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December 10, 2015

Via FedEx 8057 8809 1028
Heather McTeer Tooney, Regional Administrator of the EPA
Sam Nunn Federal Center
61 Forsyth Street S.W.
Atlanta, GA 30303-8960

Re: Eastern Heights Subdivision Contamination, Grenada Mississippi

Dear Ms. Tooney,

Enclosed please find a notebook which contains pertinent information regarding the Eastern Heights Subdivision Contamination in Grenada Mississippi.

Tab 1 is a summary of the latest testing in the Eastern Heights Subdivision.

Tab 2 is a power point presentation that details the historical testing in the area.

Tab 3 is a more complete report of the contamination in the Eastern Heights Subdivision along with the data attached.

Tab 4 is a letter dated July 2, 2010 from Mrs. Viola Adams to Ms. Meredith Anderson.

Tab 5 is a response letter dated July 26, 2010 from Meredith Anderson to Mrs. Viola Adams stating "that there are no known hazards to human health or to the environment from the Grenada site.

Tab 6 is a memorandum from David N. Jenkins to Meredith Anderson stating that there has been no progress towards controlling the contamination and the ultimate clean up goals.

Tab 7 is a letter dated May 29, 2015 to David O'Connor from Brian Bastek of Meritor Inc. detailing that there is a high concentration of the TCE level in the nearby groundwater and the associated high hazard indices. the EPA continues to be concerned that a potential vapor intrusion pathway may exist within the residences.

To: **Heather McTeer Tooney, Regional Administrator of the EPA**

From: **Ted B. Lyon**

Re: **Summary of the investigation we have done in Grenada concerning the Eastern Heights Subdivision.**

Eastern Heights Subdivision Contamination, Grenada MS

- Contamination has been identified in the air, soil and groundwater within and adjacent to the Eastern Heights Subdivision (the neighborhood) based upon just our initial testing over the past few months.

- This contaminant pathway has resulted in a past and present health hazard to all neighborhood residents.

Air

- Contamination has been found in indoor air, outdoor air, subslab samples and soil gas samples collected by our experts and Meritor within and adjacent to the neighborhood.

- Our experts also collected samples in conjunction with Meritor with EPA oversight on September 23, 2015. Results from the Meritor replicate samples have not been made available. The results from our team's samples found elevated concentrations of numerous contaminants relative to EPA cancer screening levels and/or non-cancer hazardous indices.

Outdoor Air

- Some sample results exceeded the cancer risk screening level for TCE, carbon tetrachloride, tetrachloroethene, and benzene.

- Every TCE result in the five neighborhood samples was greater than the EPA cancer screening level. These concentrations ranged from 2.71 to 6.67 times the cancer screening level.

- The neighborhood outdoor air sample collected furthest from the facility still exceed the cancer screening level by 3.13 times. This sample was collected in the neighborhood park where children and others congregate and are exposed to air contamination. These outdoor air samples clearly indicate TCE inhalation exposure to all neighborhood residents.

Subslab Air

- Subslab air samples were collected through holes drilled through the slab of homes. Eleven samples were collected from seven different homes along Lyon Drive, Table 2. Eleven analytes were detected at concentrations greater than the EPA cancer screening level and/or the EPA non-cancer hazard index in one or more of these samples.

- The solvents are related to TCE and its degradation products. The aromatics are related to known toluene and fuel oil spills at the facility. The source of the other constituents is unknown and may be related to other chemicals used at the facility.

- In four of the homes, TCE exceeded the cancer level and in three of these homes the non-cancer level also was exceeded. Although the source of 1,4-Dichlorobenzene has not been identified, the concentrations are alarming.

- The greatest detected concentration is more than 8,000 times the EPA cancer screening level.

Indoor Air

- Eleven indoor air samples were collected from seven homes on Lyon Drive, Table 4. Eight analytes were detected at concentrations greater than the EPA cancer screening level and/or the EPA non-cancer hazard index in one or more of these samples.

- In eight of the eleven indoor air samples, TCE exceeded the EPA cancer screening level. As with the subslab samples, the concentrations of 1,4-Dichlorobenzene were exceedingly high.

- Two of the samples contained 1,4-Dichlorobenzene at more than 7,000 times the EPA cancer screening level.

Soil Gas

- The outdoor air, indoor air and subslab sample results clearly show that the pathway has been completed and the risk is not potential and is actual.

Groundwater and Subsurface Materials

Our expert team installed six monitoring wells within the neighborhood. The results of the samples collected from these wells are summarized as follows:

- The sample from EH-MW001 contained TCE at 258 times EPA's Maximum Contaminant Level (MCL) and cis-1,2-dichloroethene at 18 times MCL.

- The Sample from EH-MW005 contained TCE at 15 times the MCL and cis-1,2-dichloroethene at 2 times the MCL.

- In summary, the monitoring well data indicate shallow groundwater contamination with TCE and its decay products beneath most if not all of the neighborhood.

- A subsurface sample collected at 12-13 feet deep in EH-MW004 contained Vinyl Chloride at 4,750 times the EPA soil screening level to protect against MCL exceedance. This sample also contained total chromium at a concentration of 59.2 mg/kg and hexavalent chromium at a concentration of 5.0 mg/kg. The chemical characteristics and appearance, as shown in Figure 4, of this sample indicate that buffing waste was disposed in the neighborhood.

Mandi Murphy

From: Jim Brinkman [Brinkman.Jim@comcast.net]
Sent: Monday, September 14, 2015 6:01 PM
To: Marquette Wolf; reidstanford@gmail.com; Ted Lyon
Cc: 'Jim Fineis'; 'David N. Jenkins'; 'Simonton, David'
Subject: FW: Preliminary TestAmerica report files from 320-14732-1 Mississippi VI
Attachments: UdsClientSample [UDS Level 2 Report].pdf

Attached are preliminary air results. The sbsl samples are subslab samples, ia samples are indoor air and bga are ambient (outdoor) air samples. Sample 1 is from Belinda's house (100 Lyon), Sample 2 Mammy's (102 Lyon) and samples 3 & 4, Mary's (108 Lyon). The first bga sample was collected in Belinda's backyard and the second one at the end of Mary's driveway.
I reviewed & talked with Jim Fineas about the results:
1)The highest levels are related to fuel products and could be related to the plant's toluene leak.
2)TCE does show up in low levels in Mary's indoor air samples and outdoor air samples but not in subslab samples.

I would recommend that EPA expand their list of chemical for analysis to include the fuel-related compounds. We should expand our outdoor air sampling to include 3 samples in the neighborhood and one sample south of the facility.

From: Jim Fineis [mailto:jimfineis@atlas-geo.com]
Sent: Monday, September 14, 2015 12:46 PM
To: Jim Brinkman <brinkman.jim@comcast.net>
Subject: Fwd: Preliminary TestAmerica report files from 320-14732-1 Mississippi VI

Jim,
Here are the results from the sampling. Thanks and please let me know about next week ASAP.

Jim Fineis P.G.
jimfineis@atlas-geo.com
www.atlas-geo.com
770-883-3372

[+] Please keep my contact details up-to-date

---------- Forwarded message ----------
From: **Riley, Beth** <beth.riley@testamericainc.com>
Date: Mon, Sep 14, 2015 at 2:36 PM
Subject: Preliminary TestAmerica report files from 320-14732-1 Mississippi VI
To: Jim Fineis <jimfineis@atlas-geo.com>

Hello,

Attached please find the report files for job 320-14732-1; Mississippi VI

Here is the prelim data. I am just waiting on the can certs and will send the final report then. Please make sure that the eporting units are correct.

Please feel free to contact me if you have any questions.

Thank you.

Please let us know if we met your expectations by rating the service you received from TestAmerica on this project by visiting our website at: Project Feedback

BETH RILEY
Project Manager II

TestAmerica Sacramento
THE LEADER IN ENVIRONMENTAL TESTING

Tel: 714.258.8610
www.testamericainc.com

Reference: [041340]
Attachments: 1

40 years of Unsafe and Uncontrolled Contamination in Grenada

Resulting from Multiple Sources Resulting in Multiple Contaminants and Pathways

Example Source

This presentation focuses on

Contaminant: Trichloroethene (TCE) ; also called Trichlorethylene

Media: groundwater and surface water

Known Source Areas: the present location of Grenada Stamping and Assembly Plant and the Moose Lodge Road Disposal Area

Receptors: Eastern Heights Subdivision, Riverdale Creek, Upper Wilcox aquifer (sole water supply for most of Grenada and four surrounding counties)

Responsible Party: Rockwell International also incorporated as Arvin-Meritor and Meritor.

Additional Concerns are:

- Other Contaminants: TCE degradation products including cis-1-2 dichloroethene (cis-1-2-DCE), Vinyl Chloride (VC), semi-VOCs, bis-2-ethylhexyl-phthalate, aromatics, toluene, solvent stabilizers, 1-4-Dioxane, and metals including chromium, hexavalent chromium, arsenic, lead and selenium
- Other Media: air and soil
- Other Source areas: 16th Section (Grenada Lake) Disposal Area and other disposal areas including but not limited to a landfill cell by the Grenada Elementary Schools, a dump by and on a ball field along the banks of the Yalobusha River, and an expansive gravel pit in the northwest corner of Grenada County.
- Other offsite receptors: Residents of Eastern Heights, public areas on and around ball field, along Moose Lodge Road and east, west and south of the facility and possibly north of the Eastern Heights Subdivision. Residents and public areas at and around the other known or suspected source areas
- Other Potential Responsible Parties: include but not limited to Textron and Grenada Manufacturing, LLC.

Timeline for Grenada Site

1961 to 1966	Lyon constructed and operated the plant to produce hubcaps
1966 to 1985	Plant sold to and operated by Rockwell International
1985 to 1999	Plant sold to and operated by Textron Automotive Company (formerly Randall Textron)
January 1989	First EPA inspections
February 1989	Added to the Mississippi state list of potential hazardous waste sites
1999 to 2008	Plant sold to and operated by Grenada Manufacturing, LLC
2008 to present	Part of plant and property leased to ICE Industries, Inc. and converted it to a stamping plant.

chemical (especially TCE) site concentrations, ...genicity are alarming

- At the site, TCE has been found in groundwater samples at concentrations up to 138,000 times the national and Mississippi Maximum Contaminant Level (MCL)
- The MCL is the allowable limit for useable water.
- As documented in EPA's 2011 update to its Integrated Risk Information System (IRIS), studies conducted as early as 1955 have shown that TCE poses extreme danger to human and environmental health
- The Safe Drinking Water Act was promulgated in 1974 and required EPA to develop drinking water standards for a multitude of contaminants.
- The TCE standard (MCL) of 5 parts per billion was made law in 1989. This level was based on the reporting limit for most laboratories at the time rather than toxilogical data.
- The TCE maximum contaminant level goal is zero – "EPA has set this level of protection based on the best available science to prevent potential health problems.", from EPA's website

More on TCE

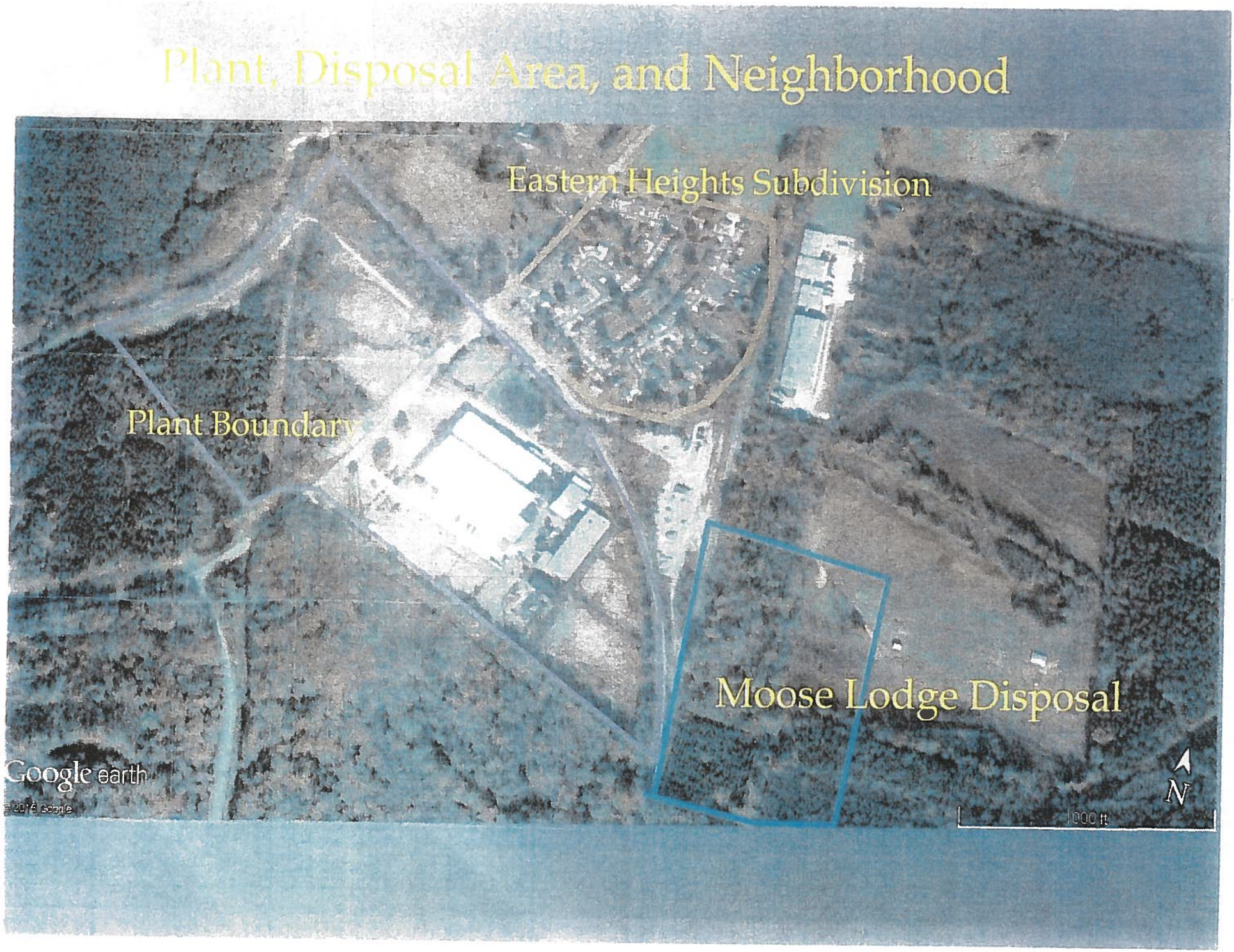
Some states have lowered their TCE MCLs below the federal level, for example:

- Florida – 3 ppb
- California – 0.7 ppb, and
- New Jersey – 1 ppb.

Other states, for example, Connecticut and Minnesota, have released detailed toxicological evaluations which have resulted in draft TCE standards of 1 ppb.

In a move with potentially far-reaching implications, on September 28, 2011, the U.S. Environmental Protection Agency (EPA) issued its long-awaited final health assessment for trichloroethylene (TCE). The Assessment follows two and a half decades of vigorous scientific and policy debate and sets forth conclusions suggesting that TCE is far more toxic and carcinogenic than was previously assumed. It portends a potential revisiting of TCE-related cleanup standards for soil, groundwater and vapor intrusion at and adjacent to contaminated properties, including those previously granted regulatory closure, maximum contaminant levels for drinking water, and allowable levels of emissions from industrial facilities and for a variety of consumer products in which even small levels of TCE are deliberately used.", http://media.mofo.com/files/Uploads/Images/111006-TCE-Revisited.pdf

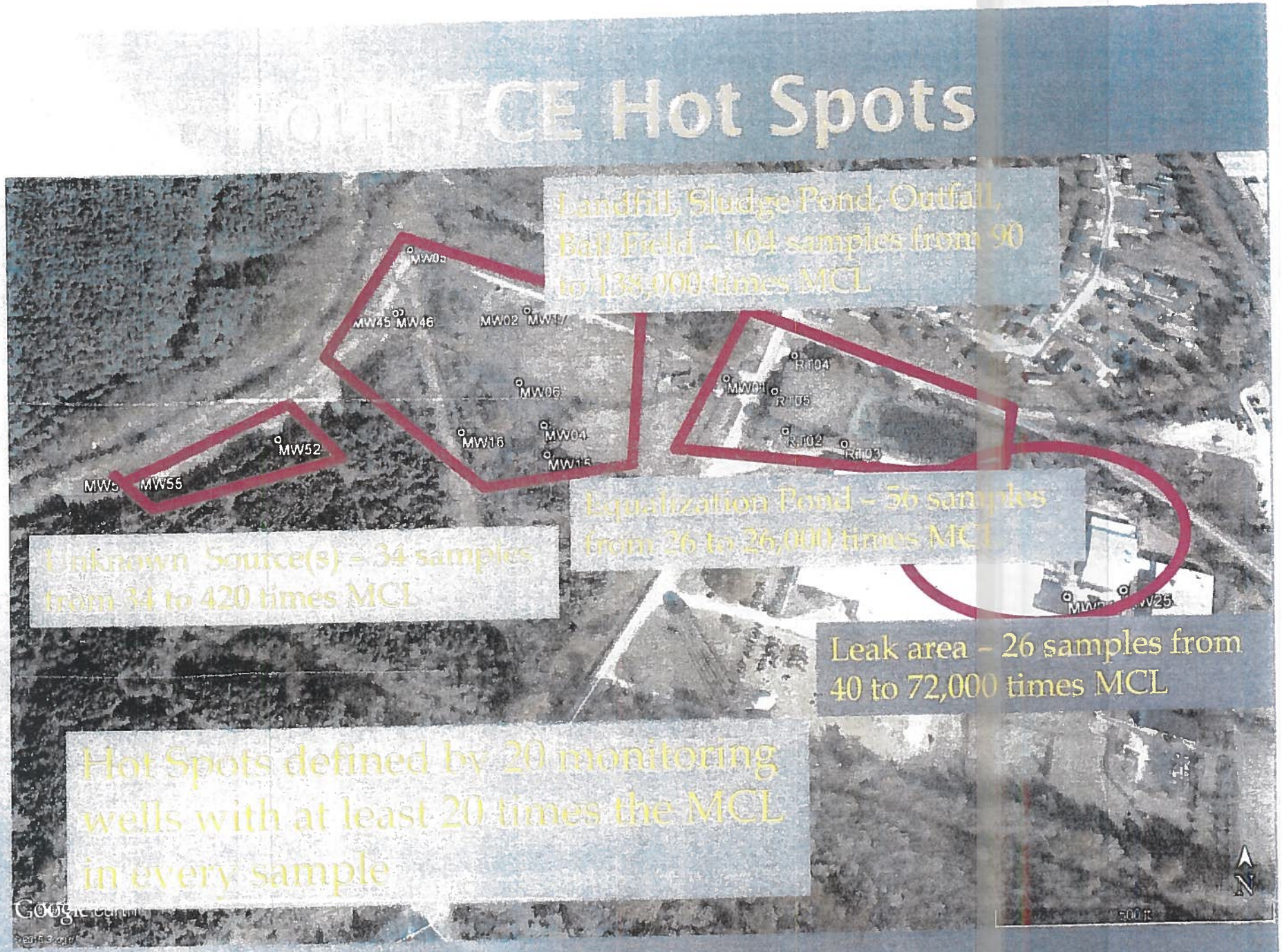
Plant, Disposal Area, and Neighborhood



ources of Contamination
of Rt. 332)

Sources of Contamination (West of Rt. 332)

TCE Hot Spots



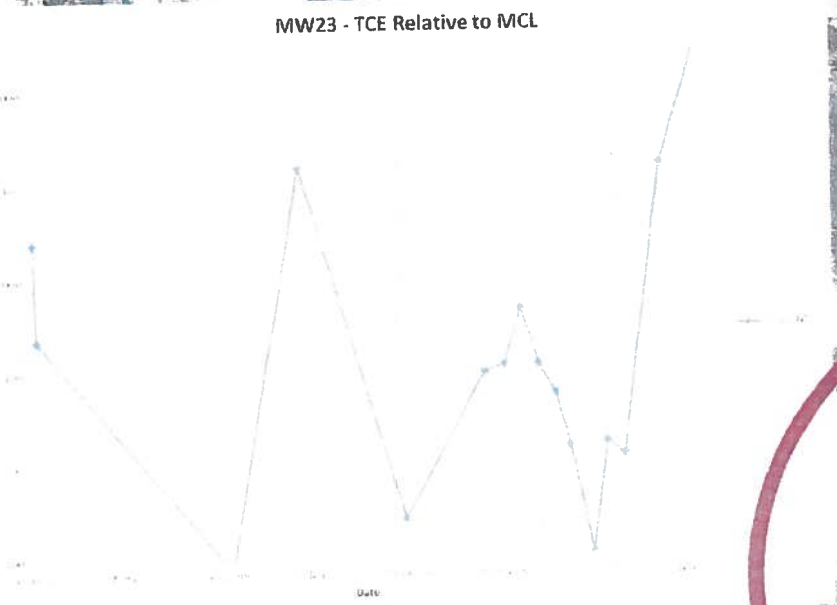
TCE Sources to Groundwater Been Removed?

Are free product, contaminated waste and contaminated soils above the groundwater contributing to groundwater contamination?

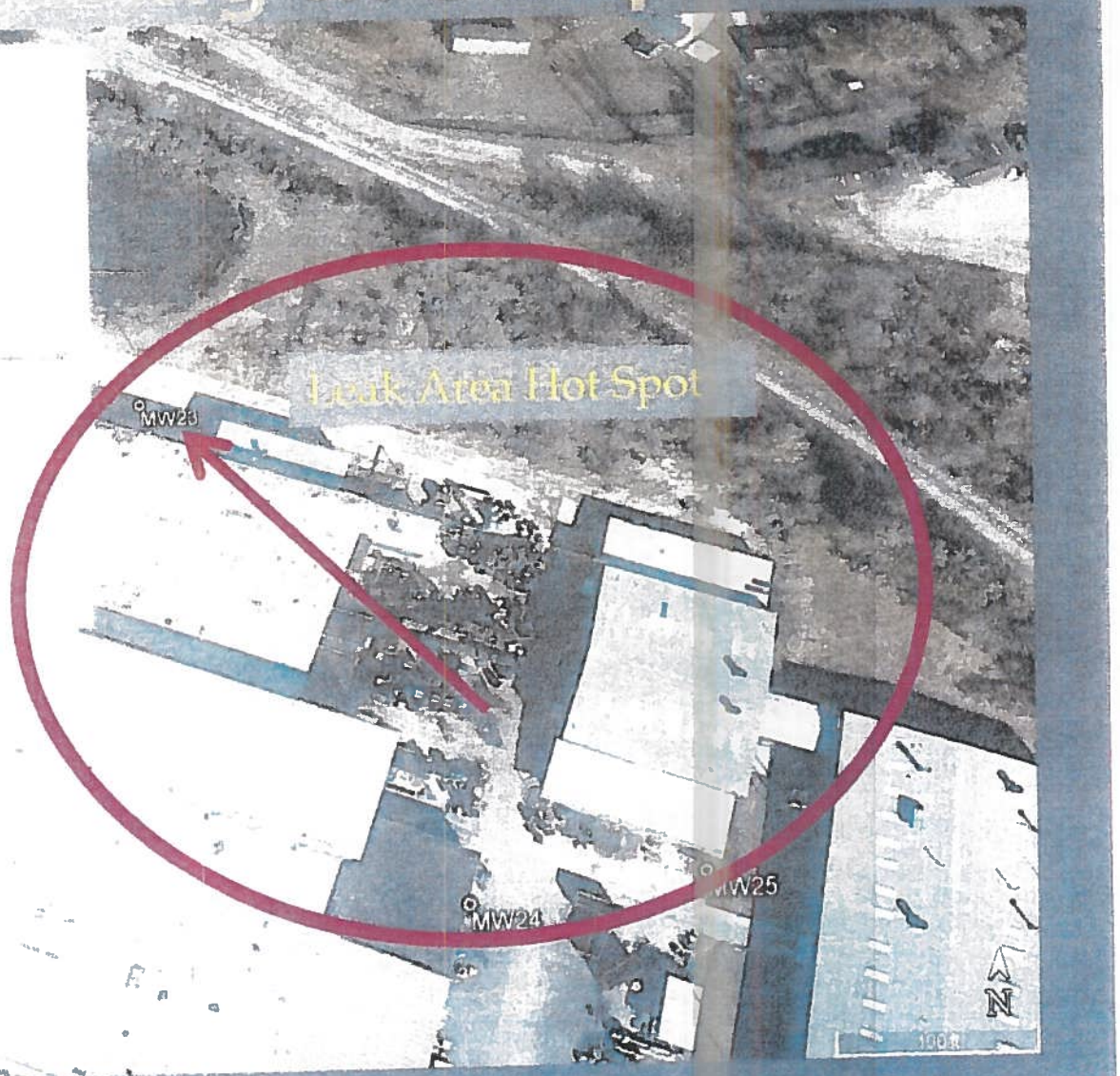
If not, the TCE concentrations in all wells in source areas should be decreasing over time

This decrease would result from TCE moving downgradient with the groundwater and TCE degrading to cis-1,2-DCE.

Continuing Source: TCE Increasing in Samples

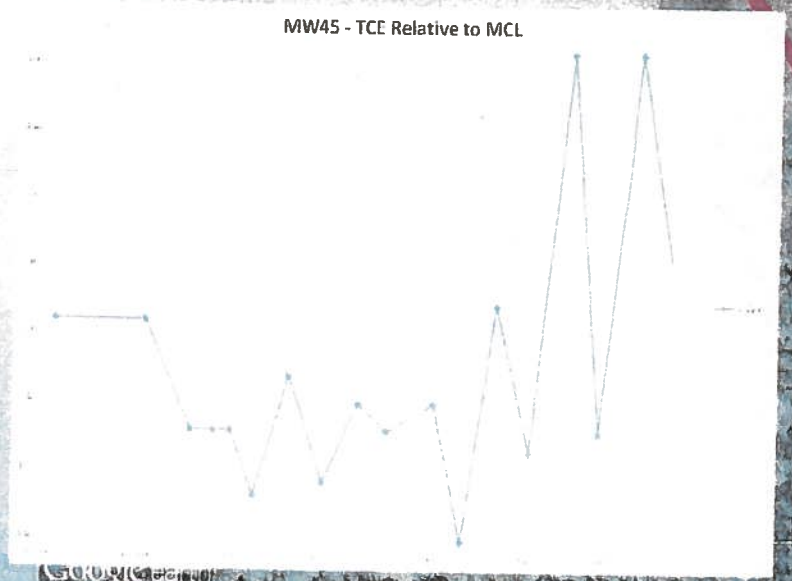


In 17 Years of Sampling TCE increased from 1,800 to 2,800 times the MCL – More than a 30% increase!



