



Environmental Risks and Risk Identification Techniques

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Key Topics

- Common Loss Exposures
- Identifying Environmental Risks
 - Available resources and tools
 - Standards of care
- Reading and Interpreting Data
 - Common problems
 - Errors and bloopers





Common Loss Exposures

- Unidentified Latent Conditions
 - Soil
 - Groundwater
 - Indoor Air, Asbestos, Mold, etc.
- Underestimated Extent of Impact
 - Soil volumes/units
 - Off-site migration
 - Third party/natural resource impacts

Often the result of poor assessment or data interpretation



Identifying Environmental Risks

Typical Resources & Tools

- Transactional Reports
- Regulatory Reports
- Industrial Hygiene/Indoor Air Quality (IAQ) Reports
- Third Party Reports - Data on Nearby Properties



Transactional Reports

- Phase I ESAs
 - ASTM Standard Practice E 1527
 - RECs
 - Generally non-intrusive
- Phase II ESAs
 - Various standards
 - Level of assessment varies
- Generally Exclude IAQ
 - Asbestos
 - Mold
 - Lead



Regulatory Reports

- Typical Reports
 - Site Investigation (SI)
 - Remedial Action Workplans (RAP)
 - Monitoring Reports
- Program Specific
- Standard of Care Varies
- IAQ & Vapor Intrusion New Consideration





When Reviewing Reports

- Know Who Prepared Report & Why
- Why the Report was Prepared
- Standard of Care Used
- Which Agencies Reviewed Report
- Are There
 - Data gaps
 - Unsupported conclusions
 - Broad conclusions - beyond data



Reading & Interpreting Data

- Potential Problems
- Three Big Bloopers
 - Case 1: Poorly placed wells
 - Case 2: ND or not detected
 - Case 3: Where is the site located



Case 1: Poorly Placed Wells

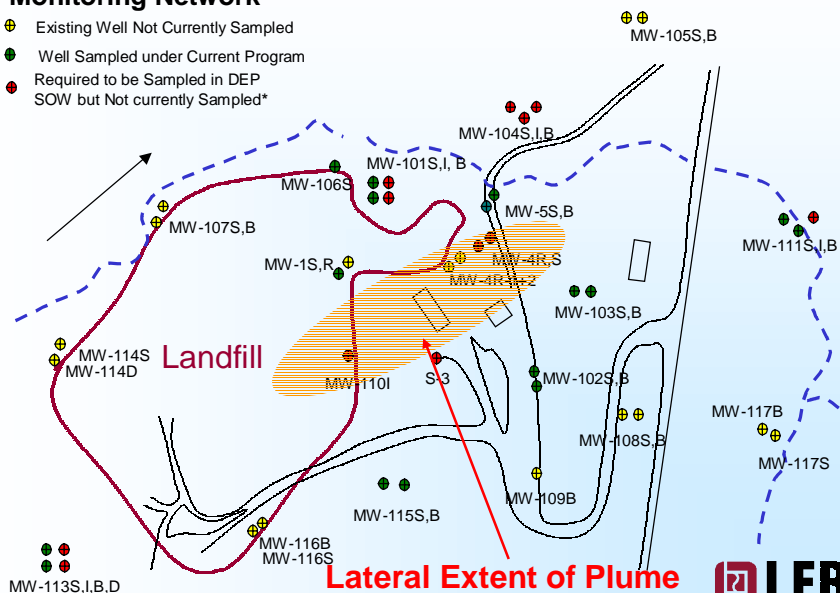
- Was the plume missed?
- Well Placement is Three Dimensional
 - Depth
 - Width
 - Length



