significant skin permeation, and systemic toxicity, after contact appears unlikely.

Short-term overexposure by eye contact may cause irritation with tearing, pain or blurred vision.

The major ingestion hazard is aspiration (liquid entering the lungs during ingestion or vomiting) which may result in "chemical pneumonia". Symptoms include coughing, gasping, choking, shortness of breath, bluish discoloration of the skin, rapid breathing and heart rate, and fever. Pulmonary edema or bleeding, drowsiness, confusion, coma and seizures may occur in more serious cases. Symptoms may develop immediately or as late as 24 hours after exposure, depending on how much chemical entered the lungs.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

FIRST AID MEASURES

First Aid

INHALATION

If inhaled, immediately remove to fresh air. Keep person calm. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

SKIN CONTACT

Flush skin with water after contact. Wash contaminated clothing before reuse.

EYE CONTACT

(FIRST AID MEASURES - Continued)

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

INGESTION

If swallowed, do not induce vomiting. Immediately give 2 glasses of water. Never give anything by mouth to an unconscious person. Call a physician.

Notes to Physicians

Activated charcoal mixture may be beneficial. Suspend 50 g activated charcoal in 400 mL water and mix well. Administer 5 mL/kg, or 350 mL for an average adult.

Because of the danger of aspiration, emesis or gastric lavage should not be employed unless the risk is justified by the presence of additional toxic substances. Activated charcoal may be given but should be used with caution since it may induce vomiting.

THIS MATERIAL MAY MAKE THE HEART MORE SUSCEPTIBLE TO ARRHYTHMIAS. Catecholamines such as adrenaline, and other compounds having similar effects, should be reserved for emergencies and then used only with special caution.

Skin discomfort caused by de-fatting after contact with certain solvents may be relieved by application of emollient creams or lotions.

FIRE FIGHTING MEASURES

Flammable Properties

Flash Point	: Will not burn
Autodecomposition	: 300 C (572 F)

Fire and Explosion Hazards:

Drums may rupture under fire conditions. Decomposition may occur.

Extinguishing Media

As appropriate for combustibles in area.

Fire Fighting Instructions

Use water spray or fog to cool container. Self-contained breathing apparatus (SCBA) is required if drums rupture and contents are spilled under fire conditions.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Accidental Release Measures

Ventilate area. Do not flush into sewers. Dike spill. Collect on absorbent material and transfer to steel drums for recovery or disposal. Use self-contained breathing apparatus (SCBA) for large spills. Comply with Federal, State, and local regulations on reporting releases.

HANDLING AND STORAGE

Handling (Personnel)

Avoid breathing vapors and prolonged skin exposure. Use with sufficient ventilation to keep employee exposure below recommended limits.

Storage

Clean, dry area. Do not heat above 125 deg F.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Normal ventilation for standard use procedures is generally adequate. Local exhaust should be used when large amounts are released. Mechanical ventilation should be used in low or enclosed places.

Personal Protective Equipment

Impervious gloves should be used to avoid prolonged or repeated exposure. Chemical splash goggles should be worn as needed to prevent eye contact. Under normal use conditions, no respiratory protection is required when using this product. Self-contained breathing apparatus (SCBA) is required if a large spill occurs.

Exposure Guidelines

Applicable Exposure Limits
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE

PEL	(OSHA)	: 1,000 ppm, 7,600 mg/m3, 8 Hr. TWA
TLV	(ACGIH)	: 1,000 ppm, 7,670 mg/m3, 8 Hr. TWA, A4 STEL 1,250 ppm, 9,590 mg/m3, A4
AEL *	(DuPont)	: None Established

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Boiling Point	: 48 C (118 F)
Vapor Pressure	: 6.46 psia at 25 deg C (77 deg F)
Vapor Density	: 2.9 (Air = 1.0) at 25 deg C (77 deg F)
% Volatiles	: 100 WT%
Evaporation Rate	: (CCl4 = 1) Greater than 1
Solubility in Water	: 0.02 WT% @ 25 C (77 F)
pH	: Neutral
Odor	: Slight ethereal
Form	: Liquid
Color	: Clear, colorless
Density	: 1.57 g/cc at 25 deg C (77 deg F) - Liquid

STABILITY AND REACTIVITY

Chemical Stability

Material is stable. However, avoid open flames and high temperatures.

Incompatibility with Other Materials

Incompatible with alkali or alkaline earth metals- powdered Al, Zn, Be, etc.

Polymerization

Polymerization will not occur.

Other Hazards

Decomposition : Decomposition products are hazardous. This compound can be decomposed by high temperatures (open flames, glowing metal surfaces, etc.) forming hydrochloric and hydrofluoric acids, and possibly carbonyl halides.

TOXICOLOGICAL INFORMATION

Animal Data

SKIN: ALD, rabbit: >11,000 mg/k
INGESTION: LD50, rat: 43,000 mg/kg
INHALATION: 4 hour, LC50, rat: 50,000 ppm

Animal testing indicates this material is a slight eye irritant.

Animal testing indicates this material is a mild skin irritant, and is a skin sensitizer. Repeated exposure caused inflammation of the skin and pathological changes of the liver.

Single exposure by ingestion caused pathological changes of the lungs, liver, stomach, gastrointestinal tract, kidneys. Other effects include lethargy, and altered respiratory rate. Repeated exposure caused increased mortality.

Single exposure by inhalation caused pathological changes of the kidneys, liver, lungs and increased lung weight. Other effects include altered respiratory rate, incoordination, excessive activity, tremors or convulsions, inactivity or anaesthesia, cardiac sensitization, a potentially fatal disturbance of heart rhythm associated with a heightened sensitivity to the action of epinephrine, cyanosis and increased mortality.

Long-term exposure caused decreased body weight. Other effects include altered hematology and clinical chemistry.

Reproductive data on rats show no change in reproductive performance.

This material has not produced genetic damage in bacterial cultures. In mammalian cell cultures this material has caused genetic toxicity. In animal testing, this material has not caused permanent genetic damage in reproductive cells of mammals (has not produced heritable genetic damage).

In animal testing this material has not caused carcinogenicity or developmental toxicity.

ECOLOGICAL INFORMATION

Ecotoxicological Information

Aquatic Toxicity:

96-hour LC50, rainbow trout : 7.4 mg/L
96 hour LC50, fathead minnows: 1250 mg/L

DISPOSAL CONSIDERATIONS

Waste Disposal

Comply with Federal, State, and local regulations. Remove to a permitted waste disposal facility. EPA Hazardous Waste Nos. F001 and F002 may apply to waste materials.

TRANSPORTATION INFORMATION

Shipping Information

Shipping Containers

Tank Cars.
Tank Trucks.

Drums
NOT REGULATED AS A HAZARDOUS MATERIAL BY DOT OR IMO.

REGULATORY INFORMATION

U.S. Federal Regulations

TSCA Inventory Status : Reported/Included.

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute : Yes
Chronic : No
Fire : No
Reactivity : No
Pressure : No

HAZARDOUS CHEMICAL LISTS

SARA Extremely
Hazardous Substance - No
CERCLA Hazardous Substance - No
SARA Toxic Chemical - See Components Section

OTHER INFORMATION

NFPA, NPCA-HMIS

NPCA-HMIS Rating

Health	: 1
Flammability	: 0
Reactivity	: 1

Personal Protection rating to be supplied by user depending on use conditions.

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

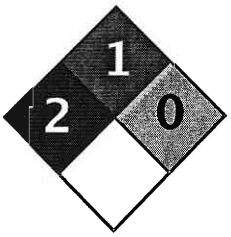
Responsibility for MSDS	: MSDS Coordinator
>	: DuPont Fluoroproducts
Address	: Wilmington, DE 19898
Telephone	: (800) 441-7515

# Indicates updated section.

This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.

End of MSDS

ScienceLab.com
Chemicals & Laboratory Equipment



Health	2
Fire	1
Reactivity	0
Personal Protection	H

Material Safety Data Sheet
Methylene chloride MSDS

Section 1: Chemical Product and Company Identification

Product Name: Methylene chloride

Catalog Codes: SLM2398, SLM3772, SLM1297, SLM2677, SLM4054

CAS#: 75-09-2

RTECS: PA8050000

TSCA: TSCA 8(b) inventory: Methylene chloride

CI#: Not available.

Synonym: Dichloromethane

Chemical Name: Methylene Chloride

Chemical Formula: C-H2-Cl2

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Methylene chloride	75-09-2	100

Toxicological Data on Ingredients: Methylene chloride: ORAL (LD50): Acute: 1600 mg/kg [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects: Very hazardous in case of eye contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (irritant, permeator). Inflammation of the eye is characterized by redness, watering, and itching.

Potential Chronic Health Effects: CARCINOGENIC EFFECTS: Classified + (Proven.) by OSHA. Classified 2B (Possible for human.) by IARC. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs, the nervous system, liver, mucous membranes, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact: Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact: In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact: Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Serious Inhalation: Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: 556°C (1032.8°F)

Flash Points: Not available.

Flammable Limits: LOWER: 12% UPPER: 19%

Products of Combustion: These products are carbon oxides (CO, CO2), halogenated compounds.

Fire Hazards in Presence of Various Substances: Not available.

Explosion Hazards in Presence of Various Substances: Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions: Keep locked up.. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/vapor/spray. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls: Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection: Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill: Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: TWA: 50 from ACGIH (TLV) [United States] TWA: 174 from ACGIH (TLV) [United States] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Not available.

Taste: Not available.

Molecular Weight: 84.93g/mole

Color: Not available.

pH (1% soln/water): Not available.

Boiling Point: 39.75°C (103.5°F)

Melting Point: -96.7°C (-142.1°F)

Critical Temperature: Not available.

Specific Gravity: 1.3266 (Water = 1)

Vapor Pressure: 46.5 kPa (@ 20°C)

Vapor Density: 2.93 (Air = 1)

Volatility: Not available.

Odor Threshold: 214 ppm

Water/Oil Dist. Coeff.: The product is equally soluble in oil and water; log(oil/water) = 0.1

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, methanol, diethyl ether, n-octanol, acetone.

Solubility: Easily soluble in methanol, diethyl ether, n-octanol, acetone. Partially soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals: WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 1600 mg/kg [Rat]. Acute toxicity of the vapor (LC50): 52000 1 hours [Rat].

Chronic Effects on Humans: CARCINOGENIC EFFECTS: Classified + (Proven.) by OSHA. Classified 2B (Possible for human.) by IARC. Causes damage to the following organs: lungs, the nervous system, liver, mucous membranes, central nervous system (CNS).

Other Toxic Effects on Humans: Very hazardous in case of ingestion, of inhalation. Hazardous in case of skin contact (irritant, permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Human: passes through the placenta, excreted in maternal milk.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation: Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Dichloromethane UNNA: 1593 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations: California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Methylene chloride California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Methylene chloride Pennsylvania RTK: Methylene chloride Massachusetts RTK: Methylene chloride TSCA 8(b) inventory: Methylene chloride SARA 313 toxic chemical notification and release reporting: Methylene chloride CERCLA: Hazardous substances.: Methylene chloride

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada): CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC): R22- Harmful if swallowed. R38- Irritating to skin. R41- Risk of serious damage to eyes. R45- May cause cancer.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 1

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 1

Reactivity: 0

Specific hazard:

Protective Equipment: Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 10:43 AM

Last Updated: 12/02/2005 11:49 AM

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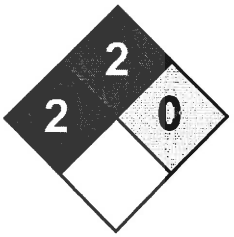

Health	2
Fire	2
Reactivity	0
Personal Protection	E

Material Safety Data Sheet
Naphthalene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Naphthalene

Catalog Codes: SLN1789, SLN2401

CAS#: 91-20-3

RTECS: QJ0525000

TSCA: TSCA 8(b) inventory: Naphthalene

CI#: Not available.

Synonym:

Chemical Name: Not available.

Chemical Formula: C10H8

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Naphthalene	91-20-3	100

Toxicological Data on Ingredients: Naphthalene: ORAL (LD50): Acute: 490 mg/kg [Rat]. 533 mg/kg [Mouse]. 1200 mg/kg [Guinea pig]. DERMAL (LD50): Acute: 20001 mg/kg [Rabbit]. VAPOR (LC50): Acute: 170 ppm 4 hour(s) [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of ingestion. Hazardous in case of eye contact (irritant), of inhalation. Slightly hazardous in case of skin contact (irritant, permeator). Severe over-exposure can result in death.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Classified Development toxin [POSSIBLE]. The substance is toxic to blood, kidneys, the nervous system, the reproductive system, liver, mucous membranes, gastrointestinal tract, upper respiratory tract, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact: Not available.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
Do not induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 567°C (1052.6°F)

Flash Points: CLOSED CUP: 88°C (190.4°F). OPEN CUP: 79°C (174.2°F).

Flammable Limits: LOWER: 0.9% UPPER: 5.9%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances: Not available.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
Flammable solid. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill:
Flammable solid. Stop leak if without risk. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe dust. Avoid contact with eyes Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents.

Storage:
Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. Keep container dry. Keep in a cool place.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:
Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
Israel: TWA: 10 (ppm) TWA: 10 STEL: 15 (ppm) from ACGIH (TLV) [1995] TWA: 52 STEL: 79 (mg/m3) from ACGIH [1995]
Australia: STEL: 15 (ppm) Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Crystalline solid.)

Odor: Aromatic.

Taste: Not available.

Molecular Weight: 128.19 g/mole

Color: White.

pH (1% soln/water): Not available.

Boiling Point: 218°C (424.4°F)

Melting Point: 80.2°C (176.4°F)

Critical Temperature: Not available.

Specific Gravity: 1.162 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: 4.4 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.038 ppm

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties:
Partially dispersed in hot water, methanol, n-octanol. Very slightly dispersed in cold water. See solubility in methanol, n-octanol.

Solubility:
Partially soluble in methanol, n-octanol. Very slightly soluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Highly reactive with oxidizing agents.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: May attack some forms of rubber and plastic

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 490 mg/kg [Rat]. Acute dermal toxicity (LD50): 20001 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 170 ppm 4 hour(s) [Rat].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH. DEVELOPMENTAL TOXICITY: Classified Development toxin [POSSIBLE]. The substance is toxic to blood, kidneys, the nervous system, the reproductive system, liver, mucous membranes, gastrointestinal tract, upper respiratory tract, central nervous system (CNS).

Other Toxic Effects on Humans:
Very hazardous in case of ingestion. Hazardous in case of inhalation. Slightly hazardous in case of skin contact (irritant, permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Ecotoxicity in water (LC50): 305.2 ppm 96 hour(s) [Trout].

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 4.1: Flammable solid.

Identification: : Naphthalene, refined : UN1334 PG: III

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

Federal and State Regulations:
Rhode Island RTK hazardous substances: Naphthalene Pennsylvania RTK: Naphthalene Florida: Naphthalene Minnesota: Naphthalene Massachusetts RTK: Naphthalene TSCA 8(b) inventory: Naphthalene TSCA 8(a) PAIR: Naphthalene TSCA 8(d) H and S data reporting: Naphthalene: 06/01/87 SARA 313 toxic chemical notification and release reporting: Naphthalene: 1% CERCLA: Hazardous substances.: Naphthalene: 100 lbs. (45.36 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS B-4: Flammable solid. CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):
R36- Irritating to eyes. R40- Possible risks of irreversible effects. R48/22- Harmful: danger of serious damage to health by prolonged exposure if swallowed. R48/23- Toxic: danger of serious damage to health by prolonged exposure through inhalation. R63- Possible risk of harm to the unborn child.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 2

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 2

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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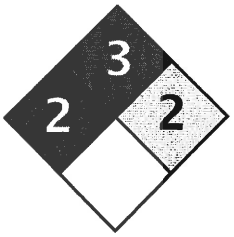

Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet
Styrene (monomer) MSDS

Section 1: Chemical Product and Company Identification

Product Name: Styrene (monomer)

Catalog Codes: SLS2512, SLU1027

CAS#: 100-42-5

RTECS: WL3675000

TSCA: TSCA 8(b) inventory: Styrene (monomer)

CI#: Not available.

Synonym: Vinylbenzene

Chemical Formula: C8H8

Contact Information:

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International CHEMTREC, call: 1-703-527-3887

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Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Styrene (monomer)	100-42-5	100

Toxicological Data on Ingredients: Styrene (monomer): ORAL (LD50): Acute: 2650 mg/kg [Rat]. 316 mg/kg [Mouse]. VAPOR (LC50): Acute: 12000 ppm 4 hour(s) [Rat]. 9500 ppm 4 hour(s) [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of eye contact (irritant). Hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation. Inflammation of the eye is characterized by redness, watering, and itching.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Classified + (PROVEN) by OSHA. Classified 2B (Possible for human.) by IARC. A4 (Not classifiable for human or animal.) by ACGIH.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.
The substance is toxic to the nervous system, upper respiratory tract.
Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation: Not available.

Ingestion:
Do not induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 490°C (914°F)

Flash Points: CLOSED CUP: 31.1°C (88°F). (Cleveland) OPEN CUP: 36.7°C (98.1°F) (TAG).

Flammable Limits: LOWER: 1.1% UPPER: 6.1%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances:
Flammable in presence of open flames and sparks.
Slightly flammable to flammable in presence of heat.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
Flammable liquid, soluble or dispersed in water.
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Flammable liquid.
Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/spray. In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes

Storage:
Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. A refrigerated room would be preferable for materials with a flash point lower than 37.8°C (100°F).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 50 STEL: 100 (ppm)
TWA: 213 STEL: 426 (mg/m3)
Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid. (Clear viscous liquid.)

Odor: Sweetish. Aromatic.

Taste: Not available.

Molecular Weight: 104.14 g/mole

Color: Colorless.

pH (1% soln/water): Not available.

Boiling Point: 145.2°C (293.4°F)

Melting Point: -30.6°C (-23.1°F)

Critical Temperature: Not available.

Specific Gravity: 0.906 (Water = 1)

Vapor Pressure: 4.5 mm of Hg (@ 20°C)

Vapor Density: 3.59 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.1 ppm

Water/Oil Dist. Coeff.: The product is equally soluble in oil and water; log(oil/water) = 0

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Very slightly soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE.
Acute oral toxicity (LD50): 316 mg/kg [Mouse].
Acute toxicity of the vapor (LC50): 9500 ppm 4 hour(s) [Mouse].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified + (PROVEN) by OSHA. Classified 2B (Possible for human.) by IARC.
A4 (Not classifiable for human or animal.) by ACGIH.
The substance is toxic to the nervous system, upper respiratory tract.

Other Toxic Effects on Humans: Hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:

Animal embryotoxic. Postnatal development injury in animal. Menstrual disorders in human. Human: passes the placental barrier, detected in maternal milk.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: Class 3: Flammable liquid.

Identification: : Styrene monomer, inhibited : UN2055 PG: III

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

Federal and State Regulations:
Pennsylvania RTK: Styrene (monomer)
Florida: Styrene (monomer)
Minnesota: Styrene (monomer)
Massachusetts RTK: Styrene (monomer)
New Jersey: Styrene (monomer)
TSCA 8(b) inventory: Styrene (monomer)
SARA 313 toxic chemical notification and release reporting: Styrene (monomer)
CERCLA: Hazardous substances.: Styrene (monomer)

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):
CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R10- Flammable.
R38- Irritating to skin.
R41- Risk of serious damage to eyes.
R45- May cause cancer.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 3

Reactivity: 2

Specific hazard:

Protective Equipment:
Gloves.
Lab coat.
Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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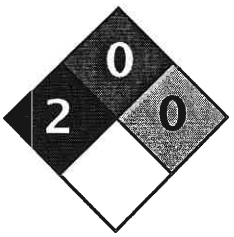

Health	2
Fire	0
Reactivity	0
Personal Protection	G

Material Safety Data Sheet
Tetrachloroethylene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Tetrachloroethylene

Catalog Codes: SLT3220

CAS#: 127-18-4

RTECS: KX3850000

TSCA: TSCA 8(b) inventory: Tetrachloroethylene

CI#: Not available.

Synonym: Perchloroethylene; 1,1,2,2-Tetrachloroethylene; Carbon bichloride; Carbon dichloride; Ankilostin; Didakene; Dilatin PT; Ethene, tetrachloro-; Ethylene tetrachloride; Perawin; Perchlor; Perclene; Perclene D; Percosolvel; Tetrachloroethene; Tetraleno; Tetralex; Tetravec; Tetroguer; Tetropil

Chemical Name: Ethylene, tetrachloro-

Chemical Formula: C2-Cl4

Contact Information:

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For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Tetrachloroethylene	127-18-4	100

Toxicological Data on Ingredients: Tetrachloroethylene: ORAL (LD50): Acute: 2629 mg/kg [Rat]. DERMAL (LD): Acute: >3228 mg/kg [Rabbit]. MIST(LC50): Acute: 34200 mg/m 8 hours [Rat]. VAPOR (LC50): Acute: 5200 ppm 4 hours [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of skin contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator), of eye contact (irritant), of ingestion.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH. Classified 2A (Probable for human.) by IARC, 2 (anticipated carcinogen) by NTP.
MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast.
TERATOGENIC EFFECTS: Not available.

DEVELOPMENTAL TOXICITY: Not available.
The substance may be toxic to kidneys, liver, peripheral nervous system, respiratory tract, skin, central nervous system (CNS).
Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Do not ingest. Do not breathe gas/fumes/ vapor/spray. Avoid contact with skin. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, metals, acids, alkalis.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Personal Protection:
Safety glasses. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 25 (ppm) from OSHA (PEL) [United States]
TWA: 25 STEL: 100 (ppm) from ACGIH (TLV) [United States]
TWA: 170 (mg/m3) from OSHA (PEL) [United States]
Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Ethereal.

Taste: Not available.

Molecular Weight: 165.83 g/mole

Color: Clear Colorless.

pH (1% soln/water): Not available.

Boiling Point: 121.3°C (250.3°F)

Melting Point: -22.3°C (-8.1°F)

Critical Temperature: 347.1°C (656.8°F)

Specific Gravity: 1.6227 (Water = 1)

Vapor Pressure: 1.7 kPa (@ 20°C)

Vapor Density: 5.7 (Air = 1)

Volatility: Not available.

Odor Threshold: 5 - 50 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; log(oil/water) = 3.4

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility:
Miscible with alcohol, ether, chloroform, benzene, hexane.
It dissolves in most of the fixed and volatile oils.
Solubility in water: 0.015 g/100 ml @ 25 deg. C
It slowly decomposes in water to yield Trichloroacetic and Hydrochloric acids.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents, metals, acids, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Oxidized by strong oxidizing agents.
Incompatible with sodium hydroxide, finely divided or powdered metals such as zinc, aluminum, magnesium, potassium, chemically active metals such as lithium, beryllium , barium.
Protect from light.

Special Remarks on Corrosivity: Slowly corrodes aluminum, iron, and zinc.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE.
Acute oral toxicity (LD50): 2629 mg/kg [Rat].
Acute dermal toxicity (LD50): >3228 mg/kg [Rabbit].
Acute toxicity of the vapor (LC50): 5200 4 hours [Mouse].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH. Classified 2A (Probable for human.) by IARC, 2 (Some evidence.) by NTP.
MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast.
May cause damage to the following organs: kidneys, liver, peripheral nervous system, upper respiratory tract,

skin, central nervous system (CNS).

Other Toxic Effects on Humans:
Hazardous in case of skin contact (irritant), of inhalation.
Slightly hazardous in case of skin contact (permeator), of ingestion.

Special Remarks on Toxicity to Animals:
Lowest Publishe Lethal Dose/Conc:
LDL [Rabbit] - Route: Oral; Dose: 5000 mg/kg
LDL [Dog] - Route: Oral; Dose: 4000 mg/kg
LDL [Cat] - Route: Oral; Dose: 4000 mg/kg

Special Remarks on Chronic Effects on Humans:
May cause adverse reproductive effects and birth defects(teratogenic).
May affect genetic material (mutagenic).
May cause cancer.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects:
Skin: Causes skin irritation with possible dermal blistering or burns. Symtoms may include redness, itching, pain, and possible dermal blistering or burns. It may be absorbed through the skin with possible systemic effects. A single prolonged skin exposure is not likely to result in the material being absorbed in harmful amounts.
Eyes: Contact causes transient eye irritation, lacrimation. Vapors cause eye/conjunctival irritation. Symptoms may include redness and pain.
Inhalation: The main route to occupational exposure is by inhalation since it is readily absorbed through the lungs. It causes respiratory tract irritation, . It can affect behavior/central nervous system (CNS depressant and anesthesia ranging from slight inebriation to death, vertigo, somnolence, anxiety, headache, excitement, hallucinations, muscle incoordination, dizziness, lightheadness, disorentiation, seizures, enotional instability, stupor, coma). It may cause pulmonary edema
Ingestion: It can cause nausea, vomiting, anorexia, diarrhea, bloody stool. It may affect the liver, urinary system (proteinuria, hematuria, renal failure, renal tubular disorder), heart (arrhythmias). It may affect behavior/central nervous system with symptoms similar to that of inhalation.
Chronic Potential Health Effects:
Skin: Prolonged or repeated skin contact may result in excessive drying of the skin, and irritation.
Ingestion/Inhalation: Chronic exposure can affect the liver(hepatitis,fatty liver degeneration), kidneys, spleen, and heart (irregular heartbeat/arrhythmias, cardiomyopathy, abnormal EEG), brain, behavior/central nervous system/peripheral nervous system (impaired memory, numbness of extremeties, peripheral neuropathy and other

Section 12: Ecological Information

Ecotoxicity:
Ecotoxicity in water (LC50): 18.4 mg/l 96 hours [Fish (Fatthead Minnow)]. 18 mg/l 48 hours [Daphnia (daphnia)]. 5 mg/l 96 hours [Fish (Rainbow Trout)]. 13 mg/l 96 hours [Fish (Bluegill sunfish)].

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Tetrachloroethylene UNNA: 1897 PG: III

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Tetrachloroethylene
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Tetrachloroethylene
Connecticut hazardous material survey.: Tetrachloroethylene
Illinois toxic substances disclosure to employee act: Tetrachloroethylene
Illinois chemical safety act: Tetrachloroethylene
New York release reporting list: Tetrachloroethylene
Rhode Island RTK hazardous substances: Tetrachloroethylene
Pennsylvania RTK: Tetrachloroethylene
Minnesota: Tetrachloroethylene
Michigan critical material: Tetrachloroethylene
Massachusetts RTK: Tetrachloroethylene
Massachusetts spill list: Tetrachloroethylene
New Jersey: Tetrachloroethylene
New Jersey spill list: Tetrachloroethylene
Louisiana spill reporting: Tetrachloroethylene
California Director's List of Hazardous Substances: Tetrachloroethylene
TSCA 8(b) inventory: Tetrachloroethylene
TSCA 8(d) H and S data reporting: Tetrachloroethylene: Effective date: 6/1/87; Sunset date: 6/1/97
SARA 313 toxic chemical notification and release reporting: Tetrachloroethylene
CERCLA: Hazardous substances.: Tetrachloroethylene: 100 lbs. (45.36 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC).
CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R40- Possible risks of irreversible effects.
R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S23- Do not breathe gas/fumes/vapour/spray
S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S37- Wear suitable gloves.
S61- Avoid release to the environment. Refer to special instructions/Safety data sheets.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 0

Reactivity: 0

Personal Protection: g

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves.
Lab coat.
Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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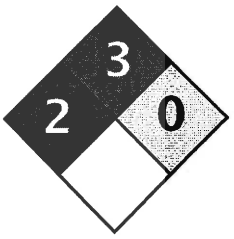

Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet
Toluene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Toluene

Catalog Codes: SLT2857, SLT3277

CAS#: 108-88-3

RTECS: XS5250000

TSCA: TSCA 8(b) inventory: Toluene

CI#: Not available.

Synonym: Toluol, Tolu-Sol; Methylbenzene; Methacide; Phenylmethane; Methylbenzol

Chemical Name: Toluene

Chemical Formula: C6-H5-CH3 or C7-H8

Contact Information:

Sciencelab.com, Inc.
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Houston, Texas 77396

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International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Toluene	108-88-3	100

Toxicological Data on Ingredients: Toluene: ORAL (LD50): Acute: 636 mg/kg [Rat]. DERMAL (LD50): Acute: 14100 mg/kg [Rabbit]. VAPOR (LC50): Acute: 49000 mg/m 4 hours [Rat]. 440 ppm 24 hours [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.
The substance may be toxic to blood, kidneys, the nervous system, liver, brain, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 480°C (896°F)

Flash Points: CLOSED CUP: 4.4444°C (40°F). (Setaflash) OPEN CUP: 16°C (60.8°F).

Flammable Limits: LOWER: 1.1% UPPER: 7.1%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances:
Flammable in presence of open flames and sparks, of heat.
Non-flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
Flammable liquid, insoluble in water.
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use water spray or fog.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards:
Toluene forms explosive reaction with 1,3-dichloro-5,5-dimethyl-2,4-imidazolididione; dinitrogen tetraoxide;

concentrated nitric acid, sulfuric acid + nitric acid; N_2O_4; $AgClO_4$; BrF_3; Uranium hexafluoride; sulfur dichloride. Also forms an explosive mixture with tetranitromethane.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Toxic flammable liquid, insoluble or very slightly soluble in water.
Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents.

Storage:
Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 200 STEL: 500 CEIL: 300 (ppm) from OSHA (PEL) [United States]
TWA: 50 (ppm) from ACGIH (TLV) [United States] SKIN
TWA: 100 STEL: 150 from NIOSH [United States]
TWA: 375 STEL: 560 (mg/m3) from NIOSH [United States]
Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Sweet, pungent, Benzene-like.

Taste: Not available.

Molecular Weight: 92.14 g/mole

Color: Colorless.

pH (1% soln/water): Not applicable.

Boiling Point: 110.6°C (231.1°F)

Melting Point: -95°C (-139°F)

Critical Temperature: 318.6°C (605.5°F)

Specific Gravity: 0.8636 (Water = 1)

Vapor Pressure: 3.8 kPa (@ 25°C)

Vapor Density: 3.1 (Air = 1)

Volatility: Not available.

Odor Threshold: 1.6 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; log(oil/water) = 2.7

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether, acetone.

