



The Grand Traverse Overall Supply Site Leelanau County Greilickville, Michigan

Public Meeting
November 29, 2007

Slide 2

AES3

Edit the document so the bullets and picture don't "fly in from the side" when veiwing the slide.

Adam Segerlind, 11/21/2007



History/Actions to Date

- Commercial Launderer using chlorinated solvents between 1953 and 1987
- Releases from operations resulted in the Site being added to the National Priorities List (NPL) in 1983
- The main contaminants of concern are called volatile organic compounds and include dry cleaning chemicals such as tetrachloroethylene (PCE) and trichloroethylene (TCE).
- Investigations by Federal and State agencies documented soil and groundwater contamination primarily associated with wastewater lagoons



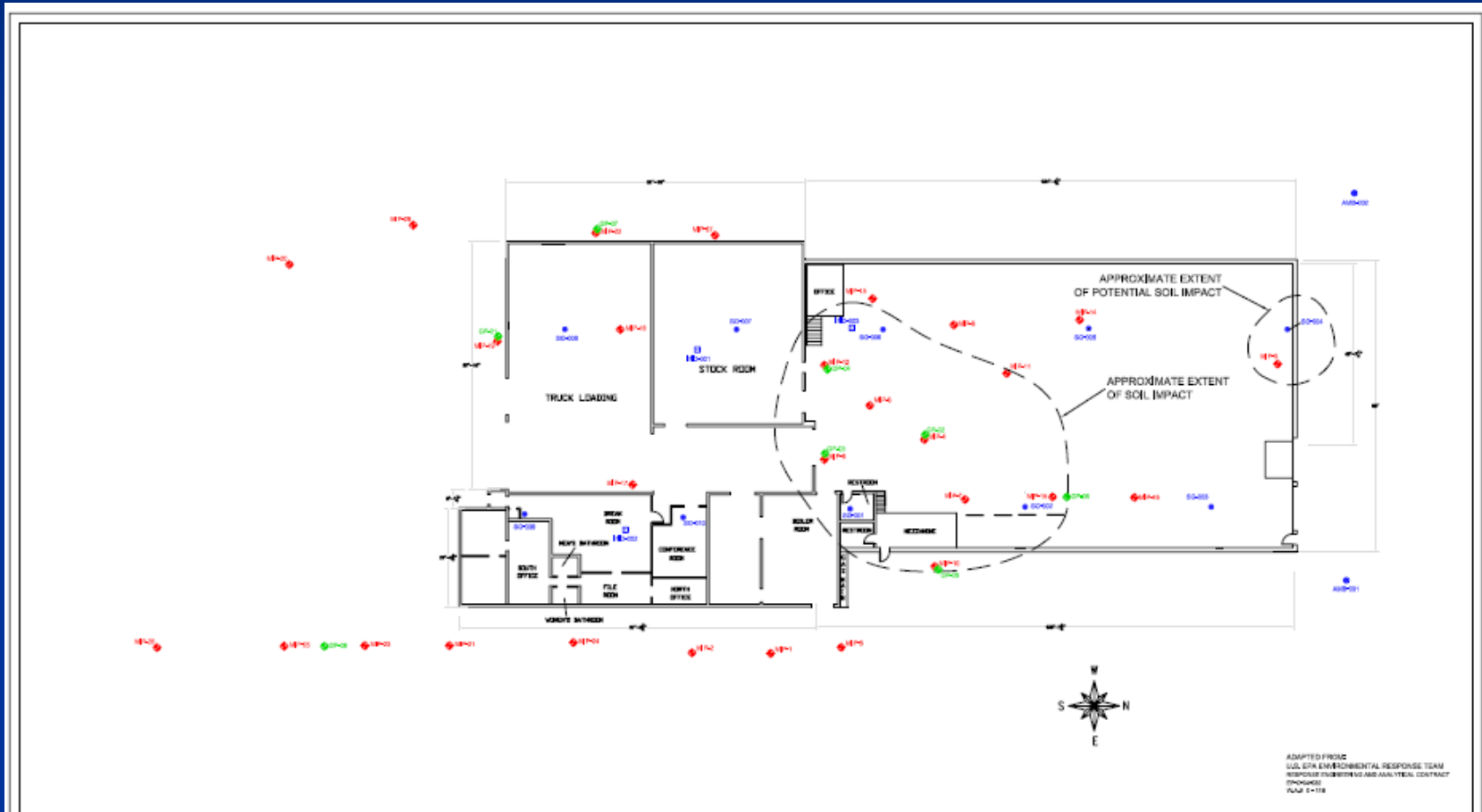
History/Actions to Date

- Lagoons were capped in 1979.
- Investigation associated with BEA in 1996 identified new source area beneath GTOS building
- MDEQ and EPA investigations have further defined the extent of soil and groundwater contamination from new source area
- Remaining contamination includes
 - Source area soil and groundwater
 - Groundwater plume
 - Soil vapor



