

# Public Involvement Plan (PIP) Meeting April 3, 2018



Algonquin Gas Transmission, LLC - Atlantic Bridge Project  
Weymouth Compressor Station  
6 & 50 Bridge Street  
Weymouth, Massachusetts 02191  
Release Tracking Numbers 4-26230 and 4-26243

Eric Buehrens - Moderator

Kelley Race, P.G. LSP  
Ryan Niles, P.G.  
Diane Silverman, PhD  
TRC Environmental Corporation

# Glossary of Terms



- **MassDEP** – Massachusetts Department of Environmental Protection (310 CMR 40.0000)
- **MCP** - Massachusetts Contingency Plan
- **PIP** - Public Involvement Plan
- **LNAPL** - Light Non-Aqueous Phase Liquid
- **LSP** - Licensed Site Professional
- **AST** - Aboveground Storage Tank
- **EPH** - Extractable Petroleum Hydrocarbons
- **VPH** - Volatile Petroleum Hydrocarbons
- **PAHs** – Polycyclic Aromatic Hydrocarbons
- **PSCS** – Permanent Solution w/Conditions Statement
- **AUL** – Activity and Use Limitation
- **IRAC** – Immediate Response Action Completion

# Why Are We Here?

- Overview of PIP Comments
- Discuss MCP Comment Documents
  - Investigations Conducted
  - Data Interpretation
  - Risk Assessment
  - Regulatory Closure
- Next Steps/Schedule



# Overview of PIP Comments

- **Predominant concerns**
  - Meeting time/repositories
  - Extent of contamination
    - Petroleum and Historic Fill
  - Risk to residents
  - Risk to the environment
    - Sea level rise/storm impacts
  - Remedy for the Disposal Site
  - Protection of residents and the environment during future activities
- **Final Comments and Responses in the Final PIP Plan**



# Does the Property Flood?

## March 2, 2018 Storm – High Tide



# Draft MCP Comment Documents - How Do They Fit Together?

- **Draft Immediate Response Action Completion Report**
  - Petroleum release overview
  - Where is the oil and is it moving?
- **Draft Permanent Solution with Conditions Statement**
  - Describes what was found, where, and what it means
  - Evaluates risk to humans and the environment
  - Identifies controls for Historic Fill for future Property activities
- **Draft Activity and Use Limitation**
  - Limits uses of the Disposal Site
  - Requires protections for Disposal Site activities



# Investigation Overview

- Land Use History
- Historical Investigations
- Geotechnical Investigations
- Environmental Investigations
- What We Learned



# Land Use History

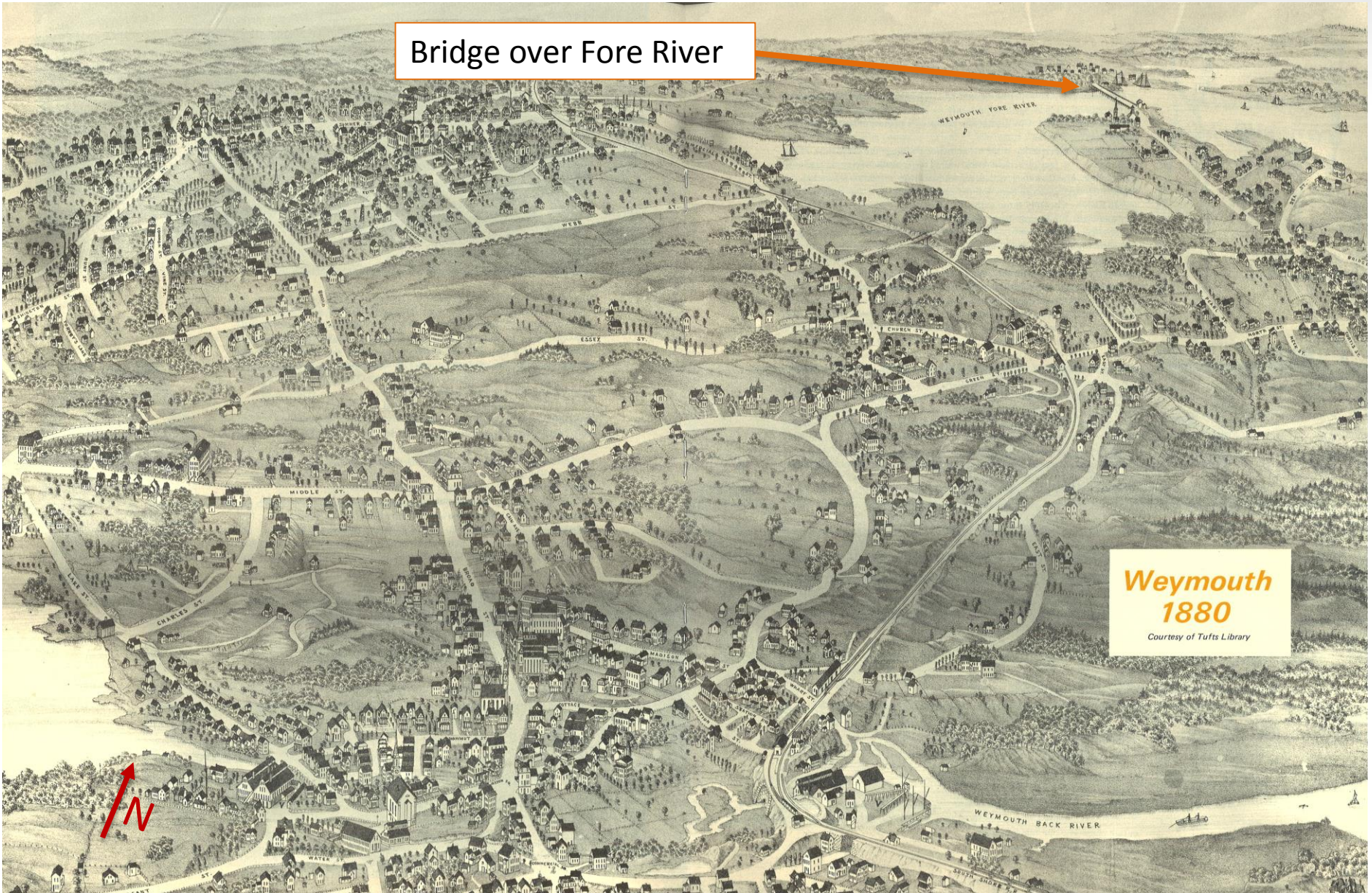
- **Pre-1910: Tidelands**
- 1910s-1920s: **Filling** of the peninsula
  - With dredge spoils from Fore River and fill
  - Coincident with development of Edgar Station
- 1920s- late 1960s: **Coal storage**
  - For use in power generation at Edgar Station
- 1970s- mid 2000s: **Oil storage**
  - 11.6 Million Gallon Above Ground Storage Tank



