



**FILE**

## Department of Environmental Protection

Northeast Regional Office • 205B Lowell Street, Wilmington MA 01887 • 978-694-3200

DEVAL L. PATRICK  
Governor

MAEVE VALLELY BARTLETT  
Secretary

DAVID W. CASH  
Commissioner

**SEP 16 2014**

Varian Medical Systems, Inc.  
3120 Hansen Way M/S G-100  
Palo Alto, CA 94304-1030

**RE:** Beverly  
150 Sohier Rd.  
**RTN:** 3-0000485

Attn: Mr. John Buchanan, Environmental Affairs Manager

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### NOTICE OF AUDIT FINDINGS AUDIT INSPECTION

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Dear Mr. Buchanan:

On September 3, 2014, the Massachusetts Department of Environmental Protection (MassDEP) conducted an inspection as part of an audit of ongoing response actions at the above-referenced disposal site. The audit included a focused inspection of the remedial systems operating at the site and a file review to determine whether necessary documents have been submitted in accordance with the requirements of M.G.L. c.21E and 310 CMR 40.0000, the Massachusetts Contingency Plan (MCP). This Notice informs you of the results of MassDEP's audit/inspection.

The field inspection focused primarily on the remedial systems' discharges. The inspection involved:

1. On site screening of the treatment systems' influent and effluent for contaminant concentrations with portable instrumentation;
2. Reviewing the most recent analytical results of the treatment system's effluent for contaminant concentrations;
3. Comparing the results of the analysis to previously submitted data and applicable permits, conditions of approvals, and/or Policies; and
4. Reviewing the operation of the treatment systems for compliance with the requirements of M.G.L. c. 21E and the MCP.

## INSPECTION FINDINGS

### Inspection of the soil vapor extraction systems:

The site contains two remedial treatment systems. The Building #3 remedial system contains 2 horizontal soil vapor extraction (SVE) wells. Off gases generated from the Building #3 SVE system are treated by two 2,000-pound vapor phase granular activated carbon canisters (GACs) connected in series. The Building # 5 remedial system contains 4 horizontal SVE wells. Off gases generated from the Building # 5 SVE system are treated by another two 2,000-pound vapor phase GACs piped in series. Both systems were operational on the day of the inspection. System gauges indicated that the vacuum rates were approximately 12" and 8" of water for the Building #3 and #5 off gas treatment systems, respectively.

Prior analytical sampling of influent and effluent from the Building #3 off gas treatment system conducted on January 19, 2010, indicated that total volatile organic compounds (VOCs) in the influent and effluent were 223,000 and 48.42 micrograms per cubic meter, respectively. The January 19, 2010 sampling results, reviewed during the inspection, indicated that VOC removal efficiency was 99.98%, greater than 95% , in compliance with 310 CMR 40.0049(5).

### Inspection the off-gas treatment systems:

On site screening of treatment system influents and effluents were conducted using a photo ionization detector. The results are as follows:

#### Building #3:

Influent concentration:	10.4	parts per million by volume (ppmv)
Effluent concentration:	0.0	ppmv
Removal efficiency:	100%	

#### Building #5:

Influent concentration:	0.0	ppmv
Effluent concentration:	0.0	ppmv

## INSPECTION OUTCOME

MassDEP did not identify any violations of the requirements applicable to remedial system operation at the site or of any requirements for the submittal of one or more documents, forms or other information required by the MCP. Copies of the Remedial System Audit Inspection Sheets are attached.

Please note that in 2011 the US EPA updated the inhalation toxicity value for trichloroethylene (TCE), a contaminant of concern at this disposal site. As a result, for sites where vapor intrusion is or might be a concern, the concentrations that would be considered an Imminent Hazard are much lower than before. In addition, the levels to achieve No Significant Risk to human health have also been reduced. Further updated information about TCE can be found on MassDEP's web page at <http://www.mass.gov/eea/agencies/massdep/cleanup/regulations/site-cleanup-policies-guidance.html#4>. In light of the change to the TCE toxicity value, MassDEP recommends that the current site conditions be re-evaluated to determine if the current MCP status is still appropriate, or additional risk reduction measures are needed.