History/Actions to Date

Soils Impacted Below GTOS Building



ADAPTED FROM
 U.S. EPA ENVIRONMENTAL RESPONSE TEAM
 RESPONSE INVESTIGATION AND ANALYTICAL CONTRACT
 #DWAQ04-1-118

- LEGEND**
- MP CONFIRMATION BORING
 - MP LOCATION
 - USEPA ERT SUB-SLAB SAMPLE LOCATION
 - USEPA ERT INDOOR SAMPLE LOCATION
 - USEPA ERT AMBIENT LOCATION



FIGURE 4-1

File Path and Name: \\projects\GTOS\Reports\Figures\MP Conf Storage Impact.dwg | Designed by: CH2M/HILL | Drawn by: JAC/USEPA | Checked by: DMC | Approved by: DMC

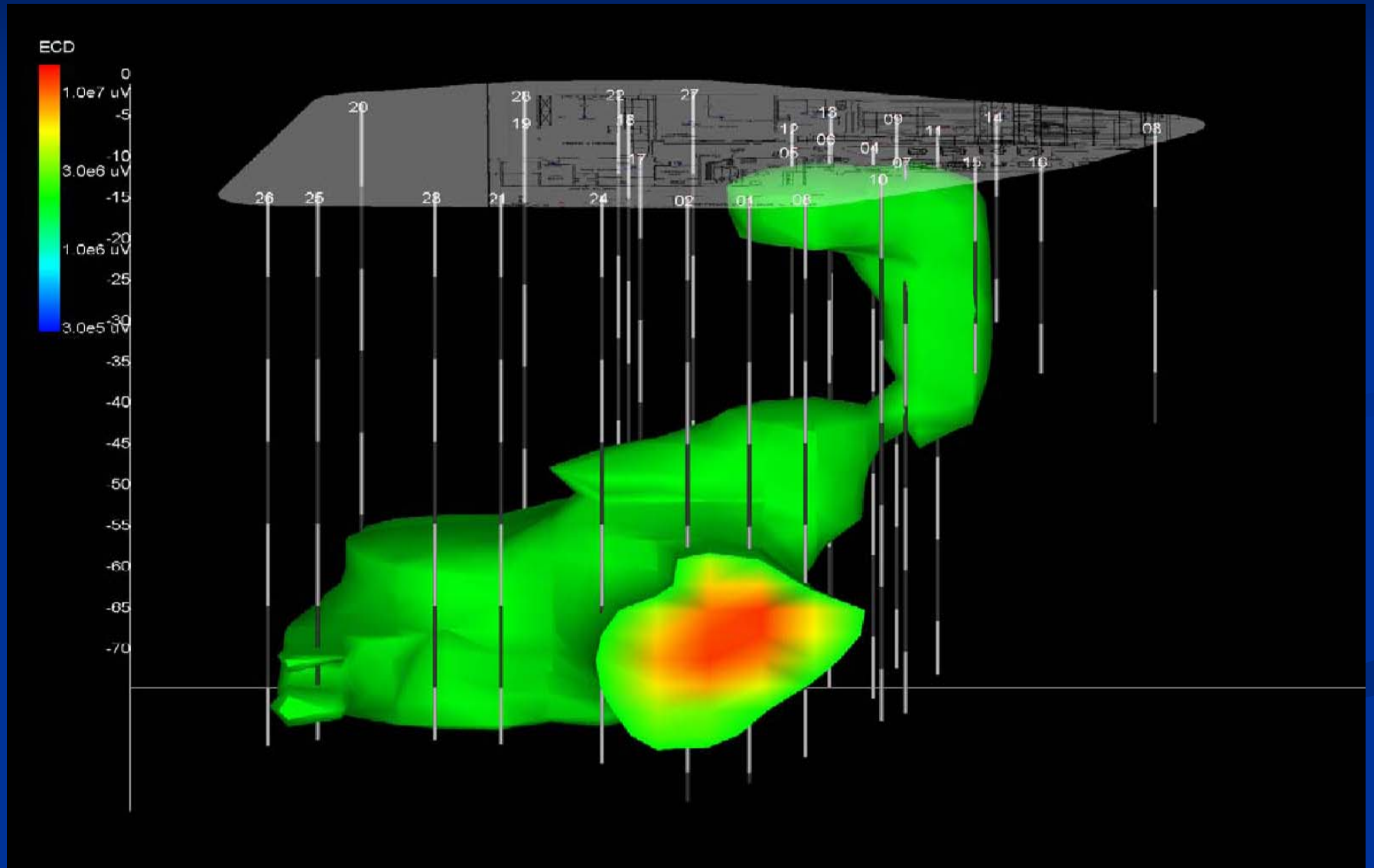