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Bridge over Fore River

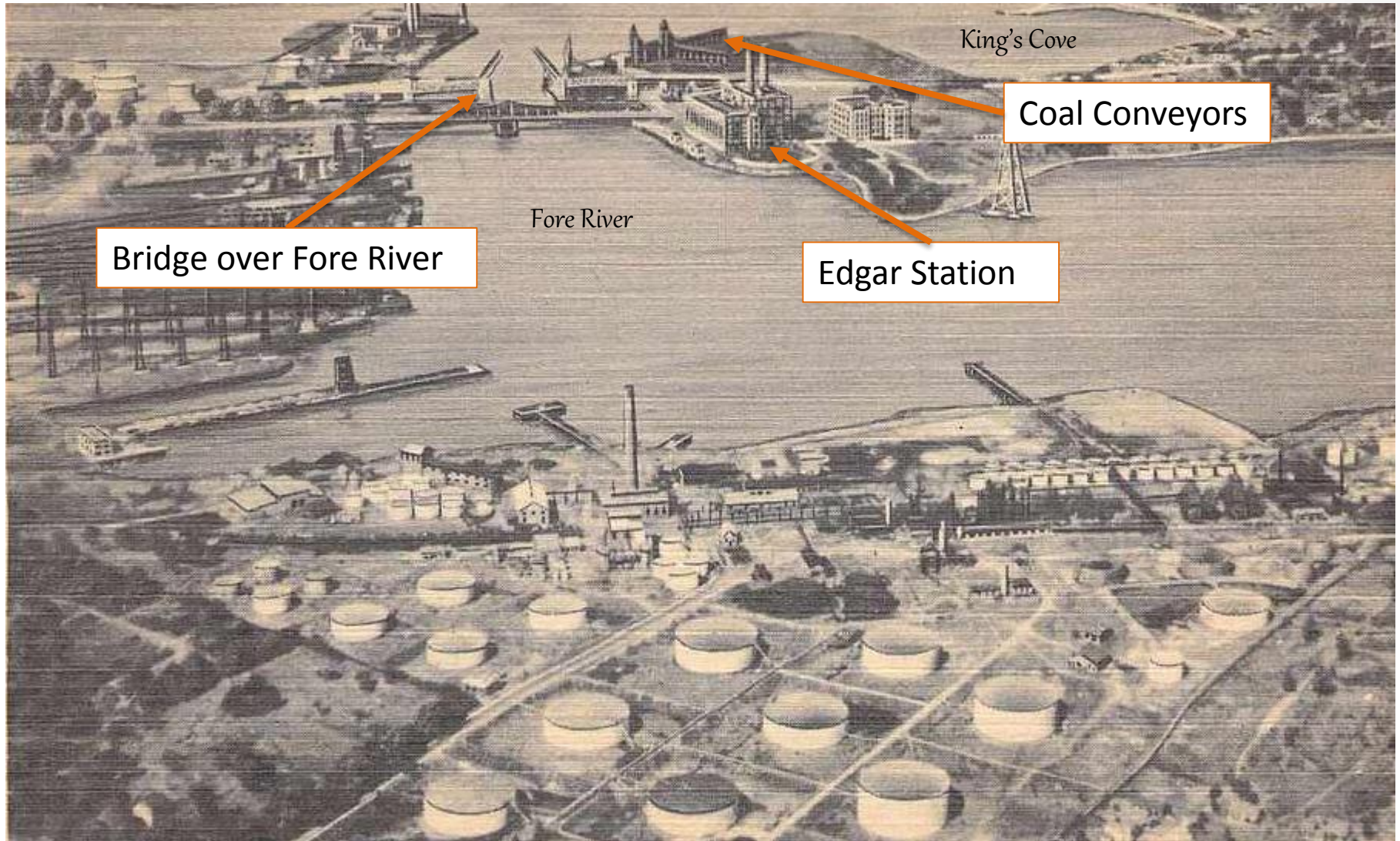


**Weymouth  
1880**  
Courtesy of Tufts Library

# Land Use History

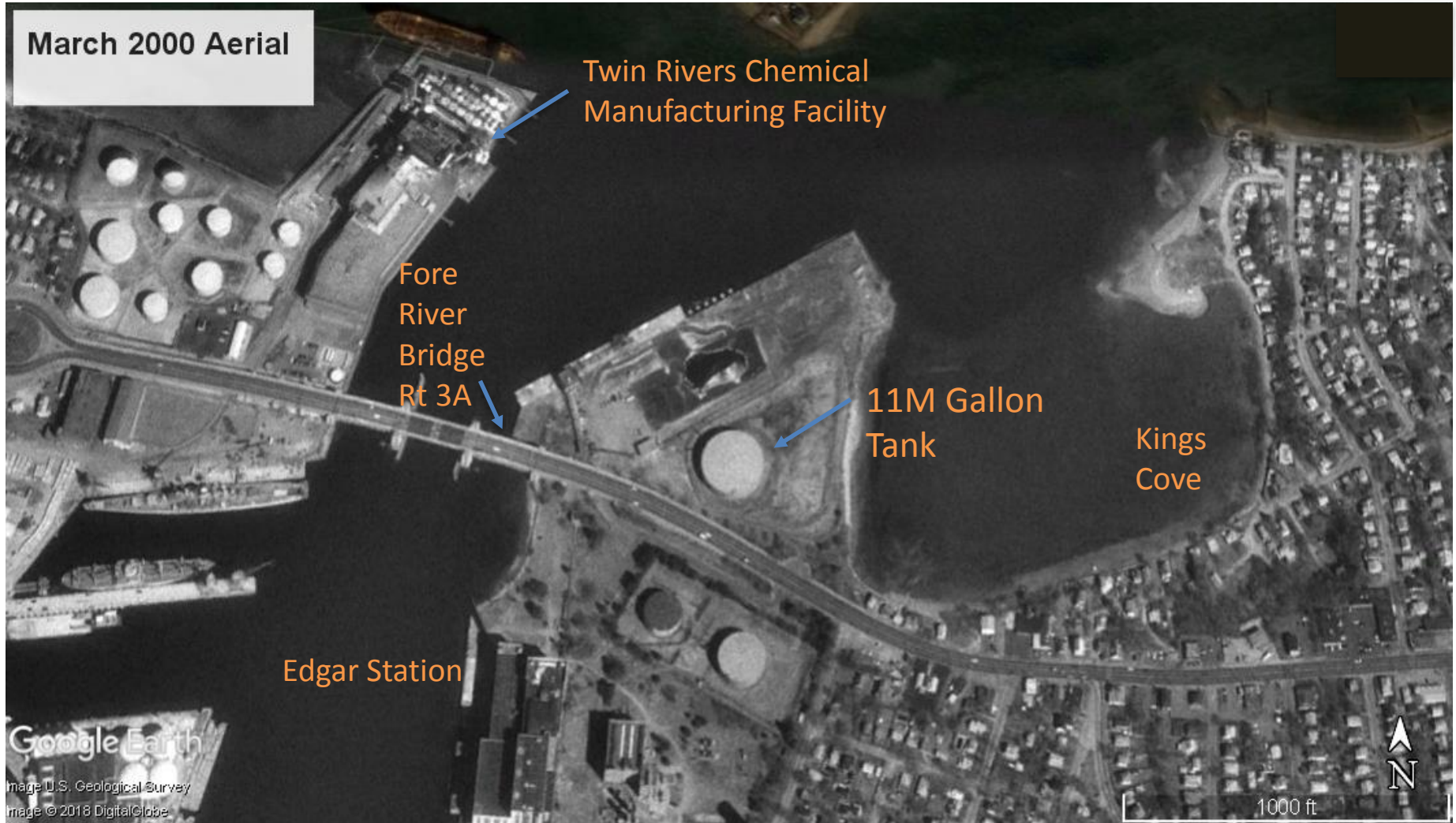
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# Circa 1930-1945