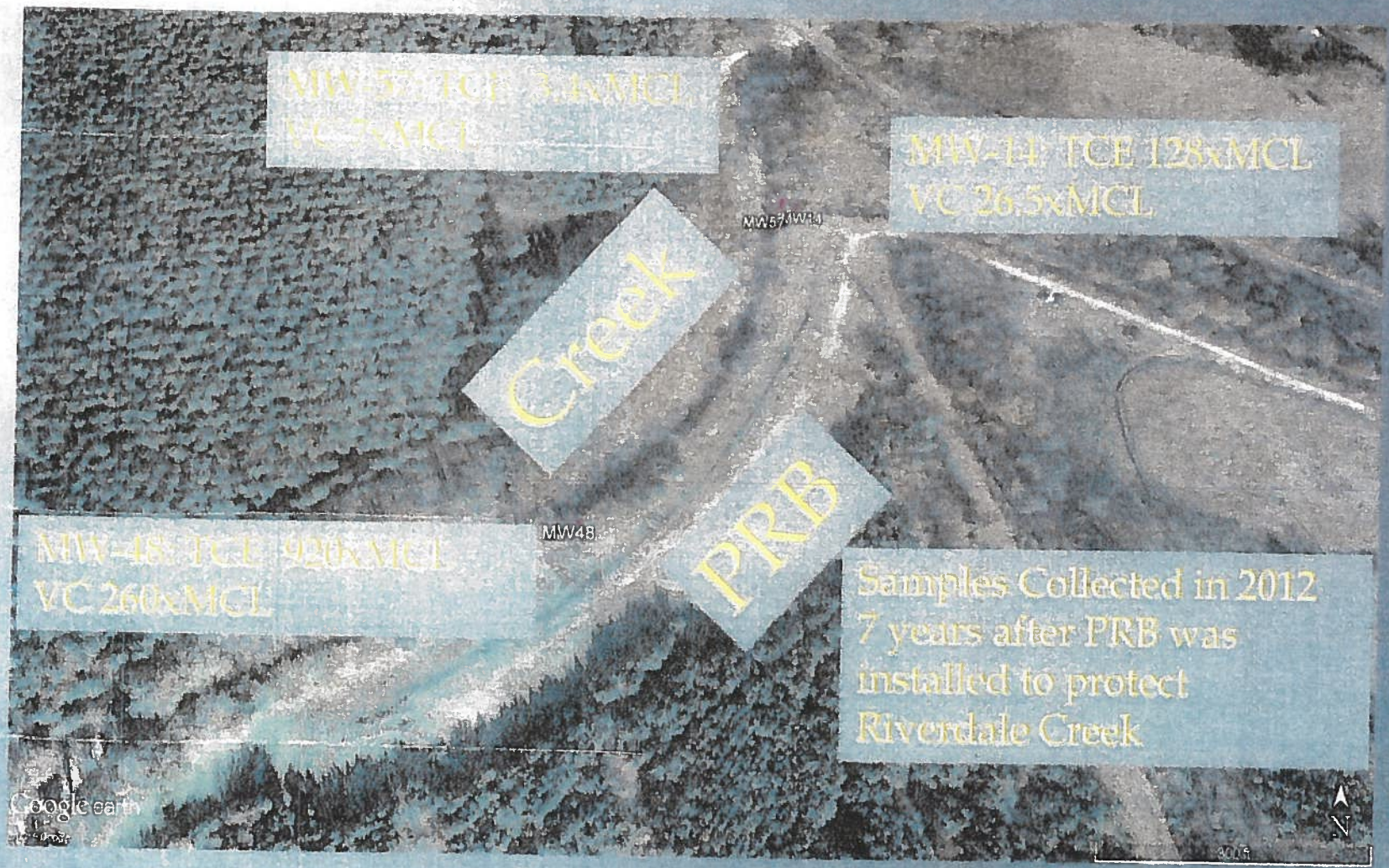
Continuing Source: Another Example

In 8 Years of Sampling TCE increased from 3,000 to 3,400 times the MCL – 13% increase

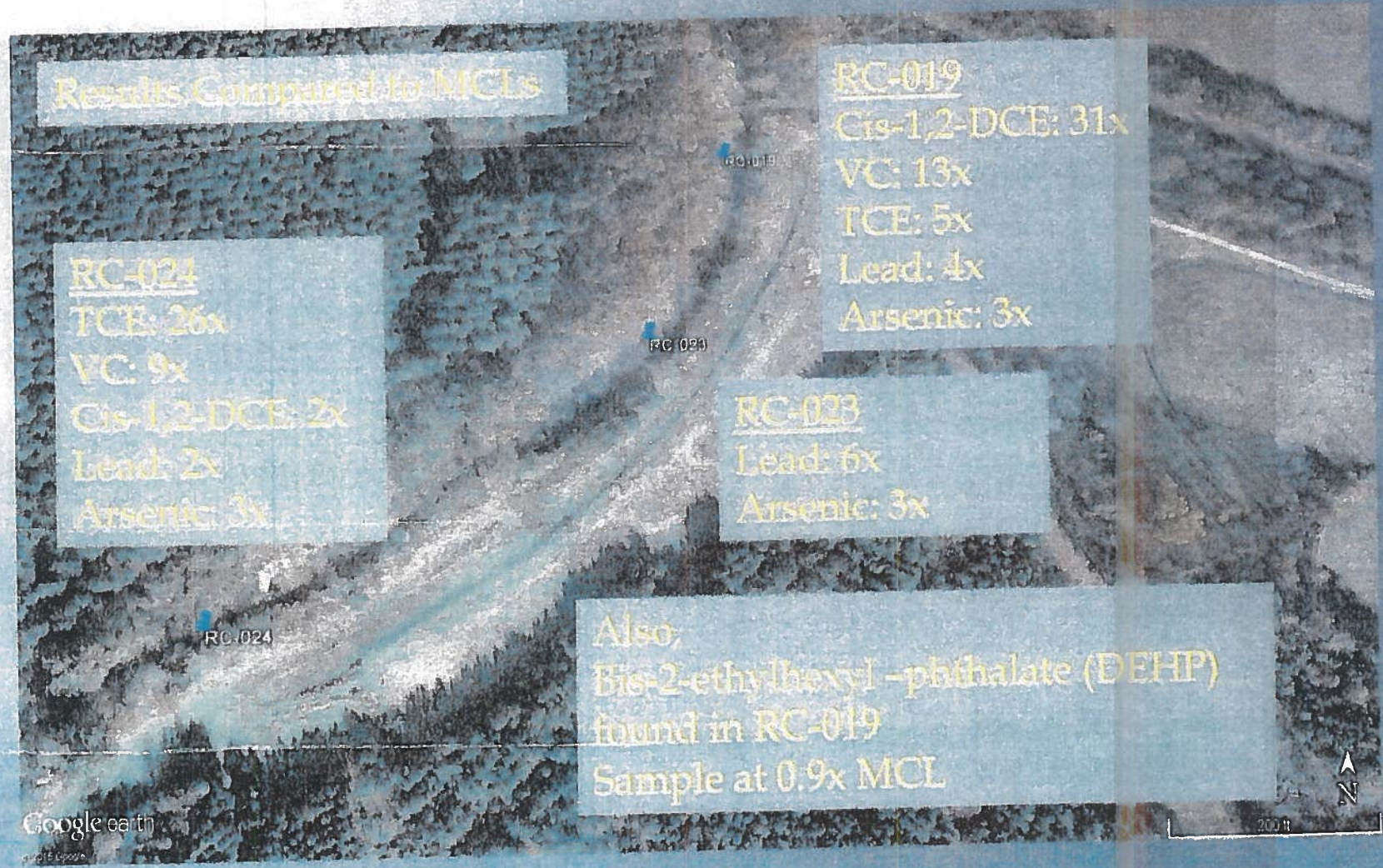


After Removing Some of the Free Product, Waste and Contaminated Soil, Final and Only Attempted Permeable Reactive Barrier (PRB)

Samples from Meritor' Monitoring Wells Downgradient of PRB



Samples were collected in April 2015 2-3 feet below creek bottom



r Samples Collected
nitor in 2013

"The Permanent Solution," The PRB, Has Failed

The Permeable Reaction Barrier (PRB) was installed in 2005 and was touted as the permanent solution to control groundwater contaminant migration and to protect public health and safety.

The PRB allows contamination to flow through and around it to groundwater recharging Riverdale Creek.

Groundwater and surface water are contaminated downgradient and downstream of the PRB

The PRB never could and never did protect the residents in the Eastern Heights Subdivision

Can the Groundwater be Remediated?

- Sources of contamination must be removed before groundwater cleanup can succeed
- Additional sources include free product and TCE bound to soils above the groundwater (unsaturated zone) and within the saturated zone (below the watertable)
- TCE does not occur naturally and is not stable in the environment
- It will break down at rates which depend on site conditions
- Without additional sources, TCE groundwater concentrations will decrease

Estimating Cleanup Times

In the most recent Annual Report (2012), 35 monitoring wells have sufficient data to graph TCE concentrations versus time

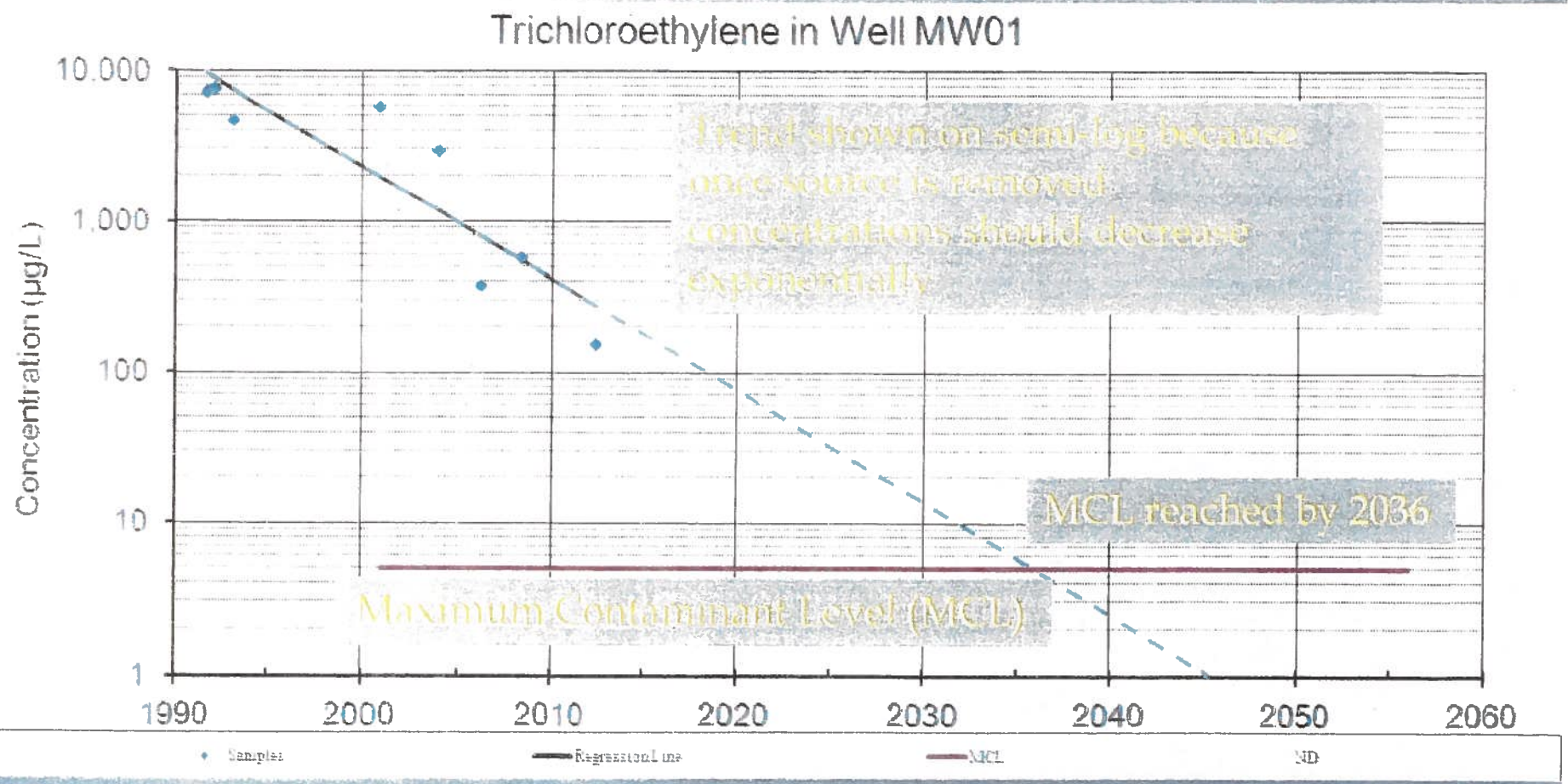
TCE concentrations are increasing in 15 of these 35 wells.

A cleanup time cannot be calculated where TCE concentrations are increasing

For those wells with decreasing TCE , it will take from 20 years to more than 100 years to reach the allowable limit (MCL).

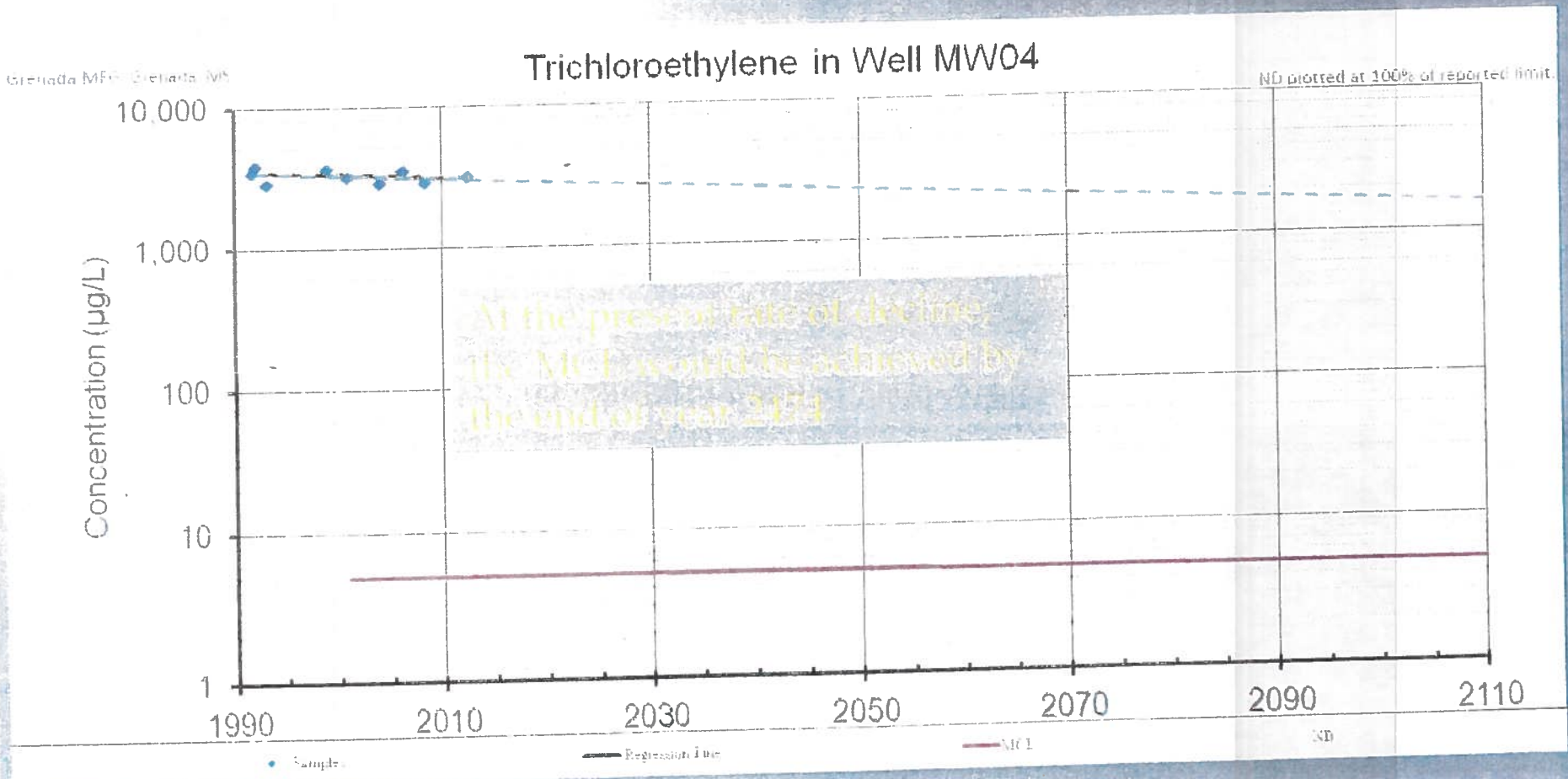
- Best Case Scenario

Some groundwater may be clean without active remediation in 20 years



Time – Many Cases

Data from many wells even with statistically decreasing TCE concentrations indicate that much of the groundwater will be contaminated far beyond the end of the century

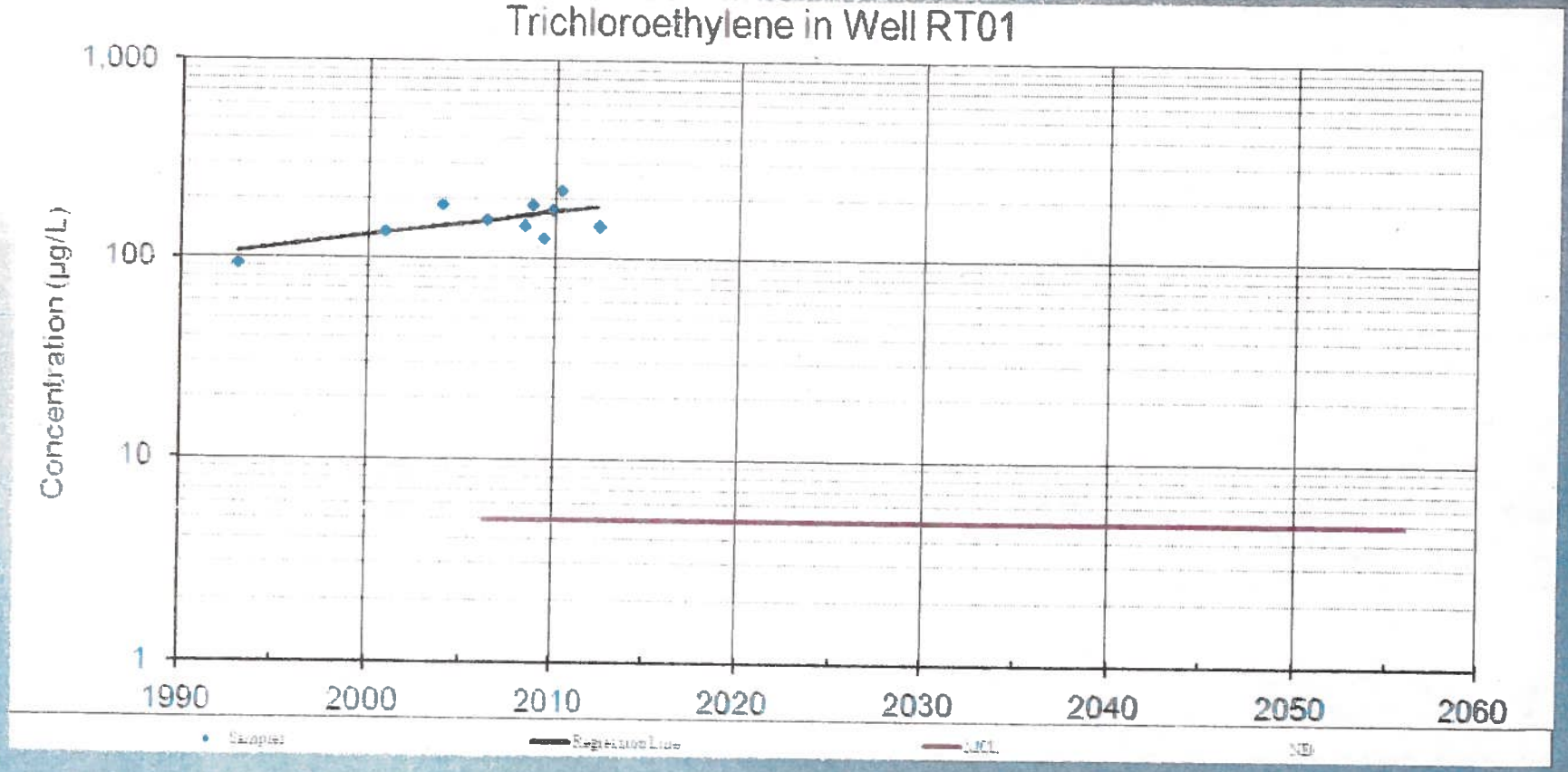


At the present rate of decline, the MCL would be achieved by the end of year 2054

Cleanup Time - Worst Case

The data for more than 40 percent of the wells shows increasing concentrations and continuing source

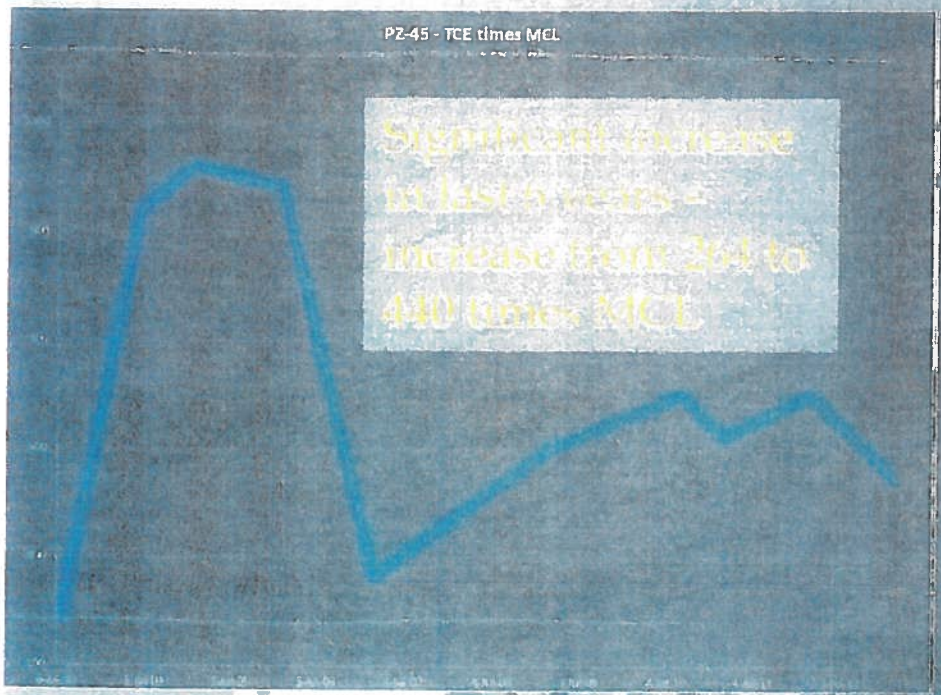
These sample results indicate that the MCL will never be reached without source removal

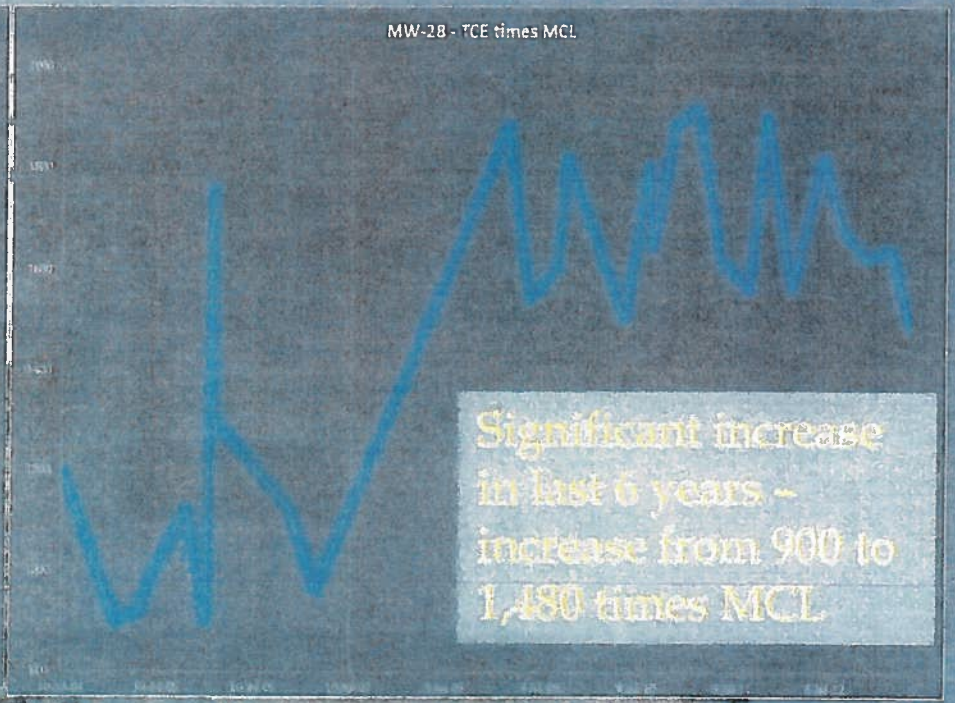


Moose Lodge Road Site

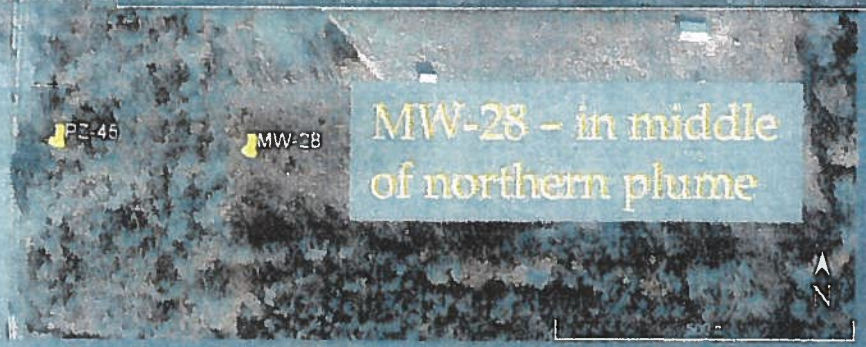
- Used for waste disposal by Rockwell in 1966 and 1967
- June 1993 Moose Lodge Road Site described as "the recently discovered disposal area east of the plant property"
- Sits on 2.8 acre property owned by International Paper
- Investigated in 1993-2000, wells installed to capture both dense (TCE) and light (Toluene) free product
- September 2001 –MDEQ informed Arvin Meritor that the northern limits of TCE plume had not been defined, additional characterization was needed and waste and groundwater treatment and disposal options needed to be determined
- More investigation in 2003-2004