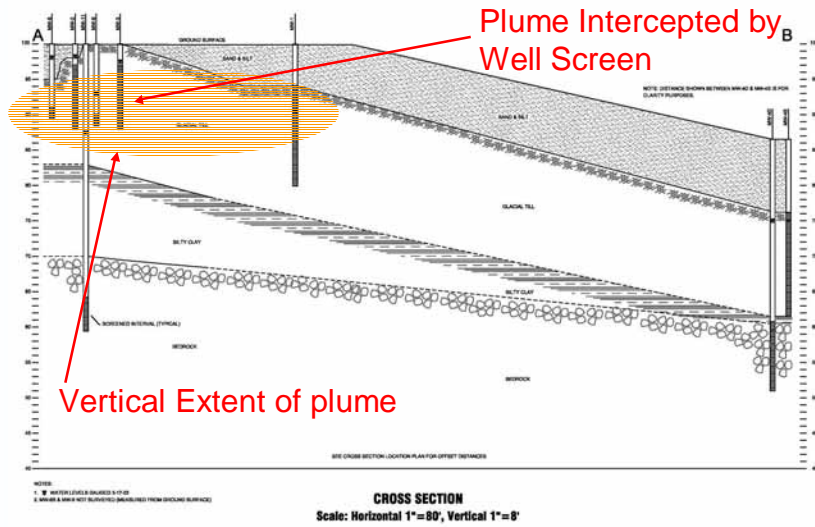
Case 1: Monitoring Network

Monitoring Network

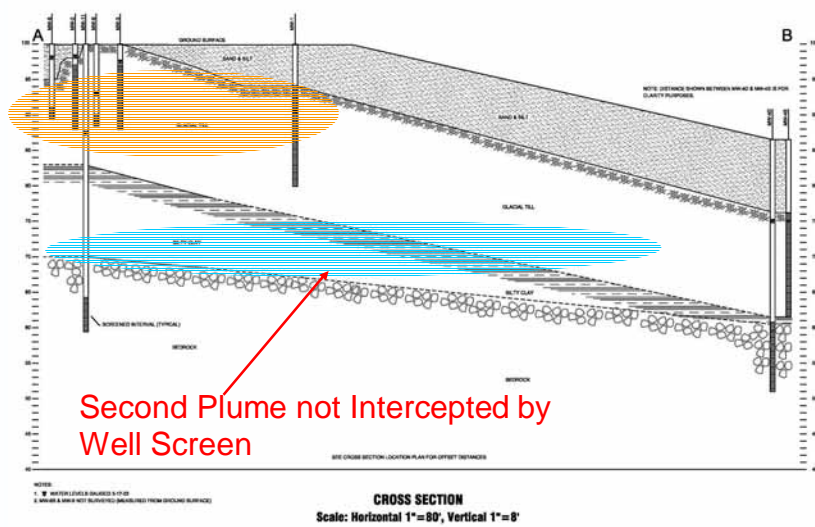
- ⊕ Existing Well Not Currently Sampled
- Well Sampled under Current Program
- Required to be Sampled in DEP SOW but Not currently Sampled*



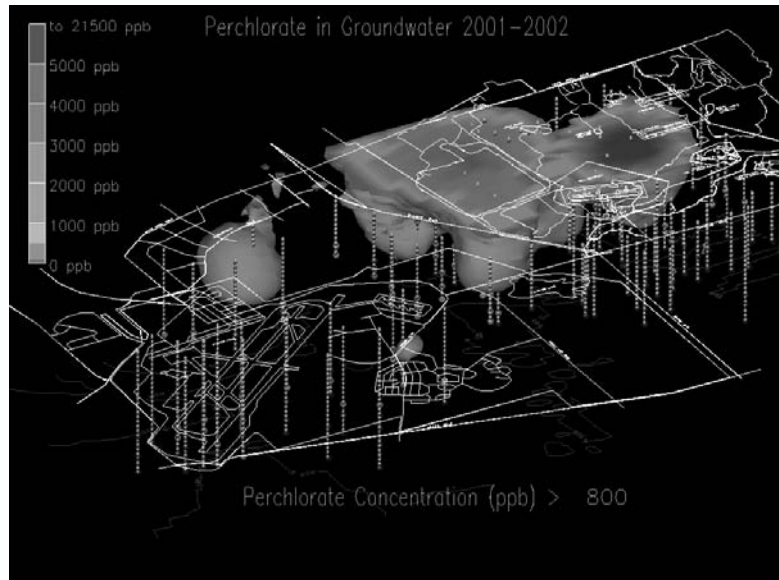
Case 1: Vertical Well Placement



Case 1: Did We Miss It?



Case 1: Plumes are 3-D



Case 2: ND or Not Detected

- Was That Compound Detected?
 - Know your reporting limits.
 - Know the variability in reporting.
- Reporting the Results the Right Way.