### **LICENSED SITE PROFESSIONAL**

A copy of this notice has been sent to the LSP-of-Record, Mr. Timothy Kemper, LSP #9070.

### **LIMITATIONS**

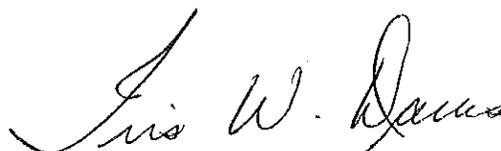
MassDEP's findings were based upon the certainty of the information reviewed during the audit. These findings do not: (1) apply to actions or other aspects of the site that were not reviewed in the audit; (2) preclude future audits of past, current or future actions at the site; (3) in any way constitute a release from any liability, obligation, action or penalty under M.G.L. c. 21E, 310 CMR 40.0000, or any other law, regulation or requirement; or (4) limit MassDEP's authority to take or arrange, or to require any Responsible Party or Potentially Responsible Party to perform, any response action authorized by M.G.L. c. 21E which MassDEP deems necessary to protect health, safety, public welfare or the environment.

If you have any questions regarding this Notice or any requirements contained in it, please contact Jennifer Wang at (978) 694-3396. Please reference the Release Tracking Number 3-0000485 in any future correspondence to MassDEP regarding the site.

Sincerely,



Jennifer Wang  
Environmental Engineer <sup>749</sup>  
Risk Reduction



Iris W. Davis  
Section Chief  
Risk Reduction and Enforcement

Attachment:  
Remedial System Audit Inspection Sheets

cc (w/o Attachment):

City of Beverly, Mayor Michael P. Cahill, [mayorcahill@beverlyma.gov](mailto:mayorcahill@beverlyma.gov)  
Board of Health, Mr. William Burke, Director, [bburke@beverlyma.gov](mailto:bburke@beverlyma.gov)  
LSP-of-Record, Mr. Timothy Kemper, [timothy.kemper@CBI.com](mailto:timothy.kemper@CBI.com)  
Mr. Raymond Cadorette, [raymond.cadorette@CBI.com](mailto:raymond.cadorette@CBI.com)  
MassDEP Data Entry/File Action (ROS) SNAUDI [09/03/2014], AUDCOM/NAFNVD



BWSC/NERO

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Waste Site Cleanup

REMEDIAL SYSTEM INSPECTION FORM

RELEASE TRACKING NUMBER

3-00485

1/2

DATE OF INSPECTION

9/3/14 @ 10:30 am

A. GENERAL INFORMATION

Town: Beverly
Address: 150 Solier Rd.
Related RTN(s):
PRP/Person Conducting Work: Varian Medical System, Inc.
Address: 3120 Hansen Way M/S G-100
Palo Alto, CA 94304-1030
Mr. John Buchanan
Environmental Affair Manager
LSP: Timothy Kemper LSP# 9070 (617-515-3004)
Contact person: Raymond Cadorette Phone: 617-589-6102
DEP Staff Conducting Inspection: Jennifer Wang

MCP action under which remediation conducted:
[ ] IRA [ ] RAM [ ] Phase IV [ ] Phase V
[ ] ROS [ ] TS OMM [ ] PS OMM
Is the site classified as Tier I? [x] yes [ ] no
Check if Remedial System(s) at site is addressing:
[x] An Imminent Hazard
[ ] A Condition of Substantial Release Migration
o Critical Exposure Pathway
o Migration to public water supply

B. TYPE OF REMEDIAL SYSTEM

Recovery/treatment system (check all that apply):
[ ] NAPL recovery [ ] Air stripping
[ ] Groundwater recovery [x] Vapor-phase carbon adsorption
[x] Soil Vapor Extraction/bioventing [ ] Aqueous-phase carbon adsorption
[ ] Dual/Multi-Phase Extraction [ ] Cat/Thermal oxidation
[ ] Application of Remedial Additives [ ] Sparging/biosparging
(Type & Amount) [ ] Sub Slab Depressurization
Mode(s) of Operation: [x] Continuous [ ] Intermittent [ ] Pulsed