Solubility:
Soluble in diethyl ether, acetone.
Practically insoluble in cold water.
Soluble in ethanol, benzene, chloroform, glacial acetic acid, carbon disulfide.
Solubility in water: 0.561 g/l @ 25 deg. C.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources (flames, sparks, static), incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Incompatible with strong oxidizers, silver perchlorate, sodium difluoride, Tetranitromethane, Uranium Hexafluoride.
Frozen Bromine Trifluoride reacts violently with Toluene at -80 deg. C.
Reacts chemically with nitrogen oxides, or halogens to form nitrotoluene, nitrobenzene, and nitrophenol and halogenated products, respectively.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE.
Acute oral toxicity (LD50): 636 mg/kg [Rat].
Acute dermal toxicity (LD50): 14100 mg/kg [Rabbit].
Acute toxicity of the vapor (LC50): 440 24 hours [Mouse].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC.
May cause damage to the following organs: blood, kidneys, the nervous system, liver, brain, central nervous system (CNS).

Other Toxic Effects on Humans:
Hazardous in case of skin contact (irritant), of ingestion, of inhalation.
Slightly hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals:
Lowest Published Lethal Dose:
LDL [Human] - Route: Oral; Dose: 50 mg/kg
LCL [Rabbit] - Route: Inhalation; Dose: 55000 ppm/40min

Special Remarks on Chronic Effects on Humans:
Detected in maternal milk in human. Passes through the placental barrier in human. Embryotoxic and/or foetotoxic in animal. May cause adverse reproductive effects and birth defects (teratogenic). May affect genetic material (mutagenic)

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects:
Skin: Causes mild to moderate skin irritation. It can be absorbed to some extent through the skin.
Eyes: Cauess mild to moderate eye irritation with a burning sensation. Splash contact with eyes also causes conjunctivitis, blepharospasm, corneal edema, corneal abraisons. This usually resolves in 2 days.
Inhalation: Inhalation of vapor may cause respiratory tract irritation causing coughing and wheezing, and nasal discharge. Inhalation of high concentrations may affect behavior and cause central nervous system effects characterized by nausea, headache, dizziness, tremors, restlessness, lightheadedness, exhilaration, memory loss, insomnia, impaired reaction time, drowsiness, ataxia, hallucinations, somnolence, muscle contraction or spasticity, unconsciousness and coma. Inhalation of high concentration of vapor may also affect the cardiovascular system (rapid heart beat, heart palpitations, increased or decreased blood pressure, dysrhythmia,), respiration (acute pulmonary edema, respiratory depression, apnea, asphyxia), cause vision disturbances and dilated pupils, and cause loss of appetite.
Ingestion: Aspiration hazard. Aspiration of Toluene into the lungs may cause chemical pneumonitis. May cause irritation of the digestive tract with nausea, vomiting, pain. May have effects similar to that of acute inhalation.
Chronic Potential Health Effects:
Inhalation and Ingestion: Prolonged or repeated exposure via inhalation may cause central nervous system and cardiovascular symptoms similar to that of acute inhalation and ingestion as well liver damage/failure, kidney damage/failure (with hematuria, proteinuria, oliguria, renal tubular acidosis), brain damage, weight loss, blood (pigmented or nucleated red blood cells, changes in white blood cell count), bone marrow changes, electrolyte imbalances (Hypokalemia, Hypophostatemia), severe, muscle weakness and Rhabdomyolysis.
Skin: Repeated or prolonged skin contact may cause defatting dermatitis.

Section 12: Ecological Information

Ecotoxicity:
Ecotoxicity in water (LC50): 313 mg/l 48 hours [Daphnia (daphnia)]. 17 mg/l 24 hours [Fish (Blue Gill)]. 13 mg/l 96 hours [Fish (Blue Gill)]. 56 mg/l 24 hours [Fish (Fathead minnow)]. 34 mg/l 96 hours [Fish (Fathead minnow)]. 56.8 ppm any hours [Fish (Goldfish)].

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may

arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 3: Flammable liquid.

Identification: : Toluene UNNA: 1294 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Toluene
California prop. 65 (no significant risk level): Toluene: 7 mg/day (value)
California prop. 65 (acceptable daily intake level): Toluene: 7 mg/day (value)
California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Toluene
Connecticut hazardous material survey.: Toluene
Illinois toxic substances disclosure to employee act: Toluene
Illinois chemical safety act: Toluene
New York release reporting list: Toluene
Rhode Island RTK hazardous substances: Toluene
Pennsylvania RTK: Toluene
Florida: Toluene
Minnesota: Toluene
Michigan critical material: Toluene
Massachusetts RTK: Toluene
Massachusetts spill list: Toluene
New Jersey: Toluene
New Jersey spill list: Toluene
Louisiana spill reporting: Toluene
California Director's List of Hazardous Substances.: Toluene
TSCA 8(b) inventory: Toluene
TSCA 8(d) H and S data reporting: Toluene: Effective date: 10/04/82; Sunset Date: 10/0/92
SARA 313 toxic chemical notification and release reporting: Toluene
CERCLA: Hazardous substances.: Toluene: 1000 lbs. (453.6 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R11- Highly flammable.
R20- Harmful by inhalation.
S16- Keep away from sources of ignition - No smoking.
S25- Avoid contact with eyes.
S29- Do not empty into drains.
S33- Take precautionary measures against static discharges.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves.
Lab coat.
Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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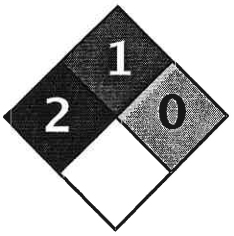

Health	2
Fire	1
Reactivity	0
Personal Protection	H

Material Safety Data Sheet
1,1,1-Trichloroethane MSDS

Section 1: Chemical Product and Company Identification

Product Name: 1,1,1-Trichloroethane

Catalog Codes: SLT4180, SLT2167, SLT3460

CAS#: 71-55-6

RTECS: KJ2975000

TSCA: TSCA 8(b) inventory: 1,1,1-Trichloroethane

CI#: Not available.

Synonym:

Chemical Formula: CH3CCl3

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
{1,1,1-}Trichloroethane	71-55-6	100

Toxicological Data on Ingredients: 1,1,1-Trichloroethane: ORAL (LD50): Acute: 9600 mg/kg [Rat]. 6000 mg/kg [Mouse]. DERMAL (LD50): Acute: 15800 mg/kg [Rabbit]. VAPOR (LC50): Acute: 18000 ppm 4 hour(s) [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of eye contact (irritant), of ingestion. Hazardous in case of skin contact (irritant, permeator), of inhalation. Inflammation of the eye is characterized by redness, watering, and itching.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.
The substance is toxic to lungs, the nervous system, liver, mucous membranes.
Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: 537°C (998.6°F)

Flash Points: Not available.

Flammable Limits: LOWER: 7.5% UPPER: 12.5%

Products of Combustion: These products are carbon oxides (CO, CO2), halogenated compounds.

Fire Hazards in Presence of Various Substances: Slightly flammable to flammable in presence of oxidizing materials, of acids, of alkalis.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.
Slightly explosive to explosive in presence of oxidizing materials, of acids, of alkalis.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/vapour/spray. In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes

Storage:
Keep container dry. Keep in a cool place. Ground all equipment containing material. Keep container tightly closed. Keep in a cool, well-ventilated place. Combustible materials should be stored away from extreme heat and away from strong oxidizing agents.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 350 STEL: 440 CEIL: 440 (ppm) from ACGIH (TLV) [1995]
TWA: 1900 STEL: 2460 CEIL: 2380 (mg/m3) from ACGIH [1995]Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Not available.

Taste: Not available.

Molecular Weight: 133.41 g/mole

Color: Not available.

pH (1% soln/water): Not available.

Boiling Point: 74.1°C (165.4°F)

Melting Point: -32.5°C (-26.5°F)

Critical Temperature: Not available.

Specific Gravity: 1.3376 (Water = 1)

Vapor Pressure: 100 mm of Hg (@ 20°C)

Vapor Density: 4.6 (Air = 1)

Volatility: Not available.

Odor Threshold: 400 ppm

Water/Oil Dist. Coeff.: The product is equally soluble in oil and water; log(oil/water) = 0

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Very slightly soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE.
Acute oral toxicity (LD50): 6000 mg/kg [Mouse].
Acute dermal toxicity (LD50): 15800 mg/kg [Rabbit].
Acute toxicity of the vapor (LC50): 18000 ppm 4 hour(s) [Rat].

Chronic Effects on Humans: The substance is toxic to lungs, the nervous system, liver, mucous membranes.

Other Toxic Effects on Humans:
Very hazardous in case of ingestion.
Hazardous in case of skin contact (irritant, permeator), of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Detected in maternal milk in human.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : 1,1,1-Trichloroethane : UN2831 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Pennsylvania RTK: 1,1,1-Trichloroethane
Massachusetts RTK: 1,1,1-Trichloroethane
TSCA 8(b) inventory: 1,1,1-Trichloroethane
SARA 313 toxic chemical notification and release reporting: 1,1,1-Trichloroethane
CERCLA: Hazardous substances.: 1,1,1-Trichloroethane

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada): CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC).

DSCL (EEC):
R38- Irritating to skin.
R41- Risk of serious damage to eyes.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 1

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 1

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves.
Lab coat.
Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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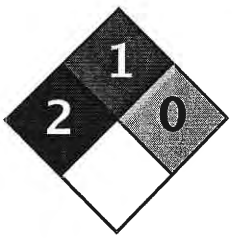

Health	2
Fire	1
Reactivity	0
Personal Protection	H

Material Safety Data Sheet
Trichloroethylene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Trichloroethylene

Catalog Codes: SLT3310, SLT2590

CAS#: 79-01-6

RTECS: KX4560000

TSCA: TSCA 8(b) inventory: Trichloroethylene

CI#: Not available.

Synonym:

Chemical Formula: C2HCl3

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Trichloroethylene	79-01-6	100

Toxicological Data on Ingredients: Trichloroethylene: ORAL (LD50): Acute: 5650 mg/kg [Rat]. 2402 mg/kg [Mouse]. DERMAL (LD50): Acute: 20001 mg/kg [Rabbit].

Section 3: Hazards Identification

Potential Acute Health Effects: Hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Classified + (PROVEN) by OSHA. Classified A5 (Not suspected for human.) by ACGIH.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.
The substance is toxic to kidneys, the nervous system, liver, heart, upper respiratory tract.
Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: 420°C (788°F)

Flash Points: Not available.

Flammable Limits: LOWER: 8% UPPER: 10.5%

Products of Combustion: These products are carbon oxides (CO, CO2), halogenated compounds.

Fire Hazards in Presence of Various Substances: Not available.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the

product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/spray. Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes

Storage:
Keep container dry. Keep in a cool place. Ground all equipment containing material. Carcinogenic, teratogenic or mutagenic materials should be stored in a separate locked safety storage cabinet or room.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 50 STEL: 200 (ppm) from ACGIH (TLV)
TWA: 269 STEL: 1070 (mg/m3) from ACGIH
Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Not available.

Taste: Not available.

Molecular Weight: 131.39 g/mole

Color: Clear Colorless.

pH (1% soln/water): Not available.

Boiling Point: 86.7°C (188.1°F)

Melting Point: -87.1°C (-124.8°F)

Critical Temperature: Not available.

Specific Gravity: 1.4649 (Water = 1)

Vapor Pressure: 58 mm of Hg (@ 20°C)

Vapor Density: 4.53 (Air = 1)

Volatility: Not available.

Odor Threshold: 20 ppm

Water/Oil Dist. Coeff.: The product is equally soluble in oil and water; log(oil/water) = 0

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, methanol, diethyl ether, acetone.

Solubility:
Easily soluble in methanol, diethyl ether, acetone.
Very slightly soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity:
Extremely corrosive in presence of aluminum.
Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
Acute oral toxicity (LD50): 2402 mg/kg [Mouse].
Acute dermal toxicity (LD50): 20001 mg/kg [Rabbit].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified + (PROVEN) by OSHA. Classified A5 (Not suspected for human.) by ACGIH.
The substance is toxic to kidneys, the nervous system, liver, heart, upper respiratory tract.

Other Toxic Effects on Humans: Hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Passes through the placental barrier in human. Detected in maternal milk in human.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Trichloroethylene : UN1710 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Trichloroethylene
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Trichloroethylene
Pennsylvania RTK: Trichloroethylene
Florida: Trichloroethylene
Minnesota: Trichloroethylene
Massachusetts RTK: Trichloroethylene
New Jersey: Trichloroethylene
TSCA 8(b) inventory: Trichloroethylene
CERCLA: Hazardous substances.: Trichloroethylene

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):
CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC).
CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):
R36/38- Irritating to eyes and skin.
R45- May cause cancer.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 1

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 1

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves.
Lab coat.
Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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Linde Gas

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MATERIAL
SAFETY
DATA SHEET

No. 155

PRODUCT NAME Vinyl Chloride	CAS # 75-01-4
TRADE NAME AND SYNONYMS Vinyl chloride, inhibited (D.O.T.)	DOT I.D. No.: UN 1086; RQ 1.0 (0.454)
CHEMICAL NAME AND SYNONYMS Vinyl Chloride, Chloroethylene; Chloroethene	DOT Hazard Class: Division 2.1
	Formula C_2H_3Cl or CH_2CHC
ISSUE DATES AND REVISIONS Revised january 1995	Chemical Family: Halogenated Alkene

HEALTH HAZARD DATA

TIME WEIGHTED AVERAGE EXPOSURE LIMIT

TWA = 5 molar ppm with an A1 Carcinogen Rating (ACGIH 1994-1995). Al is a confirmed human carcinogen. OSHA 1993. 1910.1017, 8 Hr. TWA = 1 Molar PPM (Continued on Page 4)

SYMPTOMS OF EXPOSURE

Inhaling high concentrations causes mild symptoms of drowsiness, blurred vision, staggering gate and tingling and numbness in the extremities.

Liquid vinyl chloride may cause severe irritation or burns on skin or eye contact.

TOXICOLOGICAL PROPERTIES

Several workers who handled and used vinyl chloride developed a rare form of liver cancer.

IARC, NTP and OSHA all list vinyl chloride as a carcinogen.

Persons in ill health where such illness would be aggravated by exposure to vinyl chloride should not be allowed to work with or handle this product.

RECOMMENDED FIRST AID TREATMENT

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO VINYL CHLORIDE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS AND BE COGNIZANT OF EXTREME FIRE AND EXPLOSION HAZARD.

Inhalation: Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Unconscious persons should be moved to an uncontaminated area, given assisted respiration and supplemental oxygen. Further treatment should be symptomatic and supportive.

(Continued an Page 4)

Information contained in this material safety data sheet is offered without charge for use by technically qualified personnel at their discretion and risk. All statements, technical information and recommendations contained herein are based on tests and data which we believe to be reliable, but the accuracy or completeness thereof is not guaranteed and no warranty of any kind is made with respect thereto. This information is not intended as a license to operate under or a recommendation to practice or infringe any patent of this Company or others covering any process, composition of matter or use.
Since the Company shall have no control of the use of the product described herein, the Company assumes no liability for loss or damage incurred from the proper or improper use of such product.

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES

Vinyl chloride polymerizes on exposure to sunlight, heat or in the presence of oxygen or air. The addition of phenol or hydroquinone inhibits the polymerization. It is flammable in air.

PHYSICAL DATA

BOILING POINT 7.3°F (-13.7°C)	LIQUID DENSITY AT BOILING POINT 60.6 lb/ft³ (971 kg/m³)
VAPOR PRESSURE @ 70°F (21.1°C) = 52 psia (360 kPa)	GAS DENSITY AT 70°F, 1 atm @ 77°F (25°C) = .164 lb/ft³ (2.63 kg/m³)
SOLUBILITY IN WATER Slightly Soluble	FREEZING POINT -244.8°F (-153.8°C)
EVAPORATION RATE N/A (Gas)	SPECIFIC GRAVITY (AIR=1) @ 77°F (25°C) = 2.22

APPEARANCE AND ODOR Colorless gas with a pleasant, sweet odor

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) -108°F (CC)	AUTO IGNITION TEMPERATURE 882°F (472°C)	FLAMMABLE LIMITS % BY VOLUME (See Page 4) LEL 3.6 UEL 33

EXTINGUISHING MEDIA Water, dry chemical, carbon dioxide	ELECTRICAL CLASSIFICATION Class 1, Group Not Specified

SPECIAL FIRE FIGHTING PROCEDURES
Attempt to stop the flow of vinyl chloride. Use water spray to cool surrounding containers.

UNUSUAL FIRE AND EXPLOSION HAZARDS
Vinyl chloride vapors are heavier than air and may travel a considerable distance to a source of ignition. Should fire be extinguished and flow of gas continue, increase ventilation to prevent formation of flammable mixtures in low areas or pockets.

REACTIVITY DATA

STABILITY		CONDITIONS TO AVOID
Unstable		None
Stable	X	

INCOMPATIBILITY (Materials to avoid) Oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS None

HAZARDOUS POLYMERIZATION		CONDITIONS TO AVOID
May Occur	X	It is inhibited with phenol or hydroquinone to prevent polymerization.
Will Not Occur		

SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Evacuate all personnel from affected area. Use appropriate protective equipment. If leak is in user's equipment, be certain to purge piping with an inert gas prior to attempting repairs. If leak is in container or container valve, contact your closest supplier location or call the emergency telephone number listed herein.

WASTE DISPOSAL METHOD
Do not attempt to dispose of waste or unused quantities. Return in the shipping container properly labeled, with any valve outlet plugs or caps secured and valve protection cap in place to your supplier. For emergency disposal assistance, contact your closest supplier location or call the emergency telephone number listed herein.

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) Positive pressure air line with mask or self-contained breathing apparatus should be available for emergency use.		
VENTILATION Hood with forced ventilation	LOCAL EXHAUST To prevent accumulation above the TWA	SPECIAL N/A
	MECHANICAL (Gen.) In accordance with electrical codes	OTHER N/A
PROTECTIVE GLOVES Most materials except natural rubber		
EYE PROTECTION Safety goggles or glasses		
OTHER PROTECTIVE EQUIPMENT Safety shoes, safety shower, eyewash "fountain," transparent face shield		

SPECIAL PRECAUTIONS*

SPECIAL LABELING INFORMATION

DOT Shipping Name: Vinyl chloride, inhibited	I.D. No.:	UN 1086; RQ 1.0(0.454)
DOT Shipping Label: Flammable Gas	DOT Hazard Class:	Division 2.1

SPECIAL HANDLING RECOMMENDATIONS

Use only in well-ventilated areas. Valve protection caps must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure reducing regulator when connectinn cylinder to lower pressure (<150 psiq) pipinq or systems. Do not heat cylinder by any means to increase tne discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder.

For additional handling recommendations, consult Compressed Gas Association's Pamphlets I P-1 and P-10.

SPECIAL STORAGE RECOMMENDATIONS

Protect cylinders from physical damage. Store in cool, dry, well-ventilated area of noncombustible construction away from heavily trafficked areas and emergency exits.

Do not allow the temperature where cylinders are stored to exceed 125F (52C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in - first out" inventory system to prevent full cylinders beins stored for excessive periods of time. Post "No Smoking or Open Flames" signs in the storage or use area. There should be no sources of ignition in the storage or use area.

For additional storage recommendations, consult Compressed Gas Association's Pamphlet P-1 and P-10.

SPECIAL PACKAGING RECOMMENDATIONS

Most metals except copper and its alloys may be used with vinyl chloride. Copper and its alloys could form explosive acetylides by reacting with the acetylene impurity in the product.

Teflon® is the preferred gasketing material.

OTHER RECOMMENDATIONS OR PRECAUTIONS

Earth-ground and bond all lines and equipment associated with the vinyl chloride system. Electrical equipment should be non-sparking or explosion proof. Compressed gas cylinders should not be refilled except by qualified producers of compressed gases. Shipment of a compressed gas cylinder which has not been filled by the owner or with his (written) consent is a violation of federal Law (49CFR).

(Continued on Page 4)

*Various Government Agencies (i.e. Department of Transportation, Occupational Safety and Health Administration, Food and Drug Administration and others) may have specific regulations concerning the transportation, handling, storage or use of this product which will not be reflected in this data sheet. The customer should review these regulations to ensure that he is in full compliance.

HEALTH HAZARD DATA

TWA DATA: (continued)

(<5 Molar PPM averaged over any period not exceeding 15 minutes) with the prohibition of any personal direct contact with vinyl chloride liquid and it is classified as a cancer suspect agent.

RECOMMENDED FIRST AID TREATMENT: (Continued)

Eye Contact: PERSONS WITH POTENTIAL EXPOSURE TO VINYL CHLORIDE SHOULD NOT WEAR CONTACT LENSES.

Flush contaminated eye(s) with copious quantities of water. Part eyelids with fingers to assure complete flushing. Continue for minium of 15 minutes. An eye specialict should be summoned promptly.

Skin Contact: Flush affected areas with copious quantities of water. Remove affected clothing as rapidly as possible. A physician should see the patient. Follow the water flush with a soap and water wash.

SPECIAL PRECAUTIONS

OTHER RECOMMENDATIONS OR PRECAUTIONS: (Continued)

Always secure cylinders in an upright position before transporting them. Never transport cylinders in trunks OT vehicles, enclosed vans, truck cabs or in passenger compartments. Transport cyclinders secured in open flatbed or in open pick-up type vehicles.

Vinyl chloride is a toxic chemical and it is subject to the reporting requirements of SARA, Title III, Section 313.

Section 4: First Aid Measures

Eye Contact: Check for and remove any contact lenses. Do not use an eye ointment. Seek medical attention.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation: Not available.

Ingestion:
Do not induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 527°C (980.6°F)

Flash Points: CLOSED CUP: 25°C (77°F). OPEN CUP: 28.9°C (84°F) (Cleveland).

Flammable Limits: LOWER: 1.1% UPPER: 7%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances: Highly flammable in presence of open flames and sparks, of heat.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
Flammable liquid, insoluble in water.
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards:
Explosive in the form of vapor when exposed to heat or flame. Vapor may travel considerable distance to source of ignition and flash back. When heated to decomposition it emits acrid smoke and irritating fumes.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Toxic flammable liquid, insoluble or very slightly soluble in water.
Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/spray. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes Keep away from incompatibles such as oxidizing agents.

Storage:
Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. A refrigerated room would be preferable for materials with a flash point lower than 37.8°C (100°F).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 100 STEL: 150 (ppm) from ACGIH (TLV)
TWA: 434 STEL: 651 (mg/m3) from ACGIHConsult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid. (Liquid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 106.17 g/mole

Color: Colorless.

pH (1% soln/water): Not applicable.

Boiling Point: 138°C (280.4°F)

Melting Point: 12°C (53.6°F)

Critical Temperature: Not available.

Specific Gravity: 0.86 (Water = 1)

Vapor Pressure: 9 mm of Hg (@ 20°C)

Vapor Density: 3.7 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.62 ppm

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, methanol, diethyl ether.

Solubility:
Easily soluble in methanol, diethyl ether.
Insoluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Reactive with oxidizing agents.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Eye contact.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE.
Acute oral toxicity (LD50): 5000 mg/kg [Rat.].
Acute dermal toxicity (LD50): 12400 mg/kg [Rabbit.].
Acute toxicity of the vapor (LC50): 4550 ppm 4 hour(s) [Rat].

Chronic Effects on Humans: The substance is toxic to blood, kidneys, the nervous system, liver.

Other Toxic Effects on Humans:
Very hazardous in case of skin contact (irritant).
Slightly hazardous in case of skin contact (permeator), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:

0347 Animal: embryotoxic, foetotoxic, passes through the placental barrier.
0900 Detected in maternal milk in human.
Narcotic effect; may cause nervous system disturbances.

Special Remarks on other Toxic Effects on Humans: Material is irritating to mucous membranes and upper respiratory tract.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: Class 3: Flammable liquid.

Identification: : Xylene : UN1307 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Pennsylvania RTK: p-Xylene
Florida: p-Xylene
Massachusetts RTK: p-Xylene
New Jersey: p-Xylene
TSCA 8(b) inventory: p-Xylene
SARA 313 toxic chemical notification and release reporting: p-Xylene
CERCLA: Hazardous substances.: p-Xylene

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):
CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):
R10- Flammable.
R38- Irritating to skin.
R41- Risk of serious damage to eyes.
R48/20- Harmful: danger of serious

damage to health by prolonged exposure through inhalation.

'MIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves.
Lab coat.
Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
Splash goggles.

Section 16: Other Information

References:
-Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987.
-Material safety data sheet emitted by: la Commission de la SantÃ© et de la SÃ©curitÃ© du Travail du QuÃ©bec.
-SAX, N.I. Dangerous Properties of Indutrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984.
-The Sigma-Aldrich Library of Chemical Safety Data, Edition II.
-Guide de la loi et du rÃ¨glement sur le transport des marchandises dangeureuses au canada. Centre de conformitÃ© internatinal LtÃ©e. 1986.

Other Special Considerations: Not available.

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MATERIAL SAFETY DATA SHEET

Sodium Persulfate

MSDS Ref. No.: 7775-27-1
Date Approved: 06/01/2009
Revision No.: 13

This document has been prepared to meet the requirements of the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200 and Canada's Workplace Hazardous Materials Information System (WHMIS) requirements.

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME:	Sodium Persulfate
SYNONYMS:	Sodium Peroxydisulfate; Disodium Peroxydisulfate
GENERAL USE:	Polymerization initiator. Etchant and cleaner in manufacture of printed circuit boards. Booster in hair bleaching formulations in cosmetics. Secondary oil recovery systems as a polymerization initiator and a gel breaker.

MANUFACTURER

FMC CORPORATION
FMC Peroxygens
1735 Market Street
Philadelphia, PA 19103
(215) 299-6000 (General Information)
msdsinfo@fmc.com (Email - General Information)

EMERGENCY TELEPHONE NUMBERS

(303) 595-9048 (Medical - U.S. - Call Collect)

For leak, fire, spill, or accident emergencies, call:
(800) 424-9300 (CHEMTREC - U.S.A. & Canada)

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

- White, odorless, crystals
- Oxidizer.
- Decomposes in storage under conditions of moisture (water/water vapor) and/or excessive heat causing release of oxides of sulfur and oxygen that supports combustion. Decomposition could form a high temperature melt. See Section 10 ("Stability and Reactivity").

POTENTIAL HEALTH EFFECTS: Airborne persulfate dust may be irritating to eyes, nose, lungs, throat and skin upon contact. Exposure to high levels of persulfate dust may cause difficulty in breathing in sensitive persons.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Wt.%	EC No.	EC Class
Sodium Persulfate	7775-27-1	>99	231-892-1	Xn-O; R8-R22-R36/37/38-R42/43

4. FIRST AID MEASURES

EYES: Flush with plenty of water. Get medical attention if irritation occurs and persists.

SKIN: Wash with plenty of soap and water. Get medical attention if irritation occurs and persists.

INGESTION: Rinse mouth with water. Dilute by giving 1 or 2 glasses of water. Do not induce vomiting. Never give anything by mouth to an unconscious person. See a medical doctor immediately.

INHALATION: Remove to fresh air. If breathing difficulty or discomfort occurs and persists, contact a medical doctor.

NOTES TO MEDICAL DOCTOR: This product has low oral toxicity and is not irritating to the eyes and skin. Flooding of exposed areas with water is suggested. For gastric lavage or emesis induction, consider the possible aggravation of esophageal injury, and the expected absence of system effects. Treatment is controlled removal of exposure followed by symptomatic and supportive care.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Deluge with water.

FIRE / EXPLOSION HAZARDS: Product is non-combustible. On decomposition releases oxygen which may intensify fire. Presence of water accelerates decomposition.

FIRE FIGHTING PROCEDURES: Do not use carbon dioxide or other gas filled fire extinguishers; they will have no effect on decomposing persulfates. Wear full protective clothing and self-contained breathing apparatus.

FLAMMABLE LIMITS: Non-combustible

SENSITIVITY TO IMPACT: No data available

SENSITIVITY TO STATIC DISCHARGE: Not available

6. ACCIDENTAL RELEASE MEASURES

RELEASE NOTES: Spilled material should be collected and put in approved DOT container and isolated for disposal. Isolated material should be monitored for signs of decomposition (fuming/smoking). If spilled material is wet, dissolve with large quantity of water and dispose as a hazardous waste. All disposals should be carried out according to regulatory agencies procedures.

7. HANDLING AND STORAGE

HANDLING: Use adequate ventilation when transferring product from bags or drums. Wear respiratory protection if ventilation is inadequate or not available. Use eye and skin protection. Use clean plastic or stainless steel scoops only.

STORAGE: Store (unopened) in a cool, clean, dry place away from point sources of heat, e.g. radiant heaters or steam pipes. Use first in, first out storage system. Avoid contamination of opened product. In case of fire or decomposition (fuming/smoking) deluge with plenty of water to control decomposition. For storage, refer to NFPA Bulletin 430 on storage of liquid and solid oxidizing materials.

COMMENTS: VENTILATION: Provide mechanical general and/or local exhaust ventilation to prevent release of dust into work environment. Spills should be collected into suitable containers to prevent dispersion into the air.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS

Chemical Name	ACGIH	OSHA	Supplier
Sodium Persulfate	0.1 mg/m^3 (TWA)		

ENGINEERING CONTROLS: Provide mechanical local general room ventilation to prevent release of dust into the work environment. Remove contaminated clothing immediately and wash before reuse.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Use cup type chemical goggles. Full face shield may be used.

RESPIRATORY: Use approved dust respirator when airborne dust is expected.

PROTECTIVE CLOTHING: Normal work clothes. Rubber or neoprene footwear.

GLOVES: Rubber or neoprene gloves. Thoroughly wash the outside of gloves with soap and water prior to removal. Inspect regularly for leaks.

9. PHYSICAL AND CHEMICAL PROPERTIES

ODOR:	None
APPEARANCE:	White crystals
AUTOIGNITION TEMPERATURE:	Not applicable. No evidence of combustion up to 800°C. Decomposition will occur upon heating.
BOILING POINT:	Not applicable
COEFFICIENT OF OIL / WATER:	Not applicable
DENSITY / WEIGHT PER VOLUME:	Not available
EVAPORATION RATE:	Not applicable (Butyl Acetate = 1)
FLASH POINT:	Non-combustible
MELTING POINT:	Decomposes
ODOR THRESHOLD:	Not applicable
OXIDIZING PROPERTIES:	Oxidizer
PERCENT VOLATILE:	Not applicable
pH:	typically 5.0 - 7.0 @ 25 °C (1% solution)
SOLUBILITY IN WATER:	73 % @ 25 °C (by wt.)
SPECIFIC GRAVITY:	2.6 (H_2O=1)
VAPOR DENSITY:	Not applicable (Air = 1)
VAPOR PRESSURE:	Not applicable

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID:	Heat, moisture and contamination.
STABILITY:	Stable (becomes unstable in presence of heat, moisture and/or contamination).
POLYMERIZATION:	Will not occur
INCOMPATIBLE MATERIALS:	Acids, alkalis, halides (fluorides, chlorides, bromides and iodides), combustible materials, most metals and heavy metals, oxidizable materials, other oxidizers, reducing agents, cleaners, and organic or carbon containing compounds. Contact

with incompatible materials can result in a material decomposition or other uncontrolled reactions.