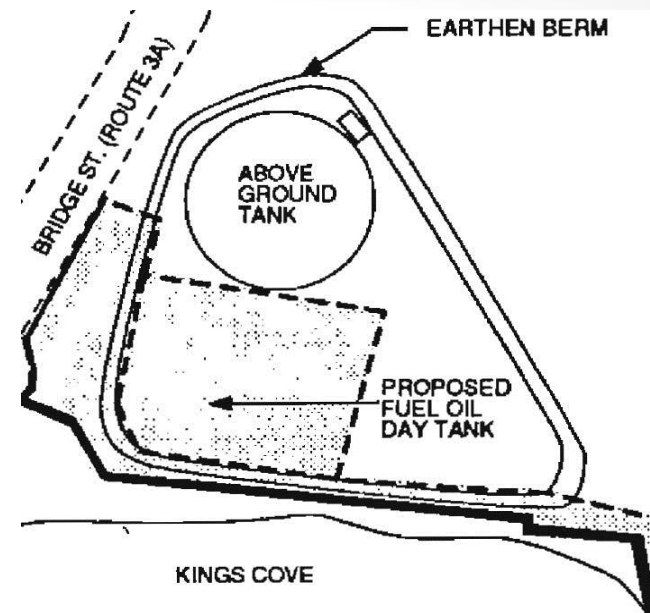


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- Conducted evaluations to support expansion of oil storage on Property
  - 1990s
  - Identified metals in soil
  - Attributed concentrations to **Historic Fill**
- Achieved regulatory closure of this portion of Property in 1997



# Geotechnical Evaluations

- Initial geotechnical investigation – 2015
  - Soil samples collected
  - Observations and results consistent with previous investigations (**Historic Fill**)
- Supplemental geotechnical work – 2016
  - Soil samples collected
  - Petroleum generally w/in the footprint of the former AST
- Notification to MassDEP = **Disposal Site** under Massachusetts Contingency Plan



- Conducted to evaluate:
  - What type of petroleum is it?
  - Where is the petroleum located?
  - Will the petroleum migrate?
- How did TRC do this?
  - Installed soil borings and monitoring wells
  - Collected samples of light non-aqueous phase liquid (**LNAPL**)
  - Evaluated LNAPL mobility in the subsurface