Effluent/Discharge (check all that apply)
[ ] Sanitary Sewer/POTW
[ ] Surface water (including storm drains)
[ ] Upgradient groundwater re-infiltration
[ ] Downgradient groundwater re-infiltration
[x] Vapor phase discharge to ambient air
o off-gas controls o no off-gas controls
[ ] Drinking water supply
[ ] Other:

SENSITIVE RECEPTORS: (CHECK IF APPLICABLE)
[ ] WATER SUPPLY [ ] WETLAND [ ] RESIDENCE
[ ] SCHOOL [ ] DAYCARE [x] INDOOR AIR
[ ] PLAYGROUND [ ] INSTITUTION [ ] ENVIRONMENTAL JUSTICE

MORE THAN ONE SYSTEM SITE? [x] YES [ ] NO
IF "YES" IS CHECKED, COMPLETE ONE FORM FOR EACH SYSTEM
Building #3
Treatment System

C. EFFLUENT/DISCHARGE REGULATION - Indicate how the effluent/discharge limits were established

[ ] NPDES EXCLUSION OR PERMIT [ ] MCP PERFORMANCE STANDARD [ ] DEP APPROVAL LETTER [ ] OTHER
Date of [ ] Exclusion [ ] Permit: MCP citation(s): 40.0049 Date of Approval Letter(s) Explanation:

D. INSPECTION OF RELEASE PREVENTION SYSTEMS [310 CMR 40.0041] N/A [x]

Table with 5 columns: Release Prevention Elements [40.0041(7)], Applicable, Present, Not Present, Not Working. Rows include Automatic high water/product shut-off switch(es), Automatic pressure shut-off switch, Data Collection Devices, Process & Instrumentation Diagram, Systems to contain fugitive vapors, etc.

Log Book [40.0041(6)(d)] Log Book in secure building on-site? [ ] Yes [ ] No Log Book information current? [ ] Yes [ ] No
Waste Water Treatment Plant Operator [40.0041(9)] Name: Grade: License No. [ ] Not Applicable/Not Required

**E. INSPECTION OF REMEDIAL SYSTEMS (check/fill in all that is applicable)**

Were all systems functional during time of inspection?  Yes  No:

<b>NAPL</b>	<input type="checkbox"/> Gasoline <input type="checkbox"/> #2/Diesel <input type="checkbox"/> #6 Fuel <input type="checkbox"/> Other(s): <u>EVOCs (NA)</u>	Holding/Storage Tank Capacity: _____
	<input type="checkbox"/> Plate Separator <input type="checkbox"/> Drum (capacity) _____	Passive Recovery? <input type="checkbox"/> Yes <input type="checkbox"/> No

<b>GW P&amp;T</b>	<b>NO. POINTS</b>	<b>MEASUREMENT POINT</b>	<b>FLOWRATE (UNITS)</b>	<b>PRESSURE (UNITS)</b>	<b>VACUUM (UNITS)</b>	<b>GRANULAR ACTIVATED CARBON TREATMENT</b>		
						<b>VAPOR PHASE GAC</b>		<b>AQUEOUS PHASE GAC</b>
						Air Strip	SVE/MPE	
						Pounds/Unit		2,000
						#Units in Series		2
<b>MPE</b>	<b>Building #3</b>					Total Units		2
						Last Changed		July 2014
		<b>(SVE)</b>	<b>2 Hor. Wells</b>	<u>Vacuum ~ 12" H<sub>2</sub>O</u>			<b>CATALYTIC OXIDATION TREATMENT</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>SYSTEM RECOVERY TOTALS</b>								
<b>Sparging</b>						NAPL Recovered, gal		
						GW Recovered, gal		
						Sludge/Solids, Pounds		
						Spent Carbon, Pounds		
						Other: _____		

**F. INFLUENT/EFFLUENT/DISCHARGE CONCENTRATIONS (Check if split sample taken for lab analysis)**

MEDIA	CONTAMINANT AND/OR MEASUREMENT PARAMETER	TESTING METHOD <sup>1</sup>	CONCENTRATION			PERMISS DISCHARGE CONC. <sup>2</sup>	CONC. UNITS <sup>3</sup>	WITHIN PERMIT LIMITS? (Y/N)
			INFLUENT	MID	DISCHARGE			
Vapor	PPMV	PID	10.4		0.0			Y