...ls on Moose Lodge Site

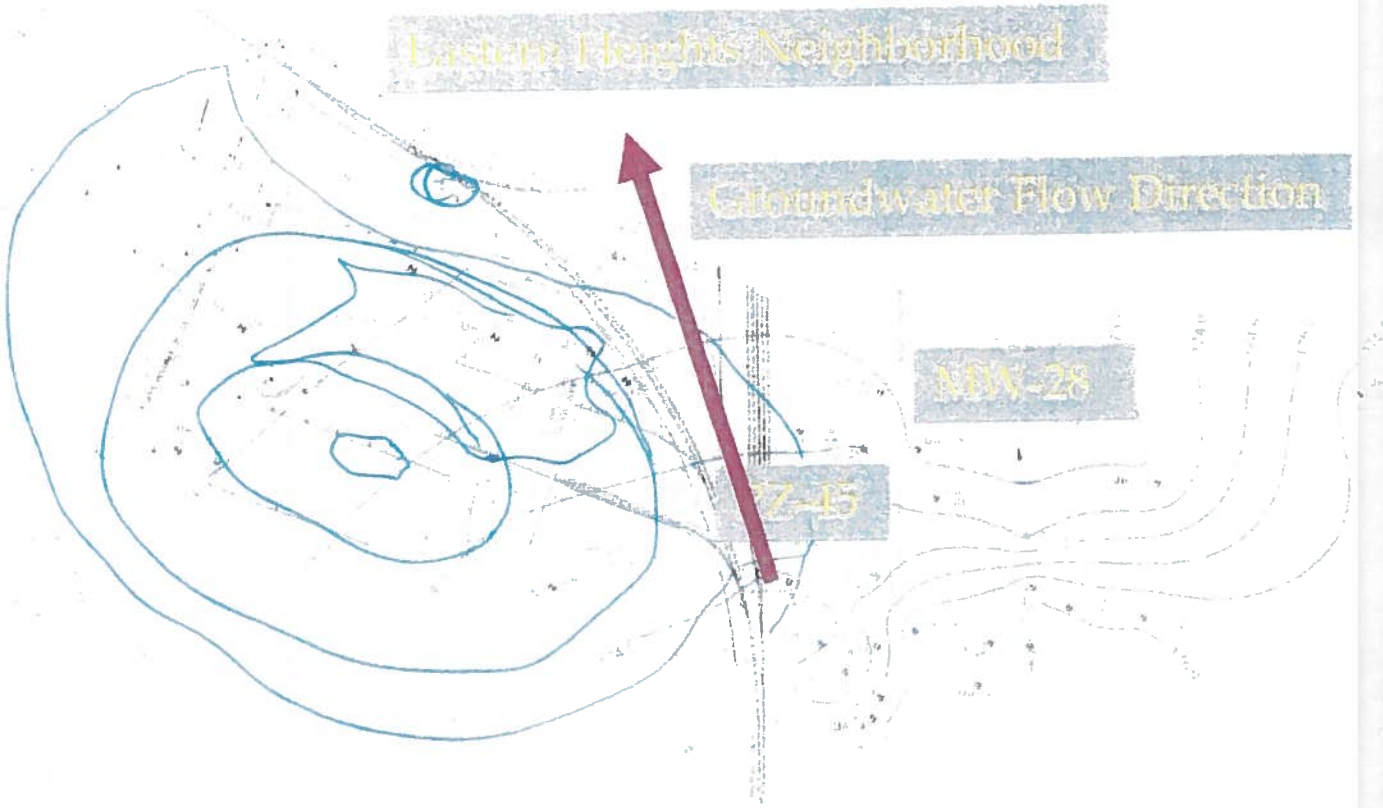




PZ-45 – furthest to northwest – groundwater flow toward neighborhood



Groundwater Flow



Rockwell 012390

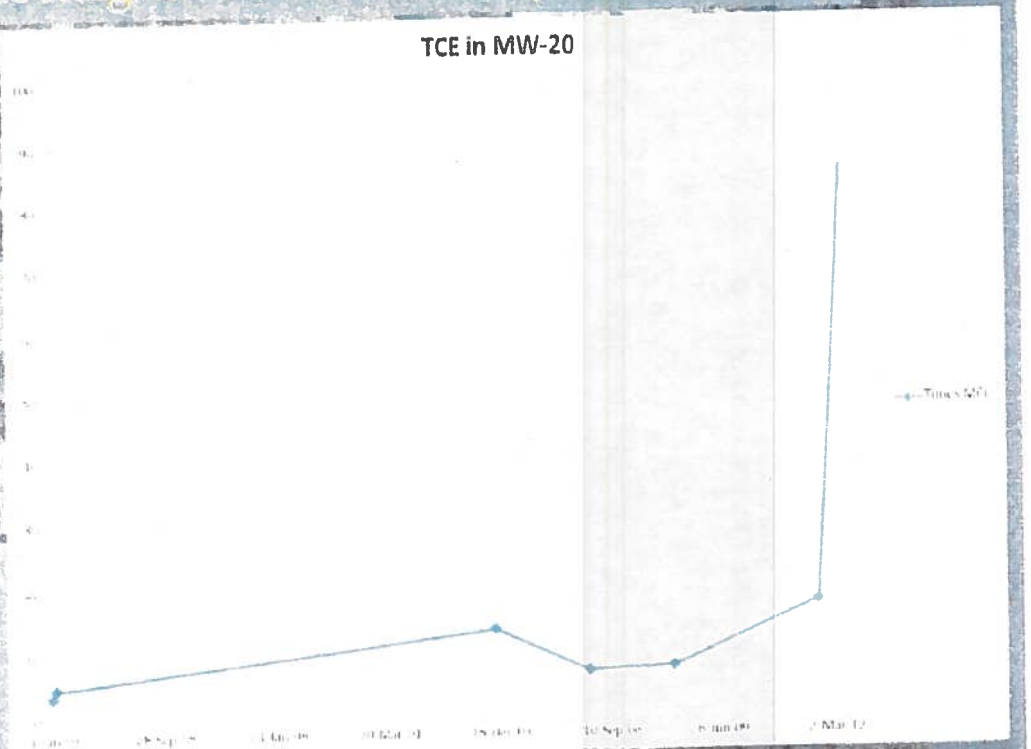
What Do the Moose Lodge Road Increases Mean?

- TCE source from the contaminated soil is still entering the groundwater
- The plume is moving at higher and higher concentrations directly toward and into the neighborhood.

When Did Meritor Know the Neighborhood Was Contaminated?

- Well MW-20 was first sampled in 1993
- The distance from MW-20 to the neighborhood boundary is 44 feet

TCE in MW-20

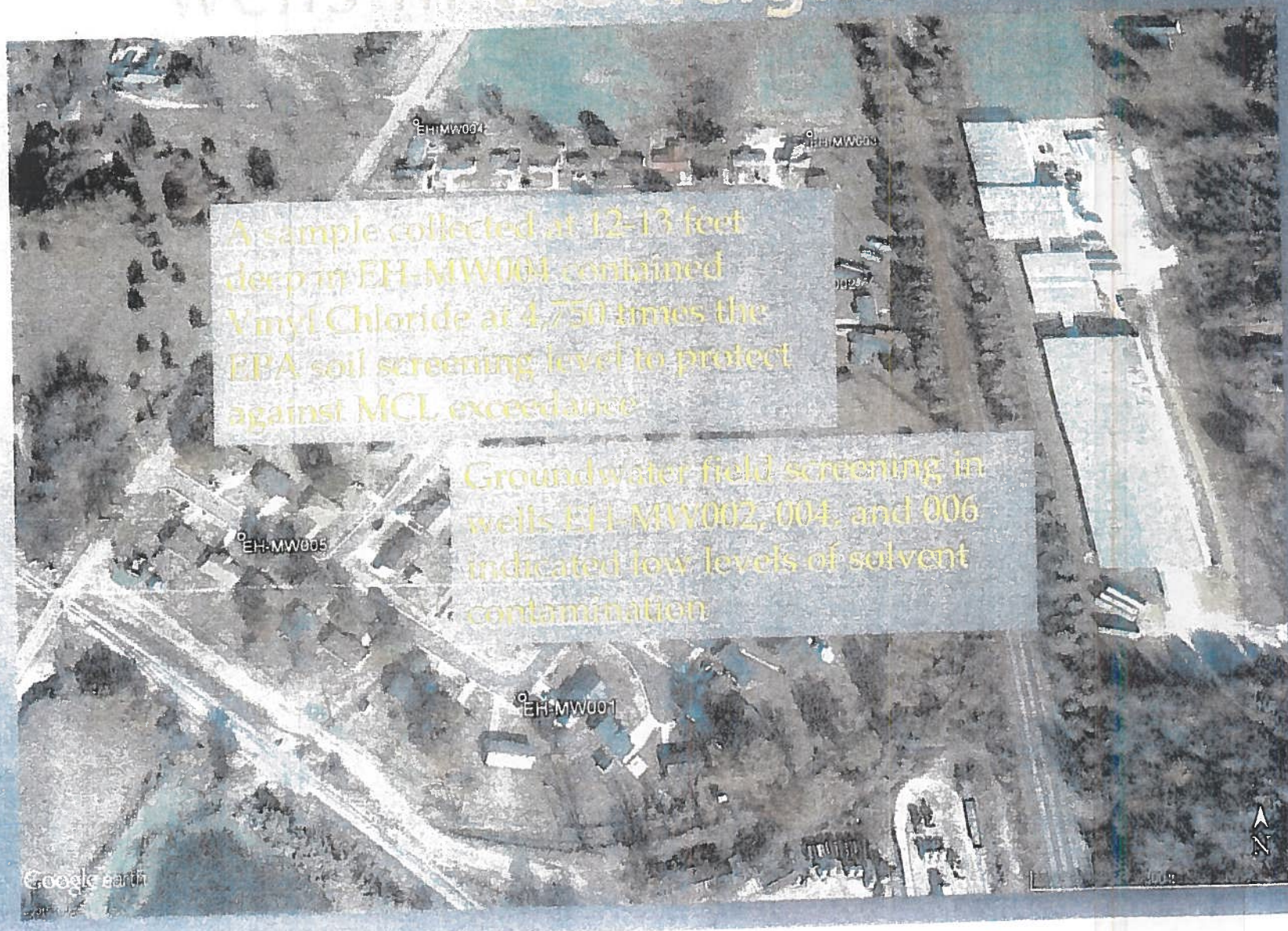


History of MW-20 Sampling

- Samples in 1993 were 3-5 times MCL
- Not sampled for next 10 years
- Now TCE has skyrocketed to 86 times MCL

r team installed 6 monitoring lls in the neighborhood

Duke Energy installed 6 monitoring wells in the neighborhood



How Vulnerable is the Neighborhood?

Based on results from the two wells closest to sources, at least 23 of 82 households (about 30 percent) are potentially endangered by solvent vapor inhalation and high levels of groundwater contamination beneath their properties.

Based on field screening, the plume is spreading to the northwest through the neighborhood.

The sample collected in the EH-MW004 borehole was not soil; it was black and organic. It looked like buffing process waste and may be a sample of waste disposal within the neighborhood.

As Early as 1981, Regulatory Concern Regarding Contamination from the Operations to the Upper Wilcox

The aquifer in question is the uppermost groundwater (i.e., rainfall in the area goes directly into the Upper Wilcox aquifer, which residents rely on for drinking water). Grenada is on the Upper Wilcox outcrop area. Therefore, any contamination of the shallow groundwater would be a major concern. -- from July 10, 1981 EPA Memo following their first site inspection

Upper Wilcox Supply Wells

Onsite Water Wells Abandoned Illegally and Sample Results Show Contamination

- Last known water well use in 2008 – by MDEQ definition these wells are considered abandoned.
- Records submitted to MDEQ indicate that all three wells are at least 200 feet deep
- South Well – Obstruction encountered at 108 feet. Downhole camera indicated cinder [illegible].
- Oily substance in water well – ~2,500 gallons were removed before sampling – estimated [illegible] gallons was oil.
- Sample contained bis(2-ethylhexyl) phthalate (DEHP) at 29 times MCL.
- DEHP detected in unnamed creek (sample RC-018) at 0.9 time MCL and detected in numerous shallow facility monitoring well samples greater than MCL.
- North Well – Obstructed at depth of 38 feet by pump that had been cut off and dropped down well.
- West Well – Pump and string removed and locking cap installed. Initial sample looked and smelled contaminated. Sample results did not indicate contamination. An additional sample will be collected with low flow technique.
- Currently converting these wells to monitoring wells per MDEQ requirements.

Contamination of Upper Wilcox

Two of the wells were sabotaged.

This Monday, snagged and pulled from North Well

The pump bowls and pipe string were cut with torch and dropped down well

Cinder block dropped in South Well; not yet recovered

Even though cinder block allowed sample only to partial depth of well, DEHP was found at 29 times MCL

Meritor's Contamination

all identified sources in MW-7, MW-8 and MW-11 show
and other contaminants. The source for this
determined.

to explain the fourth hot spot described previously.
states, "Undifferentiated soils, which comprise silts
vicinity of the plant itself, up to 10 feet of fill
and clay) may be present." The potential for and
plant building has not been investigated.

a background well, where it is within the
continually increasing concentrations.

collected using a peristaltic pump and a bailer where EPA
sampling techniques. Meritor's sampling techniques biased
concentrations for volatile organic constituents including solvents.
of contaminants is likely greater than reported by Meritor.

zone exists within the shallow aquifer. Even though the deeper
contaminated, the information on the deeper zone and interconnection
is inadequate to design an effective remediation plan.

have always been incorrectly drawn around the well closest to
(MW-20) to indicate that it is not contaminated; when in fact it is

Meritor's Flaws – Concept

Meritor presumes lower results are more representative than higher results. In fact, the higher results are more representative because their sampling techniques biased results downward.

Lack of institutional controls in highly contaminated public areas –Popular activities such as fishing along Riverdale Creek and recreation at the onsite ball fields should be prohibited but are currently allowed.

The cleanup threshold for unexcavated and treated soils at the onsite landfill was 6 mg/kg. Based on EPA's Risk Screening Level Calculator, http://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search, using default parameters for TCE and calculating the MCL-based, Adult non-carcinogenic, Child non-carcinogenic and carcinogenic screening levels for soil, 6 mg/kg is from 3,000 to 35,000 times too high to ensure safe levels in groundwater.

The extent of contamination relative to MCLs and other health-based criteria has not been determined in any direction, that is north, east, south, west, down and up into the air.

The computer model generated by Meritor is presented as a "best-case scenario" and assumes no additional source to the groundwater. Even this "best-case" predicts concentrations in the deeper zone of the aquifer at about 4 times the TCE MCL in 30 years. No predictions of shallower zone concentrations are presented. Because concentrations in the groundwater are increasing in more than 40 percent of the wells within the plume, no cleanup timeframe can be predicted without source removal.

What Needs To Be Done

Fully Determine:

- Extent of continuing sources of solvents, other organics, and metals
- Extent of onsite and offsite groundwater contamination laterally and vertically
- Hydraulic, stratigraphic and geochemical controls on contaminant migration

What Needs To Be Done: Continuing Sources

Continuing sources must be removed or reduced to levels that will no longer pollute the groundwater.

Continuing sources include free product, waste, and soil above the groundwater and soil in the groundwater

Removal and reduction will require a combination of excavation, soil vapor extraction, bioremediation, and other methods.

What Needs To Be Done: Groundwater

- Wells must be installed and pumped to stop the migration of the plumes
- Wells must be installed and pumped to capture the most contaminated groundwater
- Water pumped from all these wells must be treated to safe levels then injected into the groundwater or disposed.
- Other methods that may be used to enhance cleanup include but are not limited to bioremediation and chemical augmentation

What Needs To Be Done: Goals

- Short Term - Halt future contaminant migration
- Short Term - Protect human health & the environment – may include institutional controls including prohibiting access to Riverdale Creek and the onsite ball field and relocating endangered neighborhood residents
- Long Term - Restore the resources of the area to beneficial use as quickly as reasonable
- The cleanup strategy must specify measurable goals to be accomplished by specified times in specific areas and short-term contingency plans to be implemented if the remedy is not on track

Actions

Our Team has worked hard to understand the daunting problems caused by this uncontrolled contamination

Our Team is committed to creating and implement an effective remediation plan to restore this area

Our Solution is to work with the State of Mississippi to implement a suit for damages, recover the funds necessary to remediate the aquifers and ground water, fix the problem and to take control of this environmental disaster.

This will take years but waiting for the operators to fix this issue has resulted in even further damage to the citizens in the area and the environment.

Client Sample Results

Client: Atlas Geo-Sampling Company
Project/Site: Mississippi VI

TestAmerica Job ID: 320-14732-1

Client Sample ID: EH-SBSL-001
Date Collected: 09/01/15 10:39
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 1L

Lab Sample ID: 320-14732-1
Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**92**		35	1.2	ppb v/v			09/04/15 16:56	6.93
Benzene	**3.1**		2.8	0.55	ppb v/v			09/04/15 16:56	6.93
Benzyl chloride	ND		5.5	1.1	ppb v/v			09/04/15 16:56	6.93
Bromodichloromethane	ND		2.1	0.46	ppb v/v			09/04/15 16:56	6.93
Bromoform	ND		2.8	0.49	ppb v/v			09/04/15 16:56	6.93
Bromomethane	ND		5.5	2.3	ppb v/v			09/04/15 16:56	6.93
2-Butanone (MEK)	ND		5.5	1.4	ppb v/v			09/04/15 16:56	6.93
Carbon disulfide	ND		5.5	0.54	ppb v/v			09/04/15 16:56	6.93
Carbon tetrachloride	ND		5.5	0.44	ppb v/v			09/04/15 16:56	6.93
Chlorobenzene	ND		2.1	0.44	ppb v/v			09/04/15 16:56	6.93
Dibromochloromethane	ND		2.8	0.55	ppb v/v			09/04/15 16:56	6.93
Chloroethane	ND		5.5	2.1	ppb v/v			09/04/15 16:56	6.93
Chloroform	ND		2.1	0.66	ppb v/v			09/04/15 16:56	6.93
Chloromethane	ND		5.5	1.4	ppb v/v			09/04/15 16:56	6.93
1,2-Dibromoethane (EDB)	ND		5.5	0.52	ppb v/v			09/04/15 16:56	6.93
1,2-Dichlorobenzene	ND		2.8	0.90	ppb v/v			09/04/15 16:56	6.93
1,3-Dichlorobenzene	ND		2.8	0.76	ppb v/v			09/04/15 16:56	6.93
1,4-Dichlorobenzene	**370**		2.8	1.0	ppb v/v			09/04/15 16:56	6.93
Dichlorodifluoromethane	ND		2.8	1.0	ppb v/v			09/04/15 16:56	6.93
1,1-Dichloroethane	ND		2.1	0.50	ppb v/v			09/04/15 16:56	6.93
1,2-Dichloroethane	**1.8**	J	5.5	0.61	ppb v/v			09/04/15 16:56	6.93
1,1-Dichloroethene	ND		5.5	0.89	ppb v/v			09/04/15 16:56	6.93
cis-1,2-Dichloroethene	ND		2.8	0.62	ppb v/v			09/04/15 16:56	6.93
trans-1,2-Dichloroethene	ND		2.8	0.69	ppb v/v			09/04/15 16:56	6.93
1,2-Dichloropropane	ND		2.8	1.7	ppb v/v			09/04/15 16:56	6.93
cis-1,3-Dichloropropene	ND		2.8	0.72	ppb v/v			09/04/15 16:56	6.93
trans-1,3-Dichloropropene	ND		2.8	0.61	ppb v/v			09/04/15 16:56	6.93
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.8	1.1	ppb v/v			09/04/15 16:56	6.93
Ethylbenzene	**14**		2.8	0.44	ppb v/v			09/04/15 16:56	6.93
4-Ethyltoluene	**5.7**		2.8	1.3	ppb v/v			09/04/15 16:56	6.93
Hexachlorobutadiene	ND		14	3.0	ppb v/v			09/04/15 16:56	6.93
2-Hexanone	ND		2.8	0.60	ppb v/v			09/04/15 16:56	6.93
Methylene Chloride	**0.77**	J	2.8	0.50	ppb v/v			09/04/15 16:56	6.93
4-Methyl-2-pentanone (MIBK)	**1.6**	J	2.8	0.94	ppb v/v			09/04/15 16:56	6.93
Styrene	ND		2.8	0.41	ppb v/v			09/04/15 16:56	6.93
1,1,2,2-Tetrachloroethane	ND		2.8	0.48	ppb v/v			09/04/15 16:56	6.93
Tetrachloroethene	ND		2.8	0.35	ppb v/v			09/04/15 16:56	6.93
Toluene	**40**		2.8	0.35	ppb v/v			09/04/15 16:56	6.93
1,2,4-Trichlorobenzene	ND		14	3.0	ppb v/v			09/04/15 16:56	6.93
1,1,1-Trichloroethane	ND		2.1	0.45	ppb v/v			09/04/15 16:56	6.93
1,1,2-Trichloroethane	ND		2.8	0.46	ppb v/v			09/04/15 16:56	6.93
Trichloroethene	ND		2.8	0.73	ppb v/v			09/04/15 16:56	6.93
Trichlorofluoromethane	**2.2**	J	2.8	1.4	ppb v/v			09/04/15 16:56	6.93
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.8	1.1	ppb v/v			09/04/15 16:56	6.93
1,2,4-Trimethylbenzene	**20**		5.5	1.1	ppb v/v			09/04/15 16:56	6.93
1,3,5-Trimethylbenzene	**5.7**		2.8	0.87	ppb v/v			09/04/15 16:56	6.93
Vinyl acetate	ND		5.5	1.0	ppb v/v			09/04/15 16:56	6.93
Vinyl chloride	ND		2.8	0.83	ppb v/v			09/04/15 16:56	6.93

Client Sample Results

Client: Atlas Geo-Sampling Company
Project/Site: Mississippi VI

TestAmerica Job ID: 320-14732-1

Client Sample ID: EH-SBSL-001
Date Collected: 09/01/15 10:39
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 1L

Lab Sample ID: 320-14732-1
Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m,p-Xylene	55		5.5	0.69	ppb v/v			09/04/15 16:56	6.93
o-Xylene	21		2.8	0.37	ppb v/v			09/04/15 16:56	6.93

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	220		82	2.9	ug/m3			09/04/15 16:56	6.93
Benzene	9.8		8.9	1.7	ug/m3			09/04/15 16:56	6.93
Benzyl chloride	ND		29	5.8	ug/m3			09/04/15 16:56	6.93
Bromodichloromethane	ND		14	3.1	ug/m3			09/04/15 16:56	6.93
Bromoform	ND		29	5.0	ug/m3			09/04/15 16:56	6.93
Bromomethane	ND		22	9.0	ug/m3			09/04/15 16:56	6.93
2-Butanone (MEK)	ND		16	4.1	ug/m3			09/04/15 16:56	6.93
Carbon disulfide	ND		17	1.7	ug/m3			09/04/15 16:56	6.93
Carbon tetrachloride	ND		35	2.8	ug/m3			09/04/15 16:56	6.93
Chlorobenzene	ND		9.6	2.0	ug/m3			09/04/15 16:56	6.93
Dibromochloromethane	ND		24	4.7	ug/m3			09/04/15 16:56	6.93
Chloroethane	ND		15	5.6	ug/m3			09/04/15 16:56	6.93
Chloroform	ND		10	3.2	ug/m3			09/04/15 16:56	6.93
Chloromethane	ND		11	2.8	ug/m3			09/04/15 16:56	6.93
1,2-Dibromoethane (EDB)	ND		43	4.0	ug/m3			09/04/15 16:56	6.93
1,2-Dichlorobenzene	ND		17	5.4	ug/m3			09/04/15 16:56	6.93
1,3-Dichlorobenzene	ND		17	4.6	ug/m3			09/04/15 16:56	6.93
1,4-Dichlorobenzene	2200		17	6.2	ug/m3			09/04/15 16:56	6.93
Dichlorodifluoromethane	ND		14	5.0	ug/m3			09/04/15 16:56	6.93
1,1-Dichloroethane	ND		8.4	2.0	ug/m3			09/04/15 16:56	6.93
1,2-Dichloroethane	7.4	J	22	2.5	ug/m3			09/04/15 16:56	6.93
1,1-Dichloroethene	ND		22	3.5	ug/m3			09/04/15 16:56	6.93
cis-1,2-Dichloroethene	ND		11	2.4	ug/m3			09/04/15 16:56	6.93
trans-1,2-Dichloroethene	ND		11	2.7	ug/m3			09/04/15 16:56	6.93
1,2-Dichloropropane	ND		13	7.7	ug/m3			09/04/15 16:56	6.93
cis-1,3-Dichloropropene	ND		13	3.3	ug/m3			09/04/15 16:56	6.93
trans-1,3-Dichloropropene	ND		13	2.8	ug/m3			09/04/15 16:56	6.93
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		19	7.5	ug/m3			09/04/15 16:56	6.93
Ethylbenzene	60		12	1.9	ug/m3			09/04/15 16:56	6.93
4-Ethyltoluene	28		14	6.4	ug/m3			09/04/15 16:56	6.93
Hexachlorobutadiene	ND		150	32	ug/m3			09/04/15 16:56	6.93
2-Hexanone	ND		11	2.5	ug/m3			09/04/15 16:56	6.93
Methylene Chloride	2.7	J	9.6	1.7	ug/m3			09/04/15 16:56	6.93
4-Methyl-2-pentanone (MIBK)	6.6	J	11	3.8	ug/m3			09/04/15 16:56	6.93
Styrene	ND		12	1.7	ug/m3			09/04/15 16:56	6.93
1,1,2,2-Tetrachloroethane	ND		19	3.3	ug/m3			09/04/15 16:56	6.93
Tetrachloroethene	ND		19	2.4	ug/m3			09/04/15 16:56	6.93
Toluene	150		10	1.3	ug/m3			09/04/15 16:56	6.93
1,2,4-Trichlorobenzene	ND		100	22	ug/m3			09/04/15 16:56	6.93
1,1,1-Trichloroethane	ND		11	2.5	ug/m3			09/04/15 16:56	6.93
1,1,2-Trichloroethane	ND		15	2.5	ug/m3			09/04/15 16:56	6.93
Trichloroethene	ND		15	3.9	ug/m3			09/04/15 16:56	6.93
Trichlorofluoromethane	12	J	16	7.6	ug/m3			09/04/15 16:56	6.93
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		21	8.7	ug/m3			09/04/15 16:56	6.93
1,2,4-Trimethylbenzene	96		27	5.5	ug/m3			09/04/15 16:56	6.93