# Sampling Locations



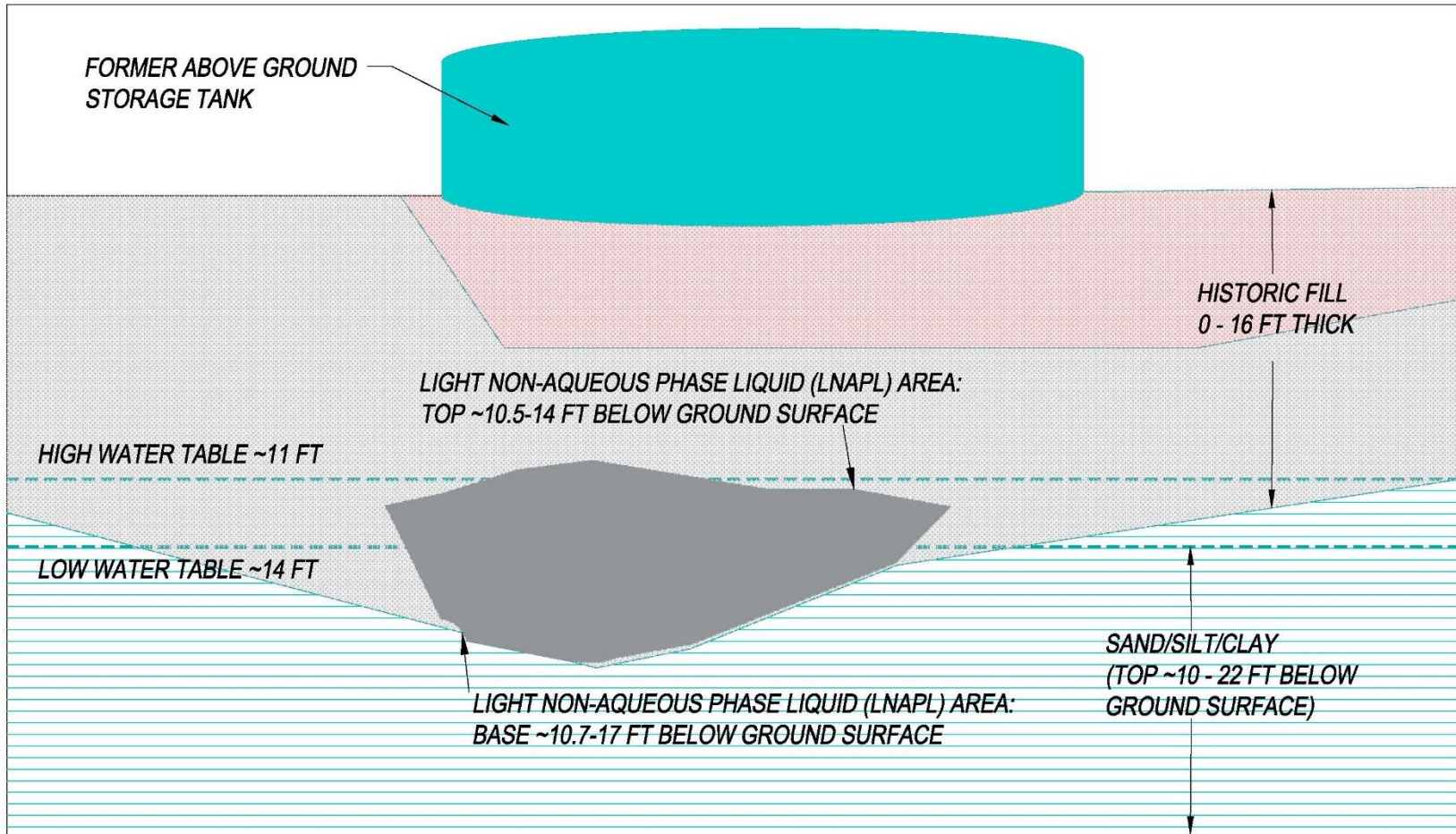
AST locations are approximate

# What Did We Learn?

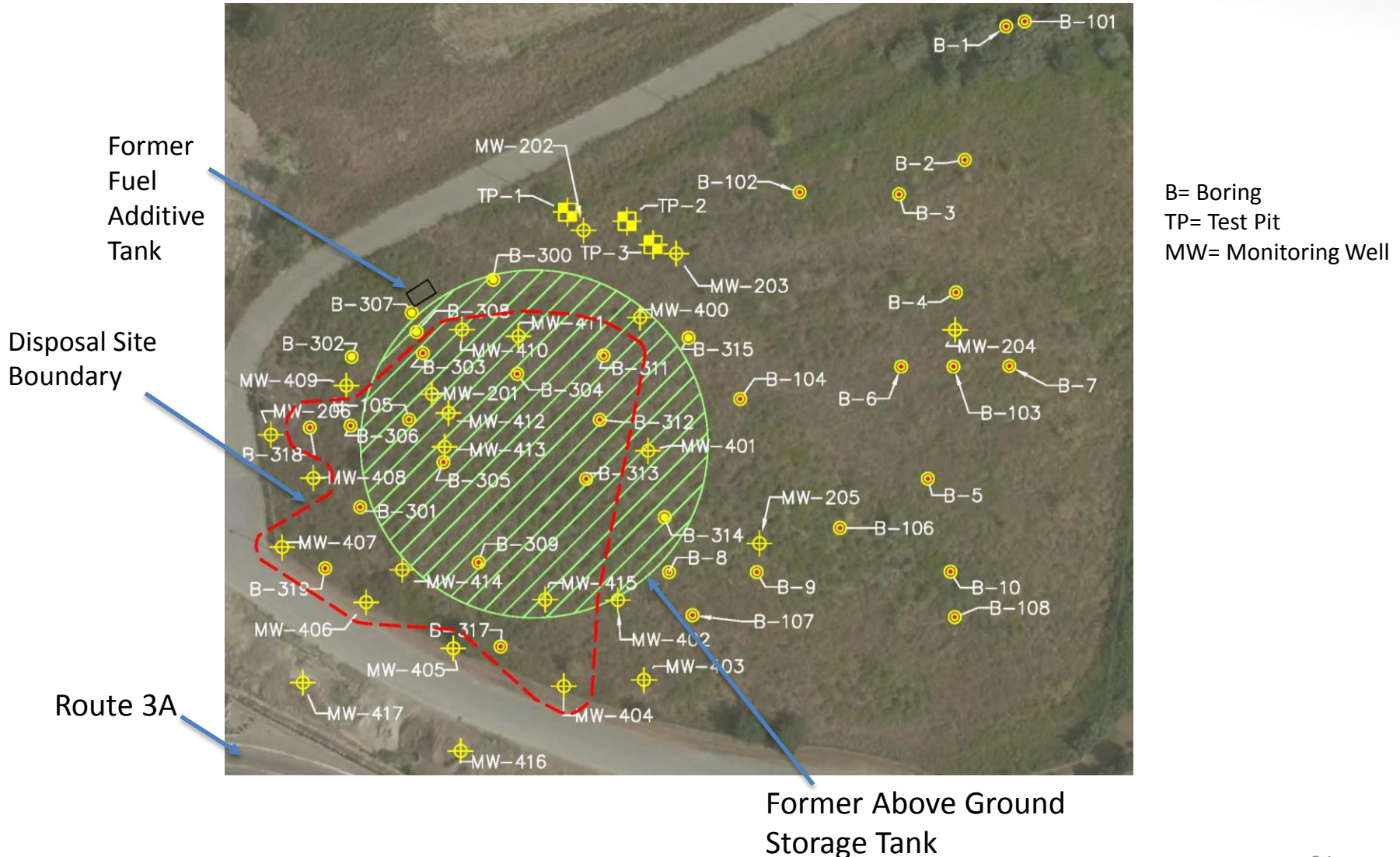
- Petroleum-containing soils – **10-18 feet deep**
- Footprint ~ Storage Tank Area
- LNAPL = Weathered No. 2 Fuel Oil (home heating)
  - Very viscous = Think **Peanut Butter**
- LNAPL **not migrating**
- Groundwater = well **below standards**