HAZARDOUS DECOMPOSITION PRODUCTS: Oxygen that supports combustion and oxides of sulfur.

COMMENTS: PRECAUTIONARY STATEMENT: Use of persulfates in chemical reactions requires appropriate precautions and design considerations for pressure and thermal relief.

Decomposing persulfates will evolve large volumes of gas and/or vapor, can accelerate exponentially with heat generation, and create significant and hazardous pressures if contained and not properly controlled or mitigated.

Use with alcohols in the presence of water has been demonstrated to generate conditions that require rigorous adherence to process safety methods and standards to prevent escalation to an uncontrolled reaction.

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11. TOXICOLOGICAL INFORMATION

EYE EFFECTS: Non-irritating (rabbit) [FMC Ref. ICG/T-79.029]

SKIN EFFECTS: Non-irritating (rabbit) [FMC Ref. ICG/T-79.029]

DERMAL LD_{50}: > 10 g/kg [FMC Ref. ICG/T-79.029]

ORAL LD_{50}: 895 mg/kg (rat) [FMC Ref. ICG/T-79.029]

INHALATION LC_{50}: 5.1 mg/l (rat) [FMC Ref. I95-2017]

SENSITIZATION: May be sensitizing to allergic persons. [FMC Ref. ICG/T-79.029]

TARGET ORGANS: Eyes, skin, respiratory passages

ACUTE EFFECTS FROM OVEREXPOSURE: Dust may be harmful and irritating. May be harmful if swallowed.

CHRONIC EFFECTS FROM OVEREXPOSURE: Sensitive persons may develop dermatitis and asthma [Respiration 38:144, 1979]. Groups of male and female rats were fed 0, 300 or 3000 ppm sodium persulfate in the diet for 13 weeks, followed by 5000 ppm for 5 weeks. Microscopic examination of tissues revealed some injury to the gastrointestinal tract at the high dose (3000 ppm) only. This effect is not unexpected for an oxidizer at high concentrations. [Ref. FMC I90-1151, Toxicologist 1:149, 1981].

CARCINOGENICITY:

NTP:	Not listed
IARC:	Not listed
OSHA:	Not listed
OTHER:	ACGIH: Not listed

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION:

Bluegill sunfish, 96-hour LC_{50} = 771 mg/L [FMC Study I92-1250]
Rainbow trout, 96-hour LC_{50} = 163 mg/L [FMC Study I92-1251]
Daphnia, 48-hour LC_{50} = 133 mg/L [FMC Study I92-1252]
Grass shrimp, 96-hour LC_{50} = 519 mg/L [FMC Study I92-1253]

CHEMICAL FATE INFORMATION: Biodegradability does not apply to inorganic substances.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Dispose as a hazardous waste in accordance with local, state and federal regulatory agencies.

14. TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION (DOT)

PROPER SHIPPING NAME:	Sodium Persulfate
PRIMARY HAZARD CLASS / DIVISION:	5.1 (Oxidizer)
UN/NA NUMBER:	UN 1505
PACKING GROUP:	III
LABEL(S):	5.1 (Oxidizer)
PLACARD(S):	5.1 (Oxidizer)
MARKING(S):	Sodium Persulfate, UN 1505
ADDITIONAL INFORMATION:	Hazardous Substance/RQ: Not applicable

49 STCC Number: 4918733

This material is shipped in 225 lb. fiber drums, 55 lb. poly bags and 1000 - 2200 lb. IBC's (supersacks).

INTERNATIONAL MARITIME DANGEROUS GOODS (IMDG)

PROPER SHIPPING NAME: Sodium Persulfate

INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO) / INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA)

PROPER SHIPPING NAME: Sodium Persulfate

OTHER INFORMATION:

Protect from physical damage. Do not store near acids, moisture or heat.

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15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355, APPENDIX A):
Not applicable

SECTION 311 HAZARD CATEGORIES (40 CFR 370):
Fire Hazard, Immediate (Acute) Health Hazard

SECTION 312 THRESHOLD PLANNING QUANTITY (40 CFR 370):
The Threshold Planning Quantity (TPQ) for this product, if treated as a mixture, is 10,000 lbs; however, this product contains the following ingredients with a TPQ of less than 10,000 lbs.: None

SECTION 313 REPORTABLE INGREDIENTS (40 CFR 372):
There are no ingredients in this product, which are subject to Section 313 reporting requirements.

CERCLA (COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT)

CERCLA DESIGNATION & REPORTABLE QUANTITIES (RQ) (40 CFR 302.4):
Unlisted, RQ = 100 lbs., Ignitability

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA INVENTORY STATUS (40 CFR 710):
All components are listed or exempt.

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)
RCRA IDENTIFICATION OF HAZARDOUS WASTE (40 CFR 261):
Waste Number: D001

CANADA

WHMIS (WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM):

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Hazard Classification / Division: C
D2A
D2B

Domestic Substance List: All components are listed or exempt.

INTERNATIONAL LISTINGS

Australia (AICS): Listed
China: Listed
Japan (ENCS): (1)-1131
Korea: KE-12369
Philippines (PICCS): Listed
New Zealand: Listed

HAZARD AND RISK PHRASE DESCRIPTIONS:

EC Symbols:	Xn	(Harmful)
	O	(Oxidizer)
EC Risk Phrases:	R8	(Contact with combustible material may cause fire)
	R22	(Harmful if swallowed.)
	R36/37/38	(Irritating to eyes, respiratory system and skin.)
	R42/43	(May cause sensitization by inhalation or by skin contact.)

16. OTHER INFORMATION

HMIS

Health	1
Flammability	0
Physical Hazard	1
Personal Protection (PPE)	J

Protection = J (Safety goggles, gloves, apron & combination dust & vapor respirator)

HMIS = Hazardous Materials Identification System

Degree of Hazard Code:
4 = Severe
3 = Serious
2 = Moderate
1 = Slight
0 = Minimal

NFPA

Health	1
Flammability	0
Reactivity	1
Special	OX

SPECIAL = OX (Oxidizer)

NFPA (National Fire Protection Association)

Degree of Hazard Code:
4 = Extreme
3 = High
2 = Moderate
1 = Slight
0 = Insignificant

REVISION SUMMARY:
This MSDS replaces Revision #12, dated April 30, 2006.
Changes in information are as follows:
Section 1 (Product and Company Identification)
Section 3 (Composition / Information on Ingredients)
Section 15 (Regulatory Information)
Section 16 (Other Information)

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MATERIAL SAFETY DATA SHEET

Hydrogen Peroxide (20 to 40%)

MSDS Ref. No.: 7722-84-1-3
Date Approved: 11/04/2009
Revision No.: 12

This document has been prepared to meet the requirements of the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200 and Canada's Workplace Hazardous Materials Information System (WHMIS) requirements.

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Hydrogen Peroxide (20 to 40%)

ALTERNATE PRODUCT NAME(S): Durox® Reg., LR & LRA 35%, Oxypure® 35%, Standard 27, 35 & 40%, Super D® 25 & 35, Technical 35%, HTP 35%, OHP 35%, Chlorate Grade, 20%, Semiconductor Reg, Seg, RGS, RGS 2, 27% & 31%

GENERAL USE: Durox® 35% Reg., LR and LRA - meets the Food Chemical Codex requirements for aseptic packaging and other food related applications.

Oxypure® 35% - certified by NSF to meet NSF/ANSI Standard 60 requirements for drinking water treatment.

Standard 27, 35 and 40% - most suitable grade for industrial bleaching, processing, pollution abatement and general oxidation reactions.

Semiconductor Reg, Seg, RGS, RGS 2, 27% and 31% - conform to ACS and Semi Specs. for wafer etching and cleaning, and applications requiring low residues.

Super D® 25 and 35% - meets US Pharmacopoeia specifications for 3% topical solutions when diluted with proper quality water. While manufactured to the USP standards for purity and to FMC's demanding ISO 9002 quality standards, FMC does not claim that it's Hydrogen Peroxide is manufactured in accordance with all pharmaceutical cGMP conditions.

Technical 35% - essentially free of inorganic metals suitable for chemical synthesis.

HTP 35% - specially formulated for aerospace equipment conditioning.

OHP 35% - specially formulated for OHP process, advanced oxidation, and activated peroxide applications

Chlorate Grade 20% - specially formulated for use in chlorate

manufacture or processing.

MANUFACTURER

FMC CORPORATION
FMC Peroxygens
1735 Market Street
Philadelphia, PA 19103
(215) 299-6000 (General Information)
msdsinfo@fmc.com (Email - General Information)

FMC of Canada Ltd.
FMC Peroxygens
PG Pulp Mill Road
Prince George, BC V2N2S6
(250) 561-4200 (General Information)

EMERGENCY TELEPHONE NUMBERS

(281) 474-8750 (Plant: Pasadena, TX, US - Call Collect)
(250) 561-4221 (Plant: Prince George, BC, Canada - Call Collect)
(303) 595-9048 (Medical - U.S. - Call Collect)

For leak, fire, spill, or accident emergencies, call:
(800) 424-9300 (CHEMTREC - U.S.A.)
(613) 996-6666 (CANUTEC - Canada)

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

- Clear, colorless, odorless liquid
- Oxidizer.
- Contact with combustibles may cause fire.
- Decomposes yielding oxygen that supports combustion of organic matters and can cause overpressure if confined.
- Corrosive to eyes, nose, throat, lungs and gastrointestinal tract.

POTENTIAL HEALTH EFFECTS: Corrosive to eyes, nose, throat and lungs. May cause irreversible tissue damage to the eyes including blindness. May cause skin irritation.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Wt.%	EC No.	EC Class
Hydrogen Peroxide	7722-84-1	20 - 40	231-765-0	O, C, Xn; R5- R8-R20/22-R35
Water	7732-18-5	60 - 80	231-791-2	Not classified

4. FIRST AID MEASURES

EYES: Immediately flush with water for at least 15 minutes, lifting the upper and lower eyelids intermittently. See a medical doctor or ophthalmologist immediately.

SKIN: Wash with plenty of soap and water. Get medical attention if irritation occurs and persists.

INGESTION: Rinse mouth with water. Dilute by giving 1 or 2 glasses of water. Do not induce vomiting. Never give anything by mouth to an unconscious person. See a medical doctor immediately.

INHALATION: Remove to fresh air. If breathing difficulty or discomfort occurs and persists, contact a medical doctor.

NOTES TO MEDICAL DOCTOR: Hydrogen peroxide at these concentrations is a strong oxidant. Direct contact with the eye is likely to cause corneal damage especially if not washed immediately. Careful ophthalmologic evaluation is recommended and the possibility of local corticosteroid therapy should be considered. Because of the likelihood of corrosive effects on the gastrointestinal tract after ingestion, and the unlikelihood of systemic effects, attempts at evacuating the stomach via emesis induction or gastric lavage should be avoided. There is a remote possibility, however, that a nasogastric or orogastric tube may be required for the reduction of severe distension due to gas formation.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Flood with water.

FIRE / EXPLOSION HAZARDS: Product is non-combustible. On decomposition releases oxygen which may intensify fire.

FIRE FIGHTING PROCEDURES: Any tank or container surrounded by fire should be flooded with water for cooling. Wear full protective clothing and self-contained breathing apparatus.

FLAMMABLE LIMITS: Non-combustible

SENSITIVITY TO IMPACT: No data available

SENSITIVITY TO STATIC DISCHARGE: No data available

6. ACCIDENTAL RELEASE MEASURES

RELEASE NOTES: Dilute with a large volume of water and hold in a pond or diked area until hydrogen peroxide decomposes. Hydrogen peroxide may be decomposed by adding sodium metabisulfite or sodium sulfite after diluting to about 5%. Dispose according to methods outlined for waste disposal.

Combustible materials exposed to hydrogen peroxide should be immediately submerged in or rinsed with large amounts of water to ensure that all hydrogen peroxide is removed. Residual hydrogen peroxide that is allowed to dry (upon evaporation hydrogen peroxide can concentrate) on organic materials such as paper, fabrics, cotton, leather, wood or other combustibles can cause the material to ignite and result in a fire.

7. HANDLING AND STORAGE

HANDLING: Wear chemical splash-type monogoggles and full-face shield, impervious clothing, such as rubber, PVC, etc., and rubber or neoprene gloves and shoes. Avoid cotton, wool and leather. Avoid excessive heat and contamination. Contamination may cause decomposition and generation of oxygen gas which could result in high pressures and possible container rupture. Hydrogen peroxide should be stored only in vented containers and transferred only in a prescribed manner (see FMC Technical Bulletins). Never return unused hydrogen peroxide to original container, empty drums should be triple rinsed with water before discarding. Utensils used for handling hydrogen peroxide should only be made of glass, stainless steel, aluminum or plastic.

STORAGE: Store drums in cool areas out of direct sunlight and away from combustibles. For bulk storage refer to FMC Technical Bulletins.

COMMENTS: VENTILATION: Provide mechanical general and/or local exhaust ventilation to prevent release of vapor or mist into the work environment.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS

Chemical Name	ACGIH	OSHA	Supplier
Hydrogen Peroxide	1 ppm (TWA)	1 ppm (PEL) 1.4 mg/m^3 (PEL)	

ENGINEERING CONTROLS: Ventilation should be provided to minimize the release of hydrogen peroxide vapors and mists into the work environment. Spills should be minimized or confined immediately to prevent release into the work area. Remove contaminated clothing immediately and wash before reuse.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Use chemical splash-type monogoggles and a full-face shield made of polycarbonate, acetate, polycarbonate/acetate, PETG or thermoplastic.

RESPIRATORY: If concentrations in excess of 10 ppm are expected, use NIOSH/DHHS approved self-contained breathing apparatus (SCBA), or other approved atmospheric-supplied respirator (ASR) equipment (e.g., a full-face airline respirator (ALR)). DO NOT use any form of air-purifying respirator (APR) or filtering facepiece (AKA dust mask), especially those containing oxidizable sorbants such as activated carbon.

PROTECTIVE CLOTHING: For body protection wear impervious clothing such as an approved splash protective suit made of SBR Rubber, PVC (PVC Outershell w/Polyester Substrate), Gore-Tex (Polyester trilaminate w/Gore-Tex), or a specialized HAZMAT Splash or Protective Suite (Level A, B, or C). For foot protection, wear approved boots made of NBR, PVC, Polyurethane, or neoprene. Overboots made of Latex or PVC, as well as firefighter boots or specialized HAZMAT boots are also permitted. DO NOT wear any form of boot or overboots made of nylon or nylon blends. DO NOT use cotton, wool or leather, as these materials react RAPIDLY with higher concentrations of hydrogen peroxide. Completely submerge hydrogen peroxide contaminated clothing or other materials in water prior to drying. Residual hydrogen peroxide, if allowed to dry on materials such as paper, fabrics, cotton, leather, wood or other combustibles can cause the material to ignite and result in a fire.

GLOVES: For hand protection, wear approved gloves made of nitrile, PVC, or neoprene. DO NOT use cotton, wool or leather for these materials react RAPIDLY with higher concentrations of hydrogen peroxide. Thoroughly rinse the outside of gloves with water prior to removal. Inspect regularly for leaks.

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9. PHYSICAL AND CHEMICAL PROPERTIES

ODOR:	Odorless
APPEARANCE:	Clear, colorless liquid
AUTOIGNITION TEMPERATURE:	Non-combustible
BOILING POINT:	103ºC/218ºF (20%); 105ºC/223ºF (27%); 107ºC/225ºF (31%); 108ºC/226ºF (35%)
COEFFICIENT OF OIL / WATER:	Not available
DENSITY / WEIGHT PER VOLUME:	Not available
EVAPORATION RATE:	> 1 (Butyl Acetate = 1)
FLASH POINT:	Non-combustible
FREEZING POINT:	-15ºC/6ºF (20%); -22ºC/-8ºF (27%); -26ºC/-15ºF (31%); -33ºC/-27ºF (35%)
ODOR THRESHOLD:	Not available
OXIDIZING PROPERTIES:	Strong oxidizer
PERCENT VOLATILE:	100
pH:	<= 3.7 5.0 - 6.0 @ 25 °C (1% solution)
SOLUBILITY IN WATER:	100 %
SPECIFIC GRAVITY:	1.07 @ 20ºC/4ºC (20%); 1.10 @ 20ºC/4ºC (27%); 1.11 @ 20ºC/4ºC (31%); 1.13 @ 20ºC/4ºC (35%)
VAPOR DENSITY:	(Air = 1): Not available
VAPOR PRESSURE:	28 mmHg @ 30ºC (20%); 26 mmHg @ 30ºC (27%) ;24 mmHg @ 30ºC (31%); 23 mmHg @ 30ºC (35%)

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID:	Excessive heat or contamination could cause product to become unstable.
STABILITY:	Stable (heat and contamination could cause decomposition)
POLYMERIZATION:	Will not occur
INCOMPATIBLE MATERIALS:	Reducing agents, wood, paper and other combustibles, iron and other heavy metals, copper alloys and caustic.
HAZARDOUS DECOMPOSITION PRODUCTS:	Oxygen which supports combustion.

COMMENTS: Materials to Avoid : Dirt, organics, cyanides and combustibles such as wood, paper, oils, etc.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS: 35% hydrogen peroxide: Extremely irritating/corrosive (rabbit) [FMC Study Number: I83-748]

SKIN EFFECTS: 35% hydrogen peroxide: Mildly irritating after 4-hour exposure (rabbit) [FMC Study Number: I83-747]

DERMAL LD_{50}: 35% hydrogen peroxide: > 2,000 mg/kg (rabbit) [FMC Study Number: I83-746]

ORAL LD_{50}: 35% hydrogen peroxide: 1,193 mg/kg (rat) [FMC Study Number: I83-745]

INHALATION LC_{50}: 50% hydrogen peroxide: > 0.17 mg/l (rat) [FMC Study Number: I89-1080]

TARGET ORGANS: Eyes, nose, throat and lungs

ACUTE EFFECTS FROM OVEREXPOSURE: Extremely irritating/corrosive to eyes and gastrointestinal tract. May cause irreversible tissue damage to the eyes including blindness. Inhalation of mist or vapors may be severely irritating to nose, throat and lungs. May cause skin irritation.

CHRONIC EFFECTS FROM OVEREXPOSURE: The International Agency for Research on Cancer (IARC) has concluded that there is inadequate evidence for carcinogenicity of hydrogen peroxide in humans, but limited evidence in experimental animals (Group 3 - not classifiable as to its carcinogenicity to humans). The American Conference of Governmental Industrial Hygienists (ACGIH) has concluded that hydrogen peroxide is a 'Confirmed Animal Carcinogen with Unknown Relevance to Humans' (A3).

CARCINOGENICITY:

Chemical Name	IARC	NTP	OSHA	Other
Hydrogen Peroxide	3	Not listed	Not listed	(ACGIH) A3

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION: Channel catfish 96-hour LC_{50} = 37.4 mg/L
Fathead minnow 96-hour LC_{50} = 16.4 mg/L
Daphnia magna 24-hour EC_{50} = 7.7 mg/L
Daphnia pulex 48-hour LC_{50} = 2.4 mg/L
Freshwater snail 96-hour LC_{50} = 17.7 mg/L
For more information refer to ECETOC "Joint Assessment of Commodity Chemicals No. 22, Hydrogen Peroxide." ISSN-0773-6339, January 1993

CHEMICAL FATE INFORMATION: Hydrogen peroxide in the aquatic environment is subject to various reduction or oxidation processes and decomposes into water and oxygen. Hydrogen peroxide half-life in freshwater ranged from 8 hours to 20 days, in air from 10-20 hrs. and in soils from minutes to hours depending upon microbiological activity and metal contaminants.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: An acceptable method of disposal is to dilute with a large amount of water and allow the hydrogen peroxide to decompose followed by discharge into a suitable treatment system in accordance with all regulatory agencies. The appropriate regulatory agencies should be contacted prior to disposal.

14. TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION (DOT)

PROPER SHIPPING NAME:	Hydrogen peroxide, aqueous solutions with not less than 20% but not more than 40% hydrogen peroxide
PRIMARY HAZARD CLASS / DIVISION:	5.1 (Oxidizer)
HAZARD CLASS, SUBSIDIARY:	8
UN/NA NUMBER:	UN 2014
PACKING GROUP:	II
LABEL(S):	Oxidizer, Corrosive
PLACARD(S):	5.1 (Oxidizer)

ADDITIONAL INFORMATION:

DOT Marking: Hydrogen Peroxide, aqueous solution with not less than 20%, but not more than 40% Hydrogen Peroxide, UN 2014

Hazardous Substance/RQ: Not applicable

49 STCC Number: 4918775

DOT Spec: stainless steel/high purity aluminum cargo tanks and rail cars. UN Spec: HDPE drums. Contact FMC for specific details.

INTERNATIONAL MARITIME DANGEROUS GOODS (IMDG)

PROPER SHIPPING NAME: Hydrogen peroxide, aqueous solutions with not less than 20%, but not more than 60% hydrogen peroxide.

INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO) / INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA)

PROPER SHIPPING NAME: Hydrogen peroxide, aqueous solutions with not less than 20%, but not more than 40% hydrogen peroxide (*).

OTHER INFORMATION:

(*) Air regulations permit shipment of Hydrogen Peroxide (20 - 40%) in non-vented containers for Air Cargo Only aircraft, as well as for Passenger and Cargo aircraft. HOWEVER, all FMC Hydrogen Peroxide containers are vented and therefore, air shipments of FMC H_20_2 is not permitted. IATA air regulations state that venting of packages containing oxidizing substances is not permitted for air transport.

Protect from physical damage. Keep drums in upright position. Drums should not be stacked in transit. Do not store drum on wooden pallets.

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355, APPENDIX A):
Not listed

SECTION 311 HAZARD CATEGORIES (40 CFR 370):
Fire Hazard, Immediate (Acute) Health Hazard

SECTION 312 THRESHOLD PLANNING QUANTITY (40 CFR 370):

The Threshold Planning Quantity (TPQ) for this product, if treated as a mixture, is 10,000 lbs; however, this product contains the following ingredients with a TPQ of less than 10,000 lbs.: None, (conc. <52%)

SECTION 313 REPORTABLE INGREDIENTS (40 CFR 372):

Not listed

CERCLA (COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT)

CERCLA DESIGNATION & REPORTABLE QUANTITIES (RQ) (40 CFR 302.4):

Unlisted (Hydrogen Peroxide 20-40%); RQ = 100 lbs.; Ignitability, Corrosivity

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA INVENTORY STATUS (40 CFR 710):

Listed

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)

RCRA IDENTIFICATION OF HAZARDOUS WASTE (40 CFR 261):

Waste Number: D001, D002

CANADA

WHMIS (WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM):

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Hazard Classification / Division:	C E D2B
Product Identification Number:	2014
Ingredient Disclosure List:	Listed
Domestic Substance List:	All components listed

INTERNATIONAL LISTINGS

Hydrogen peroxide:

China: Listed
Japan (ENCS): (1)-419
Korea: KE-20204
Philippines (PICCS): Listed

HAZARD AND RISK PHRASE DESCRIPTIONS:

EC Symbols: O (Oxidizer)

	C	(Corrosive)
	Xn	(Harmful)
EC Risk Phrases:	R5	(Heating may cause an explosion.)
	R8	(Contact with combustible material may cause fire)
	R35	(Causes severe burns.)
	R20/22	(Harmful by inhalation and if swallowed.)

16. OTHER INFORMATION

HMIS

Health	3
Flammability	0
Physical Hazard	1
Personal Protection (PPE)	H

Protection = H (Safety goggles, gloves, apron, the use of a supplied air or SCBA respirator is required in lieu of a vapor cartridge respirator)

HMIS = Hazardous Materials Identification System

Degree of Hazard Code:
4 = Severe
3 = Serious
2 = Moderate
1 = Slight
0 = Minimal

NFPA

Health	3
Flammability	0
Reactivity	1
Special	OX

SPECIAL = OX (Oxidizer)

NFPA (National Fire Protection Association)

Degree of Hazard Code:
4 = Extreme
3 = High
2 = Moderate
1 = Slight
0 = Insignificant

REVISION SUMMARY:
This MSDS replaces Revision #11, dated June 03, 2008.

Changes in information are as follows:
Section 1 (Product and Company Identification)
Section 9 (Physical and Chemical Properties)
Section 14 (Transport Information)
Section 16 (Other Information)

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MATERIAL SAFETY DATA SHEET

Hydrogen Peroxide Less Than 8%

MSDS Ref. No.: 7722-84-1-1
Date Approved: 04/30/2006
Revision No.: 7

This document has been prepared to meet the requirements of the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200; the Canada's Workplace Hazardous Materials Information System (WHMIS) and, the EC Directive, 2001/58/EC.

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Hydrogen Peroxide Less Than 8%

GENERAL USE: Standard grade is used for industrial bleaching, processing, pollution abatement and general oxidation reactions.

MANUFACTURER

FMC CORPORATION
FMC Peroxygens
1735 Market Street
Philadelphia, PA 19103
(215) 299-6000 (General Information)

FMC of Canada Ltd.
FMC Peroxygens
PG Pulp Mill Road
Prince George, BC V2N2S6
(250) 561-4200 (General Information)

EMERGENCY TELEPHONE NUMBERS

(281) 474-8750 (Plant: Pasadena, TX, US - Call Collect)
(250) 561-4221 (Plant: Prince George, BC, Canada - Call Collect)
(303) 595-9048 (Medical - U.S. - Call Collect)

For leak, fire, spill, or accident emergencies, call:
(800) 424-9300 (CHEMTREC - U.S.A.)
(613) 996-6666 (CANUTEC - Canada)

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

- Clear, colorless, odorless liquid
- Weak oxidizing agent that is stable under normal conditions.
- Sensitive to contamination.
- Decomposes yielding oxygen that supports combustion of organic matters and can cause overpressure if confined.

POTENTIAL HEALTH EFFECTS: Minimally irritating to the eyes and mildly irritating to skin.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Wt.%	EC No.	EC Class
Hydrogen Peroxide	7722-84-1	<8	231-765-0	Xi, R36
Water	7732-18-5	>92	231-791-2	Not classified

4. FIRST AID MEASURES

EYES: Flush with water for at least 15 minutes. If irritation occurs and persists, obtain medical attention.

SKIN: Wash with plenty of soap and water. Get medical attention if irritation occurs and persists.

INGESTION: Rinse mouth with water. Dilute by giving 1 or 2 glasses of water. Do not induce vomiting. Never give anything by mouth to an unconscious person. See a medical doctor immediately.

INHALATION: Remove to fresh air. If breathing difficulty or discomfort occurs and persists, obtain medical attention.

NOTES TO MEDICAL DOCTOR: Direct contact may be minimally irritating. Treatment is by dilution and is symptomatic and supportive.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Flood with water.

FIRE / EXPLOSION HAZARDS: Product is non-combustible. On decomposition releases oxygen which may intensify fire.

FIRE FIGHTING PROCEDURES: Any tank or container surrounded by fire should be flooded with water for cooling. Wear full protective clothing and self-contained breathing apparatus.

FLAMMABLE LIMITS: Non-combustible

SENSITIVITY TO IMPACT: No data available

SENSITIVITY TO STATIC DISCHARGE: No data available

6. ACCIDENTAL RELEASE MEASURES

RELEASE NOTES: Dilute with a large volume of water and hold in a pond or diked area until hydrogen peroxide decomposes. Dispose according to methods outlined for waste disposal.

Combustible materials exposed to hydrogen peroxide should be immediately submerged in or rinsed with large amounts of water to ensure that all hydrogen peroxide is removed. Residual hydrogen peroxide that is allowed to dry (upon evaporation hydrogen peroxide can concentrate) on organic materials such as paper, fabrics, cotton, leather, wood or other combustibles can cause the material to ignite and result in a fire.

7. HANDLING AND STORAGE

HANDLING: Wear chemical splash-type monogoggles and full-face shield, impervious clothing, such as rubber, PVC, etc., and rubber or neoprene gloves and shoes. Avoid cotton, wool and leather. Avoid excessive heat and contamination. Contamination may cause decomposition and generation of oxygen gas which could result in high pressures and possible container rupture. Hydrogen peroxide should be stored only in vented containers and transferred only in a prescribed manner (see FMC Technical Bulletins). Never return unused hydrogen peroxide to original container, empty drums should be triple rinsed with water before discarding. Utensils used for handling hydrogen peroxide should only be made of glass, stainless steel, aluminum or plastic.

STORAGE: Store drums in cool areas out of direct sunlight and away from combustibles. For bulk storage refer to FMC Technical Bulletins.

COMMENTS: VENTILATION: Provide mechanical general and/or local exhaust ventilation to prevent release of vapor or mist into the work environment.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS

Chemical Name	ACGIH	OSHA	Supplier
Hydrogen Peroxide	1 ppm (TWA)	1 ppm (PEL)	

ENGINEERING CONTROLS: Ventilation should be provided to minimize the release of hydrogen peroxide vapors and mists into the work environment. Spills should be minimized or confined immediately to prevent release into the work area. Remove contaminated clothing immediately and wash before reuse.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Use chemical splash-type monogoggles if splashing is expected during handling of product.

RESPIRATORY: If concentrations in excess of 10 ppm are expected, use NIOSH/DHHS approved self-contained breathing apparatus (SCBA), or other approved atmospheric-supplied respirator (ASR) equipment (e.g., a full-face airline respirator (ALR)). DO NOT use any form of air-purifying respirator (APR) or filtering facepiece (AKA dust mask), especially those containing oxidizable sorbants such as activated carbon.

PROTECTIVE CLOTHING: Rubber or neoprene footwear (avoid leather). Impervious clothing materials such as rubber, neoprene, nitrile or polyvinyl chloride (avoid cotton, wool and leather). Completely submerge hydrogen peroxide contaminated clothing or other materials in water prior to drying. Residual hydrogen peroxide, if allowed to dry on materials such as paper, fabrics, cotton, leather, wood or other combustibles can cause the material to ignite and result in a fire.

GLOVES: Wear liquid proof rubber or neoprene gloves. Thoroughly rinse the outside of gloves with water prior to removal. Inspect regularly for leaks.

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9. PHYSICAL AND CHEMICAL PROPERTIES

ODOR:	Odorless
APPEARANCE:	Clear, colorless liquid
AUTOIGNITION TEMPERATURE:	Non-combustible
BOILING POINT:	101°C (214°F)
COEFFICIENT OF OIL / WATER:	Not available
DENSITY / WEIGHT PER VOLUME:	Not available
EVAPORATION RATE:	Above 1 (Butyl Acetate = 1)
FLASH POINT:	Non-combustible
FREEZING POINT:	-3 °C (27 °F)
ODOR THRESHOLD:	Not available
OXIDIZING PROPERTIES:	Not applicable
PERCENT VOLATILE:	100%
pH:	(as is) approx. 2.5 to 3.5
SOLUBILITY IN WATER:	(in H_2O % by wt) 100%
SPECIFIC GRAVITY:	(H_2O = 1): 1.01 @ 20°C/4°C
VAPOR DENSITY:	(Air = 1): Not available
VAPOR PRESSURE:	31 mm Hg @ 30 °C (86 °F)

COMMENTS:

pH (1% solution): 5.0 - 6.0
NOTE: Data above are for 5% Hydrogen Peroxide.