Client Sample Results

Client: Atlas Geo-Sampling Company
Project/Site: Mississippi VI

TestAmerica Job ID: 320-14732-1

Client Sample ID: EH-SBSL-001

Date Collected: 09/01/15 10:39
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 1L

Lab Sample ID: 320-14732-1
Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	28		14	4.3	ug/m3			09/04/15 16:56	6.93
Vinyl acetate	ND		20	3.5	ug/m3			09/04/15 16:56	6.93
Vinyl chloride	ND		7.1	2.1	ug/m3			09/04/15 16:56	6.93
m,p-Xylene	240		24	3.0	ug/m3			09/04/15 16:56	6.93
o-Xylene	89		12	1.6	ug/m3			09/04/15 16:56	6.93

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*117*		*70 - 130*		*09/04/15 16:56*	*6.93*
1,2-Dichloroethane-d4 (Surr)	*118*		*70 - 130*		*09/04/15 16:56*	*6.93*
Toluene-d8 (Surr)	*96*		*70 - 130*		*09/04/15 16:56*	*6.93*

Client Sample ID: EH-SBSL-002

Date Collected: 09/01/15 11:51
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 1L

Lab Sample ID: 320-14732-2
Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	3.8		0.69	0.14	ppb v/v			09/04/15 17:40	1.73
Benzyl chloride	ND		1.4	0.28	ppb v/v			09/04/15 17:40	1.73
Bromodichloromethane	ND		0.52	0.11	ppb v/v			09/04/15 17:40	1.73
Bromoform	ND		0.69	0.12	ppb v/v			09/04/15 17:40	1.73
Bromomethane	ND		1.4	0.58	ppb v/v			09/04/15 17:40	1.73
2-Butanone (MEK)	21		1.4	0.34	ppb v/v			09/04/15 17:40	1.73
Carbon disulfide	0.32	J	1.4	0.13	ppb v/v			09/04/15 17:40	1.73
Carbon tetrachloride	ND		1.4	0.11	ppb v/v			09/04/15 17:40	1.73
Chlorobenzene	ND		0.52	0.11	ppb v/v			09/04/15 17:40	1.73
Dibromochloromethane	ND		0.69	0.14	ppb v/v			09/04/15 17:40	1.73
Chloroethane	ND		1.4	0.53	ppb v/v			09/04/15 17:40	1.73
Chloroform	0.18	J	0.52	0.16	ppb v/v			09/04/15 17:40	1.73
Chloromethane	0.68	J	1.4	0.34	ppb v/v			09/04/15 17:40	1.73
1,2-Dibromoethane (EDB)	ND		1.4	0.13	ppb v/v			09/04/15 17:40	1.73
1,2-Dichlorobenzene	ND		0.69	0.22	ppb v/v			09/04/15 17:40	1.73
1,3-Dichlorobenzene	ND		0.69	0.19	ppb v/v			09/04/15 17:40	1.73
1,4-Dichlorobenzene	4.7		0.69	0.26	ppb v/v			09/04/15 17:40	1.73
Dichlorodifluoromethane	0.36	J	0.69	0.25	ppb v/v			09/04/15 17:40	1.73
1,1-Dichloroethane	ND		0.52	0.12	ppb v/v			09/04/15 17:40	1.73
1,2-Dichloroethane	ND		1.4	0.15	ppb v/v			09/04/15 17:40	1.73
1,1-Dichloroethene	ND		1.4	0.22	ppb v/v			09/04/15 17:40	1.73
cis-1,2-Dichloroethene	ND		0.69	0.15	ppb v/v			09/04/15 17:40	1.73
trans-1,2-Dichloroethene	ND		0.69	0.17	ppb v/v			09/04/15 17:40	1.73
1,2-Dichloropropane	ND		0.69	0.42	ppb v/v			09/04/15 17:40	1.73
cis-1,3-Dichloropropene	ND		0.69	0.18	ppb v/v			09/04/15 17:40	1.73
trans-1,3-Dichloropropene	ND		0.69	0.15	ppb v/v			09/04/15 17:40	1.73
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.69	0.27	ppb v/v			09/04/15 17:40	1.73
Ethylbenzene	28		0.69	0.11	ppb v/v			09/04/15 17:40	1.73
4-Ethyltoluene	19		0.69	0.32	ppb v/v			09/04/15 17:40	1.73
Hexachlorobutadiene	ND		3.5	0.75	ppb v/v			09/04/15 17:40	1.73
2-Hexanone	5.2		0.69	0.15	ppb v/v			09/04/15 17:40	1.73

Client Sample Results

Client: Atlas Geo-Sampling Company
Project/Site: Mississippi VI

TestAmerica Job ID: 320-14732-1

Client Sample ID: EH-SBSL-002

Date Collected: 09/01/15 11:51
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 1L

Lab Sample ID: 320-14732-2

Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylene Chloride	0.12	J	0.69	0.12	ppb v/v			09/04/15 17:40	1.73
4-Methyl-2-pentanone (MIBK)	6.8		0.69	0.23	ppb v/v			09/04/15 17:40	1.73
Styrene	ND		0.69	0.10	ppb v/v			09/04/15 17:40	1.73
1,1,2,2-Tetrachloroethane	ND		0.69	0.12	ppb v/v			09/04/15 17:40	1.73
Tetrachloroethene	0.14	J	0.69	0.088	ppb v/v			09/04/15 17:40	1.73
Toluene	62		0.69	0.088	ppb v/v			09/04/15 17:40	1.73
1,2,4-Trichlorobenzene	ND		3.5	0.75	ppb v/v			09/04/15 17:40	1.73
1,1,1-Trichloroethane	ND		0.52	0.11	ppb v/v			09/04/15 17:40	1.73
1,1,2-Trichloroethane	ND		0.69	0.12	ppb v/v			09/04/15 17:40	1.73
Trichloroethene	ND		0.69	0.18	ppb v/v			09/04/15 17:40	1.73
Trichlorofluoromethane	1.0		0.69	0.34	ppb v/v			09/04/15 17:40	1.73
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.69	0.28	ppb v/v			09/04/15 17:40	1.73
1,2,4-Trimethylbenzene	57		1.4	0.28	ppb v/v			09/04/15 17:40	1.73
1,3,5-Trimethylbenzene	16		0.69	0.22	ppb v/v			09/04/15 17:40	1.73
Vinyl acetate	ND		1.4	0.25	ppb v/v			09/04/15 17:40	1.73
Vinyl chloride	ND		0.69	0.21	ppb v/v			09/04/15 17:40	1.73
m,p-Xylene	130		1.4	0.17	ppb v/v			09/04/15 17:40	1.73
o-Xylene	46		0.69	0.093	ppb v/v			09/04/15 17:40	1.73

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	12		2.2	0.44	ug/m3			09/04/15 17:40	1.73
Benzyl chloride	ND		7.2	1.5	ug/m3			09/04/15 17:40	1.73
Bromodichloromethane	ND		3.5	0.77	ug/m3			09/04/15 17:40	1.73
Bromoform	ND		7.2	1.3	ug/m3			09/04/15 17:40	1.73
Bromomethane	ND		5.4	2.3	ug/m3			09/04/15 17:40	1.73
2-Butanone (MEK)	63		4.1	1.0	ug/m3			09/04/15 17:40	1.73
Carbon disulfide	1.0	J	4.3	0.42	ug/m3			09/04/15 17:40	1.73
Carbon tetrachloride	ND		8.7	0.70	ug/m3			09/04/15 17:40	1.73
Chlorobenzene	ND		2.4	0.51	ug/m3			09/04/15 17:40	1.73
Dibromochloromethane	ND		5.9	1.2	ug/m3			09/04/15 17:40	1.73
Chloroethane	ND		3.7	1.4	ug/m3			09/04/15 17:40	1.73
Chloroform	0.88	J	2.5	0.80	ug/m3			09/04/15 17:40	1.73
Chloromethane	1.4	J	2.9	0.70	ug/m3			09/04/15 17:40	1.73
1,2-Dibromoethane (EDB)	ND		11	1.0	ug/m3			09/04/15 17:40	1.73
1,2-Dichlorobenzene	ND		4.2	1.4	ug/m3			09/04/15 17:40	1.73
1,3-Dichlorobenzene	ND		4.2	1.1	ug/m3			09/04/15 17:40	1.73
1,4-Dichlorobenzene	28		4.2	1.5	ug/m3			09/04/15 17:40	1.73
Dichlorodifluoromethane	1.8	J	3.4	1.2	ug/m3			09/04/15 17:40	1.73
1,1-Dichloroethane	ND		2.1	0.50	ug/m3			09/04/15 17:40	1.73
1,2-Dichloroethane	ND		5.6	0.62	ug/m3			09/04/15 17:40	1.73
1,1-Dichloroethene	ND		5.5	0.88	ug/m3			09/04/15 17:40	1.73
cis-1,2-Dichloroethene	ND		2.7	0.61	ug/m3			09/04/15 17:40	1.73
trans-1,2-Dichloroethene	ND		2.7	0.69	ug/m3			09/04/15 17:40	1.73
1,2-Dichloropropane	ND		3.2	1.9	ug/m3			09/04/15 17:40	1.73
cis-1,3-Dichloropropene	ND		3.1	0.82	ug/m3			09/04/15 17:40	1.73
trans-1,3-Dichloropropene	ND		3.1	0.69	ug/m3			09/04/15 17:40	1.73
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		4.8	1.9	ug/m3			09/04/15 17:40	1.73
Ethylbenzene	120		3.0	0.47	ug/m3			09/04/15 17:40	1.73
4-Ethyltoluene	93		3.4	1.6	ug/m3			09/04/15 17:40	1.73

Client Sample Results

Client: Atlas Geo-Sampling Company
Project/Site: Mississippi VI

TestAmerica Job ID: 320-14732-1

Client Sample ID: EH-SBSL-002

Date Collected: 09/01/15 11:51
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 1L

Lab Sample ID: 320-14732-2
Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachlorobutadiene	ND		37	8.0	ug/m3			09/04/15 17:40	1.73
2-Hexanone	21		2.8	0.62	ug/m3			09/04/15 17:40	1.73
Methylene Chloride	0.41	J	2.4	0.43	ug/m3			09/04/15 17:40	1.73
4-Methyl-2-pentanone (MIBK)	28		2.8	0.96	ug/m3			09/04/15 17:40	1.73
Styrene	ND		2.9	0.43	ug/m3			09/04/15 17:40	1.73
1,1,2,2-Tetrachloroethane	ND		4.8	0.82	ug/m3			09/04/15 17:40	1.73
Tetrachloroethene	0.97	J	4.7	0.60	ug/m3			09/04/15 17:40	1.73
Toluene	230		2.6	0.33	ug/m3			09/04/15 17:40	1.73
1,2,4-Trichlorobenzene	ND		26	5.6	ug/m3			09/04/15 17:40	1.73
1,1,1-Trichloroethane	ND		2.8	0.61	ug/m3			09/04/15 17:40	1.73
1,1,2-Trichloroethane	ND		3.8	0.63	ug/m3			09/04/15 17:40	1.73
Trichloroethene	ND		3.7	0.98	ug/m3			09/04/15 17:40	1.73
Trichlorofluoromethane	5.7		3.9	1.9	ug/m3			09/04/15 17:40	1.73
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.3	2.2	ug/m3			09/04/15 17:40	1.73
1,2,4-Trimethylbenzene	280		6.8	1.4	ug/m3			09/04/15 17:40	1.73
1,3,5-Trimethylbenzene	80		3.4	1.1	ug/m3			09/04/15 17:40	1.73
Vinyl acetate	ND		4.9	0.88	ug/m3			09/04/15 17:40	1.73
Vinyl chloride	ND		1.8	0.53	ug/m3			09/04/15 17:40	1.73
m,p-Xylene	560		6.0	0.75	ug/m3			09/04/15 17:40	1.73
o-Xylene	200		3.0	0.41	ug/m3			09/04/15 17:40	1.73

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*120*		*70 - 130*		*09/04/15 17:40*	*1.73*
1,2-Dichloroethane-d4 (Surr)	*117*		*70 - 130*		*09/04/15 17:40*	*1.73*
Toluene-d8 (Surr)	*93*		*70 - 130*		*09/04/15 17:40*	*1.73*

Method: TO-15 - Volatile Organic Compounds in Ambient Air - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	120		22	0.77	ppb v/v			09/05/15 01:02	4.32

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	280		51	1.8	ug/m3			09/05/15 01:02	4.32

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*119*		*70 - 130*		*09/05/15 01:02*	*4.32*
1,2-Dichloroethane-d4 (Surr)	*113*		*70 - 130*		*09/05/15 01:02*	*4.32*
Toluene-d8 (Surr)	*99*		*70 - 130*		*09/05/15 01:02*	*4.32*

Client Sample ID: EH-SBSL-003

Date Collected: 09/01/15 12:34
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 1L

Lab Sample ID: 320-14732-3
Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	99		8.7	0.31	ppb v/v			09/04/15 18:24	1.74
Benzene	4.6		0.70	0.14	ppb v/v			09/04/15 18:24	1.74
Benzyl chloride	ND		1.4	0.28	ppb v/v			09/04/15 18:24	1.74
Bromodichloromethane	ND		0.52	0.11	ppb v/v			09/04/15 18:24	1.74
Bromoform	ND		0.70	0.12	ppb v/v			09/04/15 18:24	1.74

Client Sample Results

Client: Atlas Geo-Sampling Company
Project/Site: Mississippi VI

TestAmerica Job ID: 320-14732-1

Client Sample ID: EH-SBSL-003

Date Collected: 09/01/15 12:34
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 1L

Lab Sample ID: 320-14732-3

Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromomethane	ND		1.4	0.58	ppb v/v			09/04/15 18:24	1.74
2-Butanone (MEK)	13		1.4	0.35	ppb v/v			09/04/15 18:24	1.74
Carbon disulfide	1.1	J	1.4	0.14	ppb v/v			09/04/15 18:24	1.74
Carbon tetrachloride	ND		1.4	0.11	ppb v/v			09/04/15 18:24	1.74
Chlorobenzene	ND		0.52	0.11	ppb v/v			09/04/15 18:24	1.74
Dibromochloromethane	ND		0.70	0.14	ppb v/v			09/04/15 18:24	1.74
Chloroethane	ND		1.4	0.54	ppb v/v			09/04/15 18:24	1.74
Chloroform	0.35	J	0.52	0.17	ppb v/v			09/04/15 18:24	1.74
Chloromethane	0.86	J	1.4	0.34	ppb v/v			09/04/15 18:24	1.74
1,2-Dibromoethane (EDB)	ND		1.4	0.13	ppb v/v			09/04/15 18:24	1.74
1,2-Dichlorobenzene	ND		0.70	0.23	ppb v/v			09/04/15 18:24	1.74
1,3-Dichlorobenzene	ND		0.70	0.19	ppb v/v			09/04/15 18:24	1.74
1,4-Dichlorobenzene	4.7		0.70	0.26	ppb v/v			09/04/15 18:24	1.74
Dichlorodifluoromethane	0.43	J	0.70	0.25	ppb v/v			09/04/15 18:24	1.74
1,1-Dichloroethane	ND		0.52	0.13	ppb v/v			09/04/15 18:24	1.74
1,2-Dichloroethane	ND		1.4	0.15	ppb v/v			09/04/15 18:24	1.74
1,1-Dichloroethene	ND		1.4	0.22	ppb v/v			09/04/15 18:24	1.74
cis-1,2-Dichloroethene	ND		0.70	0.15	ppb v/v			09/04/15 18:24	1.74
trans-1,2-Dichloroethene	ND		0.70	0.17	ppb v/v			09/04/15 18:24	1.74
1,2-Dichloropropane	ND		0.70	0.42	ppb v/v			09/04/15 18:24	1.74
cis-1,3-Dichloropropene	ND		0.70	0.18	ppb v/v			09/04/15 18:24	1.74
trans-1,3-Dichloropropene	ND		0.70	0.15	ppb v/v			09/04/15 18:24	1.74
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.70	0.27	ppb v/v			09/04/15 18:24	1.74
Ethylbenzene	18		0.70	0.11	ppb v/v			09/04/15 18:24	1.74
4-Ethyltoluene	12		0.70	0.33	ppb v/v			09/04/15 18:24	1.74
Hexachlorobutadiene	ND		3.5	0.75	ppb v/v			09/04/15 18:24	1.74
2-Hexanone	4.1		0.70	0.15	ppb v/v			09/04/15 18:24	1.74
Methylene Chloride	0.14	J	0.70	0.13	ppb v/v			09/04/15 18:24	1.74
4-Methyl-2-pentanone (MIBK)	10		0.70	0.23	ppb v/v			09/04/15 18:24	1.74
Styrene	ND		0.70	0.10	ppb v/v			09/04/15 18:24	1.74
1,1,2,2-Tetrachloroethane	ND		0.70	0.12	ppb v/v			09/04/15 18:24	1.74
Tetrachloroethene	0.096	J	0.70	0.089	ppb v/v			09/04/15 18:24	1.74
Toluene	38		0.70	0.089	ppb v/v			09/04/15 18:24	1.74
1,2,4-Trichlorobenzene	ND		3.5	0.75	ppb v/v			09/04/15 18:24	1.74
1,1,1-Trichloroethane	ND		0.52	0.11	ppb v/v			09/04/15 18:24	1.74
1,1,2-Trichloroethane	ND		0.70	0.12	ppb v/v			09/04/15 18:24	1.74
Trichloroethene	ND		0.70	0.18	ppb v/v			09/04/15 18:24	1.74
Trichlorofluoromethane	ND		0.70	0.34	ppb v/v			09/04/15 18:24	1.74
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.70	0.28	ppb v/v			09/04/15 18:24	1.74
1,2,4-Trimethylbenzene	36		1.4	0.28	ppb v/v			09/04/15 18:24	1.74
1,3,5-Trimethylbenzene	10		0.70	0.22	ppb v/v			09/04/15 18:24	1.74
Vinyl acetate	ND		1.4	0.25	ppb v/v			09/04/15 18:24	1.74
Vinyl chloride	ND		0.70	0.21	ppb v/v			09/04/15 18:24	1.74
m,p-Xylene	75		1.4	0.17	ppb v/v			09/04/15 18:24	1.74
o-Xylene	26		0.70	0.094	ppb v/v			09/04/15 18:24	1.74

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	230		21	0.74	ug/m3			09/04/15 18:24	1.74
Benzene	15		2.2	0.44	ug/m3			09/04/15 18:24	1.74

Client Sample Results

Client: Atlas Geo-Sampling Company
Project/Site: Mississippi VI

TestAmerica Job ID: 320-14732-1

Client Sample ID: EH-SBSL-003

Date Collected: 09/01/15 12:34
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 1L

Lab Sample ID: 320-14732-3

Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzyl chloride	ND		7.2	1.5	ug/m3			09/04/15 18:24	1.74
Bromodichloromethane	ND		3.5	0.77	ug/m3			09/04/15 18:24	1.74
Bromoform	ND		7.2	1.3	ug/m3			09/04/15 18:24	1.74
Bromomethane	ND		5.4	2.3	ug/m3			09/04/15 18:24	1.74
2-Butanone (MEK)	37		4.1	1.0	ug/m3			09/04/15 18:24	1.74
Carbon disulfide	3.3	J	4.3	0.42	ug/m3			09/04/15 18:24	1.74
Carbon tetrachloride	ND		8.8	0.70	ug/m3			09/04/15 18:24	1.74
Chlorobenzene	ND		2.4	0.51	ug/m3			09/04/15 18:24	1.74
Dibromochloromethane	ND		5.9	1.2	ug/m3			09/04/15 18:24	1.74
Chloroethane	ND		3.7	1.4	ug/m3			09/04/15 18:24	1.74
Chloroform	1.7	J	2.5	0.81	ug/m3			09/04/15 18:24	1.74
Chloromethane	1.8	J	2.9	0.71	ug/m3			09/04/15 18:24	1.74
1,2-Dibromoethane (EDB)	ND		11	1.0	ug/m3			09/04/15 18:24	1.74
1,2-Dichlorobenzene	ND		4.2	1.4	ug/m3			09/04/15 18:24	1.74
1,3-Dichlorobenzene	ND		4.2	1.2	ug/m3			09/04/15 18:24	1.74
1,4-Dichlorobenzene	28		4.2	1.6	ug/m3			09/04/15 18:24	1.74
Dichlorodifluoromethane	2.1	J	3.4	1.2	ug/m3			09/04/15 18:24	1.74
1,1-Dichloroethane	ND		2.1	0.51	ug/m3			09/04/15 18:24	1.74
1,2-Dichloroethane	ND		5.6	0.62	ug/m3			09/04/15 18:24	1.74
1,1-Dichloroethene	ND		5.5	0.89	ug/m3			09/04/15 18:24	1.74
cis-1,2-Dichloroethene	ND		2.8	0.61	ug/m3			09/04/15 18:24	1.74
trans-1,2-Dichloroethene	ND		2.8	0.69	ug/m3			09/04/15 18:24	1.74
1,2-Dichloropropane	ND		3.2	1.9	ug/m3			09/04/15 18:24	1.74
cis-1,3-Dichloropropene	ND		3.2	0.82	ug/m3			09/04/15 18:24	1.74
trans-1,3-Dichloropropene	ND		3.2	0.69	ug/m3			09/04/15 18:24	1.74
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		4.9	1.9	ug/m3			09/04/15 18:24	1.74
Ethylbenzene	77		3.0	0.48	ug/m3			09/04/15 18:24	1.74
4-Ethyltoluene	60		3.4	1.6	ug/m3			09/04/15 18:24	1.74
Hexachlorobutadiene	ND		37	8.0	ug/m3			09/04/15 18:24	1.74
2-Hexanone	17		2.9	0.62	ug/m3			09/04/15 18:24	1.74
Methylene Chloride	0.49	J	2.4	0.44	ug/m3			09/04/15 18:24	1.74
4-Methyl-2-pentanone (MIBK)	43		2.9	0.96	ug/m3			09/04/15 18:24	1.74
Styrene	ND		3.0	0.44	ug/m3			09/04/15 18:24	1.74
1,1,2,2-Tetrachloroethane	ND		4.8	0.82	ug/m3			09/04/15 18:24	1.74
Tetrachloroethene	0.65	J	4.7	0.60	ug/m3			09/04/15 18:24	1.74
Toluene	140		2.6	0.33	ug/m3			09/04/15 18:24	1.74
1,2,4-Trichlorobenzene	ND		26	5.6	ug/m3			09/04/15 18:24	1.74
1,1,1-Trichloroethane	ND		2.8	0.62	ug/m3			09/04/15 18:24	1.74
1,1,2-Trichloroethane	ND		3.8	0.64	ug/m3			09/04/15 18:24	1.74
Trichloroethene	ND		3.7	0.98	ug/m3			09/04/15 18:24	1.74
Trichlorofluoromethane	ND		3.9	1.9	ug/m3			09/04/15 18:24	1.74
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.3	2.2	ug/m3			09/04/15 18:24	1.74
1,2,4-Trimethylbenzene	170		6.8	1.4	ug/m3			09/04/15 18:24	1.74
1,3,5-Trimethylbenzene	52		3.4	1.1	ug/m3			09/04/15 18:24	1.74
Vinyl acetate	ND		4.9	0.89	ug/m3			09/04/15 18:24	1.74
Vinyl chloride	ND		1.8	0.53	ug/m3			09/04/15 18:24	1.74
m,p-Xylene	320		6.0	0.76	ug/m3			09/04/15 18:24	1.74
o-Xylene	110		3.0	0.41	ug/m3			09/04/15 18:24	1.74

Client Sample Results

Client: Atlas Geo-Sampling Company
Project/Site: Mississippi VI

TestAmerica Job ID: 320-14732-1

Client Sample ID: EH-SBSL-003

Lab Sample ID: 320-14732-3

Date Collected: 09/01/15 12:34
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 1L

Matrix: Air

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	119		70 - 130		09/04/15 18:24	1.74
1,2-Dichloroethane-d4 (Surr)	116		70 - 130		09/04/15 18:24	1.74
Toluene-d8 (Surr)	92		70 - 130		09/04/15 18:24	1.74

Client Sample ID: EH-SBSL-004

Lab Sample ID: 320-14732-4

Date Collected: 09/01/15 12:34
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 1L

Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	87		8.3	0.30	ppb v/v			09/04/15 19:08	1.66
Benzene	4.9		0.66	0.13	ppb v/v			09/04/15 19:08	1.66
Benzyl chloride	ND		1.3	0.27	ppb v/v			09/04/15 19:08	1.66
Bromodichloromethane	ND		0.50	0.11	ppb v/v			09/04/15 19:08	1.66
Bromoform	ND		0.66	0.12	ppb v/v			09/04/15 19:08	1.66
Bromomethane	ND		1.3	0.56	ppb v/v			09/04/15 19:08	1.66
2-Butanone (MEK)	14		1.3	0.33	ppb v/v			09/04/15 19:08	1.66
Carbon disulfide	0.98	J	1.3	0.13	ppb v/v			09/04/15 19:08	1.66
Carbon tetrachloride	ND		1.3	0.11	ppb v/v			09/04/15 19:08	1.66
Chlorobenzene	ND		0.50	0.11	ppb v/v			09/04/15 19:08	1.66
Dibromochloromethane	ND		0.66	0.13	ppb v/v			09/04/15 19:08	1.66
Chloroethane	ND		1.3	0.51	ppb v/v			09/04/15 19:08	1.66
Chloroform	0.38	J	0.50	0.16	ppb v/v			09/04/15 19:08	1.66
Chloromethane	0.83	J	1.3	0.33	ppb v/v			09/04/15 19:08	1.66
1,2-Dibromoethane (EDB)	ND		1.3	0.12	ppb v/v			09/04/15 19:08	1.66
1,2-Dichlorobenzene	ND		0.66	0.22	ppb v/v			09/04/15 19:08	1.66
1,3-Dichlorobenzene	ND		0.66	0.18	ppb v/v			09/04/15 19:08	1.66
1,4-Dichlorobenzene	4.7		0.66	0.25	ppb v/v			09/04/15 19:08	1.66
Dichlorodifluoromethane	0.43	J	0.66	0.24	ppb v/v			09/04/15 19:08	1.66
1,1-Dichloroethane	ND		0.50	0.12	ppb v/v			09/04/15 19:08	1.66
1,2-Dichloroethane	ND		1.3	0.15	ppb v/v			09/04/15 19:08	1.66
1,1-Dichloroethene	ND		1.3	0.21	ppb v/v			09/04/15 19:08	1.66
cis-1,2-Dichloroethene	ND		0.66	0.15	ppb v/v			09/04/15 19:08	1.66
trans-1,2-Dichloroethene	ND		0.66	0.17	ppb v/v			09/04/15 19:08	1.66
1,2-Dichloropropane	ND		0.66	0.40	ppb v/v			09/04/15 19:08	1.66
cis-1,3-Dichloropropene	ND		0.66	0.17	ppb v/v			09/04/15 19:08	1.66
trans-1,3-Dichloropropene	ND		0.66	0.15	ppb v/v			09/04/15 19:08	1.66
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.66	0.26	ppb v/v			09/04/15 19:08	1.66
Ethylbenzene	18		0.66	0.10	ppb v/v			09/04/15 19:08	1.66
4-Ethyltoluene	10		0.66	0.31	ppb v/v			09/04/15 19:08	1.66
Hexachlorobutadiene	ND		3.3	0.72	ppb v/v			09/04/15 19:08	1.66
2-Hexanone	4.2		0.66	0.14	ppb v/v			09/04/15 19:08	1.66
Methylene Chloride	ND		0.66	0.12	ppb v/v			09/04/15 19:08	1.66
4-Methyl-2-pentanone (MIBK)	9.8		0.66	0.22	ppb v/v			09/04/15 19:08	1.66
Styrene	ND		0.66	0.098	ppb v/v			09/04/15 19:08	1.66
1,1,2,2-Tetrachloroethane	ND		0.66	0.11	ppb v/v			09/04/15 19:08	1.66
Tetrachloroethene	0.10	J	0.66	0.085	ppb v/v			09/04/15 19:08	1.66
Toluene	35		0.66	0.085	ppb v/v			09/04/15 19:08	1.66

Client Sample Results

Client: Atlas Geo-Sampling Company
Project/Site: Mississippi VI

TestAmerica Job ID: 320-14732-1

Client Sample ID: EH-SBSL-004

Date Collected: 09/01/15 12:34
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 1L

Lab Sample ID: 320-14732-4

Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		3.3	0.72	ppb v/v			09/04/15 19:08	1.66
1,1,1-Trichloroethane	ND		0.50	0.11	ppb v/v			09/04/15 19:08	1.66
1,1,2-Trichloroethane	ND		0.66	0.11	ppb v/v			09/04/15 19:08	1.66
Trichloroethene	ND		0.66	0.17	ppb v/v			09/04/15 19:08	1.66
Trichlorofluoromethane	ND		0.66	0.33	ppb v/v			09/04/15 19:08	1.66
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.66	0.27	ppb v/v			09/04/15 19:08	1.66
1,2,4-Trimethylbenzene	**38**		1.3	0.27	ppb v/v			09/04/15 19:08	1.66
1,3,5-Trimethylbenzene	**11**		0.66	0.21	ppb v/v			09/04/15 19:08	1.66
Vinyl acetate	ND		1.3	0.24	ppb v/v			09/04/15 19:08	1.66
Vinyl chloride	ND		0.66	0.20	ppb v/v			09/04/15 19:08	1.66
m,p-Xylene	**77**		1.3	0.17	ppb v/v			09/04/15 19:08	1.66
o-Xylene	**27**		0.66	0.090	ppb v/v			09/04/15 19:08	1.66

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**210**		20	0.70	ug/m3			09/04/15 19:08	1.66
Benzene	**16**		2.1	0.42	ug/m3			09/04/15 19:08	1.66
Benzyl chloride	ND		6.9	1.4	ug/m3			09/04/15 19:08	1.66
Bromodichloromethane	ND		3.3	0.73	ug/m3			09/04/15 19:08	1.66
Bromoform	ND		6.9	1.2	ug/m3			09/04/15 19:08	1.66
Bromomethane	ND		5.2	2.2	ug/m3			09/04/15 19:08	1.66
2-Butanone (MEK)	**41**		3.9	0.97	ug/m3			09/04/15 19:08	1.66
Carbon disulfide	**3.1**	**J**	4.1	0.40	ug/m3			09/04/15 19:08	1.66
Carbon tetrachloride	ND		8.4	0.67	ug/m3			09/04/15 19:08	1.66
Chlorobenzene	ND		2.3	0.49	ug/m3			09/04/15 19:08	1.66
Dibromochloromethane	ND		5.7	1.1	ug/m3			09/04/15 19:08	1.66
Chloroethane	ND		3.5	1.3	ug/m3			09/04/15 19:08	1.66
Chloroform	**1.9**	**J**	2.4	0.77	ug/m3			09/04/15 19:08	1.66
Chloromethane	**1.7**	**J**	2.7	0.68	ug/m3			09/04/15 19:08	1.66
1,2-Dibromoethane (EDB)	ND		10	0.96	ug/m3			09/04/15 19:08	1.66
1,2-Dichlorobenzene	ND		4.0	1.3	ug/m3			09/04/15 19:08	1.66
1,3-Dichlorobenzene	ND		4.0	1.1	ug/m3			09/04/15 19:08	1.66
1,4-Dichlorobenzene	**28**		4.0	1.5	ug/m3			09/04/15 19:08	1.66
Dichlorodifluoromethane	**2.1**	**J**	3.3	1.2	ug/m3			09/04/15 19:08	1.66
1,1-Dichloroethane	ND		2.0	0.48	ug/m3			09/04/15 19:08	1.66
1,2-Dichloroethane	ND		5.4	0.59	ug/m3			09/04/15 19:08	1.66
1,1-Dichloroethene	ND		5.3	0.85	ug/m3			09/04/15 19:08	1.66
cis-1,2-Dichloroethene	ND		2.6	0.59	ug/m3			09/04/15 19:08	1.66
trans-1,2-Dichloroethene	ND		2.6	0.66	ug/m3			09/04/15 19:08	1.66
1,2-Dichloropropane	ND		3.1	1.8	ug/m3			09/04/15 19:08	1.66
cis-1,3-Dichloropropene	ND		3.0	0.78	ug/m3			09/04/15 19:08	1.66
trans-1,3-Dichloropropene	ND		3.0	0.66	ug/m3			09/04/15 19:08	1.66
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		4.6	1.8	ug/m3			09/04/15 19:08	1.66
Ethylbenzene	**79**		2.9	0.45	ug/m3			09/04/15 19:08	1.66
4-Ethyltoluene	**51**		3.3	1.5	ug/m3			09/04/15 19:08	1.66
Hexachlorobutadiene	ND		35	7.6	ug/m3			09/04/15 19:08	1.66
2-Hexanone	**17**		2.7	0.59	ug/m3			09/04/15 19:08	1.66
Methylene Chloride	ND		2.3	0.42	ug/m3			09/04/15 19:08	1.66
4-Methyl-2-pentanone (MIBK)	**40**		2.7	0.92	ug/m3			09/04/15 19:08	1.66
Styrene	ND		2.8	0.42	ug/m3			09/04/15 19:08	1.66

Client Sample Results

Client: Atlas Geo-Sampling Company
Project/Site: Mississippi VI

TestAmerica Job ID: 320-14732-1

Client Sample ID: EH-SBSL-004

Date Collected: 09/01/15 12:34
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 1L

Lab Sample ID: 320-14732-4

Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		4.6	0.79	ug/m3			09/04/15 19:08	1.66
Tetrachloroethene	0.70	J	4.5	0.57	ug/m3			09/04/15 19:08	1.66
Toluene	130		2.5	0.32	ug/m3			09/04/15 19:08	1.66
1,2,4-Trichlorobenzene	ND		25	5.3	ug/m3			09/04/15 19:08	1.66
1,1,1-Trichloroethane	ND		2.7	0.59	ug/m3			09/04/15 19:08	1.66
1,1,2-Trichloroethane	ND		3.6	0.61	ug/m3			09/04/15 19:08	1.66
Trichloroethene	ND		3.6	0.94	ug/m3			09/04/15 19:08	1.66
Trichlorofluoromethane	ND		3.7	1.8	ug/m3			09/04/15 19:08	1.66
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.1	2.1	ug/m3			09/04/15 19:08	1.66
1,2,4-Trimethylbenzene	180		6.5	1.3	ug/m3			09/04/15 19:08	1.66
1,3,5-Trimethylbenzene	54		3.3	1.0	ug/m3			09/04/15 19:08	1.66
Vinyl acetate	ND		4.7	0.85	ug/m3			09/04/15 19:08	1.66
Vinyl chloride	ND		1.7	0.51	ug/m3			09/04/15 19:08	1.66
m,p-Xylene	340		5.8	0.72	ug/m3			09/04/15 19:08	1.66
o-Xylene	120		2.9	0.39	ug/m3			09/04/15 19:08	1.66

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*120*		*70 - 130*		*09/04/15 19:08*	*1.66*
1,2-Dichloroethane-d4 (Surr)	*123*		*70 - 130*		*09/04/15 19:08*	*1.66*
Toluene-d8 (Surr)	*87*		*70 - 130*		*09/04/15 19:08*	*1.66*

Client Sample ID: EH-BGA-001

Date Collected: 09/01/15 09:48
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 6L

Lab Sample ID: 320-14732-5

Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	5.2		5.0	0.18	ppb v/v			09/04/15 19:54	1
Benzene	0.11	J	0.40	0.079	ppb v/v			09/04/15 19:54	1
Benzyl chloride	ND		0.80	0.16	ppb v/v			09/04/15 19:54	1
Bromodichloromethane	ND		0.30	0.066	ppb v/v			09/04/15 19:54	1
Bromoform	ND		0.40	0.070	ppb v/v			09/04/15 19:54	1
Bromomethane	ND		0.80	0.34	ppb v/v			09/04/15 19:54	1
2-Butanone (MEK)	0.48	J	0.80	0.20	ppb v/v			09/04/15 19:54	1
Carbon disulfide	ND		0.80	0.078	ppb v/v			09/04/15 19:54	1
Carbon tetrachloride	0.093	J	0.80	0.064	ppb v/v			09/04/15 19:54	1
Chlorobenzene	ND		0.30	0.064	ppb v/v			09/04/15 19:54	1
Dibromochloromethane	ND		0.40	0.079	ppb v/v			09/04/15 19:54	1
Chloroethane	ND		0.80	0.31	ppb v/v			09/04/15 19:54	1
Chloroform	ND		0.30	0.095	ppb v/v			09/04/15 19:54	1
Chloromethane	0.42	J	0.80	0.20	ppb v/v			09/04/15 19:54	1
1,2-Dibromoethane (EDB)	ND		0.80	0.075	ppb v/v			09/04/15 19:54	1
1,2-Dichlorobenzene	ND		0.40	0.13	ppb v/v			09/04/15 19:54	1
1,3-Dichlorobenzene	ND		0.40	0.11	ppb v/v			09/04/15 19:54	1
1,4-Dichlorobenzene	ND		0.40	0.15	ppb v/v			09/04/15 19:54	1
Dichlorodifluoromethane	0.42		0.40	0.15	ppb v/v			09/04/15 19:54	1
1,1-Dichloroethane	ND		0.30	0.072	ppb v/v			09/04/15 19:54	1
1,2-Dichloroethane	ND		0.80	0.088	ppb v/v			09/04/15 19:54	1

Client Sample Results

Client: Atlas Geo-Sampling Company
Project/Site: Mississippi VI

TestAmerica Job ID: 320-14732-1

Client Sample ID: EH-BGA-001

Date Collected: 09/01/15 09:48
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 6L

Lab Sample ID: 320-14732-5

Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.80	0.13	ppb v/v			09/04/15 19:54	1
cis-1,2-Dichloroethene	**0.31**	**J**	0.40	0.089	ppb v/v			09/04/15 19:54	1
trans-1,2-Dichloroethene	ND		0.40	0.10	ppb v/v			09/04/15 19:54	1
1,2-Dichloropropane	ND		0.40	0.24	ppb v/v			09/04/15 19:54	1
cis-1,3-Dichloropropene	ND		0.40	0.10	ppb v/v			09/04/15 19:54	1
trans-1,3-Dichloropropene	ND		0.40	0.088	ppb v/v			09/04/15 19:54	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40	0.16	ppb v/v			09/04/15 19:54	1
Ethylbenzene	**0.079**	**J**	0.40	0.063	ppb v/v			09/04/15 19:54	1
4-Ethyltoluene	ND		0.40	0.19	ppb v/v			09/04/15 19:54	1
Hexachlorobutadiene	ND		2.0	0.43	ppb v/v			09/04/15 19:54	1
2-Hexanone	ND		0.40	0.087	ppb v/v			09/04/15 19:54	1
Methylene Chloride	**0.10**	**J**	0.40	0.072	ppb v/v			09/04/15 19:54	1
4-Methyl-2-pentanone (MIBK)	ND		0.40	0.14	ppb v/v			09/04/15 19:54	1
Styrene	**0.081**	**J**	0.40	0.059	ppb v/v			09/04/15 19:54	1
1,1,2,2-Tetrachloroethane	ND		0.40	0.069	ppb v/v			09/04/15 19:54	1
Tetrachloroethene	ND		0.40	0.051	ppb v/v			09/04/15 19:54	1
Toluene	**0.24**	**J**	0.40	0.051	ppb v/v			09/04/15 19:54	1
1,2,4-Trichlorobenzene	ND		2.0	0.43	ppb v/v			09/04/15 19:54	1
1,1,1-Trichloroethane	ND		0.30	0.065	ppb v/v			09/04/15 19:54	1
1,1,2-Trichloroethane	ND		0.40	0.067	ppb v/v			09/04/15 19:54	1
Trichloroethene	**0.59**		0.40	0.11	ppb v/v			09/04/15 19:54	1
Trichlorofluoromethane	**0.25**	**J**	0.40	0.20	ppb v/v			09/04/15 19:54	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.16	ppb v/v			09/04/15 19:54	1
1,2,4-Trimethylbenzene	ND		0.80	0.16	ppb v/v			09/04/15 19:54	1
1,3,5-Trimethylbenzene	ND		0.40	0.13	ppb v/v			09/04/15 19:54	1
Vinyl acetate	ND		0.80	0.15	ppb v/v			09/04/15 19:54	1
Vinyl chloride	ND		0.40	0.12	ppb v/v			09/04/15 19:54	1
m,p-Xylene	0.30	J	0.80	0.10	ppb v/v			09/04/15 19:54	1
o-Xylene	0.12	J	0.40	0.054	ppb v/v			09/04/15 19:54	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	12		12	0.42	ug/m3			09/04/15 19:54	1
Benzene	0.36	J	1.3	0.25	ug/m3			09/04/15 19:54	1
Benzyl chloride	ND		4.1	0.84	ug/m3			09/04/15 19:54	1
Bromodichloromethane	ND		2.0	0.44	ug/m3			09/04/15 19:54	1
Bromoform	ND		4.1	0.72	ug/m3			09/04/15 19:54	1
Bromomethane	ND		3.1	1.3	ug/m3			09/04/15 19:54	1
2-Butanone (MEK)	1.4	J	2.4	0.59	ug/m3			09/04/15 19:54	1
Carbon disulfide	ND		2.5	0.24	ug/m3			09/04/15 19:54	1
Carbon tetrachloride	0.59	J	5.0	0.40	ug/m3			09/04/15 19:54	1
Chlorobenzene	ND		1.4	0.29	ug/m3			09/04/15 19:54	1
Dibromochloromethane	ND		3.4	0.67	ug/m3			09/04/15 19:54	1
Chloroethane	ND		2.1	0.81	ug/m3			09/04/15 19:54	1
Chloroform	ND		1.5	0.46	ug/m3			09/04/15 19:54	1
Chloromethane	0.87	J	1.7	0.41	ug/m3			09/04/15 19:54	1
1,2-Dibromoethane (EDB)	ND		6.1	0.58	ug/m3			09/04/15 19:54	1
1,2-Dichlorobenzene	ND		2.4	0.78	ug/m3			09/04/15 19:54	1
1,3-Dichlorobenzene	ND		2.4	0.66	ug/m3			09/04/15 19:54	1
1,4-Dichlorobenzene	ND		2.4	0.90	ug/m3			09/04/15 19:54	1

Client Sample Results

Client: Atlas Geo-Sampling Company
Project/Site: Mississippi VI

TestAmerica Job ID: 320-14732-1

Client Sample ID: EH-BGA-001

Lab Sample ID: 320-14732-5

Date Collected: 09/01/15 09:48
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 6L

Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	**2.1**		2.0	0.72	ug/m3			09/04/15 19:54	1
1,1-Dichloroethane	ND		1.2	0.29	ug/m3			09/04/15 19:54	1
1,2-Dichloroethane	ND		3.2	0.36	ug/m3			09/04/15 19:54	1
1,1-Dichloroethene	ND		3.2	0.51	ug/m3			09/04/15 19:54	1
cis-1,2-Dichloroethene	**1.2**	J	1.6	0.35	ug/m3			09/04/15 19:54	1
trans-1,2-Dichloroethene	ND		1.6	0.40	ug/m3			09/04/15 19:54	1
1,2-Dichloropropane	ND		1.8	1.1	ug/m3			09/04/15 19:54	1
cis-1,3-Dichloropropene	ND		1.8	0.47	ug/m3			09/04/15 19:54	1
trans-1,3-Dichloropropene	ND		1.8	0.40	ug/m3			09/04/15 19:54	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.8	1.1	ug/m3			09/04/15 19:54	1
Ethylbenzene	**0.34**	J	1.7	0.27	ug/m3			09/04/15 19:54	1
4-Ethyltoluene	ND		2.0	0.92	ug/m3			09/04/15 19:54	1
Hexachlorobutadiene	ND		21	4.6	ug/m3			09/04/15 19:54	1
2-Hexanone	ND		1.6	0.36	ug/m3			09/04/15 19:54	1
Methylene Chloride	**0.35**	J	1.4	0.25	ug/m3			09/04/15 19:54	1
4-Methyl-2-pentanone (MIBK)	ND		1.6	0.55	ug/m3			09/04/15 19:54	1
Styrene	**0.34**	J	1.7	0.25	ug/m3			09/04/15 19:54	1
1,1,2,2-Tetrachloroethane	ND		2.7	0.47	ug/m3			09/04/15 19:54	1
Tetrachloroethene	ND		2.7	0.35	ug/m3			09/04/15 19:54	1
Toluene	**0.89**	J	1.5	0.19	ug/m3			09/04/15 19:54	1
1,2,4-Trichlorobenzene	ND		15	3.2	ug/m3			09/04/15 19:54	1
1,1,1-Trichloroethane	ND		1.6	0.35	ug/m3			09/04/15 19:54	1
1,1,2-Trichloroethane	ND		2.2	0.37	ug/m3			09/04/15 19:54	1
Trichloroethene	**3.2**		2.1	0.56	ug/m3			09/04/15 19:54	1
Trichlorofluoromethane	**1.4**	J	2.2	1.1	ug/m3			09/04/15 19:54	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.1	1.2	ug/m3			09/04/15 19:54	1
1,2,4-Trimethylbenzene	ND		3.9	0.80	ug/m3			09/04/15 19:54	1
1,3,5-Trimethylbenzene	ND		2.0	0.61	ug/m3			09/04/15 19:54	1
Vinyl acetate	ND		2.8	0.51	ug/m3			09/04/15 19:54	1
Vinyl chloride	ND		1.0	0.31	ug/m3			09/04/15 19:54	1
m,p-Xylene	**1.3**	J	3.5	0.43	ug/m3			09/04/15 19:54	1
o-Xylene	**0.52**	J	1.7	0.23	ug/m3			09/04/15 19:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*115*		*70 - 130*		*09/04/15 19:54*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 130*		*09/04/15 19:54*	*1*
Toluene-d8 (Surr)	*94*		*70 - 130*		*09/04/15 19:54*	*1*

Client Sample ID: EH-BGA-002

Lab Sample ID: 320-14732-6

Date Collected: 09/01/15 09:58
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 6L

Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	5.1		5.0	0.18	ppb v/v			09/04/15 20:40	1
Benzene	0.12	J	0.40	0.079	ppb v/v			09/04/15 20:40	1
Benzyl chloride	ND		0.80	0.16	ppb v/v			09/04/15 20:40	1
Bromodichloromethane	ND		0.30	0.066	ppb v/v			09/04/15 20:40	1

Client Sample Results

Client: Atlas Geo-Sampling Company
Project/Site: Mississippi VI

TestAmerica Job ID: 320-14732-1

Client Sample ID: EH-BGA-002

Date Collected: 09/01/15 09:58
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 6L

Lab Sample ID: 320-14732-6

Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromoform	ND		0.40	0.070	ppb v/v			09/04/15 20:40	1
Bromomethane	ND		0.80	0.34	ppb v/v			09/04/15 20:40	1
2-Butanone (MEK)	0.40	J	0.80	0.20	ppb v/v			09/04/15 20:40	1
Carbon disulfide	ND		0.80	0.078	ppb v/v			09/04/15 20:40	1
Carbon tetrachloride	0.083	J	0.80	0.064	ppb v/v			09/04/15 20:40	1
Chlorobenzene	ND		0.30	0.064	ppb v/v			09/04/15 20:40	1
Dibromochloromethane	ND		0.40	0.079	ppb v/v			09/04/15 20:40	1
Chloroethane	ND		0.80	0.31	ppb v/v			09/04/15 20:40	1
Chloroform	ND		0.30	0.095	ppb v/v			09/04/15 20:40	1
Chloromethane	0.41	J	0.80	0.20	ppb v/v			09/04/15 20:40	1
1,2-Dibromoethane (EDB)	ND		0.80	0.075	ppb v/v			09/04/15 20:40	1
1,2-Dichlorobenzene	ND		0.40	0.13	ppb v/v			09/04/15 20:40	1
1,3-Dichlorobenzene	ND		0.40	0.11	ppb v/v			09/04/15 20:40	1
1,4-Dichlorobenzene	ND		0.40	0.15	ppb v/v			09/04/15 20:40	1
Dichlorodifluoromethane	0.41		0.40	0.15	ppb v/v			09/04/15 20:40	1
1,1-Dichloroethane	ND		0.30	0.072	ppb v/v			09/04/15 20:40	1
1,2-Dichloroethane	ND		0.80	0.088	ppb v/v			09/04/15 20:40	1
1,1-Dichloroethene	ND		0.80	0.13	ppb v/v			09/04/15 20:40	1
cis-1,2-Dichloroethene	0.13	J	0.40	0.089	ppb v/v			09/04/15 20:40	1
trans-1,2-Dichloroethene	ND		0.40	0.10	ppb v/v			09/04/15 20:40	1
1,2-Dichloropropane	ND		0.40	0.24	ppb v/v			09/04/15 20:40	1
cis-1,3-Dichloropropene	ND		0.40	0.10	ppb v/v			09/04/15 20:40	1
trans-1,3-Dichloropropene	ND		0.40	0.088	ppb v/v			09/04/15 20:40	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40	0.16	ppb v/v			09/04/15 20:40	1
Ethylbenzene	0.066	J	0.40	0.063	ppb v/v			09/04/15 20:40	1
4-Ethyltoluene	ND		0.40	0.19	ppb v/v			09/04/15 20:40	1
Hexachlorobutadiene	ND		2.0	0.43	ppb v/v			09/04/15 20:40	1
2-Hexanone	ND		0.40	0.087	ppb v/v			09/04/15 20:40	1
Methylene Chloride	0.11	J	0.40	0.072	ppb v/v			09/04/15 20:40	1
4-Methyl-2-pentanone (MIBK)	ND		0.40	0.14	ppb v/v			09/04/15 20:40	1
Styrene	0.14	J	0.40	0.059	ppb v/v			09/04/15 20:40	1
1,1,2,2-Tetrachloroethane	ND		0.40	0.069	ppb v/v			09/04/15 20:40	1
Tetrachloroethene	ND		0.40	0.051	ppb v/v			09/04/15 20:40	1
Toluene	0.27	J	0.40	0.051	ppb v/v			09/04/15 20:40	1
1,2,4-Trichlorobenzene	ND		2.0	0.43	ppb v/v			09/04/15 20:40	1
1,1,1-Trichloroethane	ND		0.30	0.065	ppb v/v			09/04/15 20:40	1
1,1,2-Trichloroethane	ND		0.40	0.067	ppb v/v			09/04/15 20:40	1
Trichloroethene	0.24	J	0.40	0.11	ppb v/v			09/04/15 20:40	1
Trichlorofluoromethane	ND		0.40	0.20	ppb v/v			09/04/15 20:40	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.16	ppb v/v			09/04/15 20:40	1
1,2,4-Trimethylbenzene	ND		0.80	0.16	ppb v/v			09/04/15 20:40	1
1,3,5-Trimethylbenzene	ND		0.40	0.13	ppb v/v			09/04/15 20:40	1
Vinyl acetate	ND		0.80	0.15	ppb v/v			09/04/15 20:40	1
Vinyl chloride	ND		0.40	0.12	ppb v/v			09/04/15 20:40	1
m,p-Xylene	0.24	J	0.80	0.10	ppb v/v			09/04/15 20:40	1
o-Xylene	0.091	J	0.40	0.054	ppb v/v			09/04/15 20:40	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	12		12	0.42	ug/m3			09/04/15 20:40	1

Client Sample Results

Client: Atlas Geo-Sampling Company
Project/Site: Mississippi VI

TestAmerica Job ID: 320-14732-1

Client Sample ID: EH-BGA-002

Date Collected: 09/01/15 09:58
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 6L