# Schematic Cross-Section

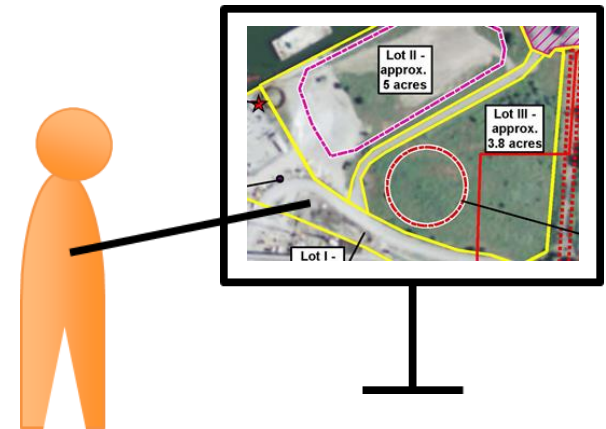


# Established Disposal Site Boundary

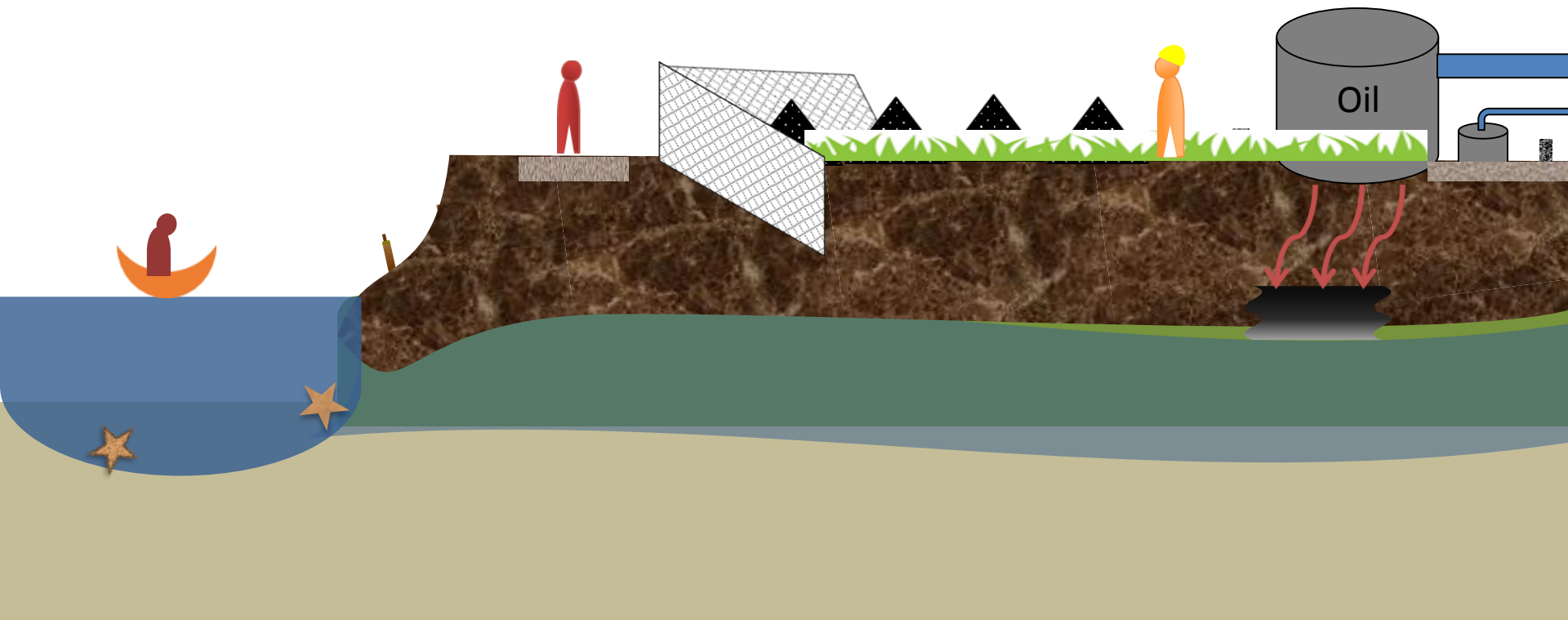


# Risk Assessment Overview

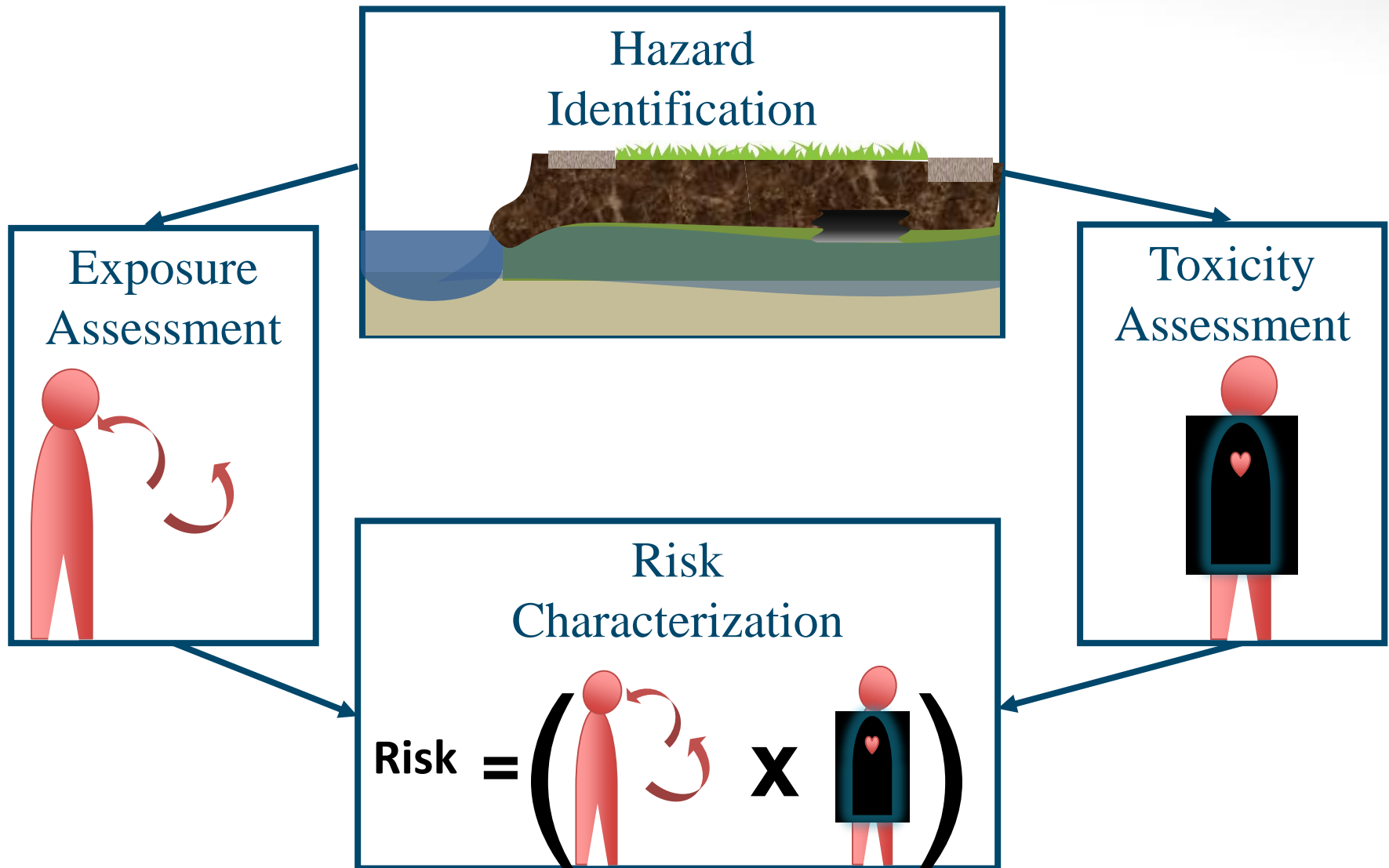
- Summarize **Conceptual Site Model**
- Explain **Risk Assessment Process**
- Present **Results** of Risk Assessment