<b>PID Screening</b>	Instrument: <u>MiniRay 3000</u>	Lamp <u>10.6</u>	eV	Calibrated to Benzene Response? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> N/A	Date: <u>9/3/14</u>	Time: <u>9:00</u>	Staff: <u>Pine</u>
Test Gas Concentration, ppmv:			PID Reading, ppmv:	

NOTES: 1 Indicate EPA Method or Screening Technique or PID/FID Screening  
 2 Indicate concentration permitted in discharge permit, MCP, and/or DEP approval letter, as appropriate. For point source air emissions, default MCP requirement is 95% removal between influent and effluent, or removal to background  
 3 Indicate mg/L or µg/L for water; and either mg/m<sup>3</sup> or µg/m<sup>3</sup>, or ppmv or ppbv for air/vapor measurements

**G. ACTIVE EXPOSURE PATHWAY MITIGATION MEASURE - Monitoring**

Monitoring technology present? <input type="checkbox"/> No <input type="checkbox"/> Yes	Monitoring technology working? <input type="checkbox"/> No <input type="checkbox"/> Yes
Description of technology:	

**H. VIOLATION(S) OBSERVED:  No  Yes  Possible**

If yes, list violation(s):

Check here if additional information/data/maps/sketches are attached to this form



BWSC/NERO

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Waste Site Cleanup

REMEDIAL SYSTEM INSPECTION FORM

RELEASE TRACKING NUMBER

3-00485

2/2

DATE OF INSPECTION

9/31/14 @ 10:30 am

A. GENERAL INFORMATION

Town: Beverly
Address: 150 Sohler Rd
MCP action under which remediation conducted:
[ ] IRA [ ] RAM [ ] Phase IV [ ] Phase V
[ ] ROS [ ] TS OMM [ ] PS OMM
Is the site classified as Tier I? [x] yes [ ] no
Check if Remedial System(s) at site is addressing:
[ ] An Imminent Hazard
[ ] A Condition of Substantial Release Migration
o Critical Exposure Pathway
o Migration to public water supply
LSP:
Contact person: Phone:
DEP Staff Conducting Inspection: Jennifer Wang

B. TYPE OF REMEDIAL SYSTEM

Recovery/treatment system (check all that apply):
[ ] NAPL recovery [ ] Air stripping
[ ] Groundwater recovery [x] Vapor-phase carbon adsorption
[x] Soil Vapor Extraction/bioventing [ ] Aqueous-phase carbon adsorption
[ ] Dual/Multi-Phase Extraction [ ] Cat/Thermal oxidation
[ ] Application of Remedial Additives [ ] Sparging/biosparging
(Type & Amount) [ ] Sub Slab Depressurization
Mode(s) of Operation: [x] Continuous [ ] Intermittent [ ] Pulsed
Effluent/Discharge (check all that apply):
[ ] Sanitary Sewer/POTW
[ ] Surface water (including storm drains)
[ ] Upgradient groundwater re-infiltration
[ ] Downgradient groundwater re-infiltration
[ ] Vapor phase discharge to ambient air
o off-gas controls o no off-gas controls
[ ] Drinking water supply
[ ] Other:
SENSITIVE RECEPTORS: (CHECK IF APPLICABLE)
[ ] WATER SUPPLY [ ] WETLAND [ ] RESIDENCE
[ ] SCHOOL [ ] DAYCARE [x] INDOOR AIR
[ ] PLAYGROUND [ ] INSTITUTION [ ] ENVIRONMENTAL JUSTICE
MORE THAN ONE SYSTEM SITE? [ ] YES [ ] NO
IF "YES" IS CHECKED, COMPLETE ONE FORM FOR EACH SYSTEM
Building # 5
Treatment System

C. EFFLUENT/DISCHARGE REGULATION - Indicate how the effluent/discharge limits were established

[ ] NPDES EXCLUSION OR PERMIT [ ] MCP PERFORMANCE STANDARD [ ] DEP APPROVAL LETTER [ ] OTHER
Date of [ ] Exclusion [ ] Permit: MCP citation(s): 40.0049 Date of Approval Letter(s): Explanation:

D. INSPECTION OF RELEASE PREVENTION SYSTEMS [310 CMR 40.0041]

N/A [x]

Table with 5 columns: Release Prevention Elements [40.0041(7)], Applicable, Present, Not Present, Not Working. Rows a-h: Automatic high water/product shut-off switch(es), Automatic pressure shut-off switch, Data Collection Devices (flow meters, etc.), Process & Instrumentation Diagram, Systems to contain fugitive vapors (i.e. treatment works sealed), Systems to prevent damage by freezing, heat, vehicles or vandals, Procedures/equipment to identify and communicate malfunctions, Posted name & telephone number of contact person.