WESTON
SOLUTIONS

Suite 100
 2501 Jolly Rd
 Okemos, Michigan
 48864

EXTENT OF SOIL CONTAMINATION
 GRAND TRAVERSE OVERALL SUPPLY SITE
 GREENVILLE, MI



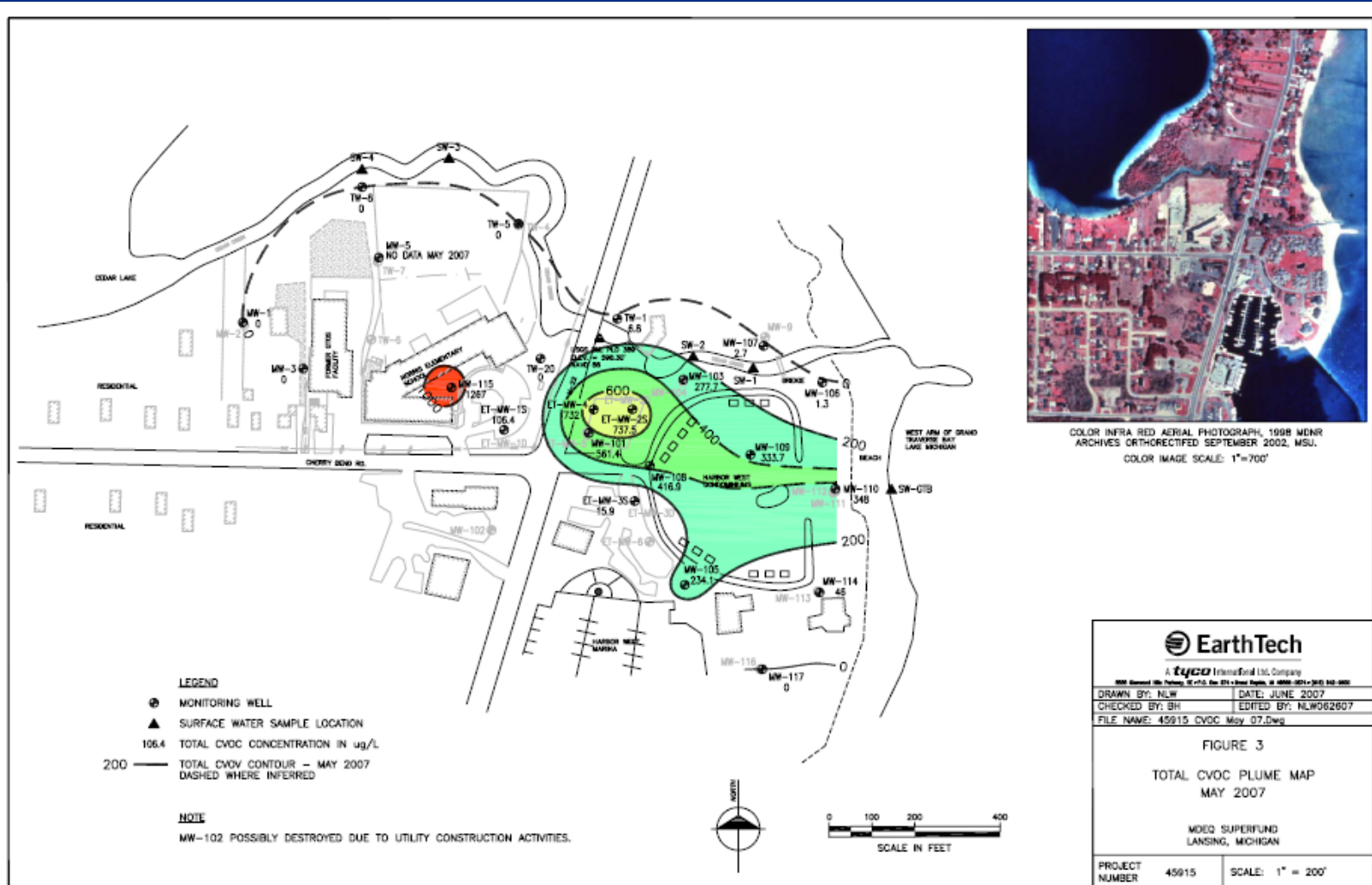
Contamination Below GTOS Building





History/Actions to Date

Groundwater Impacts



COLOR INFRA RED AERIAL PHOTOGRAPH, 100B MERR ARCHIVES ORTHORECTIFIED SEPTEMBER 2002, MSU. COLOR IMAGE SCALE: 1"=700'

EarthTech
 A tyco International LLC Company
1000 Grandville Parkway, SE #110, Kent, OH 44204-1011 (330) 444-2000