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID:	Excessive heat or contamination could cause product to become unstable.
STABILITY:	Stable (contamination could cause decomposition)
POLYMERIZATION:	Will not occur
INCOMPATIBLE MATERIALS:	Reducing agents, iron and other heavy metals, galvanized iron, copper alloys and caustic.
HAZARDOUS DECOMPOSITION PRODUCTS:	Oxygen which supports combustion.

COMMENTS: Materials To Avoid: Dirt, organics and combustibles.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS: 5% hydrogen peroxide: Minimally irritating (rabbit) [FMC Study Number: I86-0949]

SKIN EFFECTS: 10% hydrogen peroxide: Mildly irritating after 4-hour exposure (rabbit) [FMC Study Number: I89-1078]

DERMAL LD_{50}: 35% hydrogen peroxide: > 2,000 mg/kg (rabbit) [FMC Study Number: I83-746]

ORAL LD_{50}: 10% hydrogen peroxide: > 5,000 mg/kg (rat) [FMC Study Number: I89-1077]

INHALATION LC_{50}: 50% hydrogen peroxide: > 0.17 mg/l (rat) [FMC Study Number: I89-1080]

ACUTE EFFECTS FROM OVEREXPOSURE: Minimally irritating to the eyes, skin, nose, throat, and lungs.

CHRONIC EFFECTS FROM OVEREXPOSURE: The International Agency for Research on Cancer (IARC) has concluded that there is inadequate evidence for carcinogenicity of hydrogen peroxide in humans, but limited evidence in experimental animals (Group 3 - not classifiable as to its carcinogenicity to humans). The American Conference of Governmental Industrial Hygienists (ACGIH) has concluded that hydrogen peroxide is a 'Confirmed Animal Carcinogen with Unknown Relevance to Humans' (A3).

CARCINOGENICITY:

Chemical Name	IARC	NTP	OSHA	Other
Hydrogen Peroxide	Listed	Not listed	Not listed	(ACGIH) Listed (A3, Animal Carcinogen)

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION: Channel catfish 96-hour LC_{50} = 37.4 mg/L
Fathead minnow 96-hour LC_{50} = 16.4 mg/L
Daphnia magna 24-hour EC_{50} = 7.7 mg/L
Daphnia pulex 48-hour LC_{50} = 2.4 mg/L
Freshwater snail 96-hour LC_{50} = 17.7 mg/L
For more information refer to ECETOC "Joint Assessment of Commodity Chemicals No. 22, Hydrogen Peroxide." ISSN-0773-6339, January 1993

CHEMICAL FATE INFORMATION: Hydrogen peroxide in the aquatic environment is subject to various reduction or oxidation processes and decomposes into water and oxygen. Degrades in the atmosphere within the light spectrum with hydroxyl radicals in the gas phase and subsequent photolysis.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: An acceptable method of disposal is to dilute with a large amount of water and allow the hydrogen peroxide to decompose followed by discharge into a suitable treatment system in accordance with all regulatory agencies. The appropriate regulatory agencies should be contacted prior to disposal.

14. TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION (DOT)

PROPER SHIPPING NAME:	Not regulated
PRIMARY HAZARD CLASS / DIVISION:	Not applicable
UN/NA NUMBER:	None
LABEL(S):	Not applicable
PLACARD(S):	Not applicable
ADDITIONAL INFORMATION:	DOT Marking: Not applicable Hazardous Substance/RQ: Not applicable 49 STCC Number: Not applicable

INTERNATIONAL MARITIME DANGEROUS GOODS (IMDG)

ADDITIONAL INFORMATION: Not regulated

INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO) / INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA)

ADDITIONAL INFORMATION: Not regulated

OTHER INFORMATION:

Protect from physical damage. Keep drums in upright position.

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15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355, APPENDIX A):
Not listed

SECTION 311 HAZARD CATEGORIES (40 CFR 370):
Not applicable

SECTION 312 THRESHOLD PLANNING QUANTITY (40 CFR 370):
The Threshold Planning Quantity (TPQ) for this product, if treated as a mixture, is 10,000 lbs; however, this product contains the following ingredients with a TPQ of less than 10,000 lbs.: None, (conc. <52%)

SECTION 313 REPORTABLE INGREDIENTS (40 CFR 372):
Not listed

CERCLA (COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT)

CERCLA DESIGNATION & REPORTABLE QUANTITIES (RQ) (40 CFR 302.4):
Not listed

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA INVENTORY STATUS (40 CFR 710):
Listed

CANADA

WHMIS (WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM):

Product Identification Number: None
Hazard Classification / Division: None
Ingredient Disclosure List: Not listed

INTERNATIONAL LISTINGS

Hydrogen peroxide:
China: Listed
Japan (ENCS): (1)-419
Korea: KE-20204
Philippines (PICCS): Listed

HAZARD, RISK AND SAFETY PHRASE DESCRIPTIONS:

Hydrogen Peroxide, (Index #008-003-00-9):

EC Symbols:	Xi	(Irritant)
EC Risk Phrases:	R36	(Irritating to eyes.)
EC Safety Phrases:	S1/2	(Keep locked up and out of reach of children.)
	S3	(Keep in a cool place.)
	S17	(Keep away from combustible material.)
	S26	(In case of contact with eyes, rinse immediately with plenty of water and seek medical advice)
	S28	(After contact with skin, wash immediately with plenty of water and soap.)
	S36/37/39	(Wear suitable protective clothing, gloves and eye/face protection.)
	S45	(In case of accident or if you feel unwell, seek medical advice immediately - show the label where possible.)

16. OTHER INFORMATION

HMIS

Health	0
Flammability	0
Physical Hazard	0
Personal Protection (PPE)	H

Protection = H (Safety goggles, gloves, apron, the use of a supplied air or SCBA respirator is required in lieu of a vapor cartridge respirator)

HMIS = Hazardous Materials Identification System

Degree of Hazard Code:
4 = Severe
3 = Serious
2 = Moderate
1 = Slight
0 = Minimal

NFPA

Health	0
Flammability	0
Reactivity	0
Special	None

No special requirements

NFPA = National Fire Protection Association

Degree of Hazard Code:
4 = Extreme
3 = High
2 = Moderate
1 = Slight
0 = Insignificant

REVISION SUMMARY:
This MSDS replaces Revision #6, dated April 05, 2005.
Changes in information are as follows:
Section 1 (Product and Company Identification)
Section 16 (Other Information)

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General Chemical Corporation Site
Revised Exposure Prevention Program

Because current soil data is not available for this site, and numerous chlorinated compounds have been identified in certain wells, the following chemical exposure prevention program is recommended for the any subsurface activities at the General Chemical Corporation Site.

Air monitoring and Action Levels:
1) Continuous breathing zone air monitoring must be conducted with a photo-ionization detector (PID). If the PID detects VOC levels above 5 ppm, then periodic monitoring (every 30 minutes) must be conducted with colorimetric tubes specific to vinyl chloride. The vinyl chloride detector tubes must be sensitive to 0.5 ppm of vinyl chloride in air.
2) If vinyl chloride detector tube readings show that vinyl chloride exceeds 1 ppm then work activities must stop and the workers must evacuate up wind from the work area.

Note: If work activities must be stopped and evacuated, then the PM and client must be notified.

Personal Protective Equipment (PPE):
1) Full-face air purifying respirators with organic vapor cartridges must be available onsite during subsurface activities if staff need to upgrade to Level C. All staff onsite should be medically cleared for respirator use and fit tested.
2) Tyvek coveralls must also be available onsite. If the soil or material is wet, poly-coated tyvek or saranex coveralls may be required in place of tyvek.
3) Nitrile chemical protective gloves must be worn onsite by all staff.

Traffic Control Procedures

GES performs many tasks on site (e.g., groundwater sampling, gauging and bailing monitoring wells, drilling, etc.) that place employees at increased risk of injury from vehicular traffic, particularly on retail service station sites (active or abandoned), and in, or along the shoulder of, active roadways. Each site and well location must be assessed individually, and the appropriate traffic control measures must be implemented, in accordance with the following guidelines:

Retail Service Stations (and other "on-site" locations)

As there are no lanes marked out for traffic flow through these sites, and numerous entry points onto them, employees are vulnerable to traffic from all sides. In order to minimize the risk of being struck by a vehicle while performing tasks on site, it is imperative that employees strictly adhere to the following procedures:

1. Review the site-specific HASP for additional details for the site you will be working on and the tasks you will be performing.
2. Verify that all necessary traffic-control devices are in the vehicle assigned for the day.
3. Don the appropriate PPE for the work to be performed, including reflective safety vests. Employees are required to wear their reflective safety vests at all times on site, this includes during set-up, work activities, and clean-up prior to leaving the site. T-shirts, sweatshirts, jackets, coveralls, etc., that are "safety orange" will be considered an acceptable alternative to wearing a safety vest as long as: (1) the safety orange is the outermost layer of clothing and (2) they are only worn during daylight/afternoon hours when there is sufficient light and good visibility. When low visibility conditions exist such as during all dusk and dawn hours, and during snowy, rainy, or foggy weather, a safety vest with reflective strips must be worn.
4. Assess the work location for potential traffic exposure. Stay alert at all times because vehicle traffic is often continuous and uncontrolled on standard GES sites. Be sure to look at all possible directions from which traffic may approach. **Never assume any potential pathway to be "safe". Attempt to set up the work area on site with the employee facing/looking toward the highest potential for traffic.**
5. Conduct the site pre-entry meeting, complete the Daily Site Checklist included in the HASP and sign-off on both the checklist and the HASP.
6. Using the traffic control devices assigned, establish your work zone as per the specifications detailed within this plan.
7. Perform all work to be completed within the work zone before breaking down the traffic control system.
8. Clear the work area and break down the traffic control devices.

Traffic Control Devices/Use

Each GES vehicle will be equipped with an amber flashing light that plugs into the cigarette lighter, 2-32" high "Work Area" signs, 6-28" high orange traffic cones with 36" high attachable orange vinyl flags, and a 150-foot roll of 2" wide, reusable barricade webbing (caution tape.) The cones and flags must be assembled so that the combined height of each cone/flag assembly used to delineate the work zone will be at least 50", and barricade webbing must be used to connect the cones placed around the work zone. For each well location, a minimum of four (4) cones with flags must be placed at the corners of the work zone and be connected with barricade webbing. The area encompassed by the barrier must provide sufficient space for the employee to complete the assigned task entirely within the perimeter. The section of the perimeter that poses the lowest risk for traffic, as determined by on-site personnel, will be left "open" (not connected with barricade webbing) to allow for quick egress from the work zone if necessary. The "Work Area" signs must be placed at the site entrance closest to the work area to provide warning to oncoming traffic before they approach the established work zone. If there is enough space, the vehicle will be placed along the perimeter of the work zone with the amber flashing light on.

Alternate work zone configurations will be evaluated and must be approved by the Local Site Operations Manager prior to implementation on site. In all cases a minimum 50" flag height must be maintained as well as a minimum of 4 corners and 3 enclosed sides. If you are unsure of the proper set up for a specific site, call your local health and safety officer to work with you in establishing a safe work zone.

Work in (or along the shoulder of) Active Roadways

If traffic can be successfully redirected around the work zone without interfering with the flow of traffic (such as work along the curb within the shoulder of the road) one employee is permitted on-site. If only one employee is on-site, the employee must, in addition to the traffic control procedures and work zone set up detailed above, place the company vehicle in such a manner that the vehicle will protect the employee from oncoming traffic, without interfering with the flow of traffic. Each GES vehicle will be equipped with a flashing amber light that will also be utilized during work activities to further alert the general public to use caution in the area.

In addition to the above procedures, a two-person crew, at a minimum, is required when the location of the well to be sampled:

1. Requires traffic to be redirected into another lane, a traffic lane to be temporarily closed, or work to be done along the shoulder of a heavily trafficked roadway, or
2. Is deemed, by GES on-site personnel, in conjunction with management and client review of the site, to be necessary for their safety.

In this case, one employee will perform the specific task, while the other employee directs traffic away from the work area with the use of additional traffic-control devices such as orange flags and additional cones. A traffic control plan specific to the site and/or well must be developed, approved by the Site Operations Manager, local Health and Safety Officer, or Corporate Health and Safety. This plan must be included in the site-specific HASP, prior to performing the task. Local and state requirements should also be consulted for possible permitting or additional traffic control requirements. Alternative means may be elected, such as hiring a traffic detail through a subcontractor or local police.

If there are any questions about the number of personnel required, a two-person crew must be dispatched for the first site visit. Subsequent review with these employees will determine if the site remains a two-person job.

Traffic control set-up while working with a construction vehicle and large traffic control areas (i.e. drill rigs, excavators, vac trucks, DAPL, bioremediation vehicles and during trenching/excavation, etc.) Wheel chocks should be used when vehicles are parked on uneven or sloped terrain. This is especially important when vehicles are left unattended.

When a vehicle of construction is used and/or if a large area of traffic control is required, the amount of traffic control items should increase appropriately to define the work area. A "large traffic control area" is defined as an area greater than 5 feet square (5' x 5'). In addition to the above requirements:

1. The maximum distance allowed between flags is 5 feet. Additional cones should be placed between the flags to increase visibility.
2. Caution tape or reusable webbing should be strung between the cones to increase visibility and to function as a barrier to pedestrians.

If a vehicle or pedestrian violates the established traffic control setup, then additional traffic control devices and/or a traffic detail should be considered prior to continuing work.

Traffic Control Setup for Private Utility Locate Services and other Mobile Work Tasks

Effective traffic control is essential during mobile work tasks (e.g. Private Utility Locate) when the task dictates that the employee must move across large areas of the site. In order to minimize the risk of being struck by a vehicle while performing mobile tasks on site, it is imperative that employees strictly adhere to the following procedures:

1. Assess the work site prior to beginning work to define the work scope. Work "zones" must be established to break the site into manageable areas for the purpose of completely surrounding the "zone" with traffic control devices. Each "zone" designed must include allowances for 3rd party traffic if the site has the potential for vehicle travel. The purpose of this step is to ensure that employees are able to protect themselves from contact with vehicles and pedestrians.
   Note: This approach is recommended because it may be impractical to construct smaller traffic controlled zones which need to constantly move to protect the employee.
2. "Zones" must be protected using the Traffic Control Procedure for Construction Vehicles and Large Work Areas (as defined above) if the "zone" defined by the employee is larger than 5' x 5'.

"Inactive" sites require the same level of traffic control if the potential exists for vehicle or pedestrian traffic. ***In the case that no vehicular or pedestrian traffic is possible (e.g. a work location surrounded with fence), alternate traffic control methods may be used following approval from the Office Site Manager or Corporate HSSE Officer.***

Loss Prevention System

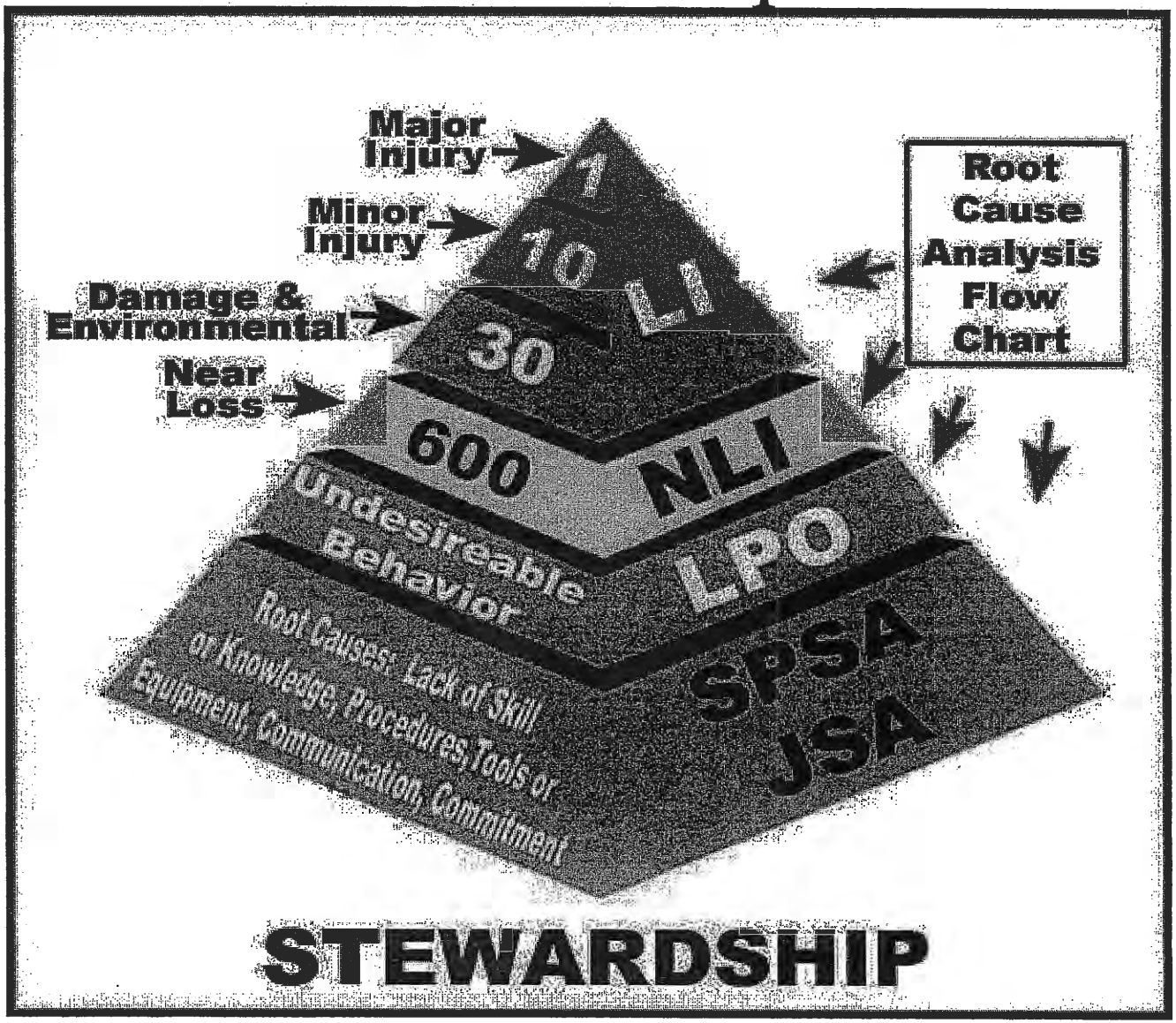
Awareness Training

5/19/04

"Nobody Gets Hurt" Vision

- Managers are committed and actively involved as leaders
- Workforce convinced all injuries are preventable
- Individuals accept personal accountability for their own safety
- Individuals are willing and able to intervene to ensure the safety of others
- Safety is a value, not a priority

Loss Prevention Tools (LPS)
Stewardship



LPS Concepts

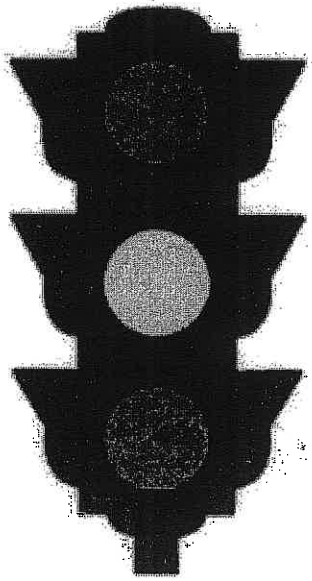
Loss Sequence: **The Same Factors Cause All Types of Incidents**

Lack of: Skill or Knowledge, Procedures, Tools or Equipment, Communication, Commitment

Loss Ratio: **There is a Relationship Between the Number of Incidents That Do Not Result In Personal Injury and Those That Do**

SAFE PERFORMANCE SELF ASSESSMENT

BEFORE BEGINNING ANY ACTIVITY/TASK/JOB:



ASSESS the risk!

What could go wrong?

What is the worst thing that could happen if something does go wrong?

ANALYZE how to reduce the risk!

Do I have all the necessary *Training* and *Knowledge* to do this job safely?

Do I have all the proper *Tools* and *Personal* protective equipment?

ACT to ensure safe operations!

Take necessary *Action* to ensure the job is done safely!

Follow written procedures! Ask for assistance, if needed!

DO NOT PROCEED UNLESS EVERYTHING IS SAFE!

For Everyone • Every Day • All the Time

Risk Assessment Tool

Safe Performance Self Assessment (SPSA)

What Is An SPSA:

*Brief, Last Minute Risk Assessment

*Done By Individuals

*Gets You Out of "*Auto Pilot*"

*Identifies hazards & Actions to Mitigate Them

*Use On and Off the Job

When To Conduct An SPSA:

*Immediately Before Starting Any Task

*After a Loss or Near Loss Occurs

*Anytime Conditions or Situations Change (e.g. weather, traffic, etc.)

*Continuously Throughout The Day

Other LPS Tools

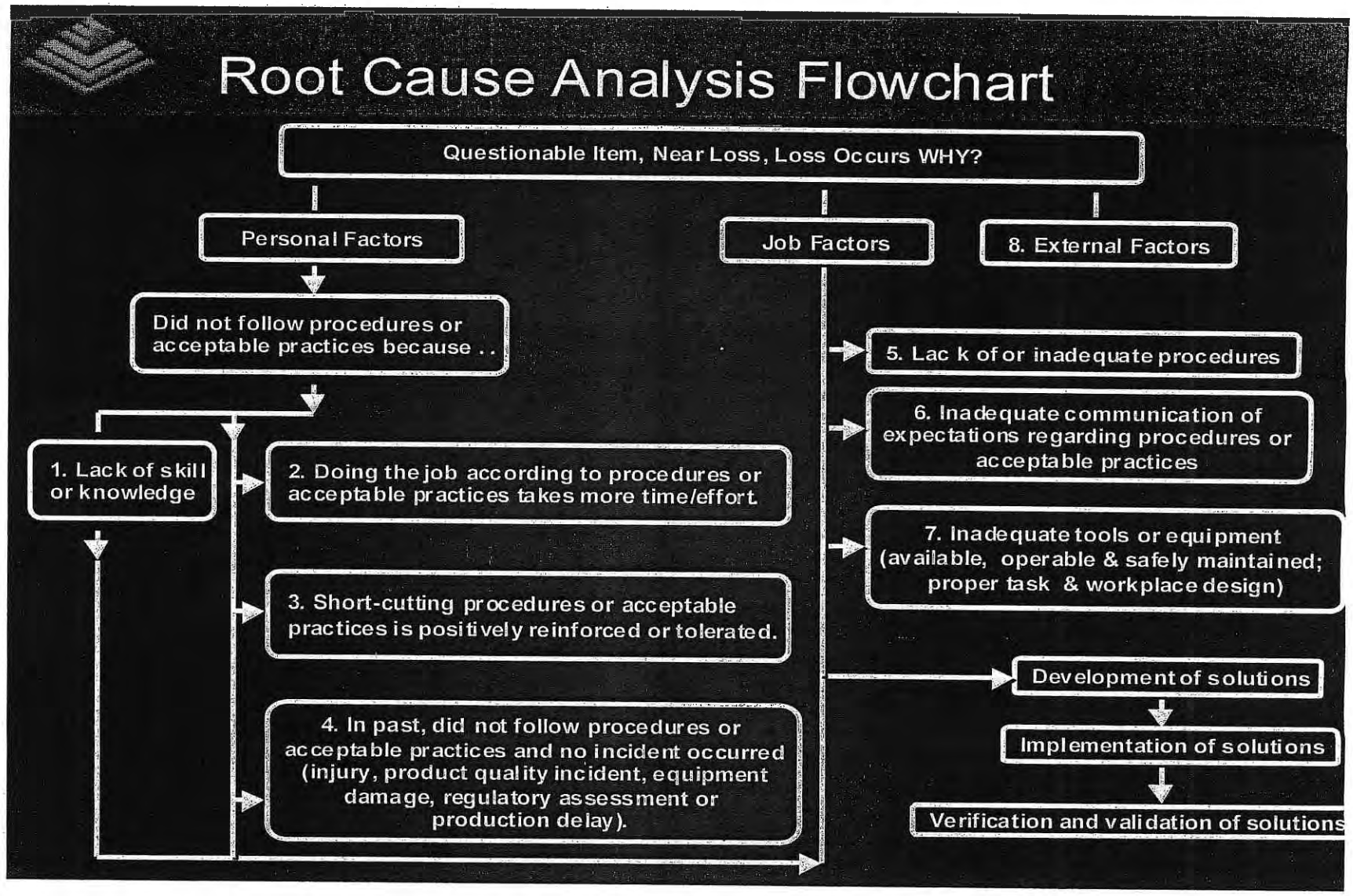
Loss Prevention Observation (LPO)

Loss & Near Loss Investigations (LI/NLI)

Root Cause Analysis Flow Chart

Stewardship

Loss Prevention Tools (LPS)
Root Cause Analysis



Appendix I

Site-Specific Chemical Storage and Traffic Plan

SITE SPECIFIC CHEMICAL STORAGE AND TRAFFIC PLAN
IN-SITU CHEMICAL OXIDATION:
For Treatment of AOC #1 on General Chemical Corporation Property

General Chemical Corporation
133-135 LeLand Street
Framingham, Massachusetts

Operation Details:

Proposed Work Dates:	December 12 – 23, 2011 (tentative – appropriate parties will be kept apprised on any changes to schedule)
Proposed Work Hours:	6:00 to 18:00 (with the potential to work overnights, if required)
Estimated Number of Employees:	1 GES* supervisor 1 GES operator for GES' truck mounted system with HypeAir 1 GES technician 2 SCE** employees for delivery and pick up of chemicals * GES = Groundwater & Environmental Services, Inc. ** SCE = SCE Environmental Group Inc.
List of Project Equipment:	HypeAir Truck Soil Vapor Extraction (SVE) System with hoses and manifolds 200-lb Vapor Phase Carbon Vessels for off-gas treatment GES pickup trucks (2) SCE delivery truck w/ lift gate Fencing for storage area and secondary containment as necessary Secondary containment dikes (non metal) Photo-ionization detector LEL/O2 meter Oxidant test kits Personal Protective Equipment (see site-specific HASP) Traffic cones and flags (12 minimum) Caution Tape Oxidizer signs Magnetic Storm Sump Covers Drum Dolly for moving the drums, as necessary

Chemical Specifics and Storage:

Chemical Type:	6% Hydrogen Peroxide Sodium Persulfate
Estimated Total Chemical Quantity:	5,700 lbs of Sodium Persulfate 4800 gallons of 6% hydrogen peroxide
Storage Containers	275 gallon plastic totes filled to 250 gallons hydrogen peroxide 50 lb bags of sodium persulfate

Containment Type: (see attached - Figure 1)	All chemical mixing operations will be performed within areas that have secondary containment on the General Chemical Corporation facility property. Any full totes of hydrogen peroxide or dry powder bags of sodium persulfate will be secured on the 119 Leland Street property (also owned by General Chemical Corporation) within a secured trailer and/or fenced compound. Additionally, hydrogen peroxide totes will be stored within secondary containment (non-metal containing), 320-gallon Enpac yellow jacket berms or similar, when stored overnight.
Security Provisions for Storage at 119 Leland Street: (see attached - Figure 1)	Fencing provided by SCE will be used for overnight storage of full peroxide totes. Fencing is locked at night with locks and chains. Appropriate signage is left on fencing overnight. Empty totes or full water totes are to be placed approximately 5-10 feet in front of fencing to provide a barrier to the full chemical containers. Entire storage area will be coned off with a minimum 15 feet offset from Leland Street.

Delivery & Transfer:

Delivery Company:	SCE Environmental, Inc.
Time and Date of Delivery:	Daily, December 12 – 23, 2011 at 6 am
Delivery Location	General Chemical Corporation
Special Delivery Considerations:	Lift gate is required to safely move totes/drums. Delivery trucks must approach the site from the West along Leland Street while the adjacent school is in session. All personnel are to be OSHA and LPS trained and if a short service employee is present, GES must be notified beforehand and said employee can not work without the direct oversight of another SCE employee.
Personnel Responsible for Transfer Oversight:	1 GES supervisor 1 GES HypeAir operator
Method of Transfer:	Fork truck or pallet jack.

Mixing & Usage:

Chemical Mixing Required:	Hydrogen peroxide is delivered pre-mixed to a 6% solution. Dry sodium persulfate powder will be diluted to a mix ratio of approximately 2.5 lbs of persulfate to 1 gallon hydrogen peroxide solution.
Chemical Mixing Location:	Adjacent to HypeAir vehicle and within a secondary containment dike
Chemical Mixing Procedure:	Hydrogen Peroxide is delivered premixed. Dry sodium persulfate powder will be mixed with the hydrogen peroxide solution with a chemically compatible mixer.

Chemical Injection Location (See attached - Figure 2):	Hydrogen peroxide will be injected into the on-site injection wells within AOC#1 and identified as MO-#. Individual injection lines will originate at the HypeAir vehicle which will be centrally located within the three active injection wells.
Chemical Injection Procedure:	The design calls for the injection of approximately 340 gallons of the combined oxidant into each injection well at a flow rate of 2-3 gallons per minute at up to 3 locations simultaneously (pending soil type, DTW, etc..). During the injection, GES staff will monitor for surface breakouts, changes in the applied pressures, and other abnormalities. Prior to injection, the applicable SVE system is to be in full operation and off-gas vapors treated with granular activated carbon.