Lab Sample ID: 320-14732-6

Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.37**	**J**	1.3	0.25	ug/m3			09/04/15 20:40	1
Benzyl chloride	ND		4.1	0.84	ug/m3			09/04/15 20:40	1
Bromodichloromethane	ND		2.0	0.44	ug/m3			09/04/15 20:40	1
Bromoform	ND		4.1	0.72	ug/m3			09/04/15 20:40	1
Bromomethane	ND		3.1	1.3	ug/m3			09/04/15 20:40	1
2-Butanone (MEK)	**1.2**	**J**	2.4	0.59	ug/m3			09/04/15 20:40	1
Carbon disulfide	ND		2.5	0.24	ug/m3			09/04/15 20:40	1
Carbon tetrachloride	**0.52**	**J**	5.0	0.40	ug/m3			09/04/15 20:40	1
Chlorobenzene	ND		1.4	0.29	ug/m3			09/04/15 20:40	1
Dibromochloromethane	ND		3.4	0.67	ug/m3			09/04/15 20:40	1
Chloroethane	ND		2.1	0.81	ug/m3			09/04/15 20:40	1
Chloroform	ND		1.5	0.46	ug/m3			09/04/15 20:40	1
Chloromethane	**0.85**	**J**	1.7	0.41	ug/m3			09/04/15 20:40	1
1,2-Dibromoethane (EDB)	ND		6.1	0.58	ug/m3			09/04/15 20:40	1
1,2-Dichlorobenzene	ND		2.4	0.78	ug/m3			09/04/15 20:40	1
1,3-Dichlorobenzene	ND		2.4	0.66	ug/m3			09/04/15 20:40	1
1,4-Dichlorobenzene	ND		2.4	0.90	ug/m3			09/04/15 20:40	1
Dichlorodifluoromethane	**2.0**		2.0	0.72	ug/m3			09/04/15 20:40	1
1,1-Dichloroethane	ND		1.2	0.29	ug/m3			09/04/15 20:40	1
1,2-Dichloroethane	ND		3.2	0.36	ug/m3			09/04/15 20:40	1
1,1-Dichloroethene	ND		3.2	0.51	ug/m3			09/04/15 20:40	1
cis-1,2-Dichloroethene	**0.50**	**J**	1.6	0.35	ug/m3			09/04/15 20:40	1
trans-1,2-Dichloroethene	ND		1.6	0.40	ug/m3			09/04/15 20:40	1
1,2-Dichloropropane	ND		1.8	1.1	ug/m3			09/04/15 20:40	1
cis-1,3-Dichloropropene	ND		1.8	0.47	ug/m3			09/04/15 20:40	1
trans-1,3-Dichloropropene	ND		1.8	0.40	ug/m3			09/04/15 20:40	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.8	1.1	ug/m3			09/04/15 20:40	1
Ethylbenzene	**0.29**	**J**	1.7	0.27	ug/m3			09/04/15 20:40	1
4-Ethyltoluene	ND		2.0	0.92	ug/m3			09/04/15 20:40	1
Hexachlorobutadiene	ND		21	4.6	ug/m3			09/04/15 20:40	1
2-Hexanone	ND		1.6	0.36	ug/m3			09/04/15 20:40	1
Methylene Chloride	**0.37**	**J**	1.4	0.25	ug/m3			09/04/15 20:40	1
4-Methyl-2-pentanone (MIBK)	ND		1.6	0.55	ug/m3			09/04/15 20:40	1
Styrene	**0.58**	**J**	1.7	0.25	ug/m3			09/04/15 20:40	1
1,1,2,2-Tetrachloroethane	ND		2.7	0.47	ug/m3			09/04/15 20:40	1
Tetrachloroethene	ND		2.7	0.35	ug/m3			09/04/15 20:40	1
Toluene	**1.0**	**J**	1.5	0.19	ug/m3			09/04/15 20:40	1
1,2,4-Trichlorobenzene	ND		15	3.2	ug/m3			09/04/15 20:40	1
1,1,1-Trichloroethane	ND		1.6	0.35	ug/m3			09/04/15 20:40	1
1,1,2-Trichloroethane	ND		2.2	0.37	ug/m3			09/04/15 20:40	1
Trichloroethene	**1.3**	**J**	2.1	0.56	ug/m3			09/04/15 20:40	1
Trichlorofluoromethane	ND		2.2	1.1	ug/m3			09/04/15 20:40	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.1	1.2	ug/m3			09/04/15 20:40	1
1,2,4-Trimethylbenzene	ND		3.9	0.80	ug/m3			09/04/15 20:40	1
1,3,5-Trimethylbenzene	ND		2.0	0.61	ug/m3			09/04/15 20:40	1
Vinyl acetate	ND		2.8	0.51	ug/m3			09/04/15 20:40	1
Vinyl chloride	ND		1.0	0.31	ug/m3			09/04/15 20:40	1
m,p-Xylene	1.1	J	3.5	0.43	ug/m3			09/04/15 20:40	1

Client Sample Results

Client: Atlas Geo-Sampling Company
Project/Site: Mississippi VI

TestAmerica Job ID: 320-14732-1

Client Sample ID: EH-BGA-002

Date Collected: 09/01/15 09:58
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 6L

Lab Sample ID: 320-14732-6

Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
o-Xylene	0.39	J	1.7	0.23	ug/m3			09/04/15 20:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*114*		*70 - 130*		*09/04/15 20:40*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*		*09/04/15 20:40*	*1*
Toluene-d8 (Surr)	*86*		*70 - 130*		*09/04/15 20:40*	*1*

Client Sample ID: EH-IA-001

Date Collected: 09/01/15 10:03
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 6L

Lab Sample ID: 320-14732-7

Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**53**	J	68	2.4	ppb v/v			09/04/15 21:22	13.6
Benzene	ND		5.4	1.1	ppb v/v			09/04/15 21:22	13.6
Benzyl chloride	ND		11	2.2	ppb v/v			09/04/15 21:22	13.6
Bromodichloromethane	ND		4.1	0.90	ppb v/v			09/04/15 21:22	13.6
Bromoform	ND		5.4	0.95	ppb v/v			09/04/15 21:22	13.6
Bromomethane	ND		11	4.6	ppb v/v			09/04/15 21:22	13.6
2-Butanone (MEK)	ND		11	2.7	ppb v/v			09/04/15 21:22	13.6
Carbon disulfide	ND		11	1.1	ppb v/v			09/04/15 21:22	13.6
Carbon tetrachloride	ND		11	0.87	ppb v/v			09/04/15 21:22	13.6
Chlorobenzene	ND		4.1	0.87	ppb v/v			09/04/15 21:22	13.6
Dibromochloromethane	ND		5.4	1.1	ppb v/v			09/04/15 21:22	13.6
Chloroethane	ND		11	4.2	ppb v/v			09/04/15 21:22	13.6
Chloroform	ND		4.1	1.3	ppb v/v			09/04/15 21:22	13.6
Chloromethane	ND		11	2.7	ppb v/v			09/04/15 21:22	13.6
1,2-Dibromoethane (EDB)	ND		11	1.0	ppb v/v			09/04/15 21:22	13.6
1,2-Dichlorobenzene	ND		5.4	1.8	ppb v/v			09/04/15 21:22	13.6
1,3-Dichlorobenzene	ND		5.4	1.5	ppb v/v			09/04/15 21:22	13.6
1,4-Dichlorobenzene	**330**		5.4	2.0	ppb v/v			09/04/15 21:22	13.6
Dichlorodifluoromethane	ND		5.4	2.0	ppb v/v			09/04/15 21:22	13.6
1,1-Dichloroethane	ND		4.1	0.98	ppb v/v			09/04/15 21:22	13.6
1,2-Dichloroethane	**1.3**	J	11	1.2	ppb v/v			09/04/15 21:22	13.6
1,1-Dichloroethene	ND		11	1.8	ppb v/v			09/04/15 21:22	13.6
cis-1,2-Dichloroethene	ND		5.4	1.2	ppb v/v			09/04/15 21:22	13.6
trans-1,2-Dichloroethene	ND		5.4	1.4	ppb v/v			09/04/15 21:22	13.6
1,2-Dichloropropane	ND		5.4	3.3	ppb v/v			09/04/15 21:22	13.6
cis-1,3-Dichloropropene	ND		5.4	1.4	ppb v/v			09/04/15 21:22	13.6
trans-1,3-Dichloropropene	ND		5.4	1.2	ppb v/v			09/04/15 21:22	13.6
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		5.4	2.1	ppb v/v			09/04/15 21:22	13.6
Ethylbenzene	ND		5.4	0.86	ppb v/v			09/04/15 21:22	13.6
4-Ethyltoluene	ND		5.4	2.5	ppb v/v			09/04/15 21:22	13.6
Hexachlorobutadiene	ND		27	5.9	ppb v/v			09/04/15 21:22	13.6
2-Hexanone	ND		5.4	1.2	ppb v/v			09/04/15 21:22	13.6
Methylene Chloride	ND		5.4	0.98	ppb v/v			09/04/15 21:22	13.6
4-Methyl-2-pentanone (MIBK)	ND		5.4	1.8	ppb v/v			09/04/15 21:22	13.6
Styrene	ND		5.4	0.80	ppb v/v			09/04/15 21:22	13.6

Client Sample Results

Client: Atlas Geo-Sampling Company
Project/Site: Mississippi VI

TestAmerica Job ID: 320-14732-1

Client Sample ID: EH-IA-001
Date Collected: 09/01/15 10:03
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 6L

Lab Sample ID: 320-14732-7
Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		5.4	0.94	ppb v/v			09/04/15 21:22	13.6
Tetrachloroethene	ND		5.4	0.69	ppb v/v			09/04/15 21:22	13.6
Toluene	**2.1**	**J**	5.4	0.69	ppb v/v			09/04/15 21:22	13.6
1,2,4-Trichlorobenzene	ND		27	5.9	ppb v/v			09/04/15 21:22	13.6
1,1,1-Trichloroethane	ND		4.1	0.88	ppb v/v			09/04/15 21:22	13.6
1,1,2-Trichloroethane	ND		5.4	0.91	ppb v/v			09/04/15 21:22	13.6
Trichloroethene	ND		5.4	1.4	ppb v/v			09/04/15 21:22	13.6
Trichlorofluoromethane	ND		5.4	2.7	ppb v/v			09/04/15 21:22	13.6
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.4	2.2	ppb v/v			09/04/15 21:22	13.6
1,2,4-Trimethylbenzene	ND		11	2.2	ppb v/v			09/04/15 21:22	13.6
1,3,5-Trimethylbenzene	ND		5.4	1.7	ppb v/v			09/04/15 21:22	13.6
Vinyl acetate	ND		11	2.0	ppb v/v			09/04/15 21:22	13.6
Vinyl chloride	ND		5.4	1.6	ppb v/v			09/04/15 21:22	13.6
m,p-Xylene	ND		11	1.4	ppb v/v			09/04/15 21:22	13.6
o-Xylene	ND		5.4	0.73	ppb v/v			09/04/15 21:22	13.6

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**130**	**J**	160	5.8	ug/m3			09/04/15 21:22	13.6
Benzene	ND		17	3.4	ug/m3			09/04/15 21:22	13.6
Benzyl chloride	ND		56	11	ug/m3			09/04/15 21:22	13.6
Bromodichloromethane	ND		27	6.0	ug/m3			09/04/15 21:22	13.6
Bromoform	ND		56	9.8	ug/m3			09/04/15 21:22	13.6
Bromomethane	ND		42	18	ug/m3			09/04/15 21:22	13.6
2-Butanone (MEK)	ND		32	8.0	ug/m3			09/04/15 21:22	13.6
Carbon disulfide	ND		34	3.3	ug/m3			09/04/15 21:22	13.6
Carbon tetrachloride	ND		68	5.5	ug/m3			09/04/15 21:22	13.6
Chlorobenzene	ND		19	4.0	ug/m3			09/04/15 21:22	13.6
Dibromochloromethane	ND		46	9.2	ug/m3			09/04/15 21:22	13.6
Chloroethane	ND		29	11	ug/m3			09/04/15 21:22	13.6
Chloroform	ND		20	6.3	ug/m3			09/04/15 21:22	13.6
Chloromethane	ND		22	5.5	ug/m3			09/04/15 21:22	13.6
1,2-Dibromoethane (EDB)	ND		84	7.8	ug/m3			09/04/15 21:22	13.6
1,2-Dichlorobenzene	ND		33	11	ug/m3			09/04/15 21:22	13.6
1,3-Dichlorobenzene	ND		33	9.0	ug/m3			09/04/15 21:22	13.6
1,4-Dichlorobenzene	**2000**		33	12	ug/m3			09/04/15 21:22	13.6
Dichlorodifluoromethane	ND		27	9.8	ug/m3			09/04/15 21:22	13.6
1,1-Dichloroethane	ND		17	4.0	ug/m3			09/04/15 21:22	13.6
1,2-Dichloroethane	**5.3**	**J**	44	4.8	ug/m3			09/04/15 21:22	13.6
1,1-Dichloroethene	ND		43	7.0	ug/m3			09/04/15 21:22	13.6
cis-1,2-Dichloroethene	ND		22	4.8	ug/m3			09/04/15 21:22	13.6
trans-1,2-Dichloroethene	ND		22	5.4	ug/m3			09/04/15 21:22	13.6
1,2-Dichloropropane	ND		25	15	ug/m3			09/04/15 21:22	13.6
cis-1,3-Dichloropropene	ND		25	6.4	ug/m3			09/04/15 21:22	13.6
trans-1,3-Dichloropropene	ND		25	5.4	ug/m3			09/04/15 21:22	13.6
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		38	15	ug/m3			09/04/15 21:22	13.6
Ethylbenzene	ND		24	3.7	ug/m3			09/04/15 21:22	13.6
4-Ethyltoluene	ND		27	13	ug/m3			09/04/15 21:22	13.6
Hexachlorobutadiene	ND		290	63	ug/m3			09/04/15 21:22	13.6
2-Hexanone	ND		22	4.8	ug/m3			09/04/15 21:22	13.6

Client Sample Results

Client: Atlas Geo-Sampling Company
Project/Site: Mississippi VI

TestAmerica Job ID: 320-14732-1

Client Sample ID: EH-IA-001

Lab Sample ID: 320-14732-7

Date Collected: 09/01/15 10:03
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 6L

Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylene Chloride	ND		19	3.4	ug/m3			09/04/15 21:22	13.6
4-Methyl-2-pentanone (MIBK)	ND		22	7.5	ug/m3			09/04/15 21:22	13.6
Styrene	ND		23	3.4	ug/m3			09/04/15 21:22	13.6
1,1,2,2-Tetrachloroethane	ND		37	6.4	ug/m3			09/04/15 21:22	13.6
Tetrachloroethene	ND		37	4.7	ug/m3			09/04/15 21:22	13.6
Toluene	7.9	J	21	2.6	ug/m3			09/04/15 21:22	13.6
1,2,4-Trichlorobenzene	ND		200	44	ug/m3			09/04/15 21:22	13.6
1,1,1-Trichloroethane	ND		22	4.8	ug/m3			09/04/15 21:22	13.6
1,1,2-Trichloroethane	ND		30	5.0	ug/m3			09/04/15 21:22	13.6
Trichloroethene	ND		29	7.7	ug/m3			09/04/15 21:22	13.6
Trichlorofluoromethane	ND		31	15	ug/m3			09/04/15 21:22	13.6
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		42	17	ug/m3			09/04/15 21:22	13.6
1,2,4-Trimethylbenzene	ND		53	11	ug/m3			09/04/15 21:22	13.6
1,3,5-Trimethylbenzene	ND		27	8.4	ug/m3			09/04/15 21:22	13.6
Vinyl acetate	ND		38	6.9	ug/m3			09/04/15 21:22	13.6
Vinyl chloride	ND		14	4.2	ug/m3			09/04/15 21:22	13.6
m,p-Xylene	ND		47	5.9	ug/m3			09/04/15 21:22	13.6
o-Xylene	ND		24	3.2	ug/m3			09/04/15 21:22	13.6

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*116*		*70 - 130*		*09/04/15 21:22*	*13.6*
1,2-Dichloroethane-d4 (Surr)	*117*		*70 - 130*		*09/04/15 21:22*	*13.6*
Toluene-d8 (Surr)	*87*		*70 - 130*		*09/04/15 21:22*	*13.6*

Client Sample ID: EH-IA-002

Lab Sample ID: 320-14732-8

Date Collected: 09/01/15 11:10
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 6L

Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	330		91	3.2	ppb v/v			09/04/15 22:04	18.16
Benzene	ND		7.3	1.4	ppb v/v			09/04/15 22:04	18.16
Benzyl chloride	ND		15	3.0	ppb v/v			09/04/15 22:04	18.16
Bromodichloromethane	ND		5.4	1.2	ppb v/v			09/04/15 22:04	18.16
Bromoform	ND		7.3	1.3	ppb v/v			09/04/15 22:04	18.16
Bromomethane	ND		15	6.1	ppb v/v			09/04/15 22:04	18.16
2-Butanone (MEK)	ND		15	3.6	ppb v/v			09/04/15 22:04	18.16
Carbon disulfide	ND		15	1.4	ppb v/v			09/04/15 22:04	18.16
Carbon tetrachloride	ND		15	1.2	ppb v/v			09/04/15 22:04	18.16
Chlorobenzene	ND		5.4	1.2	ppb v/v			09/04/15 22:04	18.16
Dibromochloromethane	ND		7.3	1.4	ppb v/v			09/04/15 22:04	18.16
Chloroethane	ND		15	5.6	ppb v/v			09/04/15 22:04	18.16
Chloroform	ND		5.4	1.7	ppb v/v			09/04/15 22:04	18.16
Chloromethane	ND		15	3.6	ppb v/v			09/04/15 22:04	18.16
1,2-Dibromoethane (EDB)	ND		15	1.4	ppb v/v			09/04/15 22:04	18.16
1,2-Dichlorobenzene	ND		7.3	2.4	ppb v/v			09/04/15 22:04	18.16
1,3-Dichlorobenzene	ND		7.3	2.0	ppb v/v			09/04/15 22:04	18.16
1,4-Dichlorobenzene	4.0	J	7.3	2.7	ppb v/v			09/04/15 22:04	18.16

Client Sample Results

Client: Atlas Geo-Sampling Company
Project/Site: Mississippi VI

TestAmerica Job ID: 320-14732-1

Client Sample ID: EH-IA-002
Date Collected: 09/01/15 11:10
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 6L

Lab Sample ID: 320-14732-8
Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	ND		7.3	2.6	ppb v/v			09/04/15 22:04	18.16
1,1-Dichloroethane	ND		5.4	1.3	ppb v/v			09/04/15 22:04	18.16
1,2-Dichloroethane	ND		15	1.6	ppb v/v			09/04/15 22:04	18.16
1,1-Dichloroethene	ND		15	2.3	ppb v/v			09/04/15 22:04	18.16
cis-1,2-Dichloroethene	ND		7.3	1.6	ppb v/v			09/04/15 22:04	18.16
trans-1,2-Dichloroethene	ND		7.3	1.8	ppb v/v			09/04/15 22:04	18.16
1,2-Dichloropropane	ND		7.3	4.4	ppb v/v			09/04/15 22:04	18.16
cis-1,3-Dichloropropene	ND		7.3	1.9	ppb v/v			09/04/15 22:04	18.16
trans-1,3-Dichloropropene	ND		7.3	1.6	ppb v/v			09/04/15 22:04	18.16
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		7.3	2.8	ppb v/v			09/04/15 22:04	18.16
Ethylbenzene	ND		7.3	1.1	ppb v/v			09/04/15 22:04	18.16
4-Ethyltoluene	ND		7.3	3.4	ppb v/v			09/04/15 22:04	18.16
Hexachlorobutadiene	ND		36	7.8	ppb v/v			09/04/15 22:04	18.16
2-Hexanone	ND		7.3	1.6	ppb v/v			09/04/15 22:04	18.16
Methylene Chloride	ND		7.3	1.3	ppb v/v			09/04/15 22:04	18.16
4-Methyl-2-pentanone (MIBK)	ND		7.3	2.5	ppb v/v			09/04/15 22:04	18.16
Styrene	ND		7.3	1.1	ppb v/v			09/04/15 22:04	18.16
1,1,2,2-Tetrachloroethane	ND		7.3	1.3	ppb v/v			09/04/15 22:04	18.16
Tetrachloroethene	ND		7.3	0.93	ppb v/v			09/04/15 22:04	18.16
Toluene	**1.3**	**J**	7.3	0.93	ppb v/v			09/04/15 22:04	18.16
1,2,4-Trichlorobenzene	ND		36	7.9	ppb v/v			09/04/15 22:04	18.16
1,1,1-Trichloroethane	ND		5.4	1.2	ppb v/v			09/04/15 22:04	18.16
1,1,2-Trichloroethane	ND		7.3	1.2	ppb v/v			09/04/15 22:04	18.16
Trichloroethene	ND		7.3	1.9	ppb v/v			09/04/15 22:04	18.16
Trichlorofluoromethane	**4.1**	**J**	7.3	3.6	ppb v/v			09/04/15 22:04	18.16
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		7.3	3.0	ppb v/v			09/04/15 22:04	18.16
1,2,4-Trimethylbenzene	ND		15	2.9	ppb v/v			09/04/15 22:04	18.16
1,3,5-Trimethylbenzene	ND		7.3	2.3	ppb v/v			09/04/15 22:04	18.16
Vinyl acetate	ND		15	2.6	ppb v/v			09/04/15 22:04	18.16
Vinyl chloride	ND		7.3	2.2	ppb v/v			09/04/15 22:04	18.16
m,p-Xylene	ND		15	1.8	ppb v/v			09/04/15 22:04	18.16
o-Xylene	ND		7.3	0.98	ppb v/v			09/04/15 22:04	18.16

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**780**		220	7.7	ug/m3			09/04/15 22:04	18.16
Benzene	ND		23	4.6	ug/m3			09/04/15 22:04	18.16
Benzyl chloride	ND		75	15	ug/m3			09/04/15 22:04	18.16
Bromodichloromethane	ND		37	8.0	ug/m3			09/04/15 22:04	18.16
Bromoform	ND		75	13	ug/m3			09/04/15 22:04	18.16
Bromomethane	ND		56	24	ug/m3			09/04/15 22:04	18.16
2-Butanone (MEK)	ND		43	11	ug/m3			09/04/15 22:04	18.16
Carbon disulfide	ND		45	4.4	ug/m3			09/04/15 22:04	18.16
Carbon tetrachloride	ND		91	7.3	ug/m3			09/04/15 22:04	18.16
Chlorobenzene	ND		25	5.4	ug/m3			09/04/15 22:04	18.16
Dibromochloromethane	ND		62	12	ug/m3			09/04/15 22:04	18.16
Chloroethane	ND		38	15	ug/m3			09/04/15 22:04	18.16
Chloroform	ND		27	8.4	ug/m3			09/04/15 22:04	18.16
Chloromethane	ND		30	7.4	ug/m3			09/04/15 22:04	18.16
1,2-Dibromoethane (EDB)	ND		110	10	ug/m3			09/04/15 22:04	18.16

Client Sample Results

Client: Atlas Geo-Sampling Company
Project/Site: Mississippi VI

TestAmerica Job ID: 320-14732-1

Client Sample ID: EH-IA-002

Lab Sample ID: 320-14732-8

Date Collected: 09/01/15 11:10
Matrix: Air
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	ND		44	14	ug/m3			09/04/15 22:04	18.16
1,3-Dichlorobenzene	ND		44	12	ug/m3			09/04/15 22:04	18.16
1,4-Dichlorobenzene	**24**	**J**	44	16	ug/m3			09/04/15 22:04	18.16
Dichlorodifluoromethane	ND		36	13	ug/m3			09/04/15 22:04	18.16
1,1-Dichloroethane	ND		22	5.3	ug/m3			09/04/15 22:04	18.16
1,2-Dichloroethane	ND		59	6.5	ug/m3			09/04/15 22:04	18.16
1,1-Dichloroethene	ND		58	9.3	ug/m3			09/04/15 22:04	18.16
cis-1,2-Dichloroethene	ND		29	6.4	ug/m3			09/04/15 22:04	18.16
trans-1,2-Dichloroethene	ND		29	7.2	ug/m3			09/04/15 22:04	18.16
1,2-Dichloropropane	ND		34	20	ug/m3			09/04/15 22:04	18.16
cis-1,3-Dichloropropene	ND		33	8.6	ug/m3			09/04/15 22:04	18.16
trans-1,3-Dichloropropene	ND		33	7.3	ug/m3			09/04/15 22:04	18.16
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		51	20	ug/m3			09/04/15 22:04	18.16
Ethylbenzene	ND		32	5.0	ug/m3			09/04/15 22:04	18.16
4-Ethyltoluene	ND		36	17	ug/m3			09/04/15 22:04	18.16
Hexachlorobutadiene	ND		390	84	ug/m3			09/04/15 22:04	18.16
2-Hexanone	ND		30	6.5	ug/m3			09/04/15 22:04	18.16
Methylene Chloride	ND		25	4.5	ug/m3			09/04/15 22:04	18.16
4-Methyl-2-pentanone (MIBK)	ND		30	10	ug/m3			09/04/15 22:04	18.16
Styrene	ND		31	4.6	ug/m3			09/04/15 22:04	18.16
1,1,2,2-Tetrachloroethane	ND		50	8.6	ug/m3			09/04/15 22:04	18.16
Tetrachloroethene	ND		49	6.3	ug/m3			09/04/15 22:04	18.16
Toluene	**5.0**	**J**	27	3.5	ug/m3			09/04/15 22:04	18.16
1,2,4-Trichlorobenzene	ND		270	58	ug/m3			09/04/15 22:04	18.16
1,1,1-Trichloroethane	ND		30	6.4	ug/m3			09/04/15 22:04	18.16
1,1,2-Trichloroethane	ND		40	6.6	ug/m3			09/04/15 22:04	18.16
Trichloroethene	ND		39	10	ug/m3			09/04/15 22:04	18.16
Trichlorofluoromethane	**23**	**J**	41	20	ug/m3			09/04/15 22:04	18.16
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		56	23	ug/m3			09/04/15 22:04	18.16
1,2,4-Trimethylbenzene	ND		71	14	ug/m3			09/04/15 22:04	18.16
1,3,5-Trimethylbenzene	ND		36	11	ug/m3			09/04/15 22:04	18.16
Vinyl acetate	ND		51	9.3	ug/m3			09/04/15 22:04	18.16
Vinyl chloride	ND		19	5.6	ug/m3			09/04/15 22:04	18.16
m,p-Xylene	ND		63	7.9	ug/m3			09/04/15 22:04	18.16
o-Xylene	ND		32	4.3	ug/m3			09/04/15 22:04	18.16