DRAWN BY: NLW	DATE: JUNE 2007
CHECKED BY: BH	EDITED BY: NLW062807
FILE NAME: 45915 CVOC May 07.Dwg	

FIGURE 3
 TOTAL CVOC PLUME MAP
 MAY 2007

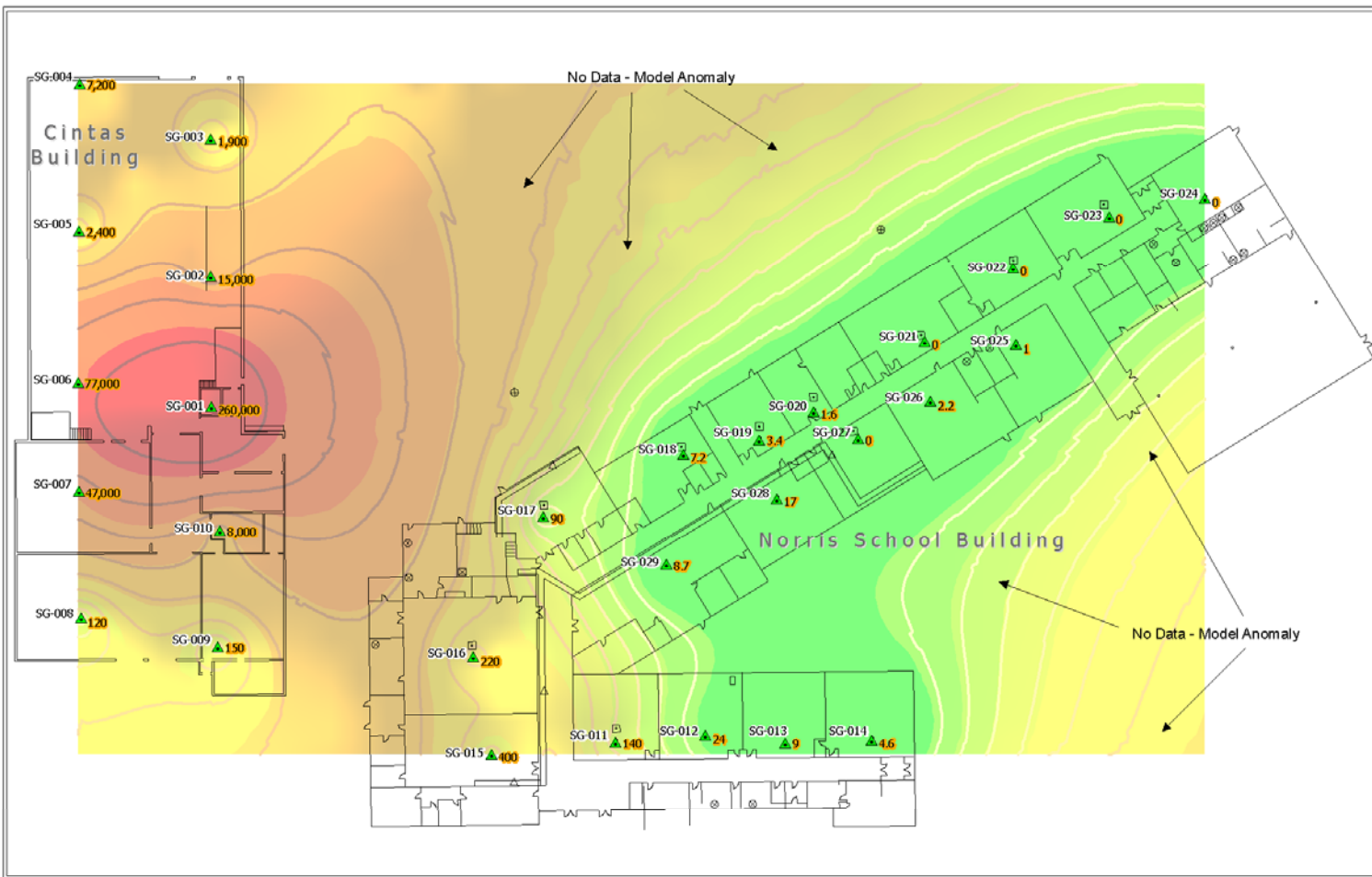
MDEQ SUPERFUND
 LANSING, MICHIGAN

PROJECT NUMBER	45915	SCALE: 1" = 200'
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History/Actions to Date

Soil Vapor Impacts

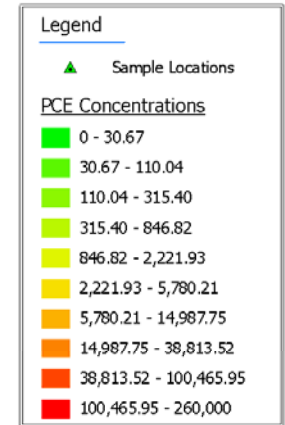


Geostatistical Summary:
 A Simple Kriging Prediction Map was generated using field collected SLMMA Canister data values for a soil gas intrusion study. Samples locations were not randomly generated.

Model Process:
 Default Method: Simple Kriging
 Output: Prediction Map

Number of Points: 29
Mean Value: 0
Declustering:
 Method: None
 Transformation: Normal Score (6 Gaussian Kernel Method)
 Semivariogram/Covariance:
 Model: 0.99728*Spherical(75.744)+0*Nugget
 Error modeling:
 Microstructure: 0 (100%)
 Measurement error: 0 (0%)

Searching Neighborhood:
 Neighbors to Include: 5 or at least 4 for each angular sector
 Searching Ellipse:
 Angle: 0
 Major Semiaxis: 75.744
 Minor Semiaxis: 75.744
 Angular Sectors: 8
 Bivariate Distribution was not examined.



Map created using un-referenced AutoCAD drawing and USGS DOQs. AutoCAD drawing georeferenced to USGS DOQs at +/- 1.5 meters spatial accuracy.

Map Creation Date: 24June2005