Spill Prevention:

<table>
<tr><td>Reportable Spill Quantities For Massachusetts:</td><td>
<table>
<tr><th colspan="6">Reportable Quantity (pounds) as per Part 597: List Of Hazardous Substances or Massachusetts Oil and Hazardous Material List</th></tr>
<tr><th>Cas #</th><th>Substance</th><th>Air</th><th>Land/ Water</th><th>Normal Conc.</th><th>Reportable Quantity</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>7722-84-1</td><td>Hydrogen Peroxide</td><td>1</td><td>1</td><td>6%</td><td>1 pound</td></tr>
<tr><td>7775-27-1</td><td>Sodium Persulfate</td><td>Not Listed</td><td>Not Listed</td><td>dry</td><td>Not Listed</td></tr>
</table>

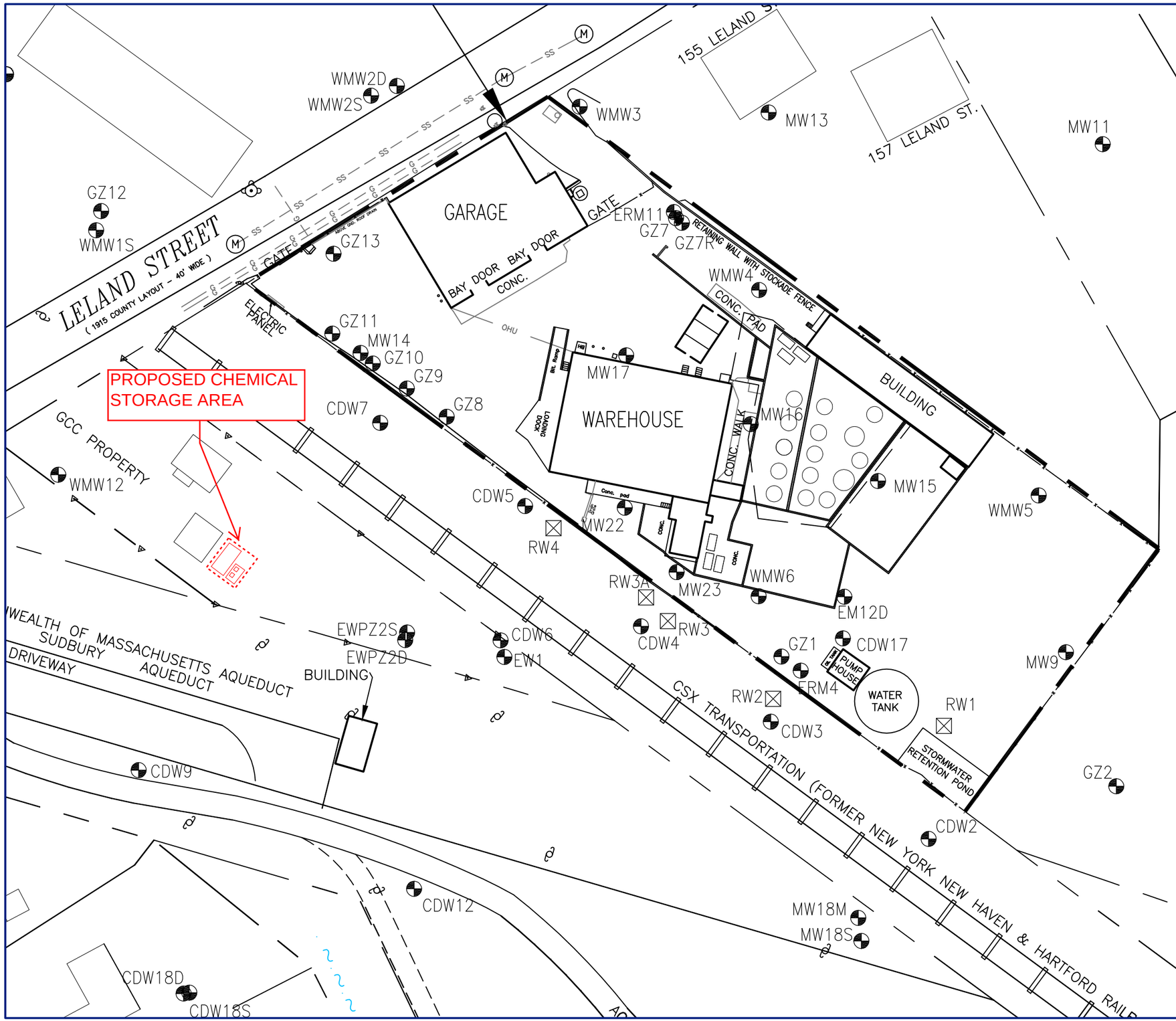
Note - any spill of a chemical used for remediation purposes that is contained is not classified as a release. Should the spill travel off-site, come in contact with a surface water body or enter storm drains off the facility, the MassDEP Spill Hotline (888-304-1133) should be notified in accordance with the 2-hour notification provisions of the Massachusetts Contingency Plan (MCP) and a spill case may be assigned.
</td></tr>
<tr><td>Spill PreventionProcedure and Response:</td><td>Spills will be diluted with water until deemed unreactive. All spill material will be collected and managed by General Chemical.</td></tr>
<tr><td>Equipment (including volume of safety water):</td><td>SCE provides own spill response kit. GES is prepared with chemical goggles, chemical resistant boot covers, chemical resistant clothing (Tychem) and apron, brooms and sponges. 500 gallons of emergency rinse water will be available. SCE will delivery emergency rinse water and will place it on the truck in a manner that it will be unloaded first. Additional water may be obtained from the General Chemical Corporation buildings.</td></tr>
<tr><td>Spill Prevention Location:</td><td>GES spill equipment is kept adjacent to the Hype-Air vehicle on site. Emergency rinse water will be strategically placed around the chemical storage area.</td></tr>
</table>

Receptors:

Spill Receptors:	Stormwater Sumps
Spill Receptors Location (See attached – Figure 3):	Storm sumps are located on the General Chemical property. Sloping of asphalt surfaces leads to the sumps with no direct run-off towards the unpaved CSX right-of-way or other areas.
Spill Receptors Protection:	A cover will be used to protect the sumps, if in proximity to the injection locations. If daylighting of the oxidant occurs, the area will be bermed and the mixture diluted until unreactive.

Emergency Contact Information:

Fire Department:	911
Local HAZMAT:	(Fire Department takes lead) 911
National Response Center	800-424-8802 – Staffed 24 Hrs
Emergency Clean-up Specialist: *Phone Number*	SCE Environmental Group Inc. 570-383-4151
Emergency Contact:	Stefan Sokol, LSP *978-413-9946* *Senior Project Manager - GES*
Secondary Contact #1:	Lisa LeClair 860-250-5639 *Local Health & Safety Officer - GES*
Secondary Contact #2:	Michael Decoteau 978-375-4061 *Senior Engineer - GES* .
Client Contact:	Roy Swartz 508-596-0480 *Compliance Manager – General Chemical*



LEGEND

- PROPERTY BOUNDARY
- FENCE
- UTILITY MANHOLE
- FIRE HYDRANT
- UTILITY POLE
- MONITORING WELL
- PIEZOMETER
- RECOVERY WELL
- OVERHEAD UTILITIES
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND GAS LINE

NOTE: 24'X24' STAGING AREA FOR OXIDIZING CHEMICALS SECURED BY TEMPORARY FENCE PANELS. (1) 8'X20' CONNEX BOX FOR DRY PERSULFATE STORAGE. IF REQUIRED FOR OVERNIGHT STORAGE, 275-GALLON TOTES OF 6% HYDROGEN PEROXIDE WILL BE STORED INSIDE 8'X8'X8" (320-GALLON) ENPAC YELLOW JACKET BERMS OR SIMILAR.

DRAFTED BY: W.G.S. (N.J.)	CHEMICAL STORAGE PLAN
CHECKED BY:	GENERAL CHEMICAL CORPORATION 133-138 LELAND STREET FRAMINGHAM, MASSACHUSETTS
REVIEWED BY:	Groundwater & Environmental Services, Inc. 364 LITTLETON ROAD, SUITE 4, WESTFORD, MA 01886
NORTH	SCALE IN FEET: 0 APPROXIMATE 50 · DATE: 9-21-11 · FIGURE: 1

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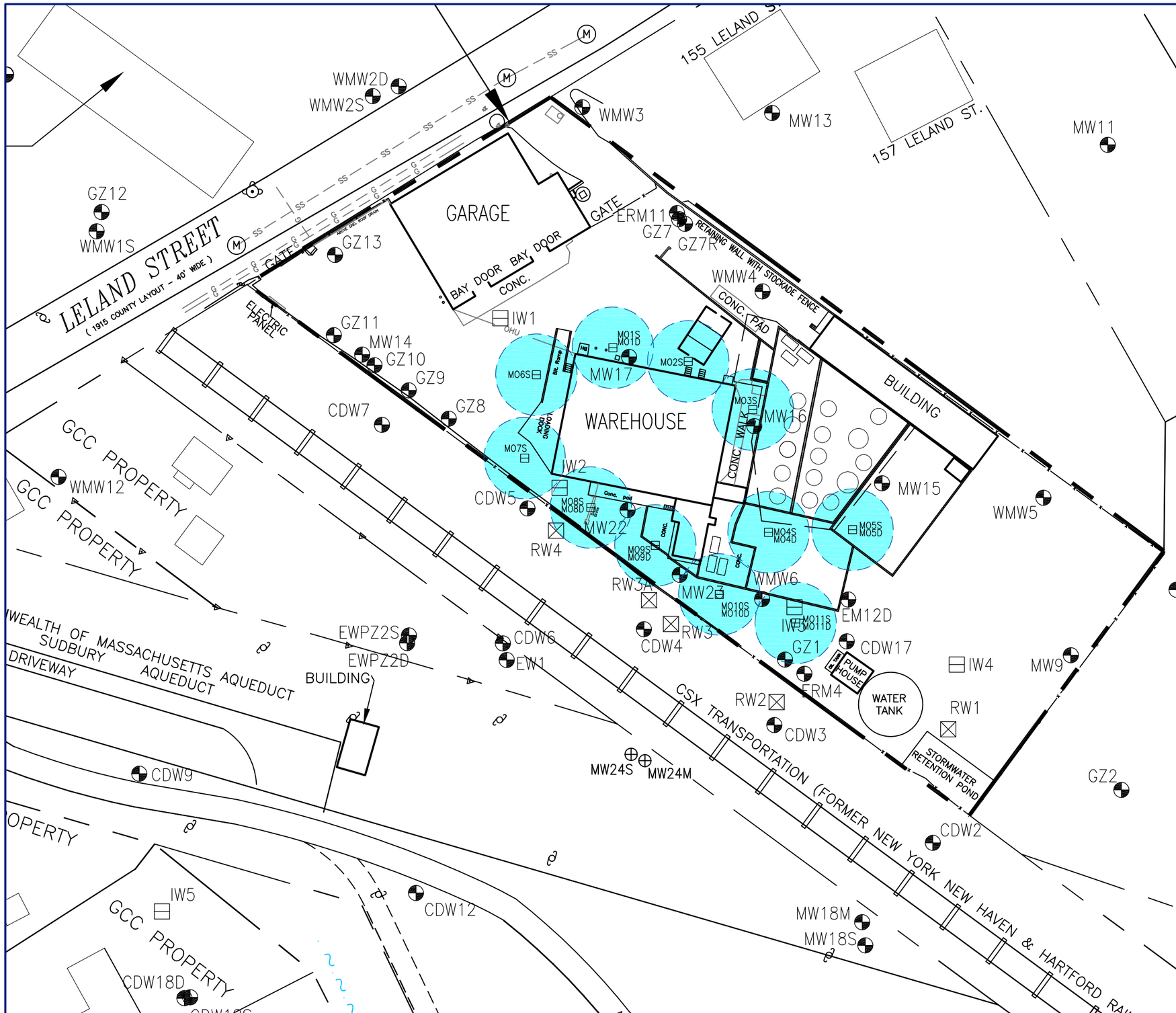

LEGEND

- PROPERTY BOUNDARY
- FENCE
- UTILITY MANHOLE
- FIRE HYDRANT
- UTILITY POLE
- MONITORING WELL
- PIEZOMETER
- RECOVERY WELL
- INJECTION WELL
- PROPOSED MONITORING WELL
- OHU — OVERHEAD UTILITIES
- SS — UNDERGROUND SANITARY SEWER LINE
- G — UNDERGROUND GAS LINE
- PROPOSED INJECTION WELL WITH 20' RADIUS OF INFLUENCE
- M011S — SHALLOW INJECTION WELL
- M011D — DEEP INJECTION WELL

DRAFTED BY: W.G.S. (N.J.)	INJECTION WELL LOCATION MAP PRIMARY INJECTION AOC
CHECKED BY: MC	GENERAL CHEMICAL CORPORATION 133–138 LELAND STREET FRAMINGHAM, MASSACHUSETTS
REVIEWED BY: SS	Groundwater & Environmental Services, Inc. 364 LITTLETON ROAD, SUITE 4, WESTFORD, MA 01886
NORTH	SCALE IN FEET: 0 APPROXIMATE 50 · DATE: 9–27–11 · FIGURE: 2

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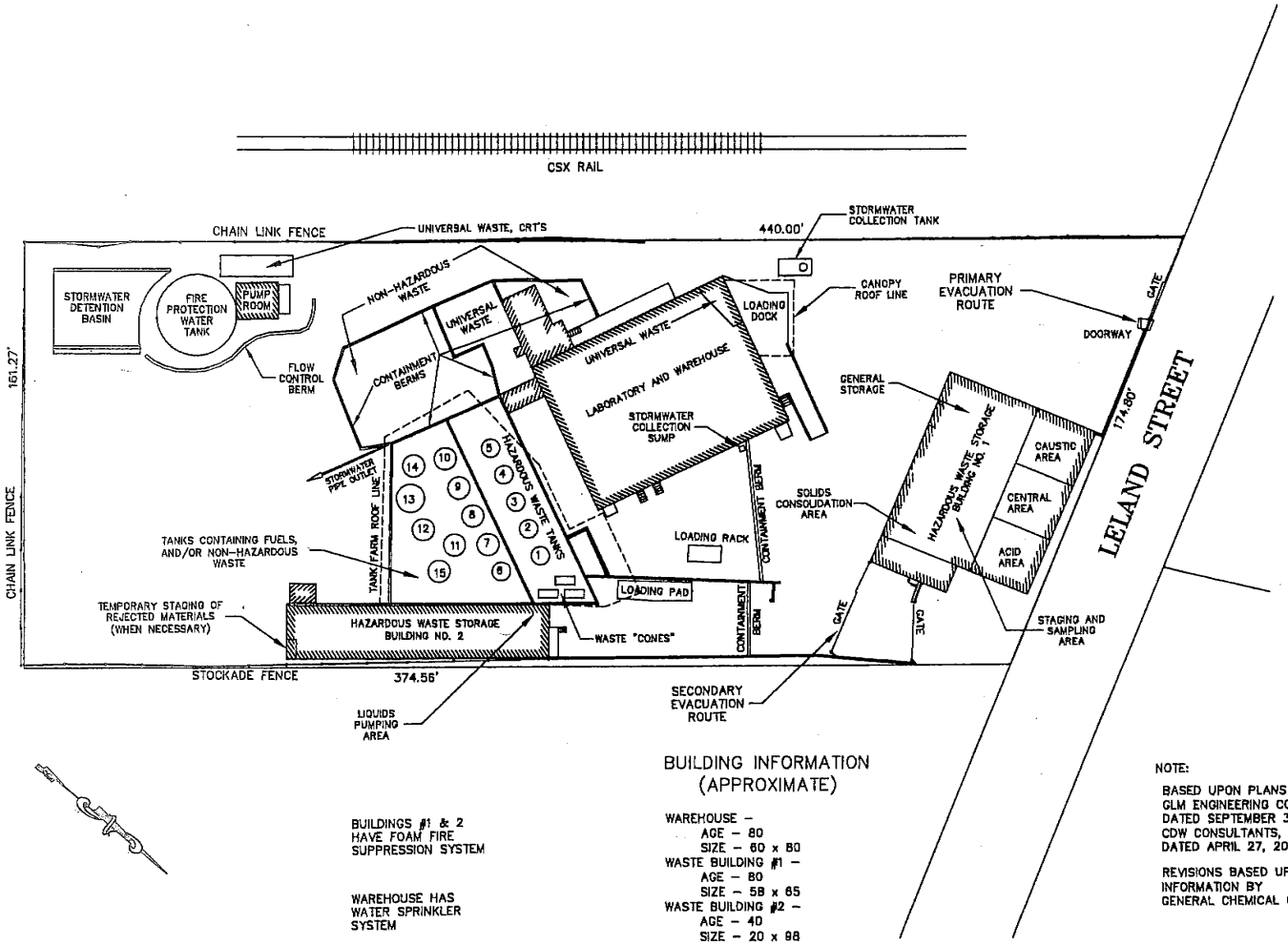


BUILDINGS #1 & 2 HAVE FOAM FIRE SUPPRESSION SYSTEM

WAREHOUSE HAS WATER SPRINKLER SYSTEM

BUILDING INFORMATION (APPROXIMATE)

WAREHOUSE –
AGE – 80
SIZE – 60 x 80
WASTE BUILDING #1 –
AGE – 80
SIZE – 58 x 65
WASTE BUILDING #2 –
AGE – 40
SIZE – 20 x 98

NOTE:

BASED UPON PLANS BY GLM ENGINEERING CONSULTANTS DATED SEPTEMBER 3, 1998 AND CDW CONSULTANTS, INC. DATED APRIL 27, 2000.

REVISIONS BASED UPON INFORMATION BY GENERAL CHEMICAL CORPORATION

NO	DATE	REVISIONS
1	11/22/01	UPDATE
2	11/19/03	UPDATE
3	01/06/09	UPDATE
4	03/09/09	LICENSE MOD
5	01/10/11	LIC. RENEWAL

DATE : 11/22/01
DRAWN : MPS

GENERAL CHEMICAL CORPORATION

PLANT LAYOUT

133 LELAND STREET
FRAMINGHAM, MASSACHUSETTS

F S ENGINEERS

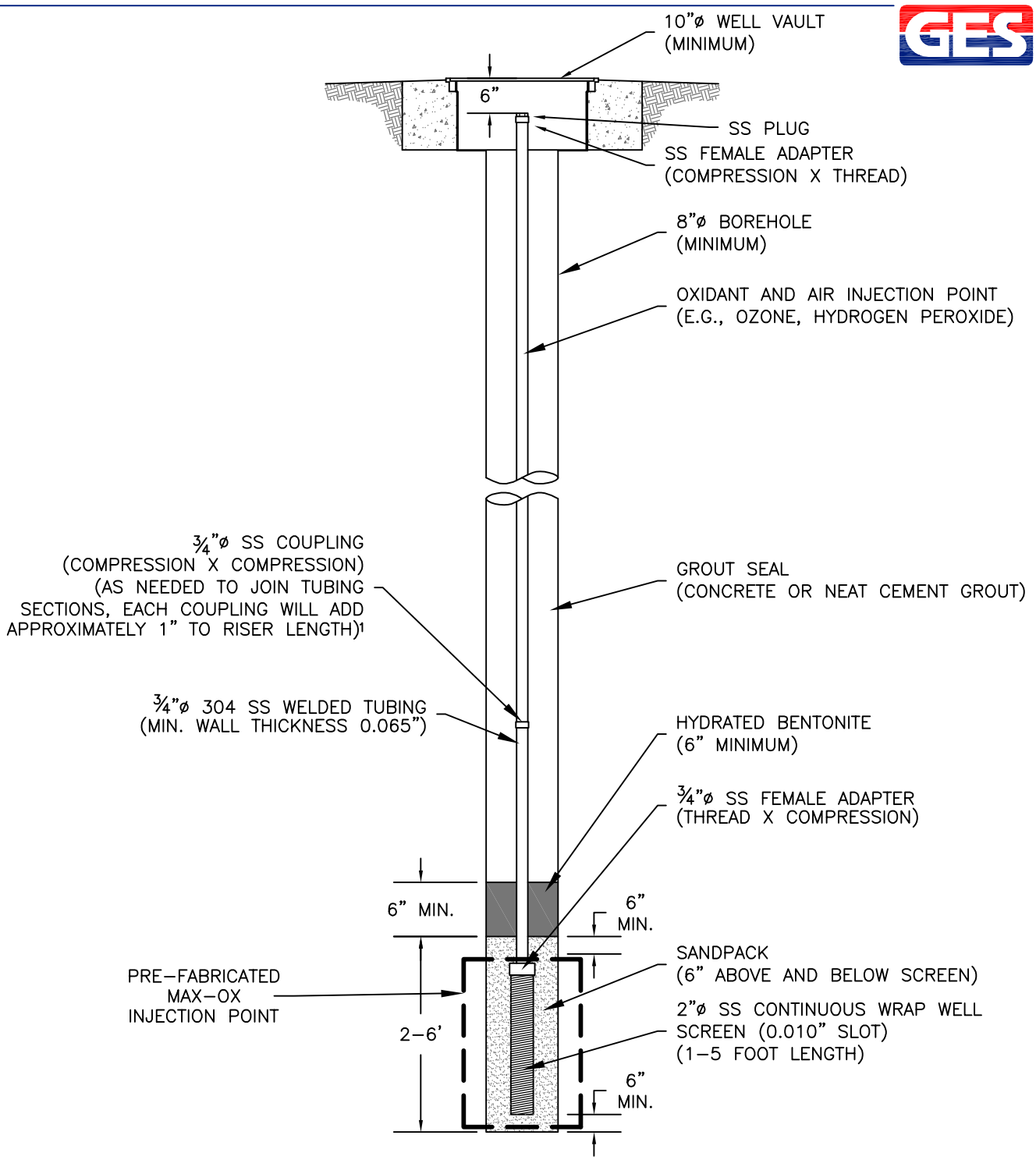
SITE PLAN

3

0 10' 20' 40'

Appendix J

Max-Ox Injection Points



NOTES:
1) THE MAX-OX POINT RISER CAN BE REDUCED DOWN TO 3/4", 1", OR REMAIN 2"ø TO THE SURFACE. SS PIPE MAY BE USED IN PLACE OF TUBING FOR 1" OR 2"ø RISERS. PIPE WILL REQUIRE CUTTING, THREADING AND THREADED FITTINGS (NOT COMPRESSION).
2) INFORMATION CONTAINED WITHIN THIS DRAWING IS PROPRIETARY AND CONFIDENTIAL. ANY COPYING, DISTRIBUTION, OR DISSEMINATION WITHOUT THE CONSENT OF GROUNDWATER & ENVIRONMENTAL SERVICES, INC. IS PROHIBITED.

DRAFTED BY: TP (EXTON)	MAX-OX INJECTION WELL		
CHECKED BY: RKE	HYPEAIR SINGLE POINT		
REVIEWED BY: DNG	Groundwater & Environmental Services, Inc. 440 CREAMERY WAY, SUITE 500, EXTON, PA 19341		
	NOT TO SCALE	DATE 12-10-10	FIGURE

Appendix K

ISCO Design, Flow, and Volume Calculations

Date:	September 15, 2011
Client:	General Chemical Corporation
Address:	133-138 LeLand Street Framingham, Massachusetts
Calc. by:	MED

► Instructions:

This is the primary data input sheet for the site information and estimated volume of impacted soil and groundwater. Chemical Oxygen Demand (COD) is also input on this page. These calculations are for saturated zone remediation. This estimate tool is intended to provide estimates of oxidant demand and not to determine the number and location of injection points.

► Total Volume of Estimated Saturated Impact:

Width:	0	ft.	
Length:	0	ft.	
Thickness of Saturated Impacted Zone:	0	ft.	
Total Estimated Volume of Impacted Soil:	395,805	ft^3	*** See hand calculated volumes

► Total Volume of Impacted Groundwater:

Volume of Saturated Zone Impact:	395,805		ft^3	
General Soil Type:	Silt			Primarily Sand & Silt
Typical Porosity Range:	35	to 50	%	
Porosity of Saturated Zone:	40		%	
Estimated Volume of Groundwater:	158,322		ft^3	
=	4,483,172		L	
=	1,184,328		gallons	

► Total Mass of Impacted Soil:

Typical Dry Bulk Density Range of Soil:	80	to 117	lb/ft^3	
Dry Bulk Density of Soil:	121		lb/ft^3	
Total Mass of Soil:	47,892,405		lbs	
=	21,723,995		kg	

► Dissolved-Phase Chemical Oxidation Demand (COD):

Impacted GW Chemical Oxygen Demand:	73.10	mg/L as oxygen	Data from WMW-6
Total Mass of Chemical Oxygen Demand:	721.9	lb as Oxygen	
Moles of Chemical Oxygen Demand:	22.6	lb-mol as Oxygen	

► Soil Organic Carbon Inputs:

Total Organic Carbon (TOC):	7	mg/kg	Data from WMW-6
Fraction Organic Carbon (foc):	0.002	g/g	

COMMONWEALTH OF MASSACHUSETTS
MICHAEL E. DECOTEAU
ENVIRONMENTAL
No. 49290
REGISTERED
PROFESSIONAL ENGINEER
9/12/11

Date:	September 15, 2011
Client:	General Chemical Corporation
Address:	133-138 LeLand Street Framingham, Massachusetts
Calc. By:	MED

► Instructions

This input sheet is only used when soil data is not available. It is always preferable to calculate oxidant demand from saturated soil data rather than dissolved-phase (groundwater) data. The calculations on this page use the input groundwater concentration, COC properties, and fraction of organic carbon to estimate the mass of each COC in soil. The COCs are grouped below (e.g., VOCs, SVOCs, Chlorinated) and drop down menus are available for common COCs. If COCs not included in the list are needed, the COC name can be typed in column B and the organic carbon partition coefficient (Koc)for that COC must be entered in column F. These calculations may not be applicable if NAPL is present.

► Groundwater Concentration to Soil Equivalent Concentration Estimate

Mass of Impacted Soil: 47,892,405 lb

	Contaminants of Concern		Groundwater Concentration (mg/L)	X	Organic Carbon Partition Coefficient (Koc)	X	Fraction of Organic Carbon (foc)	=	Concentration Adsorbed (mg/kg)
Chlorinated	PCE		20.3090		300.0		0.0020		12.1854
Chlorinated	TCE		5.6360		93.0				1.0483
Chlorinated	1,1,1-Trichloroethane		29.5580		110.0				6.5028
Chlorinated	cis-1,2-Dichloroethene		24.7030		17.0				0.8399

Note: GW Concentrations listed are the average values for monitoring wells WMW-6, MW-17, MW-22, and MW-23 during the timeframe of July and August 2011.

Date:	September 15, 2011
Client:	General Chemical Corporation
Address:	133-138 LeLand Street Framingham, Massachusetts
Calc. By:	MED

► Instructions

Saturated Soil data is the recommended method of oxidant demand calculation. The calculations on this page use the input adsorbed-phase COC concentration and COC properties to calculate the oxidant demand in terms of oxygen required (column L). For petroleum sites, it is recommended that TPH data is used instead of individual COCs (VOCs and SVOCs). If TPH data is entered, the "Mass of COC" and "Mass Oxygen Req." will only use the TPH data and chlorinated data (if applicable). **If the Groundwater COC Inputs tab was used, do not enter information on this tab, move to the HypeAir Oxidant Demand tab.**

► Soil Oxygen Demand Calculation

Mass of Soil: 47,892,405 lb

	Contaminants of Concern	Soil Conc. (mg/kg)	# Hydrogen	# Carbon	# Chlorine /Bromine/ Nitrogen	# Oxygen	MW	Oxygen Mole Ratio	Oxygen Mass Ratio	Mass of COC (lb)	Mass Oxygen Req. (lb)
Chlorinated	PCE	12.1854	0	2	4	0	166	2	0.39	583.59	225.00
Chlorinated	TCE	1.048296	1	2	3	0	131.5	2.25	0.55	50.21	27.49
Chlorinated	1,1,1-Trichloroethane	6.50276	0	0	0	0	0	0	0.00	311.43	0.00
Chlorinated	cis-1,2-Dichloroethene	0.839902	0	0	0	0	0	0	0.00	40.22	0.00
									TOTAL:	985.45	252.49

Date:	September 15, 2011
Client:	General Chemical Corporation
Address:	133-138 LeLand Street Framingham, Massachusetts
Calc. By:	MED

► Instructions

This sheet is for determing what volumes and weights of chemicals will be required for remediation events, as well as how long those events will take based on oxidant demand. The input data for this sheet are related to event planning, and are based primarily on considerations about site conditions and past experience.