Case 2: Data Reporting

| Parameter | AGQS | | Location | |
|------------------------|------|--------|--------------------|--------------------|
| | GW-1 | GW-2 | FGP-2 17-Feb-03 | HGP-5 17-Feb-03 |
| VOCs (ug/L) | | | | |
| 1,1,1,-Trichloroethane | 200 | 4,000 | 1,200 | ND |
| 1,1-Dichloroethane | 81 | 9,000 | 57.7 | ND |
| 1,1-Dichloroethene | 7 | 1 | 76.5 | ND |
| Acetone | 700 | 50,000 | ND | ND |
| Benzene | 5 | 2,000 | ND | ND |
| Chloroethane | NS | NS | 4.34 | ND |
| Dichlorodifluormethane | 1000 | NS | ND | ND |
| Ethylbenzene | 700 | 30,000 | 1.27 | ND |

ND equals Not Detected



Case 2: What Was Detected?

| Parameter | AGQS | | Location | |
|------------------------|------|--------|--------------------|--------------------|
| | GW-1 | GW-2 | FGP-2 17-Feb-03 | HGP-5 17-Feb-03 |
| VOCs (ug/L) | | | | |
| 1,1,1,-Trichloroethane | 200 | 4,000 | 1,200 | ND |
| 1,1-Dichloroethane | 81 | 9,000 | 57.7 | ND |
| 1,1-Dichloroethene | 7 | 1 | 76.5 | ND |
| Acetone | 700 | 50,000 | ND | ND |
| Benzene | 5 | 2,000 | ND | ND |
| Chloroethane | NS | NS | 4.34 | ND |
| Dichlorodifluormethane | 1000 | NS | ND | ND |
| Ethylbenzene | 700 | 30,000 | 1.27 | ND |

| Parameter | AGQS | | Location | |
|------------------------|------|--------|--------------------|--------------------|
| | GW-1 | GW-2 | FGP-2 17-Feb-03 | HGP-5 17-Feb-03 |
| VOCs (ug/L) | | | | |
| 1,1,1,-Trichloroethane | 200 | 4,000 | 1,200 | <1 |
| 1,1-Dichloroethane | 81 | 9,000 | 57.7 | <1 |
| 1,1-Dichloroethene | 7 | 1 | 76.5 | <1 |
| Acetone | 700 | 50,000 | <8 | <1 |
| Benzene | 5 | 2,000 | < 8 | <1 |
| Chloroethane | NS | NS | 4.34 | <1 |
| Dichlorodifluormethane | 1000 | NS | <8 | <1 |
| Ethylbenzene | 700 | 30,000 | 1.27 | <1 |

ND is Now an Exceedance



Case 3: Site Location

- Where is that Historic Site Located
- How Big is that NPL Site



Case 3: Reported Site Location

Massachusetts Bureau of Waste Site Cleanup
DEP OHM RELEASE LOG FORM

Release Tracking Number: 11209

A. LOG INFORMATION:

Log Date: 3/11/95

Log Time: 12:00

TYPE OF CALL (check one):
 Release or TOR
 Complaint
 Inquiry

CALLER (check one):
 PIP
 Public Safety Official
 Other Government Agency
 Citizen
 Anonymous
 LSP/PPS Agent
 Other Person: _____

DISPOSITION OF CALL (check the one most applicable disposition below):
If selecting either of the two following options, assign a Release Tracking Number in the space provided above:
 Reportable Release or TOR
 Release or TOR Less than Reporting Threshold
If selecting any of the disposition options below, do not assign a Release Tracking Number:
 Release or TOR Exempt from Reporting Requirements (not referred)
 Referral to Other Agency (circle one):
BOH FD DPH DOT EPA USCG
Other: _____
 Referral to Other Division (circle one):
ACC DHEP HW HW SW WPC WS WW
Other: _____
 Referral to Site Discovery
 No Action

Use of Form (check one):
 Initial Office
 Boston
 Amended

Reporting Person: _____
Telephone: _____
Organization: DEP

B. RELEASE OR THREAT OF RELEASE (TOR) LOCATION:

Street: Bank Hill Way Location #00
City/Town: Brocton

Type of Location (check all that apply):
 Right of Way Roadway Water Body Open Space Other: _____
 Commercial Industrial Residential School Municipal State Federal