Coordinate system: UTM
 Zone: 18N
 Datum: NAD83
 Units: Meters



Model Analysis:
 The model assumes a steady, continuous state and does not reflect variability in physical conditions, interferences or obstructions. The model does not account for saturation, volatility or any other chemical or physical parameters.



D R A F T

U.S. EPA Environmental Response Team
 Response Engineering and Analytical Contract
 EP-C-04-032
 W.A.# 0-116

Figure 1
PCE Concentrations
 GTOS Soil Gas Intrusion Study
 June 2005
 Greilickville, MI

Data: g:\arcview\projects\yoac\100-116
 MID file: g:\arcview\projects\yoac\100-116_GTOS_SoIGal\116_geostatsumma_fr
 Revision #: 003



2005 U.S. EPA REMOVAL ACTION

Soil Vapor Extraction – Norris Elementary

- System installed – 12/05
- Continuously collects
Soil Gas below school
- Protective Measure





General Types of EPA Cleanups

U.S. EPA will conduct additional short- and long-term cleanup activities at the GTOS site beginning later this year.

- Short-term cleanup work is done by EPA's "Removal" program
- Long-term cleanups are conducted under the EPA's "Remedial" program



General Types of EPA Cleanups

- The GTOS site contains both a removal and a remedial component.
- The removal program has already been working to contain the worst pollution threats and is planning additional cleanup late this year.