► Oxidant Demand Calculation

Mass of Oxygen Required to Oxidize Total GW COD:	721.9	lb
Mass of Oxygen Required to Oxidize Soil COCs:	252.5	lb
Total Oxygen Required (100% efficiency):	974.3	lb
Moles Oxygen Required (100% efficiency):	30.4	lb-mole

1 Mass of COCs 985.45 lbs

2 Stoichiometric Evaluation

2S2O8-2 + C2Cl4 + 4H2O ----> 4H20 + 2CO2 + 4HSO4- + 4HCl

molar ratio persulfate : PCE = 2:01
mass ratio persulfate: PCE = 2.9 lb : 1 lb

3 Mass of persulfate

a) ideal

985.45 lb COC x (2.9 lb persulfate / lb PCE) = 2,858 lb persulfate

b) 50% field efficiency

2858 lb persulfate x 2 = 5716 lb persulfate

4 Hydrogen peroxide requirements

= Persulfate mass (lb) x (1 mole persulfate / 238 lb) x (5 moles peroxide/ 1 mole persulfate) x (34 lb peroxide / mole peroxide)

= 4082 lb peroxide

~ 4800 gallons of 6% hydrogen peroxide

Groundwater & Environmental Services, Inc.
364 Littleton Road • Suite 4 • Westford, MA 01886
(978) 392-0090 • Fax (978) 392-8583

JOB General Chemical Corp
SHEET NO. 1 OF 2
CALCULATED BY MBD DATE 9/15/4
CHECKED BY DATE
SCALE NTS

VOLUME ESTIMATES

– Primary Injection AOC – Area I

$$L_{AVG} = \frac{130 + 80}{2} = 105 \text{ ft}$$

$$W_{AVG} = \frac{110 + 110}{2} = 110 \text{ ft}$$

$$Area_{AI} = L_{AVG} \times W_{AVG} = 105 \times 110 = 11{,}550 \text{ ft}^2$$

Note: Southern end of Area I is impacted to approximately 35 ft bgs whereas northern end is more shallow and in the 15-20 ft range. Therefore volume calcs will assume 50% of the overall area per depth. 0'w – 5ft

$$Volume_{AI} = V_{SHALLOW} + V_{DEEP}$$

$$V_{SHALLOW} = \left(\frac{11{,}550 \text{ ft}^2}{2}\right) \times (20 \text{ ft} - 5 \text{ ft}) = 86{,}625 \text{ ft}^3$$

$$V_{DEEP} = \left(\frac{11{,}550 \text{ ft}^2}{2}\right) \times (35 \text{ ft} - 5 \text{ ft}) = 173{,}250 \text{ ft}^3$$

$$+$$

$$Vol_{AI} = 259{,}875 \text{ ft}^3$$

Reorder From NEBS CUSTOM printing service 1-800-888-6327 NEBS, Inc. Peterborough, NH 03458 www.nebs.com Ref. No. G 211000829

Groundwater & Environmental Services, Inc.
364 Littleton Road • Suite 4 • Westford, MA 01886
(978) 392-0090 • Fax (978) 392-8583

JOB: General Chemical Corp
SHEET NO. 2 OF 2
CALCULATED BY: MED DATE: 9/15/11
CHECKED BY: DATE:
SCALE: NTS

VOLUME ESTIMATES CONT'D

- PRIMARY INJECTION AOC - AREA II

$$L_{AVG} = \frac{60 + 85}{2} = 72.5 \text{ ft}$$

$$W_{AVG} = \frac{65 + 60}{2} = 62.5 \text{ ft}$$

$$AREA_{A1} = 72.5 \text{ ft} \times 62.5 \text{ ft} \approx 4532 \text{ ft}^2$$

DEPTH: IMPACTS TO 35 FT BGS
DTW ~5 ft bgs

$$VOL_{A2} = 4532 \text{ ft}^2 \times (35 - 5 \text{ ft})$$

$$= 135,960 \text{ ft}^3$$

OVERALL TREATMENT VOLUME OF PRIMARY INJECTION AOC = 259,875 ft³ + 135,960 ft³
= 395,805 ft³

TYPICAL SOIL TYPE => SAND & SILT

ESTIMATED POROSITY => 40% (DAS, PRINCIPLES OF GEOTECHNICAL ENG 2ND EDITION)

ESTIMATED BULK DENSITY => 121 lb/ft (DAS)

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Proposed Injection Well Screen Intervals
133-138 Leland Street
Framingham, Massachusetts

AOC #1		
Inj Well ID	**Screen Int (feet bgs)**	**target**
MO-1S	9-11	sand & silt later under gravel
MO-1D	16-18	sandy silt
MO-2S	11-16	greyish brown silt & sand
MO-3S	11-16	greyish brown silt & sand
MO-4S	10-15	light brown silt & sand
MO-4D	25-30	silt & fine sand
MO-5S	10-15	light brown silt & sand
MO-5D	25-30	silt & fine sand
MO-6S	9-14	sand, silt & gravel, fine sand
MO-7S	9-14	sand, silt & gravel, fine sand
MO-8S	9-14	light brown silt & sand
MO-8D	20-25	sand
MO-9S	9-14	light brown silt & sand
MO-9D	20-25	silt & fine sand
MO-10S	9-14	light brown silt & sand
MO-10D	20-25	silt & fine sand
MO-11S	9-14	light brown silt & sand
MO-11D	20-25	silt & fine sand

AOC #2		
Inj Well ID	**Screen Int (feet bgs)**	**target**
MO-12S	10-15	brown sand
MO-12D	20-25	dark grey silt
MO-13S	10-15	brown sand
MO-13D	20-25	dark grey silt
MO-14S	10-15	greyish brown silt & sand
MO-14D	20-25	olive grey silt
MO-15S	10-15	greyish brown silt & sand
MO-15D	20-25	olive grey silt
MO-16S	10-15	greyish brown silt & sand
MO-16D	20-25	olive grey silt
MO-17S (potential)	10-15	greyish brown silt & sand
MO-17D (potential)	20-25	olive grey silt

AOC #3		
Inj Well ID	**Screen Int (feet bgs)**	**target**
MO-18S	TBD	TBD
MO-18D	TBD	TBD
MO-19S	10-15	brown sand
MO-19D	TBD	TBD
MO-20S	10-15	brown sand
MO-20D	TBD	TBD
MO-21S	TBD	TBD
MO-21D	TBD	TBD

Appendix L

SVE blower design calculations

SOIL VAPOR EXTRACTION BLOWER DESIGN CALCULATIONS

General Chemical Corporation
133-138 LeLand Street
Framingham, Massachusetts

DESIGN CRITERIA / ASSUMPTIONS:

1. The design flowrate per well will be (on average) 20 cfm for each SVE well based on similar sites in MA. A total flow of 100 cfm will be used to properly size the blower.

2. A maximum of 5 wells will be operational at any one time. Since all the wells will be constructed similarly, the calculations will be based on providing the required air flow to the point furthest from the system (SVE-1) representing the maximum losses to be overcome. Given the low vacuum requirements of the existing warehouse sub slab system, calculcations based upon SVE-1 were deemed more representative of the upper vacuum requirements.

3. The well head design vacuum of 20 inches H20, represents a typical seen at sites across Massachusetts that employ SVE technology with similar soil types and water table elevations.

4. The maximum friction loss (inches H_2O / ft piping) is determined using a nomagraph provided by Gast Manufacturing Corp., Benton Harbor, MI, assuming 2" diameter piping and a flow of 20 cfm.

5. Based on information supplied by Gast Manufacturing Corp., Benton Harbor, MI. Assume manifold and equipment connections are constructed of tees, valves, and 90 elbows.

6 The total system flowrate is based on operating all 5 SVE wells in combination to the maximum capacity of the selected blower. However, it is noted that the warehouse sub slab system will be vented using the SVE blower when injections occur adjacent to the warehouse building.

DESIGN CALCULATIONS:

System Flow Requirements[1]: 100
Max. # of SVE Points: 5

Vacuum Requirements At SVE Wells:

SVE Well[2]	SVE-1
Design Vacuum[3] (inches H20))	20

Friction Losses In Individual SVE Lines:

Length of 2-inch SVE Line (ft)[2]	170
2-inch Friction Loss[4] (inches H20 / 10 ft piping)	0.13
Total Friction Loss Due To Pipe (inches H2O)	2.21

Friction Losses Due To Manifold:

Number of 90 Degree Elbows	1
Equivalent Length of Pipe (Elbows)[5] (ft)	5
Number of Tees (per leg)	3.5
Equivalent Length of Pipe (Tees)[5] (ft)	10.5
Number of Valves (per leg)	1
Equivalent Length of Pipe (Valves)[5] (ft)	1.5
Total Length of Pipe (Pipe + Elbows) (ft)	43.25
4-inch Friction Loss[5] (inches H_2O / 10 ft piping)	1.60
Total Friction Loss Through Manifold (inches H2O)	6.92

Required Blower Performance:

Total System Flowrate[6] (cfm)	100
Design System Vacuum (inches H2O)	29.13

Minimum Performance Requirements:
100 cfm
29 inches H2O

COMMONWEALTH OF MASSACHUSETTS
MICHAEL B. DECOTEAU
ENVIRONMENTAL
No. 48290
9/28/11
REGISTERED PROFESSIONAL ENGINEER

Appendix M
Track Stability Plan

TRACK STABILITY PLAN FOR REMEDIATION ACTIVITIES WITHIN THE CSX RIGHT-OF-WAY

133-135 LELAND STREET
FRAMINGHAM, MASSACHUSETTS

Prepared For:
General Chemical Corporation
133-138 Leland Street
Framingham, MA 10702

Prepared By:
Nobis Engineering, Inc.
585 Middlesex Street
Lowell, MA 01851

Date: September 28, 2011

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Figures:

Figure 1 Injection Well Location Map Primary Injection AOC
Figure 2 Injection Well Location Map Second Injection AOC
Figure 3 Injection Well Location Map Third Injection AOC

Attachments:

Attachment 1 MSDS Sheets

1.0 Introduction

Nobis Engineering, Inc. (Nobis) has prepared this Track Stability Plan at the request of General Chemical Corporation (GCC) for remedial activities that will be performed within the CSX right-of-way in the vicinity of 133-138 Leland Street in Framingham, Massachusetts (Site). The Site is owned and operated by the General Chemical Corporation as a treatment storage and disposal facility (TSDF). Releases of chemicals at the Site have contaminated soil and groundwater with chlorinated hydrocarbons. Contaminants are migrating with groundwater flow in a southerly direction under the CSX railroad. The Site has been assigned a Release Tracking Number RTN-3-19174 by the Massachusetts Department of Environmental Protection (MADEP) and comprehensive remedial response actions are being performed in accordance with the GCC facility's license and the Massachusetts Contingency Plan (MCP).

The proposed remedial program will include the installation of injection wells and the injection of activated persulfate to chemically oxidize and destroy the contaminants in-situ. Details of the remedial program are presented in the Remedy Implementation Plan (RIP) prepared by Groundwater and Environmental Services, Inc. (GES), dated September 28, 2011.

This Track Stability Plan presents work activities and monitoring procedures to limit the potential for adverse impacts to CSX property and personnel, and document conditions before, during and at the end of remedial actions.

2.0 Summary of Remedial Actions

Remedial activities including in-situ chemical oxidation (ISCO) will be performed by GES on behalf of GCC. Injections will be performed in a phased approach in three areas of concern (AOC) as shown on Figures 1, 2 and 3. Injection wells will be installed to target specific zones of contamination. AOC 1 addresses the GCC property, AOC 2 addresses the CSX property and AOC 3 addresses the property downgradient from the CSX property. In general, zones of contamination include the shallow soils down to approximately 10-15 feet below ground surface (bgs) and a second deeper zone approximately 20 to 25 feet bgs. Multiple injection events may be performed in each AOC to reduce contaminant concentrations to acceptable levels. Injections will be initiated in AOC 1 so that injection procedures can be refined and effectiveness assessed before proceeding to AOC 2 in the CSX right-of-way and AOC 3 in close proximity to the CSX tracks. As injections proceed in AOC 1, the area at the injection point will be monitored for evidence of settlement or heave of the ground surface, or saturation of the ground surface with oxidant. The injection pressure and flow rate will be monitored and adjusted to maximize the introduction of oxidant without causing adverse impacts.

Based on a pilot study conducted in 2009, the radius of influence for Site soils is estimated to be approximately 20 feet at an approximate oxidant flow rate of up to 5 gallons per minute (gpm). Injections will occur at up to three wells simultaneously. Temporary aboveground piping will be used to convey the oxidant to the injection wells.

3.0 Proposed Oxidant

The proposed oxidizing reagent is a solution of Klozur™ sodium persulfate (or equivalent) and hydrogen peroxide, both manufactured by FMC Corporation. Hydrogen peroxide will be used as the sodium persulfate activating reagent. Material Safety Data Sheets (MSDS) for both chemicals are provided in Attachment 1. Sodium persulfate will be delivered to the site in crystalline form and mixed with water to produce a solution for injection. ISCO is proposed at an average concentration of 2.5 pounds of sodium persulfate combined with 1-gallon of 6% hydrogen peroxide. Details on the mixing process and proposed solution concentrations are provided in the RIP.

Sodium persulfate is an oxidizer that can generate a high temperature melt under storage conditions in the presence of moisture and/or excessive heat. The storage and mixing of the bulk sodium persulfate will be performed in accordance with the manufacturer's recommendations on the GCC property prior to injection. The generation of excessive heat or explosive conditions in the subsurface is not anticipated at the proposed solution concentrations.

4.0 Chemical Oxidant Compatibility with Subsurface Utilities

A formal subsurface utility location investigation will be performed at the site prior to the installation of injection wells. A GES representative will meet the locators at the site to review proposed injection well locations. As part of the utility locate, the CSX signals department will be contacted and scheduled to visit the site to confirm the specific location of any subsurface signal lines that may be present in the area. The location of each utility will be clearly marked with temporary flags and/or paint prior to adjusting injection well locations, if required.

According to GES, underground utilities have not been identified by previous utility location investigations for subsurface work conducted in the proposed area of injections in the CSX right-of-way. Injections will be performed at depths of 10 feet or greater in order to limit the potential for impact to utilities. If the utility locate identifies utilities in the area of injection, the potential for impact and the chemical compatibility of the oxidant with the utility will be evaluated and the location of injection wells will be adjusted to avoid impact. According to the MSDS, materials incompatible with sodium persulfate include acids, alkalis, halides (fluorides, chlorides, bromides and iodides), combustible materials, most metals and heavy metals, oxidizable materials, other oxidizers, reducing agents, cleaners, and organic or carbon containing compounds. According to the MSDS, materials incompatible with hydrogen peroxide include reducing agents, wood, paper and other combustibles, iron and other heavy metals, copper alloys and caustic.

5.0 Geologic Stability During Injections

Based on boring logs for monitoring wells CDW-2, CDW-3, CDW-4 and CDW-5, subsurface conditions within the CSX right-of way consist of a layer of sand with lenses or layers of sand and silt or silt and clay at depths of approximately 3 to 5 feet below the ground surface. The sand layer consists of fine sand with some silt, to fine to medium sand with trace to some silt. Based on a geologic cross section B-B' provided by GES, the sand layer extends to depths of between approximately 20 to 30 feet below the ground surface where a sand and silt layer was encountered overlying a layer of silt, overlying glacial till at a depth of approximately 40 to 50 feet below the ground surface. Groundwater below the CSX right-of way was encountered at depths ranging between 3.69 and 5.87 feet below the ground surface in monitoring wells CDW-2, CDW-3, CDW-4 and CDW-5.

The potential for settlement or heave of the ground surface is governed by the soil properties, depth of injection, and injection flow rate. Heave is controlled mainly by the injection pressure and flow rate, and the coefficient of consolidation (c_v) of the soil. The soil property c_v is proportional to the coefficient of permeability (k) of the soil and is related to the rate at which volumetric strain occurs due to changes in soil pressure. Soils with lower permeability (e.g., silts and clays) will have lower values of c_v and will be more likely to experience volumetric strain and cause surface heave than more permeable soils such as sands and gravels. Injection at higher flow rates and pressures will be more likely to cause excess pore water pressures that could result in heave. Again, excess pore pressures and heave will be more likely to develop in soils with low k and c_v values. Heave will likely be relatively small and will be controlled by careful monitoring and adjustment of injection flow rates and pressures. Special attention will be given to injections into fine grained formations including the silt and silty sand layers.

The proposed remediation will involve the injection of an aqueous solution. The injection of an aqueous solution will not result in the accumulation of additional solid mass within the surficial soils that could cause a "heaving" or "mounding" effect on surface features as may be the case with the injection of slurries containing a high concentration of solids such as bentonite.

Settlement could occur due to the liquefaction of loose fine-grained granular soils due to excess pore water pressures combined with agitation or vibrations of the soil mass, or "Jetting" of the soil under high pressures. The injection of fluid will be controlled by continually monitoring and adjusting the settings on the injection pump as injection points are completed. The injection pressure will be minimized to prevent subsurface soils from being fluidized and/or otherwise moved through "jetting" action to avoid potential subsidence. The oxidant will be injected through a well screen which will limit the potential for active movement, or "jetting" of the soil.
Excess oxidant volumes that could cause wide spread and significant flooding near the surface will also be avoided by monitoring product flow rates at each injection point while maintaining visual contact of the local area where the injections will be performed.

6.0 Monitoring Program

The injection of fluids into the soils of the site will be performed in a manner that limits potential deleterious effects to the CSX railroad and personnel. Monitoring will be performed to allow adjustments to be made in real time during active injection, and to provide data to evaluate if impacts are occurring. The following monitoring measures will be performed:

- The first set of injections will be performed in AOC 1 entirely or where impacts to the CSX railroad tracks are unlikely. Injection of fluids in this area of the site will provide the opportunity to make any necessary adjustments to the injection schedule including the rate and/or volume of chemical oxidant at the remaining injection locations. Prior to conducting subsurface injections within the CSX right-of-way (AOC 1), a baseline survey will be performed by a licensed Massachusetts land surveyor to establish the elevation of the CSX railroad tracks. The top of the northern rail and southern rail of the railroad tracks will be surveyed as shown on Figures 2 and 3. The monitoring points will be marked in paint on the side of the rail. These elevation shots will be recorded and compared to an additional set of shots that will be taken approximately two weeks after the last injection occurs to evaluate if settlement or heave of the tracks occurred;
- GES staff will monitor for potential elevation changes at the surveyed baseline points each day during the active injection work. Specifically, elevation checks will be performed prior to starting work, once during each 8-hour work shift, and at the completion of the injection work each day. Any changes in elevation will be discussed with the designated CSX contact before proceeding with the injection work, otherwise, the injection work will continue without delay;
- Digital photographs and/or videos of AOC 2 (i.e., the CSX railroad) will be made prior to, during, and after each day to provide sufficient documentation that the injection work is proceeding as planned without causing disruptions to the railroad; and,
- During the injection of fluids, GES personnel will observe the ground surface at the injection point for evidence of settlement, heave, saturated soil conditions and/or flooding at grade. If any of these conditions are observed, the injections of fluid will be immediately terminated so that adjustments can be made before proceeding with any additional injection work.

Elevations will be referenced to an arbitrary benchmark that will be established at a location outside of the injection work. A fire hydrant located on Leland Street is one possible benchmark for consideration however, the final benchmark will be selected by the project surveyor with concurrence by GES.

7.0 Coordination and Documentation

A written notice will be forwarded to CSX a minimum of 48 hours prior to the start of each injection event in the railroad right-of-way. A MSDS for the oxidant will be attached to the notice. The notice will provide the start date and anticipated duration of the injection work.

A kick-off meeting before the initial injection event will be held on the Site to discuss the injection events and review CSX requirements. Representatives from General Chemical Corporation, CSX, and GES will be invited to attend the kick-off meeting to ensure that all parties are present.

At the completion of the injection work, monitoring data will be summarized and presented in a letter report that will be submitted to CSX within four weeks after the last day of injection work. The monitoring report will present the estimated time during which excavation should be avoided in the injection area to limit exposure to the chemical oxidant.

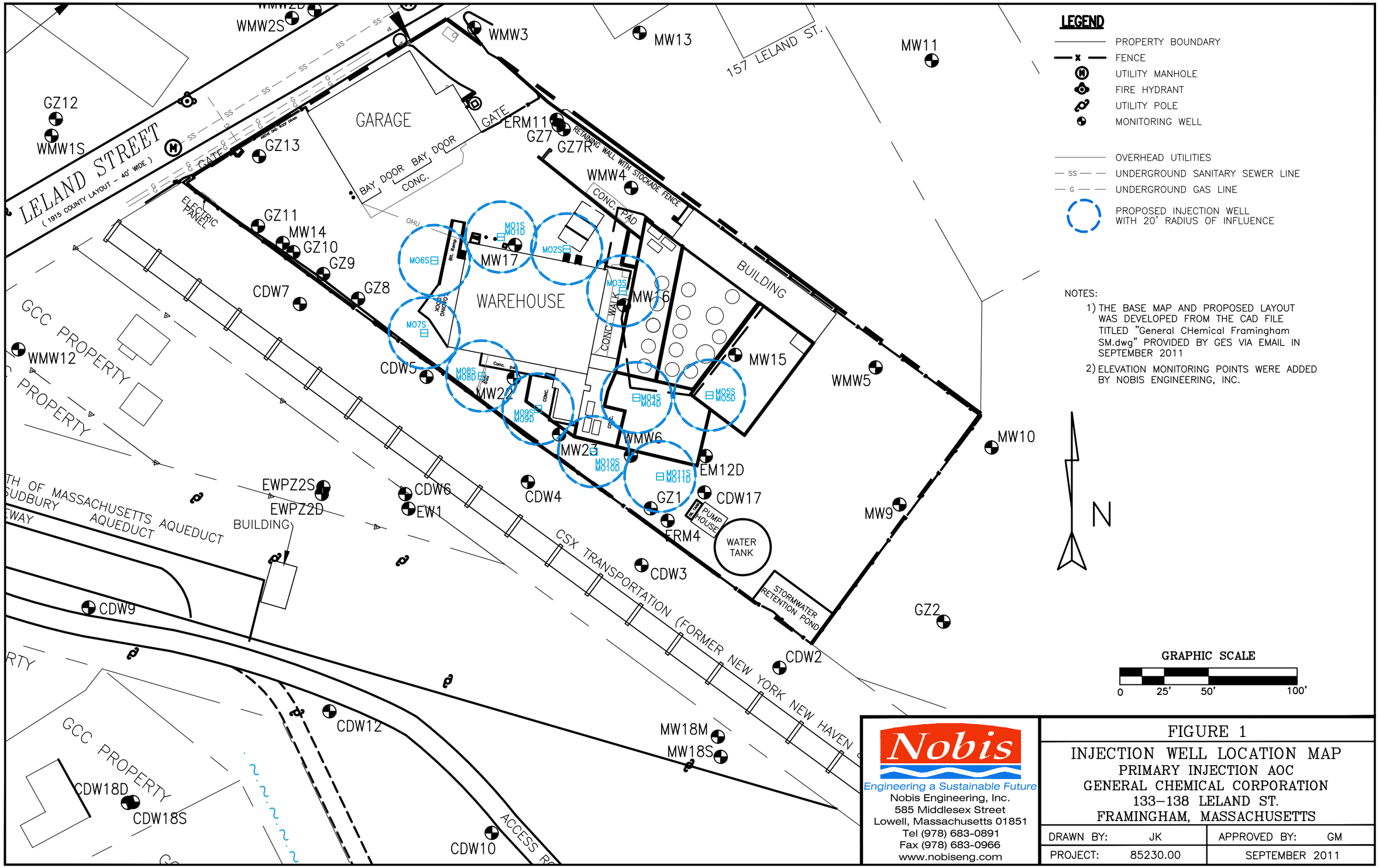
8.0 Health & Safety Considerations

All personnel will be trained per CSX safety training requirements prior to working within the CSX right-of-way. During active work, each person shall comply with all CSX safety requirements, have the proper personal protective equipment (PPE) and have proper identification on their person at all times. Temporary safety fence will be installed as required by CSX to prevent entry by unauthorized personnel into the area during the injection work.

Arrangements will be made with CSX to have the appropriate track protection in-place prior to commencing any work associated with this project that may occur within the CSX right-of-way, including any preparatory work. We understand that work within 25 feet of the tracks will require the presence of a CSX flagman. The work schedule will be reviewed with the CSX inspector on a daily basis to allow sufficient time to schedule a flagman, if required. For additional safety details, refer to the CSX Contractors Handbook.

The remediation work will involve potential exposure to contaminants and chemical oxidants. Therefore, GES personnel (and other support personnel as applicable) working in the right-of way will have HAZWOPER training that meets the requirements specified in 29 CFR 1910.120 and 1926.65. Since all of the chemical oxidant will be injected underground, exposure potential during aboveground work by CSX and GES workers is low. Exposure potential during below grade work will diminish over time as the oxidant is consumed to remediate the contamination. Work will be conducted under a site-specific health and safety plan (HASP). Excavation in the area of remediation should be avoided immediately following injections. As mentioned above, the monitoring report will provide an estimated time during which excavation should be avoided in the injection area to limit exposure to the chemical oxidant.

FIGURES



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Fax (978) 683-0966
www.nobiseng.com

FIGURE 1

INJECTION WELL LOCATION MAP
PRIMARY INJECTION AOC
GENERAL CHEMICAL CORPORATION
133–138 LELAND ST.
FRAMINGHAM, MASSACHUSETTS

DRAWN BY: JK	APPROVED BY: GM
PROJECT: 85230.00	SEPTEMBER 2011

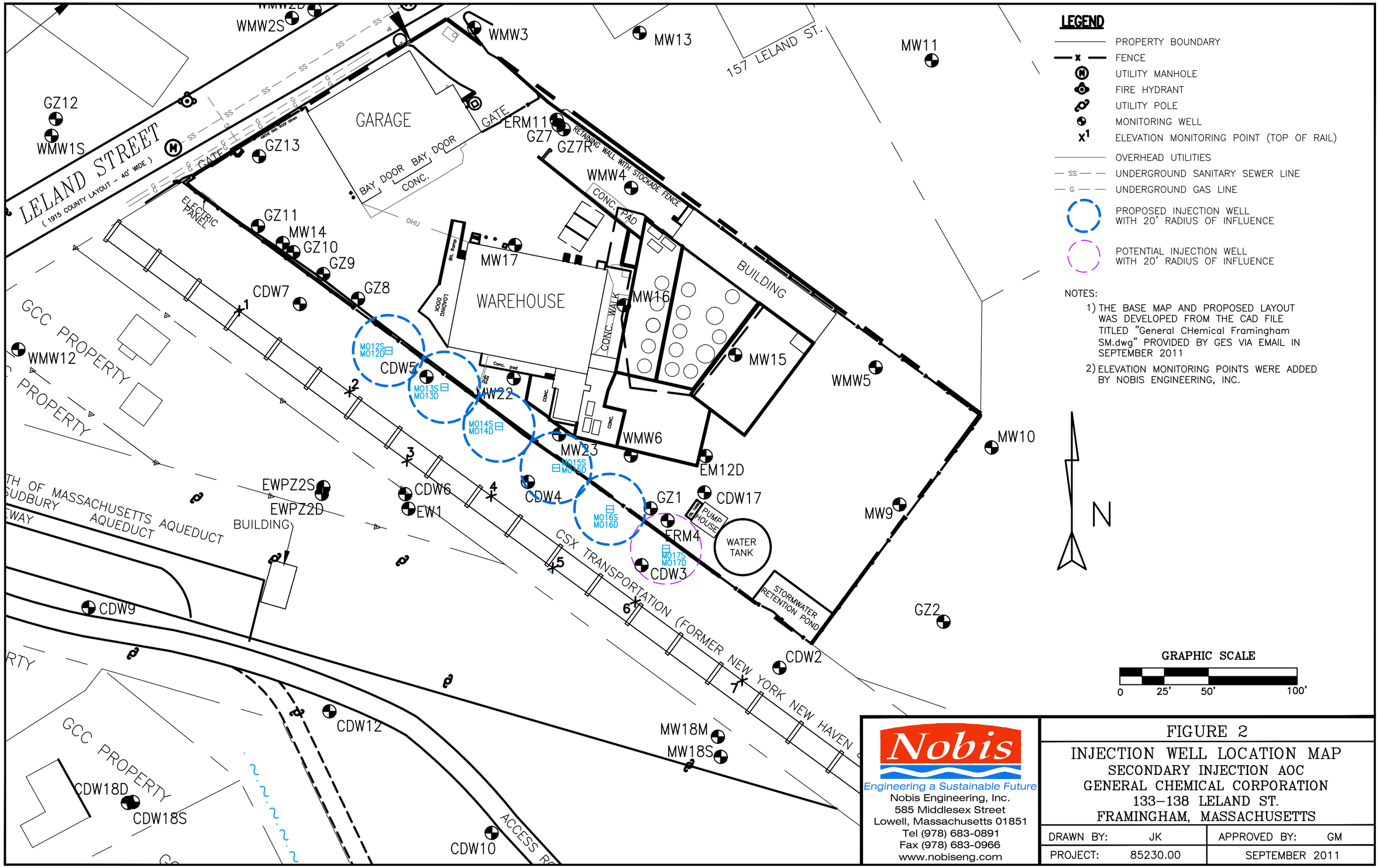

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FIGURE 2

INJECTION WELL LOCATION MAP
SECONDARY INJECTION AOC
GENERAL CHEMICAL CORPORATION
133–138 LELAND ST.
FRAMINGHAM, MASSACHUSETTS

DRAWN BY: JK	APPROVED BY: GM
PROJECT: 85230.00	SEPTEMBER 2011

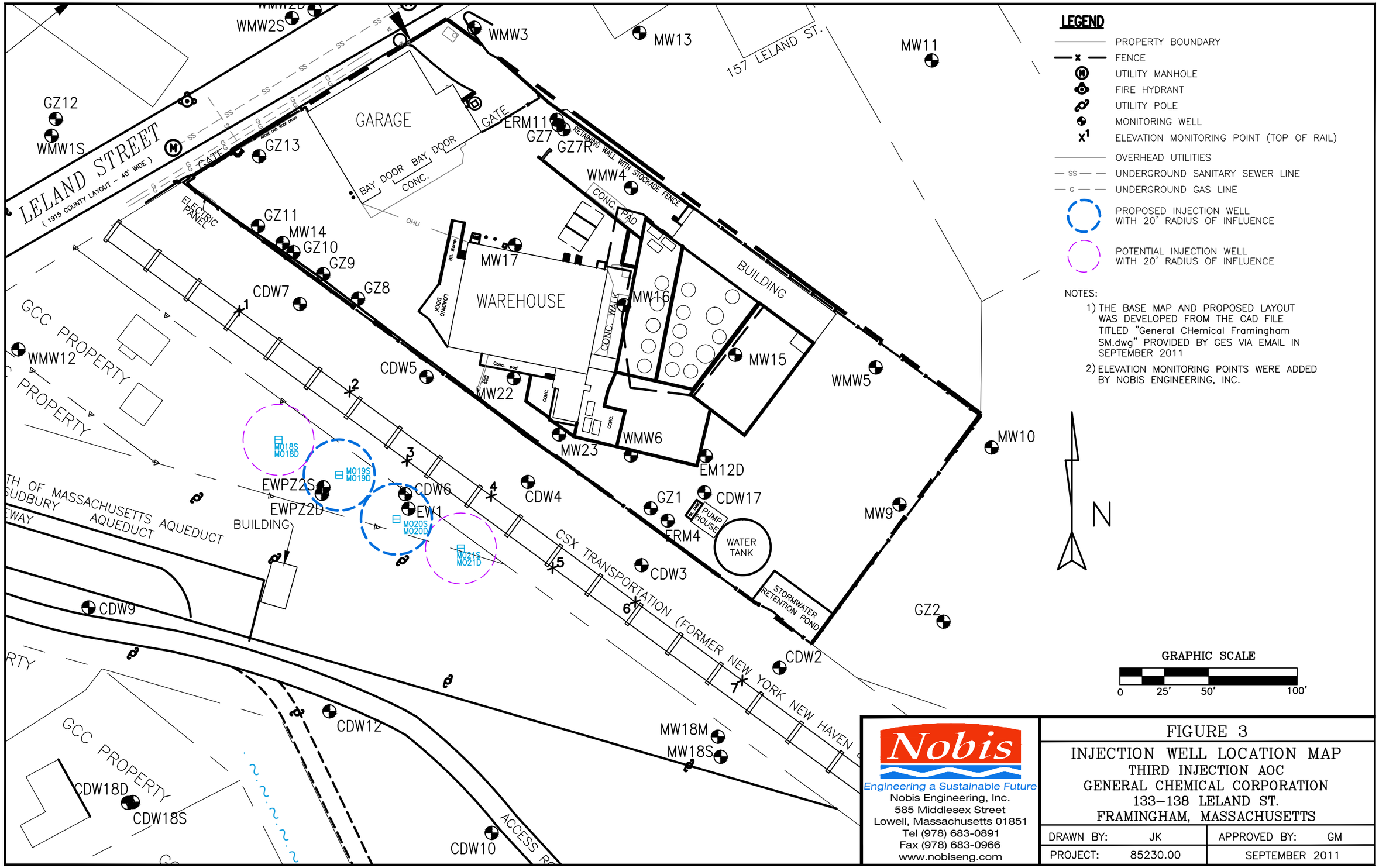

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FIGURE 3
INJECTION WELL LOCATION MAP
THIRD INJECTION AOC
GENERAL CHEMICAL CORPORATION
133–138 LELAND ST.
FRAMINGHAM, MASSACHUSETTS

DRAWN BY:	JK	APPROVED BY:	GM
PROJECT:	85230.00	SEPTEMBER 2011	

ATTACHMENT A – MSDS SHEETS

MATERIAL SAFETY DATA SHEET

Klozür™

MSDS Ref. No.: 7775-27-1-12
Date Approved: 02/22/2005
Revision No.: 1

This document has been prepared to meet the requirements of the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200; the Canada's Workplace Hazardous Materials Information System (WHMIS) and, the EC Directive, 2001/58/EC.