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*113*		*70 - 130*		*09/04/15 22:04*	*18.16*
1,2-Dichloroethane-d4 (Surr)	*115*		*70 - 130*		*09/04/15 22:04*	*18.16*
Toluene-d8 (Surr)	*84*		*70 - 130*		*09/04/15 22:04*	*18.16*

Client Sample ID: EH-IA-003

Lab Sample ID: 320-14732-9

Date Collected: 09/01/15 12:03
Matrix: Air
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	37		5.0	0.18	ppb v/v			09/04/15 22:51	1

Client Sample Results

Client: Atlas Geo-Sampling Company
Project/Site: Mississippi VI

TestAmerica Job ID: 320-14732-1

Client Sample ID: EH-IA-003

Date Collected: 09/01/15 12:03
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 6L

Lab Sample ID: 320-14732-9

Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	2.4		0.40	0.079	ppb v/v			09/04/15 22:51	1
Benzyl chloride	ND		0.80	0.16	ppb v/v			09/04/15 22:51	1
Bromodichloromethane	ND		0.30	0.066	ppb v/v			09/04/15 22:51	1
Bromoform	ND		0.40	0.070	ppb v/v			09/04/15 22:51	1
Bromomethane	ND		0.80	0.34	ppb v/v			09/04/15 22:51	1
2-Butanone (MEK)	3.3		0.80	0.20	ppb v/v			09/04/15 22:51	1
Carbon disulfide	0.12	J	0.80	0.078	ppb v/v			09/04/15 22:51	1
Carbon tetrachloride	0.11	J	0.80	0.064	ppb v/v			09/04/15 22:51	1
Chlorobenzene	ND		0.30	0.064	ppb v/v			09/04/15 22:51	1
Dibromochloromethane	ND		0.40	0.079	ppb v/v			09/04/15 22:51	1
Chloroethane	ND		0.80	0.31	ppb v/v			09/04/15 22:51	1
Chloroform	0.32		0.30	0.095	ppb v/v			09/04/15 22:51	1
Chloromethane	3.8		0.80	0.20	ppb v/v			09/04/15 22:51	1
1,2-Dibromoethane (EDB)	ND		0.80	0.075	ppb v/v			09/04/15 22:51	1
1,2-Dichlorobenzene	ND		0.40	0.13	ppb v/v			09/04/15 22:51	1
1,3-Dichlorobenzene	ND		0.40	0.11	ppb v/v			09/04/15 22:51	1
1,4-Dichlorobenzene	0.25	J	0.40	0.15	ppb v/v			09/04/15 22:51	1
Dichlorodifluoromethane	0.42		0.40	0.15	ppb v/v			09/04/15 22:51	1
1,1-Dichloroethane	ND		0.30	0.072	ppb v/v			09/04/15 22:51	1
1,2-Dichloroethane	0.14	J	0.80	0.088	ppb v/v			09/04/15 22:51	1
1,1-Dichloroethene	ND		0.80	0.13	ppb v/v			09/04/15 22:51	1
cis-1,2-Dichloroethene	ND		0.40	0.089	ppb v/v			09/04/15 22:51	1
trans-1,2-Dichloroethene	ND		0.40	0.10	ppb v/v			09/04/15 22:51	1
1,2-Dichloropropane	ND		0.40	0.24	ppb v/v			09/04/15 22:51	1
cis-1,3-Dichloropropene	ND		0.40	0.10	ppb v/v			09/04/15 22:51	1
trans-1,3-Dichloropropene	ND		0.40	0.088	ppb v/v			09/04/15 22:51	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40	0.16	ppb v/v			09/04/15 22:51	1
Ethylbenzene	0.50		0.40	0.063	ppb v/v			09/04/15 22:51	1
4-Ethyltoluene	ND		0.40	0.19	ppb v/v			09/04/15 22:51	1
Hexachlorobutadiene	ND		2.0	0.43	ppb v/v			09/04/15 22:51	1
2-Hexanone	0.18	J	0.40	0.087	ppb v/v			09/04/15 22:51	1
Methylene Chloride	0.11	J	0.40	0.072	ppb v/v			09/04/15 22:51	1
4-Methyl-2-pentanone (MIBK)	ND		0.40	0.14	ppb v/v			09/04/15 22:51	1
Styrene	0.93		0.40	0.059	ppb v/v			09/04/15 22:51	1
1,1,2,2-Tetrachloroethane	ND		0.40	0.069	ppb v/v			09/04/15 22:51	1
Tetrachloroethene	ND		0.40	0.051	ppb v/v			09/04/15 22:51	1
Toluene	3.6		0.40	0.051	ppb v/v			09/04/15 22:51	1
1,2,4-Trichlorobenzene	ND		2.0	0.43	ppb v/v			09/04/15 22:51	1
1,1,1-Trichloroethane	ND		0.30	0.065	ppb v/v			09/04/15 22:51	1
1,1,2-Trichloroethane	ND		0.40	0.067	ppb v/v			09/04/15 22:51	1
Trichloroethene	0.17	J	0.40	0.11	ppb v/v			09/04/15 22:51	1
Trichlorofluoromethane	0.33	J	0.40	0.20	ppb v/v			09/04/15 22:51	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.16	ppb v/v			09/04/15 22:51	1
1,2,4-Trimethylbenzene	0.24	J	0.80	0.16	ppb v/v			09/04/15 22:51	1
1,3,5-Trimethylbenzene	ND		0.40	0.13	ppb v/v			09/04/15 22:51	1
Vinyl acetate	ND		0.80	0.15	ppb v/v			09/04/15 22:51	1
Vinyl chloride	ND		0.40	0.12	ppb v/v			09/04/15 22:51	1
m,p-Xylene	1.5		0.80	0.10	ppb v/v			09/04/15 22:51	1

Client Sample Results

Client: Atlas Geo-Sampling Company
Project/Site: Mississippi VI

TestAmerica Job ID: 320-14732-1

Client Sample ID: EH-IA-003

Date Collected: 09/01/15 12:03
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 6L

Lab Sample ID: 320-14732-9

Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
o-Xylene	0.37	J	0.40	0.054	ppb v/v			09/04/15 22:51	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	89		12	0.42	ug/m3			09/04/15 22:51	1
Benzene	7.6		1.3	0.25	ug/m3			09/04/15 22:51	1
Benzyl chloride	ND		4.1	0.84	ug/m3			09/04/15 22:51	1
Bromodichloromethane	ND		2.0	0.44	ug/m3			09/04/15 22:51	1
Bromoform	ND		4.1	0.72	ug/m3			09/04/15 22:51	1
Bromomethane	ND		3.1	1.3	ug/m3			09/04/15 22:51	1
2-Butanone (MEK)	9.6		2.4	0.59	ug/m3			09/04/15 22:51	1
Carbon disulfide	0.36	J	2.5	0.24	ug/m3			09/04/15 22:51	1
Carbon tetrachloride	0.70	J	5.0	0.40	ug/m3			09/04/15 22:51	1
Chlorobenzene	ND		1.4	0.29	ug/m3			09/04/15 22:51	1
Dibromochloromethane	ND		3.4	0.67	ug/m3			09/04/15 22:51	1
Chloroethane	ND		2.1	0.81	ug/m3			09/04/15 22:51	1
Chloroform	1.6		1.5	0.46	ug/m3			09/04/15 22:51	1
Chloromethane	7.9		1.7	0.41	ug/m3			09/04/15 22:51	1
1,2-Dibromoethane (EDB)	ND		6.1	0.58	ug/m3			09/04/15 22:51	1
1,2-Dichlorobenzene	ND		2.4	0.78	ug/m3			09/04/15 22:51	1
1,3-Dichlorobenzene	ND		2.4	0.66	ug/m3			09/04/15 22:51	1
1,4-Dichlorobenzene	1.5	J	2.4	0.90	ug/m3			09/04/15 22:51	1
Dichlorodifluoromethane	2.1		2.0	0.72	ug/m3			09/04/15 22:51	1
1,1-Dichloroethane	ND		1.2	0.29	ug/m3			09/04/15 22:51	1
1,2-Dichloroethane	0.58	J	3.2	0.36	ug/m3			09/04/15 22:51	1
1,1-Dichloroethene	ND		3.2	0.51	ug/m3			09/04/15 22:51	1
cis-1,2-Dichloroethene	ND		1.6	0.35	ug/m3			09/04/15 22:51	1
trans-1,2-Dichloroethene	ND		1.6	0.40	ug/m3			09/04/15 22:51	1
1,2-Dichloropropane	ND		1.8	1.1	ug/m3			09/04/15 22:51	1
cis-1,3-Dichloropropene	ND		1.8	0.47	ug/m3			09/04/15 22:51	1
trans-1,3-Dichloropropene	ND		1.8	0.40	ug/m3			09/04/15 22:51	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.8	1.1	ug/m3			09/04/15 22:51	1
Ethylbenzene	2.2		1.7	0.27	ug/m3			09/04/15 22:51	1
4-Ethyltoluene	ND		2.0	0.92	ug/m3			09/04/15 22:51	1
Hexachlorobutadiene	ND		21	4.6	ug/m3			09/04/15 22:51	1
2-Hexanone	0.72	J	1.6	0.36	ug/m3			09/04/15 22:51	1
Methylene Chloride	0.39	J	1.4	0.25	ug/m3			09/04/15 22:51	1
4-Methyl-2-pentanone (MIBK)	ND		1.6	0.55	ug/m3			09/04/15 22:51	1
Styrene	4.0		1.7	0.25	ug/m3			09/04/15 22:51	1
1,1,2,2-Tetrachloroethane	ND		2.7	0.47	ug/m3			09/04/15 22:51	1
Tetrachloroethene	ND		2.7	0.35	ug/m3			09/04/15 22:51	1
Toluene	13		1.5	0.19	ug/m3			09/04/15 22:51	1
1,2,4-Trichlorobenzene	ND		15	3.2	ug/m3			09/04/15 22:51	1
1,1,1-Trichloroethane	ND		1.6	0.35	ug/m3			09/04/15 22:51	1
1,1,2-Trichloroethane	ND		2.2	0.37	ug/m3			09/04/15 22:51	1
Trichloroethene	0.91	J	2.1	0.56	ug/m3			09/04/15 22:51	1
Trichlorofluoromethane	1.9	J	2.2	1.1	ug/m3			09/04/15 22:51	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.1	1.2	ug/m3			09/04/15 22:51	1
1,2,4-Trimethylbenzene	1.2	J	3.9	0.80	ug/m3			09/04/15 22:51	1
1,3,5-Trimethylbenzene	ND		2.0	0.61	ug/m3			09/04/15 22:51	1

Client Sample Results

Client: Atlas Geo-Sampling Company
Project/Site: Mississippi VI

TestAmerica Job ID: 320-14732-1

Client Sample ID: EH-IA-003

Date Collected: 09/01/15 12:03
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 6L

Lab Sample ID: 320-14732-9

Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl acetate	ND		2.8	0.51	ug/m3			09/04/15 22:51	1
Vinyl chloride	ND		1.0	0.31	ug/m3			09/04/15 22:51	1
m,p-Xylene	6.6		3.5	0.43	ug/m3			09/04/15 22:51	1
o-Xylene	1.6	J	1.7	0.23	ug/m3			09/04/15 22:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*117*		*70 - 130*		*09/04/15 22:51*	*1*
1,2-Dichloroethane-d4 (Surr)	*111*		*70 - 130*		*09/04/15 22:51*	*1*
Toluene-d8 (Surr)	*86*		*70 - 130*		*09/04/15 22:51*	*1*

Client Sample ID: EH-IA-004

Date Collected: 09/01/15 12:03
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 6L

Lab Sample ID: 320-14732-10

Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	39		5.0	0.18	ppb v/v			09/04/15 23:37	1
Benzene	2.1		0.40	0.079	ppb v/v			09/04/15 23:37	1
Benzyl chloride	ND		0.80	0.16	ppb v/v			09/04/15 23:37	1
Bromodichloromethane	ND		0.30	0.066	ppb v/v			09/04/15 23:37	1
Bromoform	ND		0.40	0.070	ppb v/v			09/04/15 23:37	1
Bromomethane	ND		0.80	0.34	ppb v/v			09/04/15 23:37	1
2-Butanone (MEK)	3.5		0.80	0.20	ppb v/v			09/04/15 23:37	1
Carbon disulfide	ND		0.80	0.078	ppb v/v			09/04/15 23:37	1
Carbon tetrachloride	0.097	J	0.80	0.064	ppb v/v			09/04/15 23:37	1
Chlorobenzene	ND		0.30	0.064	ppb v/v			09/04/15 23:37	1
Dibromochloromethane	ND		0.40	0.079	ppb v/v			09/04/15 23:37	1
Chloroethane	ND		0.80	0.31	ppb v/v			09/04/15 23:37	1
Chloroform	0.31		0.30	0.095	ppb v/v			09/04/15 23:37	1
Chloromethane	4.4		0.80	0.20	ppb v/v			09/04/15 23:37	1
1,2-Dibromoethane (EDB)	ND		0.80	0.075	ppb v/v			09/04/15 23:37	1
1,2-Dichlorobenzene	ND		0.40	0.13	ppb v/v			09/04/15 23:37	1
1,3-Dichlorobenzene	ND		0.40	0.11	ppb v/v			09/04/15 23:37	1
1,4-Dichlorobenzene	0.22	J	0.40	0.15	ppb v/v			09/04/15 23:37	1
Dichlorodifluoromethane	0.45		0.40	0.15	ppb v/v			09/04/15 23:37	1
1,1-Dichloroethane	ND		0.30	0.072	ppb v/v			09/04/15 23:37	1
1,2-Dichloroethane	0.13	J	0.80	0.088	ppb v/v			09/04/15 23:37	1
1,1-Dichloroethene	ND		0.80	0.13	ppb v/v			09/04/15 23:37	1
cis-1,2-Dichloroethene	ND		0.40	0.089	ppb v/v			09/04/15 23:37	1
trans-1,2-Dichloroethene	ND		0.40	0.10	ppb v/v			09/04/15 23:37	1
1,2-Dichloropropane	ND		0.40	0.24	ppb v/v			09/04/15 23:37	1
cis-1,3-Dichloropropene	ND		0.40	0.10	ppb v/v			09/04/15 23:37	1
trans-1,3-Dichloropropene	ND		0.40	0.088	ppb v/v			09/04/15 23:37	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40	0.16	ppb v/v			09/04/15 23:37	1
Ethylbenzene	0.53		0.40	0.063	ppb v/v			09/04/15 23:37	1
4-Ethyltoluene	ND		0.40	0.19	ppb v/v			09/04/15 23:37	1
Hexachlorobutadiene	ND		2.0	0.43	ppb v/v			09/04/15 23:37	1
2-Hexanone	0.21	J	0.40	0.087	ppb v/v			09/04/15 23:37	1

Client Sample Results

Client: Atlas Geo-Sampling Company
Project/Site: Mississippi VI

TestAmerica Job ID: 320-14732-1

Client Sample ID: EH-IA-004

Date Collected: 09/01/15 12:03
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 6L

Lab Sample ID: 320-14732-10

Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylene Chloride	0.12	J	0.40	0.072	ppb v/v			09/04/15 23:37	1
4-Methyl-2-pentanone (MIBK)	ND		0.40	0.14	ppb v/v			09/04/15 23:37	1
Styrene	0.96		0.40	0.059	ppb v/v			09/04/15 23:37	1
1,1,2,2-Tetrachloroethane	ND		0.40	0.069	ppb v/v			09/04/15 23:37	1
Tetrachloroethene	ND		0.40	0.051	ppb v/v			09/04/15 23:37	1
Toluene	3.5		0.40	0.051	ppb v/v			09/04/15 23:37	1
1,2,4-Trichlorobenzene	ND		2.0	0.43	ppb v/v			09/04/15 23:37	1
1,1,1-Trichloroethane	ND		0.30	0.065	ppb v/v			09/04/15 23:37	1
1,1,2-Trichloroethane	ND		0.40	0.067	ppb v/v			09/04/15 23:37	1
Trichloroethene	0.16	J	0.40	0.11	ppb v/v			09/04/15 23:37	1
Trichlorofluoromethane	0.34	J	0.40	0.20	ppb v/v			09/04/15 23:37	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.16	ppb v/v			09/04/15 23:37	1
1,2,4-Trimethylbenzene	0.26	J	0.80	0.16	ppb v/v			09/04/15 23:37	1
1,3,5-Trimethylbenzene	ND		0.40	0.13	ppb v/v			09/04/15 23:37	1
Vinyl acetate	ND		0.80	0.15	ppb v/v			09/04/15 23:37	1
Vinyl chloride	ND		0.40	0.12	ppb v/v			09/04/15 23:37	1
m,p-Xylene	1.6		0.80	0.10	ppb v/v			09/04/15 23:37	1
o-Xylene	0.37	J	0.40	0.054	ppb v/v			09/04/15 23:37	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	92		12	0.42	ug/m3			09/04/15 23:37	1
Benzene	6.7		1.3	0.25	ug/m3			09/04/15 23:37	1
Benzyl chloride	ND		4.1	0.84	ug/m3			09/04/15 23:37	1
Bromodichloromethane	ND		2.0	0.44	ug/m3			09/04/15 23:37	1
Bromoform	ND		4.1	0.72	ug/m3			09/04/15 23:37	1
Bromomethane	ND		3.1	1.3	ug/m3			09/04/15 23:37	1
2-Butanone (MEK)	10		2.4	0.59	ug/m3			09/04/15 23:37	1
Carbon disulfide	ND		2.5	0.24	ug/m3			09/04/15 23:37	1
Carbon tetrachloride	0.61	J	5.0	0.40	ug/m3			09/04/15 23:37	1
Chlorobenzene	ND		1.4	0.29	ug/m3			09/04/15 23:37	1
Dibromochloromethane	ND		3.4	0.67	ug/m3			09/04/15 23:37	1
Chloroethane	ND		2.1	0.81	ug/m3			09/04/15 23:37	1
Chloroform	1.5		1.5	0.46	ug/m3			09/04/15 23:37	1
Chloromethane	9.0		1.7	0.41	ug/m3			09/04/15 23:37	1
1,2-Dibromoethane (EDB)	ND		6.1	0.58	ug/m3			09/04/15 23:37	1
1,2-Dichlorobenzene	ND		2.4	0.78	ug/m3			09/04/15 23:37	1
1,3-Dichlorobenzene	ND		2.4	0.66	ug/m3			09/04/15 23:37	1
1,4-Dichlorobenzene	1.4	J	2.4	0.90	ug/m3			09/04/15 23:37	1
Dichlorodifluoromethane	2.2		2.0	0.72	ug/m3			09/04/15 23:37	1
1,1-Dichloroethane	ND		1.2	0.29	ug/m3			09/04/15 23:37	1
1,2-Dichloroethane	0.54	J	3.2	0.36	ug/m3			09/04/15 23:37	1
1,1-Dichloroethene	ND		3.2	0.51	ug/m3			09/04/15 23:37	1
cis-1,2-Dichloroethene	ND		1.6	0.35	ug/m3			09/04/15 23:37	1
trans-1,2-Dichloroethene	ND		1.6	0.40	ug/m3			09/04/15 23:37	1
1,2-Dichloropropane	ND		1.8	1.1	ug/m3			09/04/15 23:37	1
cis-1,3-Dichloropropene	ND		1.8	0.47	ug/m3			09/04/15 23:37	1
trans-1,3-Dichloropropene	ND		1.8	0.40	ug/m3			09/04/15 23:37	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.8	1.1	ug/m3			09/04/15 23:37	1
Ethylbenzene	2.3		1.7	0.27	ug/m3			09/04/15 23:37	1

Client Sample Results

Client: Atlas Geo-Sampling Company
Project/Site: Mississippi VI

TestAmerica Job ID: 320-14732-1

Client Sample ID: EH-IA-004
Date Collected: 09/01/15 12:03
Date Received: 09/03/15 09:30
Sample Container: Summa Canister 6L

Lab Sample ID: 320-14732-10
Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Ethyltoluene	ND		2.0	0.92	ug/m3			09/04/15 23:37	1
Hexachlorobutadiene	ND		21	4.6	ug/m3			09/04/15 23:37	1
2-Hexanone	**0.85**	**J**	1.6	0.36	ug/m3			09/04/15 23:37	1
Methylene Chloride	**0.42**	**J**	1.4	0.25	ug/m3			09/04/15 23:37	1
4-Methyl-2-pentanone (MIBK)	ND		1.6	0.55	ug/m3			09/04/15 23:37	1
Styrene	**4.1**		1.7	0.25	ug/m3			09/04/15 23:37	1
1,1,2,2-Tetrachloroethane	ND		2.7	0.47	ug/m3			09/04/15 23:37	1
Tetrachloroethene	ND		2.7	0.35	ug/m3			09/04/15 23:37	1
Toluene	**13**		1.5	0.19	ug/m3			09/04/15 23:37	1
1,2,4-Trichlorobenzene	ND		15	3.2	ug/m3			09/04/15 23:37	1
1,1,1-Trichloroethane	ND		1.6	0.35	ug/m3			09/04/15 23:37	1
1,1,2-Trichloroethane	ND		2.2	0.37	ug/m3			09/04/15 23:37	1
Trichloroethene	**0.87**	**J**	2.1	0.56	ug/m3			09/04/15 23:37	1
Trichlorofluoromethane	**1.9**	**J**	2.2	1.1	ug/m3			09/04/15 23:37	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.1	1.2	ug/m3			09/04/15 23:37	1
1,2,4-Trimethylbenzene	**1.3**	**J**	3.9	0.80	ug/m3			09/04/15 23:37	1
1,3,5-Trimethylbenzene	ND		2.0	0.61	ug/m3			09/04/15 23:37	1
Vinyl acetate	ND		2.8	0.51	ug/m3			09/04/15 23:37	1
Vinyl chloride	ND		1.0	0.31	ug/m3			09/04/15 23:37	1
m,p-Xylene	**6.8**		3.5	0.43	ug/m3			09/04/15 23:37	1
o-Xylene	**1.6**	**J**	1.7	0.23	ug/m3			09/04/15 23:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*117*		*70 - 130*		*09/04/15 23:37*	*1*
1,2-Dichloroethane-d4 (Surr)	*124*		*70 - 130*		*09/04/15 23:37*	*1*
Toluene-d8 (Surr)	*84*		*70 - 130*		*09/04/15 23:37*	*1*

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
SAM NUNN
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA GEORGIA 30303-8960

JUL 26 2010

Ms. Viola R. Adams
141 Tallahoma Drive
Grenada, MS 38901

SUBJECT: Grenada Manufacturing, Inc.
Grenada, MS
MSD 007 037 278

Dear Ms. Adams:

It was a pleasure speaking with you this morning. I hope that our conversation clarified the issues you raised in your letter of July 2, 2010 regarding the permit renewal for the Grenada Manufacturing, LLC facility. I appreciate your interest in the permitting process and want to be as responsive as possible to your concerns. Below is a summary of our conversation.

As we discussed, there are no known hazards to human health or the environment from the Grenada site. The contaminants of concern are located within the property boundary in sub-surface soils and the upper portions of the groundwater table and are inaccessible to exposure. Groundwater flows toward Riverdale Creek and is intercepted by an underground treatment barrier, thus preventing discharge of contaminants to the creek. Additionally, this groundwater table is not used as a drinking water source. Other cleanup measures are also in place to address subsurface soil contamination.

The permit that is being renewed by the U.S. Environmental Protection Agency (EPA) at this time is for the purposes of directing the cleanup of areas of contamination from past disposal practices. These cleanup activities have been underway for several years and have been shown to be effective (therefore, at this time no changes are proposed to the cleanup measures approved in 2005). Renewal of the permit will allow for the continued implementation of these cleanup measures for the next 10 years.

The Mississippi Department of Environmental Quality (MDEQ) has the authority to regulate wastes generated by ongoing manufacturing operations at the Grenada facility. Grenada is therefore operating under a separate permit issued by MDEQ that specifies the requirements for current waste generation and disposal, if any, in a manner that is protective of human health and the environment. A representative of MDEQ can be contacted at 601-961-5067 to answer any of your questions related to current operations and waste generation at the facility.

Lastly, the permit will be issued by the EPA as proposed in the Public Notice and will become effective on August 30, 2010. If you wish to file an appeal to this decision, you may do so prior to the effective date and according to the instructions attached.

Thank you again for your participation and interest in the Grenada site cleanup activities. I am hopeful that our phone conversation and this response to your letter address your concerns about the facility and the proposed permit renewal. Please feel free to contact me at 404-562-8608, or at anderson.meredith@epa.gov, if I can be of further assistance to you.

Sincerely,

Meredith C. Anderson
Project Manager
RUST Branch/Corrective Action Section
RCRA Division

Enclosure

141 Tallahoma Drive
Grenada, MS 38901
July 2, 2010

U S EPA Region 4
61 Forsyth Street S. W.
Atlanta, GA 30303

Dear Ms. Meredith Anderson:

I, Viola Ross Adams am writing this letter in response to a letter from the United States Environmental Protection Agency concerning the plant, Grenada Manufacturing, now called Grenada Stamping and Assembly, Inc.

According to the letter that was sent to me, I understand that the Grenada Manufacturing LLC facility at one time was a hazard to our health, but it has been corrected.

I feel that if it was a hazard to our health then, it probably still is a hazard site.

I believe that if EPA issue a renewal of the current Hazardous and Solid Waste Amendments (HSWA) Permit for the Grenada facility it will be a hazard to our health to let the facility operate for more years, especially if it does not include any

changes to the existing site cleanup. This is my concern. I hope this letter will receive your immediately attention. Thank you.

Sincerely yours,

Viola K. Adams

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 4
61 Forsyth Street
Atlanta, Georgia 30303-3104

4WD-TSS MEMORANDUM March 31, 2011

SUBJECT: 2009 GW Monitoring Report for the Grenada Manufacturing Site
FROM: David N. Jenkins, Environmental Scientist
Technical Support Section, Superfund Support Branch
THROUGH: Glenn Adams, Section Chief, Technical Support Section, Superfund Support Branch
TO: Meredith Anderson, RCRA Project Manager

Meredith,

I have reviewed the 2009 monitoring report for the Grenade Manufacturing Site as you requested. Here are my comments. Please call me at 404-562-8462 if you have any questions.