Short Term Removal Plan



PLANNED REMOVAL ACTIONS

Removal Action Preparation – Early Dec

- Building Demolition Required
- Universal Waste Removal
- Asbestos Survey
 - No friable asbestos
- Pit/Trench Waste Removal
- Fence Entire Site





PLANNED REMOVAL ACTIONS

Building Demolition

- Over Holiday Recess
 - Weather Dependent
 - May not be 100% complete
- Air Monitoring Plan
- Traffic Plan





PLANNED REMOVAL ACTIONS

Supplemental Soil Investigation – Early 2008

- Additional soil sampling
- Further define boundaries of soil contamination under building
- Further investigate deep soil impacts





PLANNED REMOVAL ACTIONS

Shallow Soils Excavation

- Schedule to be determined
- Based on supplemental soil investigation
- Air Monitoring Plan
- Traffic Plan





QUESTIONS ??



Long Term Remedial Plan



Planned Remedial Actions

- The following slides present the long-term cleanup project called a “proposed plan.”
- Unlike the upcoming removal work, the remedial proposed plan needs formal public input.



Remedial Investigation Process and Results

As part of the remedial process, EPA conducted an investigation in and around the GTOS property consisting of:

- A site investigation to identify the nature and extent of contamination from the new source area
- A risk assessment was completed to identify the potential health risks to people and the environment



Remedial Investigation Process and Results (continued)

The GTOS site is currently not being used

Area residents do not obtain their drinking water from the groundwater area that is impacted by the site.

However, there is a potential for future risk if nothing is done at the site and contamination is left in place.



Remedial Investigation Process and Results (continued)

Problems would arise in the future if:

- The building was used for business or was removed and houses were built on the site without any cleanup.
- Wells were sunk on the property or within the footprint of the groundwater contamination and the water used for drinking, people would be exposed to contamination.
- Contaminants in the groundwater continue to migrate off site.



Feasibility Study

Based on findings in the Site Investigation and Risk Assessment, EPA prepared a feasibility study to evaluate alternatives to permanently clean up the:

- On-site soil
- groundwater plume
- Soil Vapor (Norris Elementary School)



Feasibility Study (continued)

EPA considered a number of alternatives for managing and cleaning up the contaminated soil, groundwater and soil vapor. The Agency evaluated each alternative against the following nine criteria, as required by law:

- Overall protection of human health and the environment
- Compliance with applicable or relevant and appropriate requirement
- Long-term effectiveness and permanence
- Reduction of toxicity, mobility or volume through treatment
- Short-term effectiveness
- Implementability
- Cost
- State acceptance
- Community acceptance



Soil Cleanup Alternatives

EPA considered five soil cleanup alternatives for soil. Each alternative, except the no action alternative, includes using fencing to control access to the site, and site restoration or land-use controls, such as using easements, where necessary.

- Alternative 1 – No further action: Cost: \$0
- Alternative 2A (*EPA's recommended alternative*) – Limited action with excavation: Cost: \$210,000
- Alternative 2B – Limited action with soil vapor extraction (SVE): Cost: \$260,000
- Alternative 3 – Demolition and excavation: Cost: \$1.2 million
- Alternative 4 – No demolition and SVE: Cost: \$800,000



Evaluation of Soil Alternatives

Evaluation Criteria	Alt. 1	Alt. 2A	Alt. 2B	Alt. 3	Alt. 4
Overall Protection of Human Health and the Environment	G	☹	☺	☹	☺
Compliance with ARARs	G	☹	☹	☹	☹
Long-Term Effectiveness and Permanence	G	☹	☺	☹	☺
Reduction of Toxicity, Mobility, or Volume through Treatment	G	G	☹	G	☹
Short-Term Effectiveness	G	☹	☺	☹	☺
Implementability	☹	☹	☺	☹	G
Cost	\$0	\$210,000	\$260,000	\$1.2 M	\$800,000
State Acceptance	Will be evaluated after the comment period.				
Community Acceptance	Will be evaluated after the comment period.				

☹ = Meets Criteria ☐ = Does Not Meet Criteria ☺ = Partially Meets Criteria



EPA's Recommended Soil Alternative

- Because of the removal action taking place, EPA recommends a soil alternative to address any residual soil remaining on site after the removal action is complete (Alternative 2A).