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME:	Klozür™
SYNONYMS:	Sodium Persulfate, Sodium Peroxydisulfate; Disodium Peroxydisulfate
GENERAL USE:	In situ and ex situ chemical oxidation of contaminants and compounds of concern for environmental remediation applications.

MANUFACTURER

FMC CORPORATION
Active Oxidants Division
1735 Market Street
Philadelphia, PA 19103
(215) 299-6000 (General Information)

EMERGENCY TELEPHONE NUMBERS

(800) 424-9300 (CHEMTREC - U.S.)
(303) 595-9048 (Medical - Call Collect)

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

- White, odorless, crystals
- Oxidizer.
- Decomposes in storage under conditions of moisture (water/water vapor) and/or excessive heat causing release of oxides of sulfur and oxygen that supports combustion. Decomposition could form a high temperature melt. See Section 10 ("Stability and Reactivity").

POTENTIAL HEALTH EFFECTS: Airborne persulfate dust may be irritating to eyes, nose, lungs, throat and skin upon contact. Exposure to high levels of persulfate dust may cause difficulty in breathing in sensitive persons.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Wt.%	EC No.	EC Class
Sodium Persulfate	7775-27-1	>99	231-892-1	Not classified as hazardous

4. FIRST AID MEASURES

EYES: Flush with plenty of water. Get medical attention if irritation occurs and persists.

SKIN: Wash with plenty of soap and water. Get medical attention if irritation occurs and persists.

INGESTION: Rinse mouth with water. Dilute by giving 1 or 2 glasses of water. Do not induce vomiting. Never give anything by mouth to an unconscious person. See a medical doctor immediately.

INHALATION: Remove to fresh air. If breathing difficulty or discomfort occurs and persists, contact a medical doctor.

NOTES TO MEDICAL DOCTOR: This product has low oral toxicity and is not irritating to the eyes and skin. Flooding of exposed areas with water is suggested, but gastric lavage or emesis induction for ingestions must consider possible aggravation of esophageal injury and the expected absence of system effects. Treatment is controlled removal of exposure followed by symptomatic and supportive care.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Deluge with water.

FIRE / EXPLOSION HAZARDS: Product is non-combustible. On decomposition releases oxygen which may intensify fire. Presence of water accelerates decomposition.

FIRE FIGHTING PROCEDURES: Do not use carbon dioxide or other gas filled fire extinguishers; they will have no effect on decomposing persulfates. Wear full protective clothing and self-contained breathing apparatus.

FLAMMABLE LIMITS: Non-combustible

SENSITIVITY TO IMPACT: No data available

SENSITIVITY TO STATIC DISCHARGE: Not available

6. ACCIDENTAL RELEASE MEASURES

RELEASE NOTES: Spilled material should be collected and put in approved DOT container and isolated for disposal. Isolated material should be monitored for signs of decomposition (fuming/smoking). If spilled material is wet, dissolve with large quantity of water and dispose as a hazardous waste. All disposals should be carried out according to regulatory agencies procedures.

7. HANDLING AND STORAGE

HANDLING: Use adequate ventilation when transferring product from bags or drums. Wear respiratory protection if ventilation is inadequate or not available. Use eye and skin protection. Use clean plastic or stainless steel scoops only.

STORAGE: Store (unopened) in a cool, clean, dry place away from point sources of heat, e.g. radiant heaters or steam pipes. Use first in, first out storage system. Avoid contamination of opened product. In case of fire or decomposition (fuming/smoking) deluge with plenty of water to control decomposition. For storage, refer to NFPA Bulletin 430 on storage of liquid and solid oxidizing materials.

COMMENTS: VENTILATION: Provide mechanical general and/or local exhaust ventilation to prevent release of dust into work environment. Spills should be collected into suitable containers to prevent dispersion into the air.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS

Chemical Name	ACGIH	OSHA	Supplier
Sodium Persulfate	0.1 mg/m^3 (TWA)		

ENGINEERING CONTROLS: Provide mechanical local general room ventilation to prevent release of dust into the work environment. Remove contaminated clothing immediately and wash before reuse.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Use cup type chemical goggles. Full face shield may be used.

RESPIRATORY: Use approved dust respirator when airborne dust is expected.

PROTECTIVE CLOTHING: Normal work clothes. Rubber or neoprene footwear.

GLOVES: Rubber or neoprene gloves. Thoroughly wash the outside of gloves with soap and water prior to removal. Inspect regularly for leaks.

9. PHYSICAL AND CHEMICAL PROPERTIES

ODOR:	None
APPEARANCE:	White crystals
AUTOIGNITION TEMPERATURE:	Not applicable. No evidence of combustion up to 800°C. Decomposition will occur upon heating.
BOILING POINT:	Not applicable
COEFFICIENT OF OIL / WATER:	Not applicable
DENSITY / WEIGHT PER VOLUME:	Not available
EVAPORATION RATE:	Not applicable (Butyl Acetate = 1)
FLASH POINT:	Non-combustible
MELTING POINT:	Decomposes
ODOR THRESHOLD:	Not applicable
OXIDIZING PROPERTIES:	Oxidizer
PERCENT VOLATILE:	Not applicable
pH:	typically 5.0 - 7.0 @ 25 °C (1% solution)
SOLUBILITY IN WATER:	73 % @ 25 °C (by wt.)
SPECIFIC GRAVITY:	2.6 (H_2O=1)
VAPOR DENSITY:	Not applicable (Air = 1)
VAPOR PRESSURE:	Not applicable

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID:	Heat, moisture and contamination.
STABILITY:	Stable (becomes unstable in presence of heat, moisture and/or contamination).
POLYMERIZATION:	Will not occur
INCOMPATIBLE MATERIALS:	Acids, alkalis, halides (fluorides, chlorides, bromides and iodides), combustible materials, most metals and heavy metals, oxidizable materials, other oxidizers, reducing agents, cleaners, and organic or carbon containing compounds. Contact

with incompatible materials can result in a material decomposition or other uncontrolled reactions.

HAZARDOUS DECOMPOSITION PRODUCTS: Oxygen that supports combustion and oxides of sulfur.

COMMENTS: PRECAUTIONARY STATEMENT: Pumping and transport of Klozür persulfate requires appropriate precautions and design considerations for pressure and thermal relief.

Decomposing persulfates will evolve large volumes of gas and/or vapor, can accelerate exponentially with heat generation, and create significant and hazardous pressures if contained and not properly controlled or mitigated.

Use with alcohols in the presence of water has been demonstrated to generate conditions that require rigorous adherence to process safety methods and standards to prevent escalation to an uncontrolled reaction.

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11. TOXICOLOGICAL INFORMATION

EYE EFFECTS: Non-irritating (rabbit) [FMC Study Number: ICG/T-79.029]

SKIN EFFECTS: Non-irritating (rabbit) [FMC Study Number: ICG/T-79.029]

DERMAL LD_{50}: > 10 g/kg [FMC Study Number: ICG/T-79.029]

ORAL LD_{50}: 895 mg/kg (rat) [FMC Study Number: ICG/T-79.029]

INHALATION LC_{50}: 5.1 mg/l (rat) [FMC I95-2017]

SENSITIZATION: May be sensitizing to allergic persons. [FMC Study Number: ICG/T-79.029]

TARGET ORGANS: Eyes, skin, respiratory passages

ACUTE EFFECTS FROM OVEREXPOSURE: Dust may be harmful and irritating. May be harmful if swallowed.

CHRONIC EFFECTS FROM OVEREXPOSURE: Sensitive persons may develop dermatitis and asthma [Respiration 38:144, 1979]. Groups of male and female rats were fed 0, 300 or 3000 ppm sodium persulfate in the diet for 13 weeks, followed by 5000 ppm for 5 weeks. Microscopic examination of tissues revealed some injury to the gastrointestinal tract at the high dose (3000 ppm) only. This effect is not unexpected for an oxidizer at high concentrations. [Ref. FMC I90-1151, Toxicologist 1:149, 1981].

CARCINOGENICITY:

NTP:	Not listed
IARC:	Not listed
OSHA:	Not listed
OTHER:	ACGIH: Not listed

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION:

Bluegill sunfish, 96-hour LC_{50} = 771 mg/L [FMC Study I92-1250]
Rainbow trout, 96-hour LC_{50} = 163 mg/L [FMC Study I92-1251]
Daphnia, 48-hour LC_{50} = 133 mg/L [FMC Study I92-1252]
Grass shrimp, 96-hour LC_{50} = 519 mg/L [FMC Study I92-1253]

CHEMICAL FATE INFORMATION: Biodegradability does not apply to inorganic substances.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Dispose as a hazardous waste in accordance with local, state and federal regulatory agencies.

14. TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION (DOT)

PROPER SHIPPING NAME:	Sodium Persulfate
PRIMARY HAZARD CLASS / DIVISION:	5.1 (Oxidizer)
UN/NA NUMBER:	UN 1505
PACKING GROUP:	III
LABEL(S):	5.1 (Oxidizer)
PLACARD(S):	5.1 (Oxidizer)
MARKING(S):	Sodium Persulfate, UN 1505
ADDITIONAL INFORMATION:	Hazardous Substance/RQ: Not applicable

49 STCC Number: 4918733

This material is shipped in 225 lb. fiber drums, 55 lb. poly bags and 1000 - 2200 lb. IBC's (supersacks).

INTERNATIONAL MARITIME DANGEROUS GOODS (IMDG)

PROPER SHIPPING NAME: Sodium Persulfate

INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO) / INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA)

PROPER SHIPPING NAME: Sodium Persulfate

OTHER INFORMATION:

Protect from physical damage. Do not store near acids, moisture or heat.

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15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355, APPENDIX A):
Not applicable

SECTION 311 HAZARD CATEGORIES (40 CFR 370):
Fire Hazard, Immediate (Acute) Health Hazard

SECTION 312 THRESHOLD PLANNING QUANTITY (40 CFR 370):
The Threshold Planning Quantity (TPQ) for this product, if treated as a mixture, is 10,000 lbs; however, this product contains the following ingredients with a TPQ of less than 10,000 lbs.: None

SECTION 313 REPORTABLE INGREDIENTS (40 CFR 372):
Not listed

CERCLA (COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT)

CERCLA DESIGNATION & REPORTABLE QUANTITIES (RQ) (40 CFR 302.4):
Unlisted, RQ = 100 lbs., Ignitability

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA INVENTORY STATUS (40 CFR 710):

Listed

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)
RCRA IDENTIFICATION OF HAZARDOUS WASTE (40 CFR 261):
Waste Number: D001

CANADA

WHMIS (WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM):

Product Identification Number: 1505
Hazard Classification / Division: Class C (Oxidizer), Class D, Div. 2, Subdiv. B. (Toxic)
Ingredient Disclosure List: Listed

INTERNATIONAL LISTINGS

Sodium persulfate:
Australia (AICS): Listed
China: Listed
Japan (ENCS): (1)-1131
Korea: KE-12369
Philippines (PICCS): Listed

HAZARD, RISK AND SAFETY PHRASE DESCRIPTIONS:

EC Symbols: (Not classified as hazardous)

EC Risk Phrases: (Not classified as hazardous)

EC Safety Phrases: (Not classified as hazardous)

16. OTHER INFORMATION

HMIS

Health	1
Flammability	0
Physical Hazard	1
Personal Protection (PPE)	J

Protection = J (Safety goggles, gloves, apron & combination dust & vapor respirator)

HMIS = Hazardous Materials Identification System

Degree of Hazard Code:
4 = Severe

3 = Serious
2 = Moderate
1 = Slight
0 = Minimal

NFPA

Health	1
Flammability	0
Reactivity	1
Special	OX

SPECIAL = OX (Oxidizer)

NFPA = National Fire Protection Association

Degree of Hazard Code:
4 = Extreme
3 = High
2 = Moderate
1 = Slight
0 = Insignificant

REVISION SUMMARY:
New MSDS

Klozür and FMC Logo - FMC Trademarks

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MATERIAL SAFETY DATA SHEET

Hydrogen Peroxide Less Than 8%

MSDS Ref. No.: 7722-84-1-1
Date Approved: 04/30/2006
Revision No.: 7

This document has been prepared to meet the requirements of the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200; the Canada's Workplace Hazardous Materials Information System (WHMIS) and, the EC Directive, 2001/58/EC.

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Hydrogen Peroxide Less Than 8%

GENERAL USE: Standard grade is used for industrial bleaching, processing, pollution abatement and general oxidation reactions.

MANUFACTURER

FMC CORPORATION
FMC Peroxygens
1735 Market Street
Philadelphia, PA 19103
(215) 299-6000 (General Information)

FMC of Canada Ltd.
FMC Peroxygens
PG Pulp Mill Road
Prince George, BC V2N2S6
(250) 561-4200 (General Information)

EMERGENCY TELEPHONE NUMBERS

(281) 474-8750 (Plant: Pasadena, TX, US - Call Collect)
(250) 561-4221 (Plant: Prince George, BC, Canada - Call Collect)
(303) 595-9048 (Medical - U.S. - Call Collect)

For leak, fire, spill, or accident emergencies, call:
(800) 424-9300 (CHEMTREC - U.S.A.)
(613) 996-6666 (CANUTEC - Canada)

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

- Clear, colorless, odorless liquid
- Weak oxidizing agent that is stable under normal conditions.
- Sensitive to contamination.
- Decomposes yielding oxygen that supports combustion of organic matters and can cause overpressure if confined.

POTENTIAL HEALTH EFFECTS: Minimally irritating to the eyes and mildly irritating to skin.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Wt.%	EC No.	EC Class
Hydrogen Peroxide	7722-84-1	<8	231-765-0	Xi, R36
Water	7732-18-5	>92	231-791-2	Not classified

4. FIRST AID MEASURES

EYES: Flush with water for at least 15 minutes. If irritation occurs and persists, obtain medical attention.

SKIN: Wash with plenty of soap and water. Get medical attention if irritation occurs and persists.

INGESTION: Rinse mouth with water. Dilute by giving 1 or 2 glasses of water. Do not induce vomiting. Never give anything by mouth to an unconscious person. See a medical doctor immediately.

INHALATION: Remove to fresh air. If breathing difficulty or discomfort occurs and persists, obtain medical attention.

NOTES TO MEDICAL DOCTOR: Direct contact may be minimally irritating. Treatment is by dilution and is symptomatic and supportive.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Flood with water.

FIRE / EXPLOSION HAZARDS: Product is non-combustible. On decomposition releases oxygen which may intensify fire.

FIRE FIGHTING PROCEDURES: Any tank or container surrounded by fire should be flooded with water for cooling. Wear full protective clothing and self-contained breathing apparatus.

FLAMMABLE LIMITS: Non-combustible

SENSITIVITY TO IMPACT: No data available

SENSITIVITY TO STATIC DISCHARGE: No data available

6. ACCIDENTAL RELEASE MEASURES

RELEASE NOTES: Dilute with a large volume of water and hold in a pond or diked area until hydrogen peroxide decomposes. Dispose according to methods outlined for waste disposal.

Combustible materials exposed to hydrogen peroxide should be immediately submerged in or rinsed with large amounts of water to ensure that all hydrogen peroxide is removed. Residual hydrogen peroxide that is allowed to dry (upon evaporation hydrogen peroxide can concentrate) on organic materials such as paper, fabrics, cotton, leather, wood or other combustibles can cause the material to ignite and result in a fire.

7. HANDLING AND STORAGE

HANDLING: Wear chemical splash-type monogoggles and full-face shield, impervious clothing, such as rubber, PVC, etc., and rubber or neoprene gloves and shoes. Avoid cotton, wool and leather. Avoid excessive heat and contamination. Contamination may cause decomposition and generation of oxygen gas which could result in high pressures and possible container rupture. Hydrogen peroxide should be stored only in vented containers and transferred only in a prescribed manner (see FMC Technical Bulletins). Never return unused hydrogen peroxide to original container, empty drums should be triple rinsed with water before discarding. Utensils used for handling hydrogen peroxide should only be made of glass, stainless steel, aluminum or plastic.

STORAGE: Store drums in cool areas out of direct sunlight and away from combustibles. For bulk storage refer to FMC Technical Bulletins.

COMMENTS: VENTILATION: Provide mechanical general and/or local exhaust ventilation to prevent release of vapor or mist into the work environment.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS

Chemical Name	ACGIH	OSHA	Supplier
Hydrogen Peroxide	1 ppm (TWA)	1 ppm (PEL)	

ENGINEERING CONTROLS: Ventilation should be provided to minimize the release of hydrogen peroxide vapors and mists into the work environment. Spills should be minimized or confined immediately to prevent release into the work area. Remove contaminated clothing immediately and wash before reuse.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Use chemical splash-type monogoggles if splashing is expected during handling of product.

RESPIRATORY: If concentrations in excess of 10 ppm are expected, use NIOSH/DHHS approved self-contained breathing apparatus (SCBA), or other approved atmospheric-supplied respirator (ASR) equipment (e.g., a full-face airline respirator (ALR)). DO NOT use any form of air-purifying respirator (APR) or filtering facepiece (AKA dust mask), especially those containing oxidizable sorbants such as activated carbon.

PROTECTIVE CLOTHING: Rubber or neoprene footwear (avoid leather). Impervious clothing materials such as rubber, neoprene, nitrile or polyvinyl chloride (avoid cotton, wool and leather). Completely submerge hydrogen peroxide contaminated clothing or other materials in water prior to drying. Residual hydrogen peroxide, if allowed to dry on materials such as paper, fabrics, cotton, leather, wood or other combustibles can cause the material to ignite and result in a fire.

GLOVES: Wear liquid proof rubber or neoprene gloves. Thoroughly rinse the outside of gloves with water prior to removal. Inspect regularly for leaks.

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9. PHYSICAL AND CHEMICAL PROPERTIES

ODOR:	Odorless
APPEARANCE:	Clear, colorless liquid
AUTOIGNITION TEMPERATURE:	Non-combustible
BOILING POINT:	101°C (214°F)
COEFFICIENT OF OIL / WATER:	Not available
DENSITY / WEIGHT PER VOLUME:	Not available
EVAPORATION RATE:	Above 1 (Butyl Acetate = 1)
FLASH POINT:	Non-combustible
FREEZING POINT:	-3 °C (27 °F)
ODOR THRESHOLD:	Not available
OXIDIZING PROPERTIES:	Not applicable
PERCENT VOLATILE:	100%
pH:	(as is) approx. 2.5 to 3.5
SOLUBILITY IN WATER:	(in H_2O % by wt) 100%
SPECIFIC GRAVITY:	(H_2O = 1): 1.01 @ 20°C/4°C
VAPOR DENSITY:	(Air = 1): Not available
VAPOR PRESSURE:	31 mm Hg @ 30 °C (86 °F)

COMMENTS:

pH (1% solution): 5.0 - 6.0
NOTE: Data above are for 5% Hydrogen Peroxide.

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID:	Excessive heat or contamination could cause product to become unstable.
STABILITY:	Stable (contamination could cause decomposition)
POLYMERIZATION:	Will not occur
INCOMPATIBLE MATERIALS:	Reducing agents, iron and other heavy metals, galvanized iron, copper alloys and caustic.
HAZARDOUS DECOMPOSITION PRODUCTS:	Oxygen which supports combustion.

COMMENTS: Materials To Avoid: Dirt, organics and combustibles.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS: 5% hydrogen peroxide: Minimally irritating (rabbit) [FMC Study Number: I86-0949]

SKIN EFFECTS: 10% hydrogen peroxide: Mildly irritating after 4-hour exposure (rabbit) [FMC Study Number: I89-1078]

DERMAL LD_{50}: 35% hydrogen peroxide: > 2,000 mg/kg (rabbit) [FMC Study Number: I83-746]

ORAL LD_{50}: 10% hydrogen peroxide: > 5,000 mg/kg (rat) [FMC Study Number: I89-1077]

INHALATION LC_{50}: 50% hydrogen peroxide: > 0.17 mg/l (rat) [FMC Study Number: I89-1080]

ACUTE EFFECTS FROM OVEREXPOSURE: Minimally irritating to the eyes, skin, nose, throat, and lungs.

CHRONIC EFFECTS FROM OVEREXPOSURE: The International Agency for Research on Cancer (IARC) has concluded that there is inadequate evidence for carcinogenicity of hydrogen peroxide in humans, but limited evidence in experimental animals (Group 3 - not classifiable as to its carcinogenicity to humans). The American Conference of Governmental Industrial Hygienists (ACGIH) has concluded that hydrogen peroxide is a 'Confirmed Animal Carcinogen with Unknown Relevance to Humans' (A3).

CARCINOGENICITY:

Chemical Name	IARC	NTP	OSHA	Other
Hydrogen Peroxide	Listed	Not listed	Not listed	(ACGIH) Listed (A3, Animal Carcinogen)

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION: Channel catfish 96-hour LC_{50} = 37.4 mg/L
Fathead minnow 96-hour LC_{50} = 16.4 mg/L
Daphnia magna 24-hour EC_{50} = 7.7 mg/L
Daphnia pulex 48-hour LC_{50} = 2.4 mg/L
Freshwater snail 96-hour LC_{50} = 17.7 mg/L
For more information refer to ECETOC "Joint Assessment of Commodity Chemicals No. 22, Hydrogen Peroxide." ISSN-0773-6339, January 1993

CHEMICAL FATE INFORMATION: Hydrogen peroxide in the aquatic environment is subject to various reduction or oxidation processes and decomposes into water and oxygen. Degrades in the atmosphere within the light spectrum with hydroxyl radicals in the gas phase and subsequent photolysis.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: An acceptable method of disposal is to dilute with a large amount of water and allow the hydrogen peroxide to decompose followed by discharge into a suitable treatment system in accordance with all regulatory agencies. The appropriate regulatory agencies should be contacted prior to disposal.

14. TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION (DOT)

PROPER SHIPPING NAME:	Not regulated
PRIMARY HAZARD CLASS / DIVISION:	Not applicable
UN/NA NUMBER:	None
LABEL(S):	Not applicable
PLACARD(S):	Not applicable
ADDITIONAL INFORMATION:	DOT Marking: Not applicable Hazardous Substance/RQ: Not applicable 49 STCC Number: Not applicable

INTERNATIONAL MARITIME DANGEROUS GOODS (IMDG)

ADDITIONAL INFORMATION: Not regulated

INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO) / INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA)

ADDITIONAL INFORMATION: Not regulated

OTHER INFORMATION:

Protect from physical damage. Keep drums in upright position.

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15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355, APPENDIX A):
Not listed

SECTION 311 HAZARD CATEGORIES (40 CFR 370):
Not applicable

SECTION 312 THRESHOLD PLANNING QUANTITY (40 CFR 370):
The Threshold Planning Quantity (TPQ) for this product, if treated as a mixture, is 10,000 lbs; however, this product contains the following ingredients with a TPQ of less than 10,000 lbs.: None, (conc. <52%)

SECTION 313 REPORTABLE INGREDIENTS (40 CFR 372):
Not listed

CERCLA (COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT)

CERCLA DESIGNATION & REPORTABLE QUANTITIES (RQ) (40 CFR 302.4):
Not listed

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA INVENTORY STATUS (40 CFR 710):
Listed

CANADA

WHMIS (WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM):

Product Identification Number: None
Hazard Classification / Division: None
Ingredient Disclosure List: Not listed

INTERNATIONAL LISTINGS

Hydrogen peroxide:
China: Listed
Japan (ENCS): (1)-419
Korea: KE-20204
Philippines (PICCS): Listed

HAZARD, RISK AND SAFETY PHRASE DESCRIPTIONS:

Hydrogen Peroxide, (Index #008-003-00-9):

EC Symbols:	Xi	(Irritant)
EC Risk Phrases:	R36	(Irritating to eyes.)
EC Safety Phrases:	S1/2	(Keep locked up and out of reach of children.)
	S3	(Keep in a cool place.)
	S17	(Keep away from combustible material.)
	S26	(In case of contact with eyes, rinse immediately with plenty of water and seek medical advice)
	S28	(After contact with skin, wash immediately with plenty of water and soap.)
	S36/37/39	(Wear suitable protective clothing, gloves and eye/face protection.)
	S45	(In case of accident or if you feel unwell, seek medical advice immediately - show the label where possible.)

16. OTHER INFORMATION

HMIS

Health	0
Flammability	0
Physical Hazard	0
Personal Protection (PPE)	H

Protection = H (Safety goggles, gloves, apron, the use of a supplied air or SCBA respirator is required in lieu of a vapor cartridge respirator)

HMIS = Hazardous Materials Identification System

Degree of Hazard Code:
4 = Severe
3 = Serious
2 = Moderate
1 = Slight
0 = Minimal

NFPA

Health	0
Flammability	0
Reactivity	0
Special	None

No special requirements

NFPA = National Fire Protection Association

Degree of Hazard Code:
4 = Extreme
3 = High
2 = Moderate
1 = Slight
0 = Insignificant

REVISION SUMMARY:
This MSDS replaces Revision #6, dated April 05, 2005.
Changes in information are as follows:
Section 1 (Product and Company Identification)
Section 16 (Other Information)

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MATERIAL SAFETY DATA SHEET

Hydrogen Peroxide (20 to 40%)

MSDS Ref. No.: 7722-84-1-3
Date Approved: 11/04/2009
Revision No.: 12

This document has been prepared to meet the requirements of the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200 and Canada's Workplace Hazardous Materials Information System (WHMIS) requirements.

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Hydrogen Peroxide (20 to 40%)

ALTERNATE PRODUCT NAME(S): Durox® Reg., LR & LRA 35%, Oxypure® 35%, Standard 27, 35 & 40%, Super D® 25 & 35, Technical 35%, HTP 35%, OHP 35%, Chlorate Grade, 20%, Semiconductor Reg, Seg, RGS, RGS 2, 27% & 31%

GENERAL USE: Durox® 35% Reg., LR and LRA - meets the Food Chemical Codex requirements for aseptic packaging and other food related applications.

Oxypure® 35% - certified by NSF to meet NSF/ANSI Standard 60 requirements for drinking water treatment.

Standard 27, 35 and 40% - most suitable grade for industrial bleaching, processing, pollution abatement and general oxidation reactions.

Semiconductor Reg, Seg, RGS, RGS 2, 27% and 31% - conform to ACS and Semi Specs. for wafer etching and cleaning, and applications requiring low residues.

Super D® 25 and 35% - meets US Pharmacopoeia specifications for 3% topical solutions when diluted with proper quality water. While manufactured to the USP standards for purity and to FMC's demanding ISO 9002 quality standards, FMC does not claim that it's Hydrogen Peroxide is manufactured in accordance with all pharmaceutical cGMP conditions.

Technical 35% - essentially free of inorganic metals suitable for chemical synthesis.

HTP 35% - specially formulated for aerospace equipment conditioning.

OHP 35% - specially formulated for OHP process, advanced oxidation, and activated peroxide applications

Chlorate Grade 20% - specially formulated for use in chlorate

manufacture or processing.

MANUFACTURER

FMC CORPORATION
FMC Peroxygens
1735 Market Street
Philadelphia, PA 19103
(215) 299-6000 (General Information)
msdsinfo@fmc.com (Email - General Information)

FMC of Canada Ltd.
FMC Peroxygens
PG Pulp Mill Road
Prince George, BC V2N2S6
(250) 561-4200 (General Information)

EMERGENCY TELEPHONE NUMBERS

(281) 474-8750 (Plant: Pasadena, TX, US - Call Collect)
(250) 561-4221 (Plant: Prince George, BC, Canada - Call Collect)
(303) 595-9048 (Medical - U.S. - Call Collect)

For leak, fire, spill, or accident emergencies, call:
(800) 424-9300 (CHEMTREC - U.S.A.)
(613) 996-6666 (CANUTEC - Canada)

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

- Clear, colorless, odorless liquid
- Oxidizer.
- Contact with combustibles may cause fire.
- Decomposes yielding oxygen that supports combustion of organic matters and can cause overpressure if confined.
- Corrosive to eyes, nose, throat, lungs and gastrointestinal tract.

POTENTIAL HEALTH EFFECTS: Corrosive to eyes, nose, throat and lungs. May cause irreversible tissue damage to the eyes including blindness. May cause skin irritation.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Wt.%	EC No.	EC Class
Hydrogen Peroxide	7722-84-1	20 - 40	231-765-0	O, C, Xn; R5- R8-R20/22-R35
Water	7732-18-5	60 - 80	231-791-2	Not classified

4. FIRST AID MEASURES

EYES: Immediately flush with water for at least 15 minutes, lifting the upper and lower eyelids intermittently. See a medical doctor or ophthalmologist immediately.

SKIN: Wash with plenty of soap and water. Get medical attention if irritation occurs and persists.

INGESTION: Rinse mouth with water. Dilute by giving 1 or 2 glasses of water. Do not induce vomiting. Never give anything by mouth to an unconscious person. See a medical doctor immediately.

INHALATION: Remove to fresh air. If breathing difficulty or discomfort occurs and persists, contact a medical doctor.

NOTES TO MEDICAL DOCTOR: Hydrogen peroxide at these concentrations is a strong oxidant. Direct contact with the eye is likely to cause corneal damage especially if not washed immediately. Careful ophthalmologic evaluation is recommended and the possibility of local corticosteroid therapy should be considered. Because of the likelihood of corrosive effects on the gastrointestinal tract after ingestion, and the unlikelihood of systemic effects, attempts at evacuating the stomach via emesis induction or gastric lavage should be avoided. There is a remote possibility, however, that a nasogastric or orogastric tube may be required for the reduction of severe distension due to gas formation.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Flood with water.

FIRE / EXPLOSION HAZARDS: Product is non-combustible. On decomposition releases oxygen which may intensify fire.

FIRE FIGHTING PROCEDURES: Any tank or container surrounded by fire should be flooded with water for cooling. Wear full protective clothing and self-contained breathing apparatus.

FLAMMABLE LIMITS: Non-combustible

SENSITIVITY TO IMPACT: No data available

SENSITIVITY TO STATIC DISCHARGE: No data available

6. ACCIDENTAL RELEASE MEASURES

RELEASE NOTES: Dilute with a large volume of water and hold in a pond or diked area until hydrogen peroxide decomposes. Hydrogen peroxide may be decomposed by adding sodium metabisulfite or sodium sulfite after diluting to about 5%. Dispose according to methods outlined for waste disposal.