C. RELEASE OR TOR INFORMATION:

Knowledge of Release or TOR Date: 11/17/94 Time: 12:00 (circle one) Check here if Release/TOR Date is Unknown
Release or TOR Date (if different): _____ Time: _____ (circle one) Check here if Release/TOR Time is Unknown

2 HOUR NOTIFICATION (check all that apply):
 Sudden Release
 Full Release

72 HOUR NOTIFICATION (check all that apply):
 Subsurface NAPL
 UST Release

120 DAY NOTIFICATION (check all that apply):
 Release of HAs to soil or groundwater exceeding RC(s)
 Release of Oil to soil exceeding RC(s) and affecting more than 2 cubic yards

Reported Address



Case 3: Actual Site Location

COMMONWEALTH OF MASSACHUSETTS
 EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 SOUTHEAST REGIONAL OFFICE
 20 RIVERSIDE DRIVE, LAKEVILLE, MA 02347

JANE SWIFT
 Governor

BOB DURAND
 Secretary

LAUREN A. LISS
 Commissioner

URGENT LEGAL MATTER: PROMPT ACTION NECESSARY
CERTIFIED MAIL: RETURN RECEIPT REQUESTED

May 29, 2002

RE: BROCKTON-BWSC
 Industrial Boulevard
 RTN# 4-11209

Actual Address

NOTICE OF RESPONSIBILITY
 M.G.L. c. 21E, 310 CMR 40.0000

Dear Mr. Thackery:

The Massachusetts Department of Environmental Protection, Bureau of Waste Site Cleanup (the "Department"), is tasked with ensuring the permanent cleanup of oil and hazardous material releases pursuant to the Massachusetts Oil and Hazardous Release Prevention and Response Act, Massachusetts General Law Chapter 21E. The law is implemented through regulations known as the Massachusetts Contingency Plan, 310 CMR 40.0000 et seq. (the "MCP").



Case 3: Reported Site Location

| | | |
|---|--|--|
| <p>MASSACHUSETTS Bureau of Waste Site Cleanup OHM RELEASE LOG FORM</p> <p>Log Date: 5/11/02 Log Time: 09:00 Log Location: Brockton Log Person: JANE SWIFT</p> <p>RECEIVED BY YOU? - RELEASE (FOR) LOCATION: Release Date: 5/11/02 Release Location: Brockton</p> | | <p>COMMONWEALTH OF MASSACHUSETTS EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS DEPARTMENT OF ENVIRONMENTAL PROTECTION SOUTHEAST REGIONAL OFFICE 20 RIVERSIDE DRIVE, LAKEVILLE, MA 02347</p> <p>JANE SWIFT Governor</p> <p>BOB DURAND Secretary</p> <p>LAUREN A. LISS Commissioner</p> <p>URGENT LEGAL MATTER: PROMPT ACTION NECESSARY CERTIFIED MAIL: RETURN RECEIPT REQUESTED</p> <p>May 29, 2002</p> <p>RE: BROCKTON-BWSC Industrial Boulevard RTN# 4-11209</p> <p>NOTICE OF RESPONSIBILITY M.G.L. c. 21E, 310 CMR 40.0000</p> <p>Dear Mr. Thackery:</p> <p>The Massachusetts Department of Environmental Protection, Bureau of Waste Site Cleanup (the "Department"), is tasked with ensuring the permanent cleanup of oil and hazardous material releases pursuant to the Massachusetts Oil and Hazardous Release Prevention and Response Act, Massachusetts General Law Chapter 21E. The law is implemented through regulations known as the Massachusetts Contingency Plan, 310 CMR 40.0000 et seq. (the "MCP").</p> |
|---|--|--|

- Same Site/Different Addresses
- Required "Closure" after Purchase





Closing

- When Reviewing Reports
 - Know who prepared the reports
 - Purpose of the reports
 - Applicable standard of care
 - Limitations and exclusions
- Know How Data was Collected
- Do Data Gaps Exist
- Are Conclusions Supported



Questions