# Conceptual Site Model



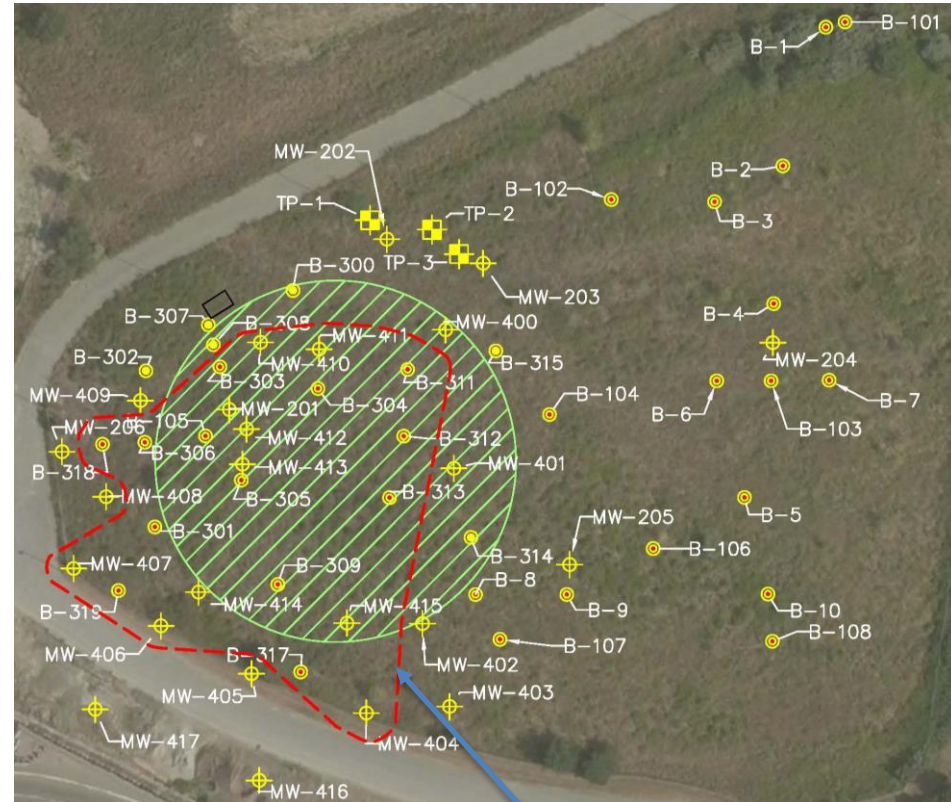
# Disposal Site Risk Assessment Process





# Hazard Identification – Which media are affected?

- Media of Concern
  - Subsurface Soil
  - Groundwater
- Excluded from data set
  - “Clean” samples
  - LNAPL (requires management\*)
  - Historic Fill (requires management\*\*)



AST locations are approximate

Disposal Site Boundary

\* Managed by Activity and Use Limitations for Disposal Site

\*\* Managed by Conditions for the Property

# Hazard Identification – What are the Chemicals of Potential Concern?

- Subsurface Soil
  - Petroleum fractions
  - Polycyclic aromatic hydrocarbons
- Groundwater
  - Petroleum fractions
  - Volatile organic compounds



# Who could be exposed? **Current Use**



Population	Subsurface Soil / Groundwater	Rationale*
Trespasser	<b>No</b>	Not at Surface / No Access
Commercial Worker	<b>No</b>	Not at Surface / No Active Use
Emergency Utility Worker	<b>No</b>	Contamination Deeper Than Utilities
Trail Walker	<b>No</b>	Not at Surface / Vegetated / Paved
River	<b>No</b>	No Petroleum Migration
Area Resident	<b>No</b>	Groundwater Not Used

\* Contamination 10 feet below existing surface

# Who could be exposed? **Future Use**

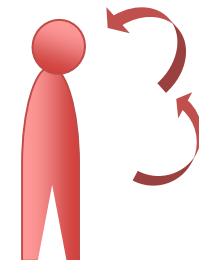


Population	Soil and/or Groundwater	Rationale*
Resident	<b>No</b>	Future Residential Use Prohibited
Recreational Visitor	<b>No</b>	Future Recreational Use Prohibited
Commercial Worker	<b>Yes</b>	Commercial Use May Occur
Construction Worker	<b>Yes</b>	Development May Occur
Emergency Utility Worker	<b>Yes</b>	Utilities May Be Installed

\* Assumes contamination 10 feet below existing surface could be moved to surface

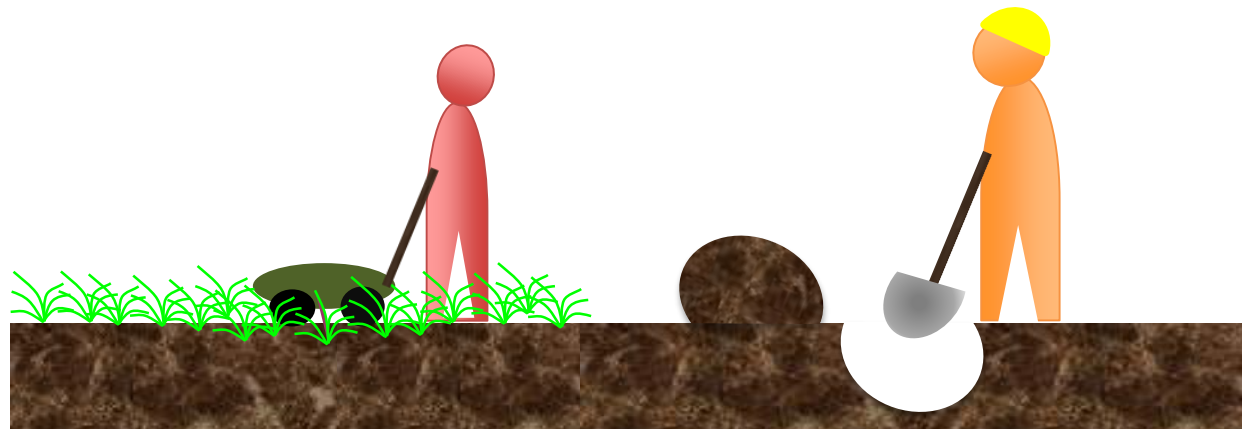
# How could exposure occur? **Future Use**