Combustible materials exposed to hydrogen peroxide should be immediately submerged in or rinsed with large amounts of water to ensure that all hydrogen peroxide is removed. Residual hydrogen peroxide that is allowed to dry (upon evaporation hydrogen peroxide can concentrate) on organic materials such as paper, fabrics, cotton, leather, wood or other combustibles can cause the material to ignite and result in a fire.

7. HANDLING AND STORAGE

HANDLING: Wear chemical splash-type monogoggles and full-face shield, impervious clothing, such as rubber, PVC, etc., and rubber or neoprene gloves and shoes. Avoid cotton, wool and leather. Avoid excessive heat and contamination. Contamination may cause decomposition and generation of oxygen gas which could result in high pressures and possible container rupture. Hydrogen peroxide should be stored only in vented containers and transferred only in a prescribed manner (see FMC Technical Bulletins). Never return unused hydrogen peroxide to original container, empty drums should be triple rinsed with water before discarding. Utensils used for handling hydrogen peroxide should only be made of glass, stainless steel, aluminum or plastic.

STORAGE: Store drums in cool areas out of direct sunlight and away from combustibles. For bulk storage refer to FMC Technical Bulletins.

COMMENTS: VENTILATION: Provide mechanical general and/or local exhaust ventilation to prevent release of vapor or mist into the work environment.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS

Chemical Name	ACGIH	OSHA	Supplier
Hydrogen Peroxide	1 ppm (TWA)	1 ppm (PEL) 1.4 mg/m^3 (PEL)	

ENGINEERING CONTROLS: Ventilation should be provided to minimize the release of hydrogen peroxide vapors and mists into the work environment. Spills should be minimized or confined immediately to prevent release into the work area. Remove contaminated clothing immediately and wash before reuse.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Use chemical splash-type monogoggles and a full-face shield made of polycarbonate, acetate, polycarbonate/acetate, PETG or thermoplastic.

RESPIRATORY: If concentrations in excess of 10 ppm are expected, use NIOSH/DHHS approved self-contained breathing apparatus (SCBA), or other approved atmospheric-supplied respirator (ASR) equipment (e.g., a full-face airline respirator (ALR)). DO NOT use any form of air-purifying respirator (APR) or filtering facepiece (AKA dust mask), especially those containing oxidizable sorbants such as activated carbon.

PROTECTIVE CLOTHING: For body protection wear impervious clothing such as an approved splash protective suit made of SBR Rubber, PVC (PVC Outershell w/Polyester Substrate), Gore-Tex (Polyester trilaminate w/Gore-Tex), or a specialized HAZMAT Splash or Protective Suite (Level A, B, or C). For foot protection, wear approved boots made of NBR, PVC, Polyurethane, or neoprene. Overboots made of Latex or PVC, as well as firefighter boots or specialized HAZMAT boots are also permitted. DO NOT wear any form of boot or overboots made of nylon or nylon blends. DO NOT use cotton, wool or leather, as these materials react RAPIDLY with higher concentrations of hydrogen peroxide. Completely submerge hydrogen peroxide contaminated clothing or other materials in water prior to drying. Residual hydrogen peroxide, if allowed to dry on materials such as paper, fabrics, cotton, leather, wood or other combustibles can cause the material to ignite and result in a fire.

GLOVES: For hand protection, wear approved gloves made of nitrile, PVC, or neoprene. DO NOT use cotton, wool or leather for these materials react RAPIDLY with higher concentrations of hydrogen peroxide. Thoroughly rinse the outside of gloves with water prior to removal. Inspect regularly for leaks.

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9. PHYSICAL AND CHEMICAL PROPERTIES

ODOR:	Odorless
APPEARANCE:	Clear, colorless liquid
AUTOIGNITION TEMPERATURE:	Non-combustible
BOILING POINT:	103ºC/218ºF (20%); 105ºC/223ºF (27%); 107ºC/225ºF (31%); 108ºC/226ºF (35%)
COEFFICIENT OF OIL / WATER:	Not available
DENSITY / WEIGHT PER VOLUME:	Not available
EVAPORATION RATE:	> 1 (Butyl Acetate = 1)
FLASH POINT:	Non-combustible
FREEZING POINT:	-15ºC/6ºF (20%); -22ºC/-8ºF (27%); -26ºC/-15ºF (31%); -33ºC/-27ºF (35%)
ODOR THRESHOLD:	Not available
OXIDIZING PROPERTIES:	Strong oxidizer
PERCENT VOLATILE:	100
pH:	<= 3.7 5.0 - 6.0 @ 25 °C (1% solution)
SOLUBILITY IN WATER:	100 %
SPECIFIC GRAVITY:	1.07 @ 20ºC/4ºC (20%); 1.10 @ 20ºC/4ºC (27%); 1.11 @ 20ºC/4ºC (31%); 1.13 @ 20ºC/4ºC (35%)
VAPOR DENSITY:	(Air = 1): Not available
VAPOR PRESSURE:	28 mmHg @ 30ºC (20%); 26 mmHg @ 30ºC (27%) ;24 mmHg @ 30ºC (31%); 23 mmHg @ 30ºC (35%)

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID:	Excessive heat or contamination could cause product to become unstable.
STABILITY:	Stable (heat and contamination could cause decomposition)
POLYMERIZATION:	Will not occur
INCOMPATIBLE MATERIALS:	Reducing agents, wood, paper and other combustibles, iron and other heavy metals, copper alloys and caustic.
HAZARDOUS DECOMPOSITION PRODUCTS:	Oxygen which supports combustion.

COMMENTS: Materials to Avoid : Dirt, organics, cyanides and combustibles such as wood, paper, oils, etc.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS: 35% hydrogen peroxide: Extremely irritating/corrosive (rabbit) [FMC Study Number: I83-748]

SKIN EFFECTS: 35% hydrogen peroxide: Mildly irritating after 4-hour exposure (rabbit) [FMC Study Number: I83-747]

DERMAL LD_{50}: 35% hydrogen peroxide: > 2,000 mg/kg (rabbit) [FMC Study Number: I83-746]

ORAL LD_{50}: 35% hydrogen peroxide: 1,193 mg/kg (rat) [FMC Study Number: I83-745]

INHALATION LC_{50}: 50% hydrogen peroxide: > 0.17 mg/l (rat) [FMC Study Number: I89-1080]

TARGET ORGANS: Eyes, nose, throat and lungs

ACUTE EFFECTS FROM OVEREXPOSURE: Extremely irritating/corrosive to eyes and gastrointestinal tract. May cause irreversible tissue damage to the eyes including blindness. Inhalation of mist or vapors may be severely irritating to nose, throat and lungs. May cause skin irritation.

CHRONIC EFFECTS FROM OVEREXPOSURE: The International Agency for Research on Cancer (IARC) has concluded that there is inadequate evidence for carcinogenicity of hydrogen peroxide in humans, but limited evidence in experimental animals (Group 3 - not classifiable as to its carcinogenicity to humans). The American Conference of Governmental Industrial Hygienists (ACGIH) has concluded that hydrogen peroxide is a 'Confirmed Animal Carcinogen with Unknown Relevance to Humans' (A3).

CARCINOGENICITY:

Chemical Name	IARC	NTP	OSHA	Other
Hydrogen Peroxide	3	Not listed	Not listed	(ACGIH) A3

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION: Channel catfish 96-hour LC_{50} = 37.4 mg/L
Fathead minnow 96-hour LC_{50} = 16.4 mg/L
Daphnia magna 24-hour EC_{50} = 7.7 mg/L
Daphnia pulex 48-hour LC_{50} = 2.4 mg/L
Freshwater snail 96-hour LC_{50} = 17.7 mg/L
For more information refer to ECETOC "Joint Assessment of Commodity Chemicals No. 22, Hydrogen Peroxide." ISSN-0773-6339, January 1993

CHEMICAL FATE INFORMATION: Hydrogen peroxide in the aquatic environment is subject to various reduction or oxidation processes and decomposes into water and oxygen. Hydrogen peroxide half-life in freshwater ranged from 8 hours to 20 days, in air from 10-20 hrs. and in soils from minutes to hours depending upon microbiological activity and metal contaminants.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: An acceptable method of disposal is to dilute with a large amount of water and allow the hydrogen peroxide to decompose followed by discharge into a suitable treatment system in accordance with all regulatory agencies. The appropriate regulatory agencies should be contacted prior to disposal.

14. TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION (DOT)

PROPER SHIPPING NAME:	Hydrogen peroxide, aqueous solutions with not less than 20% but not more than 40% hydrogen peroxide
PRIMARY HAZARD CLASS / DIVISION:	5.1 (Oxidizer)
HAZARD CLASS, SUBSIDIARY:	8
UN/NA NUMBER:	UN 2014
PACKING GROUP:	II
LABEL(S):	Oxidizer, Corrosive
PLACARD(S):	5.1 (Oxidizer)

ADDITIONAL INFORMATION:

DOT Marking: Hydrogen Peroxide, aqueous solution with not less than 20%, but not more than 40% Hydrogen Peroxide, UN 2014

Hazardous Substance/RQ: Not applicable

49 STCC Number: 4918775

DOT Spec: stainless steel/high purity aluminum cargo tanks and rail cars. UN Spec: HDPE drums. Contact FMC for specific details.

INTERNATIONAL MARITIME DANGEROUS GOODS (IMDG)

PROPER SHIPPING NAME: Hydrogen peroxide, aqueous solutions with not less than 20%, but not more than 60% hydrogen peroxide.

INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO) / INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA)

PROPER SHIPPING NAME: Hydrogen peroxide, aqueous solutions with not less than 20%, but not more than 40% hydrogen peroxide (*).

OTHER INFORMATION:

(*) Air regulations permit shipment of Hydrogen Peroxide (20 - 40%) in non-vented containers for Air Cargo Only aircraft, as well as for Passenger and Cargo aircraft. HOWEVER, all FMC Hydrogen Peroxide containers are vented and therefore, air shipments of FMC H_20_2 is not permitted. IATA air regulations state that venting of packages containing oxidizing substances is not permitted for air transport.

Protect from physical damage. Keep drums in upright position. Drums should not be stacked in transit. Do not store drum on wooden pallets.

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355, APPENDIX A):
Not listed

SECTION 311 HAZARD CATEGORIES (40 CFR 370):
Fire Hazard, Immediate (Acute) Health Hazard

SECTION 312 THRESHOLD PLANNING QUANTITY (40 CFR 370):

The Threshold Planning Quantity (TPQ) for this product, if treated as a mixture, is 10,000 lbs; however, this product contains the following ingredients with a TPQ of less than 10,000 lbs.: None, (conc. <52%)

SECTION 313 REPORTABLE INGREDIENTS (40 CFR 372):

Not listed

CERCLA (COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT)

CERCLA DESIGNATION & REPORTABLE QUANTITIES (RQ) (40 CFR 302.4):

Unlisted (Hydrogen Peroxide 20-40%); RQ = 100 lbs.; Ignitability, Corrosivity

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA INVENTORY STATUS (40 CFR 710):

Listed

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)

RCRA IDENTIFICATION OF HAZARDOUS WASTE (40 CFR 261):

Waste Number: D001, D002

CANADA

WHMIS (WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM):

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Hazard Classification / Division:	C E D2B
Product Identification Number:	2014
Ingredient Disclosure List:	Listed
Domestic Substance List:	All components listed

INTERNATIONAL LISTINGS

Hydrogen peroxide:

China: Listed
Japan (ENCS): (1)-419
Korea: KE-20204
Philippines (PICCS): Listed

HAZARD AND RISK PHRASE DESCRIPTIONS:

EC Symbols: O (Oxidizer)

	C	(Corrosive)
	Xn	(Harmful)
EC Risk Phrases:	R5	(Heating may cause an explosion.)
	R8	(Contact with combustible material may cause fire)
	R35	(Causes severe burns.)
	R20/22	(Harmful by inhalation and if swallowed.)

16. OTHER INFORMATION

HMIS

Health	3
Flammability	0
Physical Hazard	1
Personal Protection (PPE)	H

Protection = H (Safety goggles, gloves, apron, the use of a supplied air or SCBA respirator is required in lieu of a vapor cartridge respirator)

HMIS = Hazardous Materials Identification System

Degree of Hazard Code:
4 = Severe
3 = Serious
2 = Moderate
1 = Slight
0 = Minimal

NFPA

Health	3
Flammability	0
Reactivity	1
Special	OX

SPECIAL = OX (Oxidizer)

NFPA (National Fire Protection Association)

Degree of Hazard Code:
4 = Extreme
3 = High
2 = Moderate
1 = Slight
0 = Insignificant

REVISION SUMMARY:
This MSDS replaces Revision #11, dated June 03, 2008.

Changes in information are as follows:
Section 1 (Product and Company Identification)
Section 9 (Physical and Chemical Properties)
Section 14 (Transport Information)
Section 16 (Other Information)

Durox, Oxypure, Super D and FMC Logo - FMC Trademarks

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Appendix N
RIP Implementation Schedule

Tentative Implementation Schedule
General Chemical Corporation Site
133 - 135 Leland Street, Framingham, MA

Remediation Related Costs	
Tentative Implemenation Date	**Task Description**
11/15 - 12/2/11	Coordinate, prepare and install ISCO injection wells and SVE wells on GCC property
12/6 - 12/9/11	Pre-injection sampling
12/12 - 12/23/11	1st two weeks of ISCO injections of Area 1 on GCC property (**17 injection wells**)#
1/23/ - 1/30/12	30-day post-injection sampling/combine with January quarterly sampling event
4/2 - 4/20/12	Baseline prior to 2nd ISCO injection of Area 1/combine with April quarterly sampling event
5/7 - 5/18/12	2nd two weeks of ISCO injections of Area 1 on GCC property
6/1 - 6/10/12	Anaerobic pilot test well installation
6/18 - 6/22/12	2nd 30-day Post-Injection Monitoring Event/combine with anaerobic test baseline sampling
7/2 - 7/31/12	Coordinate, prepare and install injection wells on CSX property, additional area sentinel wells.
7/2 - 7/16/12	Anaerobic bioremediation pilot test
7/11-7/15/12	July quarterly sampling event
8/1 - 8/7/12	Pre-injection sampling and anaerobic pilot test sampling
8/13 - 8/24/12	3rd two weeks of ISCO injections – first time at Area 2 (railroad ROW,**10-12 injection wells**)
9/26 - 10/4/12	3rd 30-day Post-Injection Monitoring Event/combine with October quarterly sampling event
1/7 - 1/11/13	January quarterly sampling event
4/1 - 4/15/13	Anaerobic bioremediation implementation for downgradient plume
4/25 - 4/30/13	Follow-up anaerobic sampling/combine with April quarterly event (quarterly schedule thereafter - see MCP costs below)

Assumptions:

1. Considers that ISCO will focus on source area and middle plume (potentially to the area of the MWRA aqueduct), and enhanced anaerobic bioremediation will address impacts south of the Exelon access road .

2. Schedule based on tentative RIP approval date of November 15, 2011 considering a review period following the September 28, 2011 submittal.

3. Assumes initial and post-injection monitoring can occur in winter given all initial injection locations should be accessible on the GCC property. Downgradient wells immediately beyond the GCC property will be marked in the field prior to winter.

4. Assumes effective implementation of ISCO with sodium persulfate without change in ISCO chemistry.

5. ISCO well screens are patented, and require 3-week lead time for order.

6. Timeline beyond 4/30/13 cannot be reliably predicted at this time and will be based on the effectiveness of initial injection events. Revised timelines will be included in the upcoming Inspection and Monitoring Report submittals.

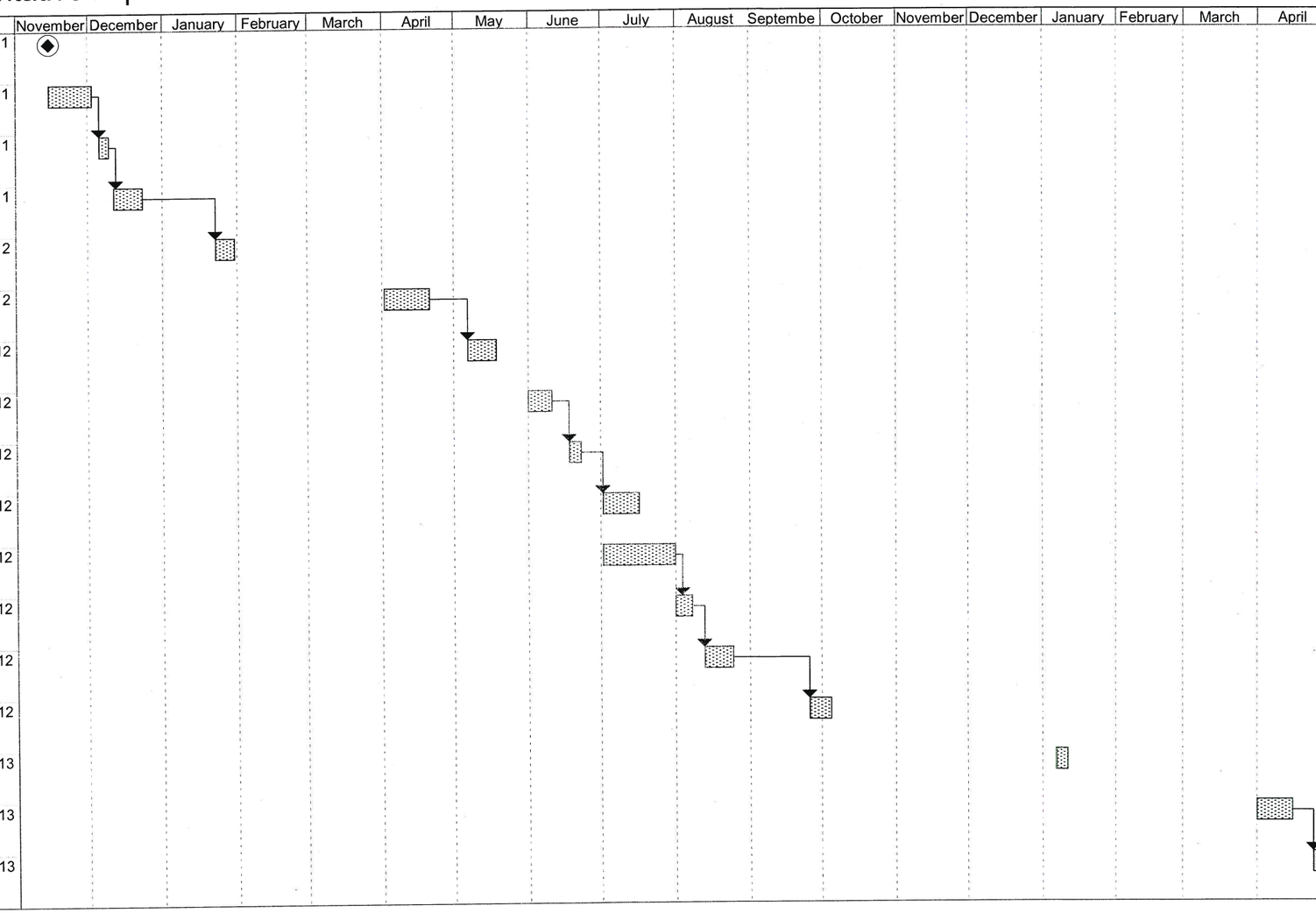
Notes:

Schedule dependent upon weather conditions and a rapid conclusion to the comment/response period

General Chemical Corporation
133-138 LeLand Street
Framingham, Massachusetts

Tentative Implementation Schedule 2011 - 2013

Task Name	Start	Finish
Receipt of all required approvals	Tue 11/15/11	Tue 11/15/11
Coordination and installation of ISCO wells on GCC property	Tue 11/15/11	Fri 12/2/11
Pre-Injection Baseline Sampling	Tue 12/6/11	Fri 12/9/11
1st Round of ISCO injections of Area 1 on GCC Property (17 injection wells)	Mon 12/12/11	Fri 12/23/11
Post Injection 30 day sampling event/ quarterly sampling	Mon 1/23/12	Mon 1/30/12
Pre-Injection Baseline/ Quarterly Sampling	Mon 4/2/12	Fri 4/20/12
2nd Round of ISCO Injections of Area 1 (GCC Property)	Mon 5/7/12	Fri 5/18/12
Anaerobic pilot test well installation	Fri 6/1/12	Sun 6/10/12
Post Injection 30 day/ Anaerobic Pilot Test Baseline Sampling	Mon 6/18/12	Fri 6/22/12
Anaerobic Pilot Test	Mon 7/2/12	Mon 7/16/12
Coordination and installation of ISCO wells on CSX property	Mon 7/2/12	Tue 7/31/12
Pre-Injection Baseline/ Quarterly Sampling	Wed 8/1/12	Tue 8/7/12
3rd Round of ISCO Injections (GCC and CSX Property)	Mon 8/13/12	Fri 8/24/12
Post Injection 30 day Sampling	Wed 9/26/12	Thu 10/4/12
Quarterly Sampling Event	Mon 1/7/13	Fri 1/11/13
Anaerobic Remediation Implementation for Downgradient Plume	Mon 4/1/13	Mon 4/15/13
Post Anaerobic/ Quarterly Sampling	Thu 4/25/13	Tue 4/30/13



Appendix O

Anaerobic Bioremediation Pilot Test – Tables and Figures

Figure 1 - Pneumatic Plug Schematic

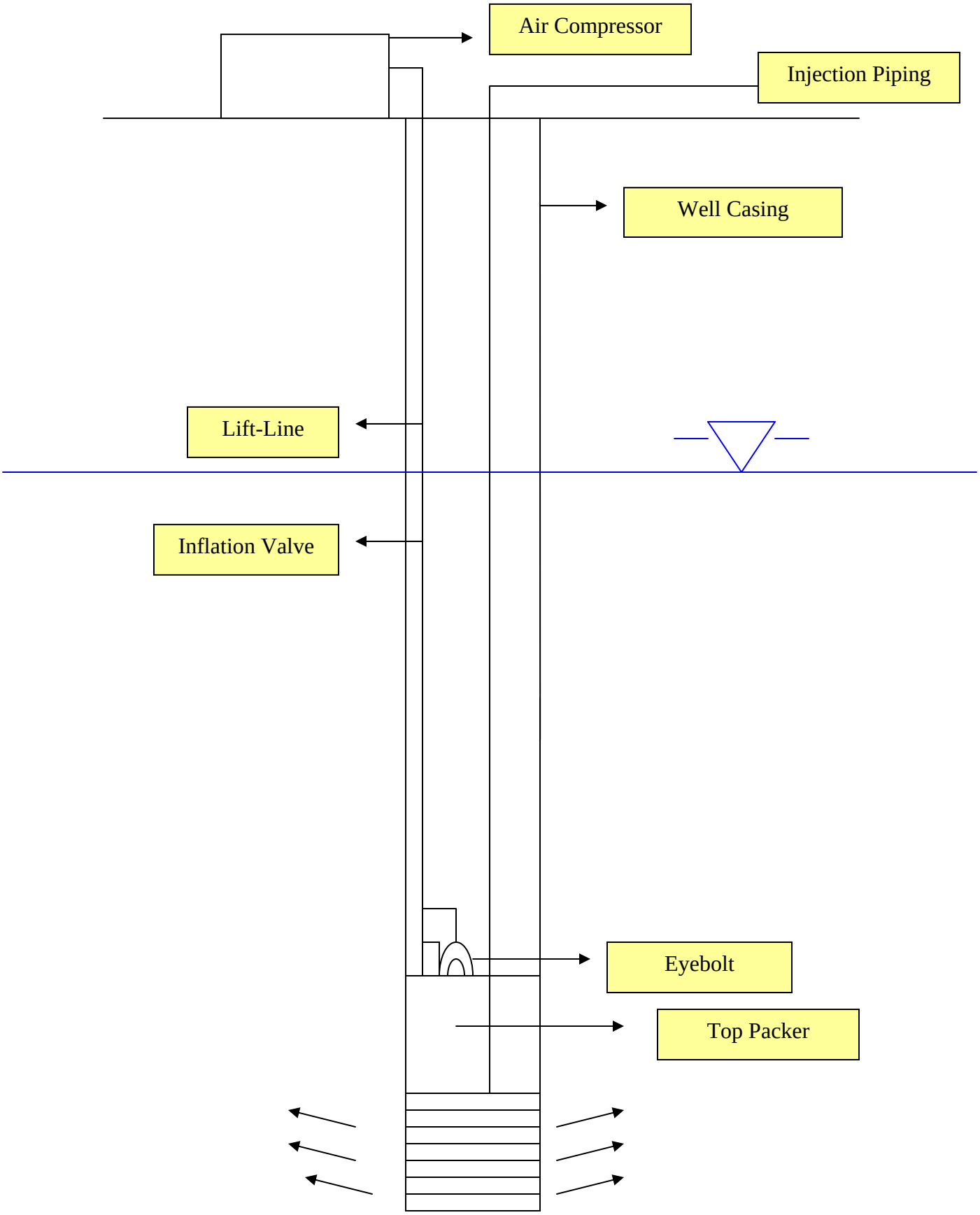


Figure 2 – Proposed Piezometer Locations

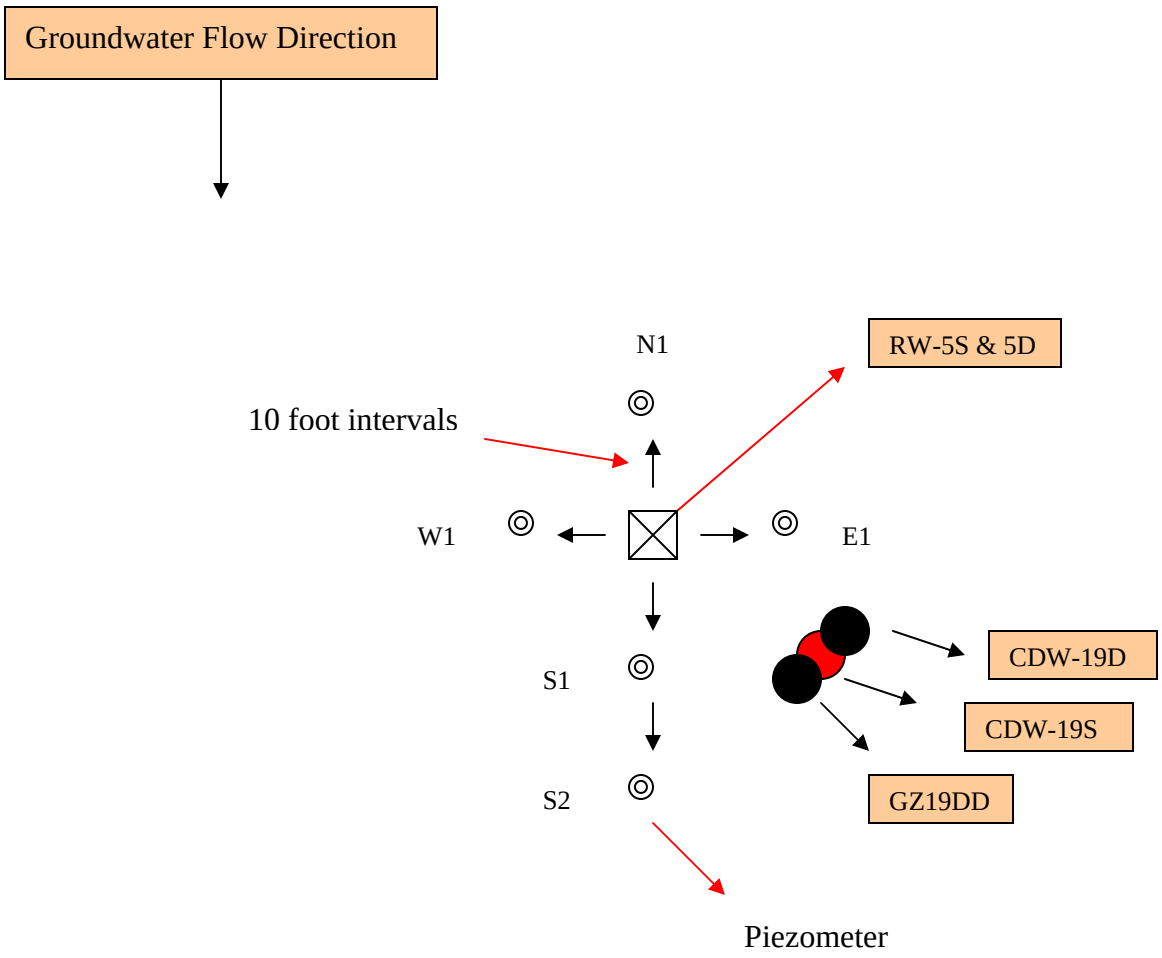


Table 1
Anaerobic Pilot Test - General Chemical Corporation
Framingham, Massachusetts

Monitoring Wells	Field and Laboratory Parameters													
	DO	ORP	pH	Temperature	Conductivity	Chloride	Acetate	COD	BOD	TOC	Methane, Ethane, and Ethylene	Total Alkalinity	Ammonia-Nitrogen	Dissolved Iron/Manganese, Nitrate, and Sulfate*
RW-5S	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]
RW-5D	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]
CDW-19S	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]
CDW-19D	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]
GZ-19DD	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]
Piezometer N1	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]
Piezometer E1	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]
Piezometer W1	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]
Piezometer S1	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]
Piezometer S2	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]

Notes:

X[a]=indicates field parameters to be monitored prior to and periodically during the pilot test.

Appendix P
Public Involvement Documentation

Groundwater
& Environmental Services, Inc.®

364 Littleton Road • Suite 4 • Westford, Massachusetts 01886 • (800) 221-6119 • Fax (978) 392-8583

September 28, 2011

Mr. Jeffrey Chormann
Chief, Assessment and Reporting Branch
Massachusetts Department of Environmental Protection
One Winter Street
Boston, Massachusetts 02108

RE: **Public Notification**
Submittal of Phase IV Remedy Implementation Plan (RIP)
General Chemical Corporation
133-138 Leland Street
Framingham, Massachusetts
RTN 3-29233

Dear Mr. Chormann:

On behalf of General Chemical Corporation (GCC), Groundwater & Environmental Services, Inc. (GES) is pleased to submit this Phase IV Remedy Implementation Plan (RIP) for the above-referenced site. Future activities will continue to be conducted under existing MassDEP RTN 3-29233. Paper copies of the report are being submitted to the Framingham Public Library and the Framingham Board of Health under separate cover. Additional paper copies are available upon request.

If you have any questions, please contact the undersigned at 800-221-6119 x3252.

Sincerely,
GROUNDWATER & ENVIRONMENTAL SERVICES, INC.

Stefan C. Sokol, LSP
Senior Project Manager

Felix A. Perriello, CHMM, CPG, LSP
Site Operations Manager

cc: Framingham Board of Selectmen
Framingham Health Department