Groundwater Cleanup Alternatives

EPA evaluated three groundwater cleanup alternatives to go along with different soil cleanup alternatives. Each alternative, except the no action alternative, includes installing and maintaining monitoring wells and completing long-term monitoring of the groundwater as necessary.

- Alternative 1 – No further action: Cost: \$0
- Alternative 2 – Limited action with contingency for active remediation: Cost: \$470,000
- Alternative 3 – groundwater extraction, treatment, and discharge with contingency for on-site treatment (*EPA's recommended alternative*): Cost: \$1.8 million



Evaluation of Groundwater Alternatives

Evaluation Criteria	Alternative 1	Alternative 2	Alternative 3
Overall Protection of Human Health and the Environment	G	⊗	Ⓢ
Compliance with ARARs	G	⊗	Ⓢ
Long-Term Effectiveness and Permanence	G	⊗	Ⓢ
Reduction of Toxicity, Mobility, or Volume through Treatment	G	Ⓢ	Ⓢ
Short-Term Effectiveness	Ⓢ	Ⓢ	Ⓢ
Implementability	Ⓢ	Ⓢ	⊗
Cost	\$0	\$470,000	\$1.8 M
State Acceptance	Will be evaluated after the comment period.		
Community Acceptance	Will be evaluated after the comment period.		

Ⓢ = Meets Criteria ⊖ = Does Not Meet Criteria ⊗ = Partially Meets Criteria



EPA's Recommended Groundwater Alternative

- EPA recommends pumping and treating the contaminated groundwater (Alternative 3). The water would be tested, and if the cleanup is not working, the Agency would add biological or chemical treatment to the groundwater that would help break down the pollutants to reduce contamination before it is pumped up for further treatment.



Soil Vapor (Norris Elementary School)

Until groundwater contamination is under control, EPA is recommending the SVE system continue to be operated until it is no longer needed. An FS Addendum was prepared to evaluate two cleanup alternatives for the Norris Elementary School:

- Alternative 1 – No further action: Cost: \$0
- Alternative 2 – Continued operation of the SVE system (*EPA's recommended alternative*): Cost: \$350,000



Evaluation of Norris Elementary School Alternatives

Evaluation Criteria	Alternative 1	Alternative 2
Overall Protection of Human Health and the Environment	G	⊗
Compliance with ARARs	G	⊗
Long-Term Effectiveness and Permanence	G	⊗
Reduction of Toxicity, Mobility, or Volume through Treatment	G	Ⓢ
Short-Term Effectiveness	Ⓢ	Ⓢ
Implementability	Ⓢ	Ⓢ
Cost	\$0	\$350,000
State Acceptance	Will be evaluated after the comment period.	
Community Acceptance	Will be evaluated after the comment period.	

Ⓢ = Meets Criteria □ = Does Not Meet Criteria ⊗ = Partially Meets Criteria



EPA's Recommended Soil Vapor Alternative

- EPA recommends continued operation and maintenance of the existing soil vapor extraction system previously put in place to handle vapors collecting under the school building (Alternative 2). It is recommended this system be operated until it is no longer needed to keep vapors from accumulating under the school building and then entering the indoor spaces.



NEXT STEPS



Public Participation

The public is encouraged to comment on this long-term proposal. EPA will review statements received during the public comment period and at the public meeting before making a decision on the Long Term proposed cleanup plan.

- Public comment period is from November 29 to December 31 (midnight) 2007



Public Participation (continued)

Based on new information received during the public comment period, EPA may:

- Modify its proposed plan
- Select another of the cleanup alternatives outlined in the fact sheet



How EPA Will Respond to Comments

- EPA will prepare a responsiveness summary
- This will be part of a document called the record of decision that describes the final cleanup plan for the site
- EPA will announce the selected cleanup plan in a local newspaper
- A copy will be placed on file in the information repository at the Traverse Area District Library



Contact Information

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EPA Community Involvement Coordinator

312-886-4360 or 800-621-8431,

10 a.m. – 5:30 p.m., weekdays

deblasio.don@epa.gov

For questions on the long-term remedial
cleanup phase contact:

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Remedial Project Manager

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For questions on the short-term or
removal cleanup phase contact:

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On-Scene Coordinator

EPA Region 5

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jaster.michelle@epa.gov



QUESTIONS ??