Medium	Ingestion	Dermal Contact	Inhalation of Fugitive Dust	Inhalation of Volatile Compounds
Soil	✓	✓	✓	✓
Groundwater		✓		✓



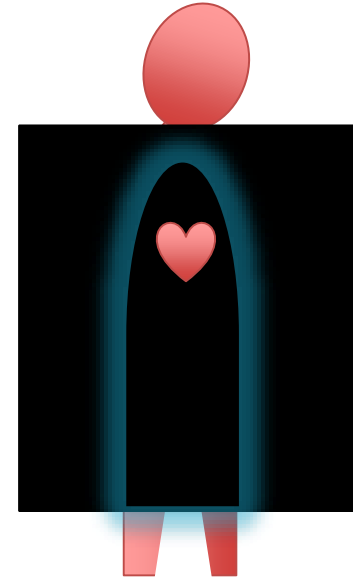
# How much exposure could occur?

- Exposure point concentrations
  - Soil/groundwater concentrations to which people may be exposed
- Exposure Assumptions
  - Values describing how much soil/groundwater is ingested, dermally contacted or inhaled
  - **MassDEP recommendations**



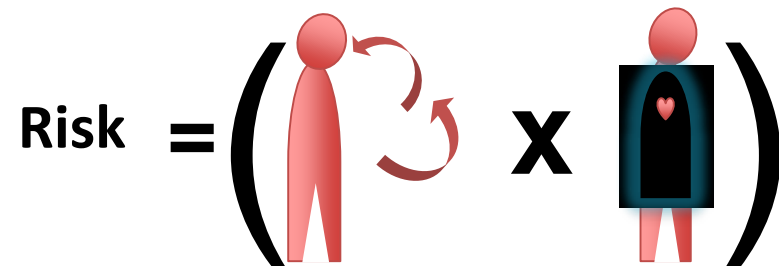
# Toxicity Assessment

- Answers the question:
  - What is the *relationship* between the amount of *exposure* and the *probability* of adverse health effects?
    - Used MassDEP recommended values



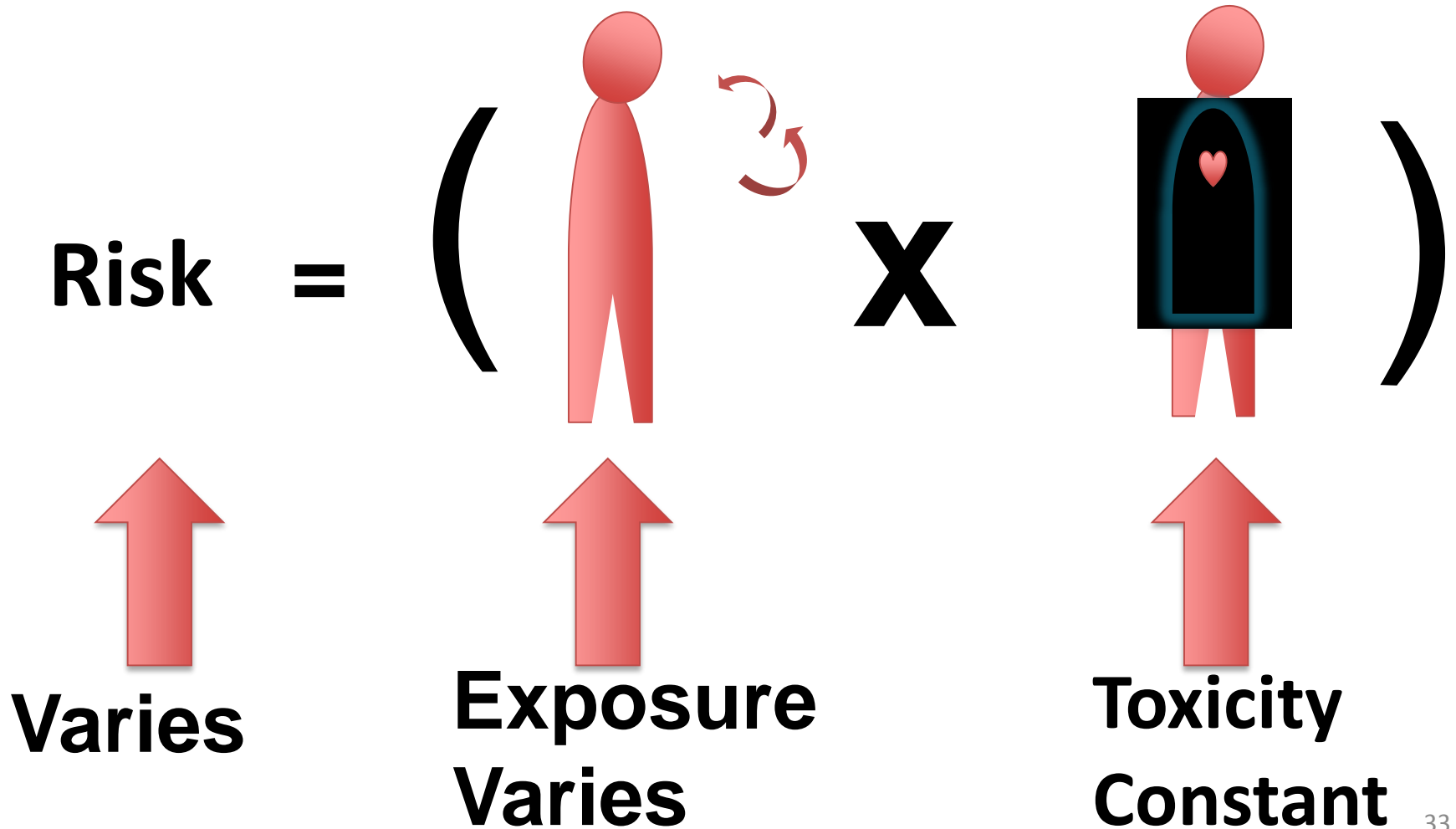
# Risk Characterization

- Answers the question:
  - *Is there a health risk?*
- Compares **estimated risk** to criteria for “acceptable” risk established by MassDEP

$$\text{Risk} = \left( \text{Person with circular arrows} \right) \times \left( \text{Person with heart} \right)$$