Log Book [40.0041(6)(d)] Log Book in secure building on-site? [ ] Yes [ ] No Log Book information current? [ ] Yes [ ] No
Waste Water Treatment Plant Operator [40.0041(9)] Name: Grade: License No. [ ] Not Applicable/Not Required

E. INSPECTION OF REMEDIAL SYSTEMS (check/fill in all that is applicable)									
Were all systems functional during time of inspection? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No:									
NAPL	<input type="checkbox"/> Gasoline <input type="checkbox"/> #2/Diesel <input type="checkbox"/> #6 Fuel <input type="checkbox"/> Other(s): _____					Holding/Storage Tank Capacity: _____			
	<input type="checkbox"/> Plate Separator <input type="checkbox"/> Drum (capacity) _____					Passive Recovery? <input type="checkbox"/> Yes <input type="checkbox"/> No			
GW P&T	NO. POINTS	MEASUREMENT POINT	FLOWRATE (UNITS)	PRESSURE (UNITS)	VACUUM (UNITS)	GRANULAR ACTIVATED CARBON TREATMENT			
						VAPOR PHASE GAC		AQUEOUS PHASE GAC	
						Air Strip	SVE/MPE		
						Pounds/Unit	2,000		
						#Units in Series	2		
MPE	1	4 Hori. wells	Vacuum ~ 8" H <sub>2</sub> O			Total Units	2		
						Last Changed			
						CATALYTIC OXIDATION TREATMENT <input type="checkbox"/> Yes <input type="checkbox"/> No			
						SYSTEM RECOVERY TOTALS			
Sparging						NAPL Recovered, gal			
						GW Recovered, gal			
						Sludge/Solids, Pounds			
						Spent Carbon, Pounds			
						Other: _____			

F. INFLUENT/EFFLUENT/DISCHARGE CONCENTRATIONS (Check if split sample taken for lab analysis)									
MEDIA	CONTAMINANT AND/OR MEASUREMENT PARAMETER	TESTING METHOD <sup>1</sup>	CONCENTRATION			PERMISS DISCHARGE CONC. <sup>2</sup>	CONC. UNITS <sup>3</sup>	WITHIN PERMIT LIMITS? (Y/N)	
			INFLUENT	MID	DISCHARGE				
Vapor	PPMV	PID	0.0		0.0				
PID Screening	Instrument: MiniRae		Lamp 10.6 eV		Calibrated to Benzene Response? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				
	<input type="checkbox"/> N/A	Calibration Check Information	Date: 9/3/14	Time: 9:00	Staff: Pine	Calibration Gas: Isob.			
		Test Gas Concentration, ppmv:			PID Reading, ppmv:				
NOTES: 1 Indicate EPA Method or Screening Technique or PID/FID Screening 2 Indicate concentration permitted in discharge permit, MCP, and/or DEP approval letter, as appropriate. For point source air emissions, default MCP requirement is 95% removal between influent and effluent, or removal to background 3 Indicate mg/L or µg/L for water; and either mg/m <sup>3</sup> or µg/m <sup>3</sup> , or ppmv or ppbv for air/vapor measurements									

G. ACTIVE EXPOSURE PATHWAY MITIGATION MEASURE - Monitoring	
Monitoring technology present? <input type="checkbox"/> No <input type="checkbox"/> Yes	Monitoring technology working? <input type="checkbox"/> No <input type="checkbox"/> Yes
Description of technology:	

H. VIOLATION(S) OBSERVED: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Possible
If yes, list violation(s):
<input type="checkbox"/> Check here if additional information/data/maps/sketches are attached to this form