# MassDEP Risk Formulas



# Risk Assessment Conclusions – Future Risk\*

Risk under future conditions is **acceptable** for:

- Commercial worker
- Construction/utility worker
- Activity and Use Limitation/Conditions
  - Prevents recreational/residential uses
  - Requires evaluation of future indoor air
  - Controls exposure to LNAPL/Historic Fill

$$\text{Risk} = \left( \text{Person with circular arrows} \right) \times \left( \text{Person with heart in a box} \right)$$

\* **No current exposure = acceptable current risk**

# Regulatory Closure

- **Immediate Response Action Completion**
  - LNAPL is **not migrating**
  - Oil contamination **10 – 18 feet below** ground surface
- **Permanent Solution with Conditions Statement**
  - Describes investigations, **data** interpretation, **risk** assessment, and **Conditions** for Disposal Site closure
- **Activity and Use Limitation**
  - Establishes **permitted** and **non-permitted** activities and uses
  - Establishes Disposal Site **obligations**



# Disposal Site and Property Controls

- **Activity and Use Limitation**

- Limits reuse options (no residential and recreational)
- Requires LNAPL, Soil and Groundwater Management Plan
- Requires Health & Safety Plan

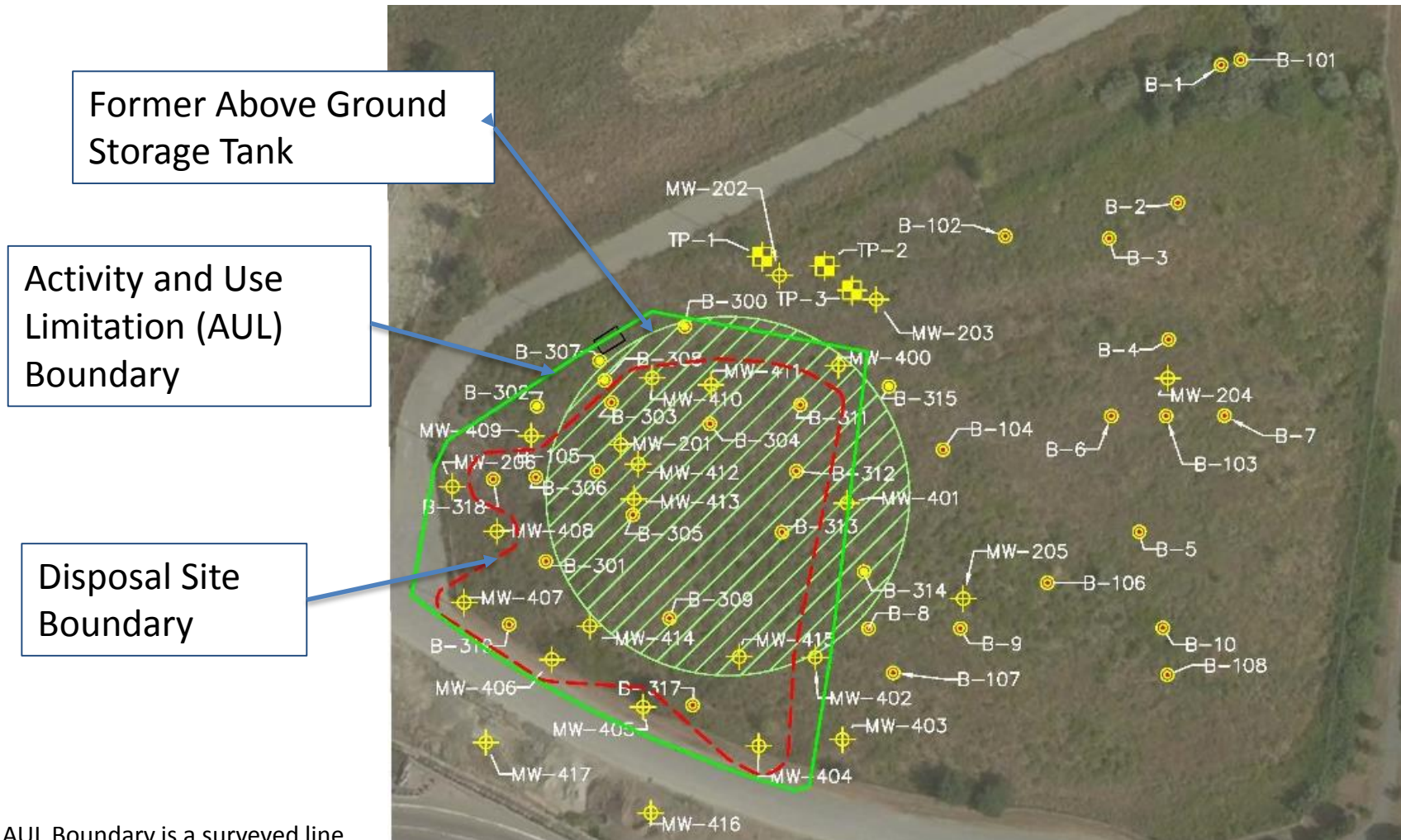


- **Conditions in the Permanent Solution**

- Cover historic fill to prevent direct exposure
- Manage dust generating activities
- Create clean utility corridors
- Reuse of soil
- Off-site soil disposal



# Disposal Site and Activity and Use Limitation Boundary



Former Above Ground Storage Tank

Activity and Use Limitation (AUL) Boundary

Disposal Site Boundary

AUL Boundary is a surveyed line  
AST locations are approximate

# Next Steps - PIP Process

- Opportunities to **provide comments**
  - Verbal questions tonight – summarized/included in the Response to Comments
  - Provide written comments on MCP draft documents
- Summary/responses to comments included in MCP documents as applicable and **provided to eDEP and repositories**
- MCP documents - **finalized** within 30 days
- Final MCP documents – uploaded to **eDEP and repositories**



# Proposed Schedule

- March 16, 2018 Meeting Notice Published in Newspapers and Meeting letter sent to mailing list (17 day advance notice)
- April 3, 2018 PIP Meeting – Immediate Response Action Completion report, Permanent Solution with /Conditions Statement, Activity and Use Limitation
- April 24, 2018 Draft MCP Documents Comment Period Ends (20-days)
- May 24, 2018 Response to Comments Due (30 days after Comment Period Ends)
- June 2018 MCP Documents Finalized (uploaded to eDEP and Repositories)



# Contact Information



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# Questions?



# Discussion