The document reviewed is titled:

> Brown and Caldwell, 2010, Annual Monitoring Report Calendar Year 2009, Grenada Manufacturing, LLC, Grenada Mississippi, Brown and Caldwell, 4000 Lakehurst Court, Dublin, OH 43019.

GENERAL COMMENT:

I have no previous experience with this site and have not reviewed any other reports for this site. You have asked for my evaluation of this report. As a basis for my evaluation, I assume that this report was provided to EPA to document the progress of the facility in managing groundwater contamination and the remedial measures implemented at the site. Given that remedial measures have been implemented, I expected to see presentations in the report that show some progress toward controlling the contamination and progress toward the ultimate cleanup goals. Regrettably, none of these things are shown in this report. There are no maps or graphs in this report which help you as the EPA Project Manager understand how the site is progressing. The maps which are in this report do not show the extent of contamination. There are no presentations in this report which would help you convince your management or the public that EPA is performing its responsibilities at this site.

The report contains 10 maps, 14 tables and 2 appendixes. The text describing this information is contained on 11 pages. The presentations in this report do not provide interpretations of the data. The report lists what was done during this monitoring year without reporting where the plume is, where it is going or how the remedy is functioning. The report does not show the remedial measures are protecting human health and the environment. In my opinion, interpretations like those described in this memo should be part of an annual monitoring report. There is no point in collecting the samples without interpreting the results. In my opinion, the experts who know the site best should do this interpretation.

EPA should expect reports for sites with remedies for groundwater contamination to contain maps and cross-sections which clearly show the extent of contamination (plumes) which can be compared from year to year to see if the plume area is shrinking. The plume maps should clearly demonstrate that no receptors are present within the plume and that the plume is under control.

EPA should expect reports for sites with remedies for groundwater contamination to contain contaminant concentration trend graphs which show the progress being made toward clean up. Contaminant concentration trends should be consistent with the performance expected for the remedy. Anomalies and unexpected trends should be evaluated to insure human health and the environment are protected and to determine whether modifications to the remedy are necessary or advisable. This is the purpose of collecting post-remedial action samples.

EPA should expect monitoring reports to clearly show that the remedy is working. This report does not do that. Consequently, the observations made in this memo regarding the distribution of contamination in groundwater, regarding contaminant concentration trends versus time and other observations are based on the contents of this report only and do not utilize maps, graphs or other data which may be in other reports. But in this report, the performance of the Permeable Reactive Barrier (PRB) in terms of reducing contamination and controlling contaminant migration from the site is not clearly demonstrated. The data

in Tables 5, 7 and Figure 5 suggest high levels of TCE concentration are migrating in groundwater toward the PRB wall. This same data suggests TCE contamination may migrate around the north and south end of the wall. There is no way to evaluate whether TCE contamination moves under the wall with the data presented, but as shown in this memo, the TCE trend in MW14 which is near the surface water stream and down gradient from the PRB wall is very strange. TCE concentrations in this well are high and TCE exceeded the MCL in surface water at SW9 and SW19 during the time covered by the 2009 Monitoring Report (Table 11).

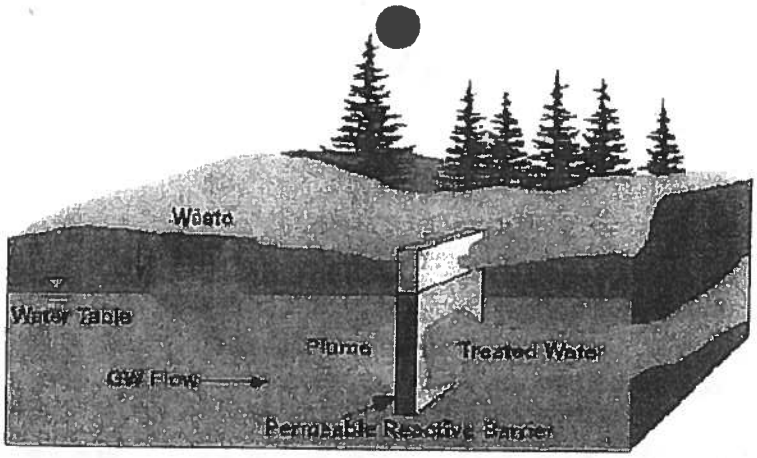
COMMENT REGARDING THE REPORT SUMMARY SECTION 4:

The summary of the report presented in Section 4 is only half of a page long. The summary is concise and subtle, but most importantly, the summary is honest and generates cause for concern regarding how the remedy is working. The summary (page 4-1) consists of 6 bulleted items which should be read in along with my interpretation of these 6 bullets presented below.

The first bullet in the summary states VOC concentrations have decreased or are stable, but no trend graphs are presented in the report to demonstrate the accuracy of this statement to EPA. If the statement is correct, stable VOC concentrations indicate there are no new impacts to receptors because the plume is not expanding. That is good as far as it goes, but stable concentrations do not show progress toward cleanup. Stable concentrations mean years after the remedy was implemented, conditions are no better or worse than they have always been. Again, the report does not present contaminant concentration trend graphs to support this statement regarding plume stability. Some of the graphs presented in this memo show contaminant concentrations are not stable but are increasing.

The second bullet of the summary makes 3 points:

1.) Bullet 2 states VOC concentrations inside the Permeable Reactive Barrier (PRB) are much lower than in wells up gradient and down gradient from the wall. The relevance of this point is unclear. The purpose of the wall is to remediate water which passes through it. Success is measured down gradient, not inside the wall.
2.) Bullet 2 states VOC concentrations down gradient from the wall are lower than up gradient from the wall. The relevance of this point is clear, but for reasons not given in the report, the contaminant concentration decrease from up gradient to down gradient is credited to the PRB wall only and not natural attenuation. There are no maps or graphs in this report which confirms that the PRB wall caused the contaminant concentration decreases with distance down gradient. Without plume maps from the current and previous years, there is no proof in this report that the wall has accomplished anything that would not have occurred without the installation of the wall.
3.) Bullet 2 states contaminant concentrations in some wells down gradient from the wall have not met the target levels. This is important because PRBs don't work on contamination which has already gone past the wall. Nothing in this report describes the fate of the untreated, uncaptured contamination. Natural attenuation is not mentioned as a remedy in this report. This report would not meet EPA requirements if Monitored Natural Attenuation (MNA) was the selected remedy, so there is no remedy in place for contamination which is already past the PRB wall. What is the remedy for contamination which is already down gradient from the wall?



Also regarding the second bullet, the effective life of a PRB wall is commonly 15-30 years. Porosity loss rates can be a few percent per year of the original available volume (Wilkin, R.T., 2005, Long-Term Performance Monitoring of Permeable Reactive Barriers for Groundwater Restoration, EPA ORD Waste Technical Seminar Series, March 2005). As porosity in the wall decreases due to precipitation of dissolved solids passing through the wall, contaminated groundwater is more likely to be diverted around the wall rather than through it, so a PRB wall may become a dam and may fail to treat the whole plume as anticipated in the design long before the porosity is sealed completely. Without trend graphs showing contaminant concentrations versus time, it is not clear whether the wall will be effective long enough to treat the plume even if all contaminated water were flowing through the wall. Without water level hydrographs and detailed water level mapping, it is not clear whether the wall is in the correct place to capture all of the plume. Without cross-sections through the wall and an evaluation of well screen elevations, wall depth and vertical hydraulic gradients, it is not clear whether the wall is treating all of the plume or whether contamination is going under the wall or around the ends of the wall. (PRB sketch from Wilkin, R.T., 2005, Long-Term Performance Monitoring of Permeable Reactive Barriers for Groundwater Restoration, EPA ORD Waste Technical Seminar Series, March 2005).

The third bullet of the summary states sample results for inorganic (metals) analyses were stable compared to the 2003 base line results. If the concentrations are unchanged over 7 years, there has been no progress toward cleanup since 2003. It is not clear in this report whether the PRB wall was designed to treat metals contamination, though it probably was designed for metals as well as VOCs as suggested in EPA guidance documents from that time (see for example EPA, 1999, *"An In Situ Permeable Reactive Barrier for the Treatment of Hexavalent Chromium and Trichloroethylene in Ground Water: Volume 2"*, EPA/600/R-99/095b). But there are no maps in this report showing the current distribution of metals contamination in groundwater up gradient and down gradient from the wall, or maps which compare the current distribution with the results of previous annual reports. There are no maps in this report showing the distribution of parameters, such as pH, dissolved oxygen, sulfate, etc., which often control or help explain the mobility of metals in groundwater.

The fourth bullet of the summary states VOC concentrations around the Equalization Lagoon have been stable compared to the 2003 baseline event. Again, the report does not present contaminant concentration trend graphs to support this statement regarding plume stability, but it is surprising that current VOC concentrations are comparable with concentrations from 6 years ago. This is not good news. While MNA is not the remedy in-place at this site, VOCs always degrade or dilute in the environment through natural processes, so current VOC concentrations should not be stable and comparable with the 2003 baseline event. The rate of degradation depends on many factors including the physical properties of the specific contaminants, the conditions at the site and the concentration of the contaminant. There no information about site specific degradation rates for VOCs at the Grenada Manufacturing site in the 2009 Monitoring Report. A study of TCE degradation in groundwater at DOE sites in the U.S. "*... indicated that TCE was degraded in 9 of the 14 plumes examined, with first order degradation half-lives ranging from approximately 1 year to approximately 12 years.*" (R.C. Starr, 2005, http://www.osti.gov/energycitations/servlets/purl/862131-s6juvF/862131.pdf). Experience with natural attenuation at other sites in EPA R4 during the last few years has shown that sites where VOC concentrations are not degrading at a rate consistent with a first order degradation rate are sites where source control and source removal has been ineffective or incomplete. Six years passed between the 2009 samples and the 2003 baseline sample event. If the VOC concentrations at the Grenada site are still comparable with the 2003 baseline event, then natural attenuation cannot control the plume and is not a suitable remedy for the site, so other effective remedial measures must be in place. Please note that this statement does not mean that EPA believes that natural attenuation is not working at the site. There is plenty of evidence of natural

attenuation in Table 5. But the rate of natural attenuation is less than the rate of contaminant migration. The VOC plume at this site cannot be contained by natural attenuation.

The fifth bullet of the summary states wells RT-2 and RT-4 have been impacted by something. The nature and cause of the impacts is unspecified. The fifth bullet of the summary cites statistical comparisons of parameters regarding Wells RT-2 and RT-4. Wells RT-2 and RT-4 are far up gradient from the PRG wall and will not be affected by that remedy. The 5th bullet concludes that the impacts at wells RT-2 and RT-4 "... *are comparable to historical events* ", so something is happening in this area which is not under control by the PRB, but neither the impacts nor the historical events are identified in the bullet.

The sixth bullet states TCE, cis-DCE and vinyl chloride concentrations in surface water are increasing. The surface water sampling points are down gradient from the PRB wall. Dilution and oxidation in surface water as well as degradation along the flow paths between the source areas and the discharge areas makes detection of these substances in surface water near a site relatively rare. Clearly, contamination from this site is overwhelming these processes. The detection of these substances in surface water down gradient from the PRB wall suggests the wall is not performing as anticipated during the design (See Bullet 2 Point 3 above).

The sixth bullet also states concentrations of hexavalent chromium exceed Chronic Aquatic Life Criteria at all 4 down gradient surface water sampling locations. Natural processes down gradient from the PRB wall are not protecting the surface water from contamination by this site, and no other remedy is in place.

Page 1 Section 1 of the 2009 Groundwater Monitoring Report states this Groundwater Monitoring Report is part of a program to "... *provide a means to evaluate the current groundwater conditions and effectiveness of the various corrective measures at the Site.*" Contaminated groundwater plumes are expanding. Surface water is impacted at concentrations which may be detrimental to aquatic life. As summarized in Section 4 of the report and as described in the comments of this memo, "... *the various corrective measures at the Site*" are not controlling groundwater contamination.

COMMENT REGARDING DATA PRESENTATION AND DATA INTERPRETATION:

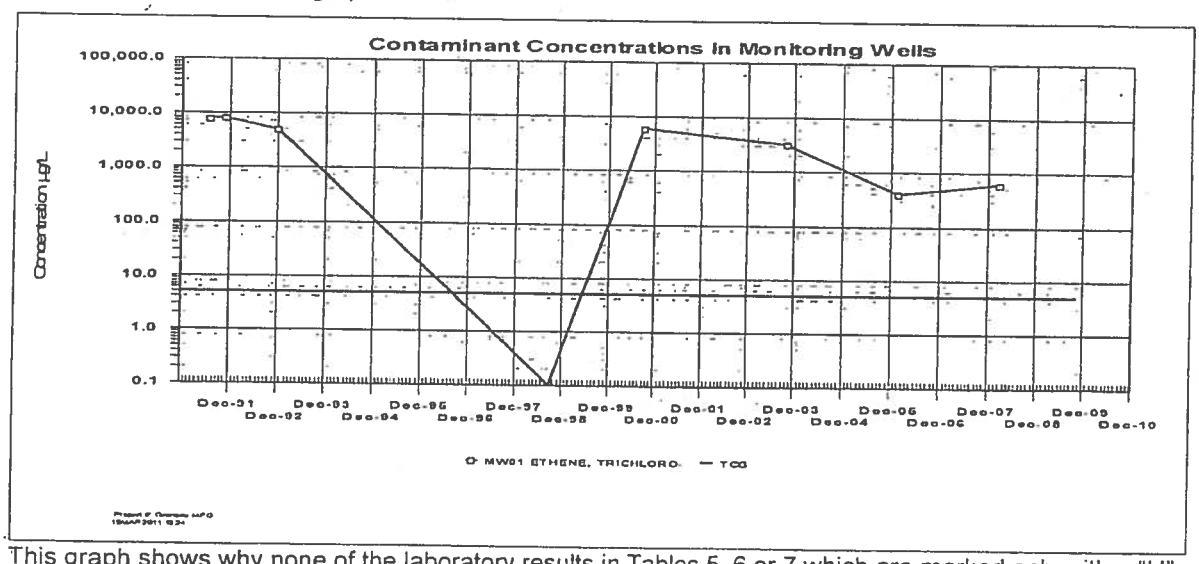
The report is an annual monitoring report, but no map or graph in this report indicates whether human health and the environment are protected by the remedial measures implemented at this facility. The extent of contamination is not shown on any map in the report. The extent of contamination observed in previous years is not shown on any map in the report. Monitoring wells in a shallow and deeper aquifer are sampled, but the relationship between the shallow and deep well screens and the depth of PRB is not shown on any cross-section in the report. Water level data is presented, but the data are not utilized to define vertical hydraulic gradients. The depth of the PRB wall is not mentioned in the report and it is not clear whether the wall fully penetrates either the shallow or deeper aquifer. The figures in the report do not show whether contamination is passing through the wall as intended in the design, beneath or around the ends of the PRB wall.

COMMENT REGARDING DATA TABLES AND DATA INTERPRETATION:

The metals analyses at well MW20 shown in Table 7 p.6/15 include the results from 6 samples collected between 1993 and 2008. Both arsenic and lead in the first two samples and the last sample exceeded the MCLs for these metals. No metals were detected in the three samples collected between the first two and the last sampling event. These "non-detect" results are marked with "U" qualifiers in Table 7. The detection limits for the middle samples (2003 and 2006) is not given on the table. Because the first and last samples exceeded the MCLs for arsenic and lead, it seems possible that metals exceedances occurred in the middle sample events also. The detection limits for the middle samples may have been elevated above the MCLs, so the results from a sample which exceeded the MCL would be reported as not detected.

Many of the VOC results in Table 5 also are marked with "U" qualifiers without numerical detection limits. Contaminant concentration trend graphs for VOCs created using the data in Table 5 shows the samples with some of these non-detect results probably contained significant levels of contamination. For example, TCE was not detected in the sample collected from well MW-1 during October 1998 (Table 5

page 1/9). The data from MW-1 plotted on the graph below suggests that the TCE concentration in October 1998 probably was much greater than the target cleanup level (TCL) of 5µg/L, but Table 5 show this result for this sample simply with a "U" qualifier. The TCE concentration in the October 1998 sample from well MW-1 is unknown. A very low TCE concentration (0.1µg/L) was used to represent the October 1998 sample event in the graph below.

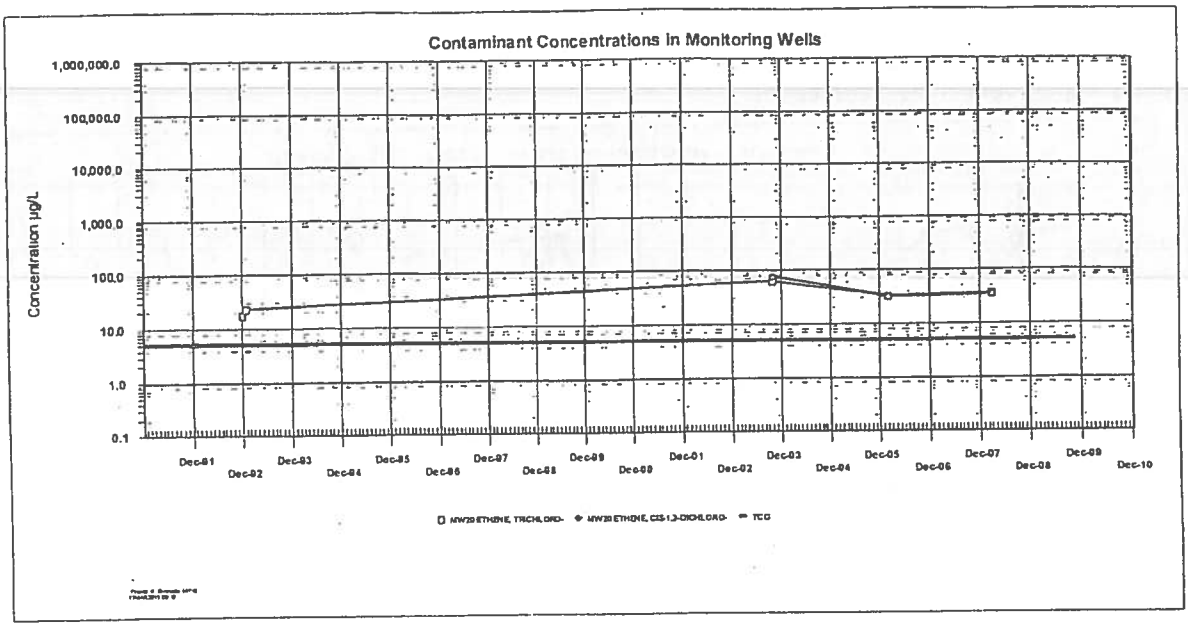


This graph shows why none of the laboratory results in Tables 5, 6 or 7 which are marked only with a "U" qualifier can be assumed to be non-detect at concentrations below a target cleanup goal. Please note that a TCG in the graph like the one above may be an MCL, a State ARAR or a site-specific Remedial Action Objective from a ROD concentration depending on the contaminant.

Non-detect samples from recent sample events are appropriately marked in these tables with a "U" qualifier accompanied by the numeric value of the detection limit for that specific sample. The detection limits from recent sample events appear to be less than the appropriate TCL for each contaminant, but the graph above shows this cannot be assumed to be the case for older samples. The "U" qualified samples in Tables 5, 6 and 7 serve as markers that a sample was collected, but should not be used for any other purpose. The "U" qualified results in Tables 5, 6 and 7 must not be interpreted as being results from uncontaminated samples.

COMMENT REGARDING OFF-SITE GROUNDWATER CONTAMINATION:

Contamination appears to have migrated off of the Grenada property beyond well MW20. Contaminant concentrations in well MW20 are shown in the report tables, but not on Figures 8 through 10 of the report. TCE concentrations in MW20 exceed the MCL and are increasing. DCE and VC are detected, but typically do not exceed the MCL. Some analyses were not conducted on the earlier samples. These are marked as "NA" in Table 5. Others are marked with "U" qualified results and no detection limit, so there is nothing to plot. The most recent TCE concentration is higher than the results in this well from early 1992, indicating the plume is expanding at a rate which exceeds the rate of natural attenuation.



Arsenic, lead and total chromium concentrations in MW20 have exceeded the MCL in the past. Relatively little data regarding metals concentrations in this well is available (Table 7 p.6/15). Iron, manganese and sulfate results are not shown in Table 7. These results, along with pH, conductivity, dissolved oxygen, oxidation-reduction potential (ORP) and turbidity should be shown on the metals analysis table to provide the data needed for interpretation of these results. Some of the parameters in this last group are presented in Table 8, but the data do not appear to be utilized anywhere in the report to interpret the sample results and the distribution of contamination.

The extent of groundwater contamination around well MW20 is not shown in this report.

COMMENT REGARDING LNAPL AND DNAPL:

LNAPL is mentioned in the report (pages 1-2 and 2-1). Many contaminants can become LNAPL when released into the environment, but the contaminants in this specific LNAPL are not named in the report.

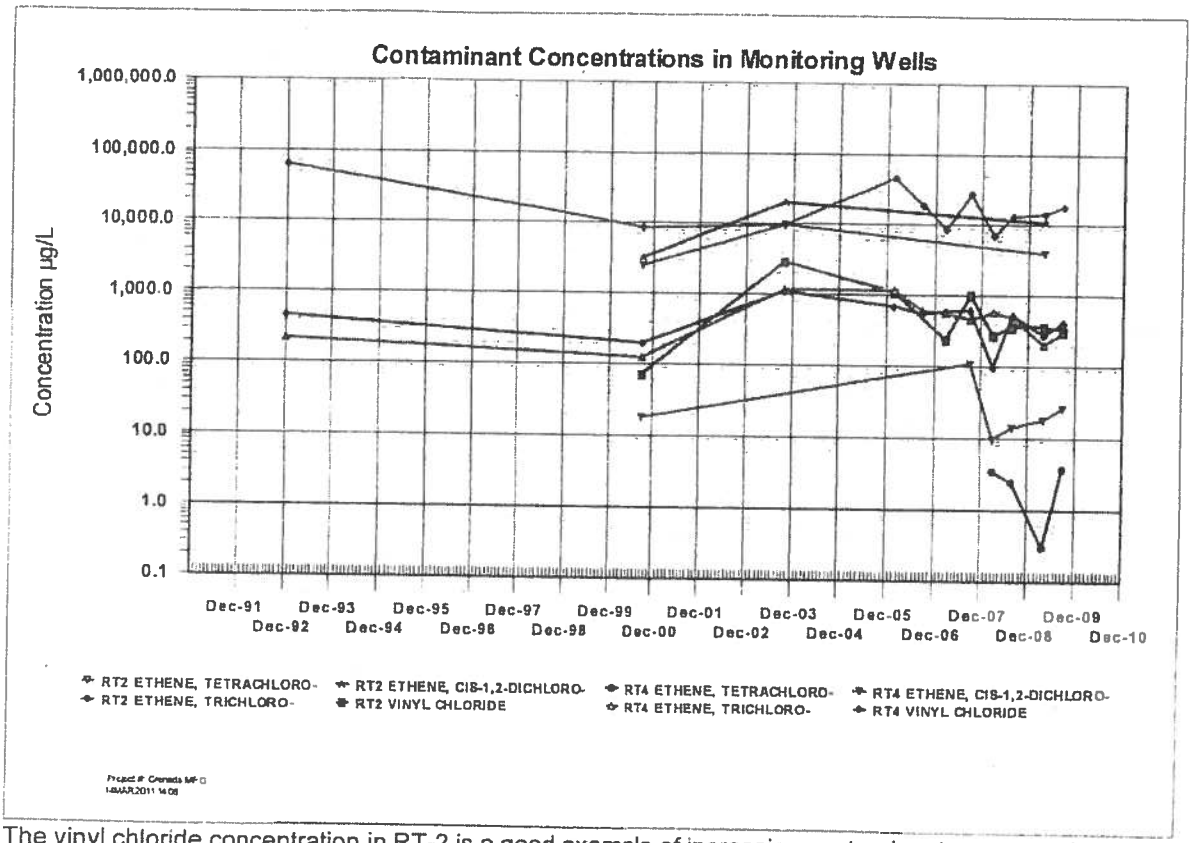
DNAPL is never mentioned in the report even though a primary VOC contaminant, TCE, always originates as a DNAPL. TCE has been reported to be present at the site at concentrations of nearly 700 mg/L (Table 5 p.1/9). "Rules of Thumb" used to indicate possible the presence of DNAPL in groundwater are between 1 and 10 percent of the solubility. TCE concentrations in well MW-2 have exceeded 60% of the solubility limit of TCE. DNAPL source material probably still exists in this aquifer.

The following graph shows chlorinated VOC concentrations in wells RT-2 and RT-4. This graph was made from the data in Table 5, but the report does not contain any trend graphs. Please note the graph must be viewed in color to be useful because 4 contaminants from 2 different wells are plotted. The graph is busy, but purpose of this particular graph is to illustrate overall trends only. Two important observations to be made from this graph are:

1.) the concentrations in many wells exceed the relevant MCLs, and

2.) concentrations are not decreasing.

The last point can be verified with a ruler to draw a horizontal line across the graph. The oldest analysis result for many of these contaminants is less than the youngest result, showing that contaminant concentrations are increasing over the last 10-18 years despite any degradation by natural attenuation. The graph does not show a meaningful decrease in contaminant concentrations versus time.



The vinyl chloride concentration in RT-2 is a good example of increasing contaminant concentrations. In this case, the increase could be the result of degradation of other cVOCs, but the most recent vinyl chloride concentration is more than oldest VC concentration in this well. The most recent VC concentration in RT-2 is 150 times greater than the MCL. cis-DCE concentrations have increased in both wells and have exceeded the MCL since they were sampled first in 2000. The TCE concentration in RT-2 has increased since 2000 and, as shown on the graph, this increase probably is not due to degradation of PCE. Even the concentrations which are decreasing are decreasing at rate too slow to result in cleanup in a reasonable time. An average trend line through these data would be nearly flat and relatively little degradation is apparent over a time period probably equal to a few TCE half-lives.

COMMENT REGARDING BIOREMEDIATION AND MONITORED NATURAL ATTENUATION (MNA):

Based on the type of contaminants (VOCs, sVOCs and metals) listed in Tables 5 and 7, and the use of the word "Bioremediation" in the title of Table 8, some proposal advocating a Monitored Natural Attenuation Remedy for this site may be under consideration. The conclusions of the previous comment show that MNA would not be able to clean this site in a reasonable time and is not a viable remedy for this site. Further, without well locations and well construction data, without trend graphs showing contaminant concentrations versus time, without maps showing the extent of contamination and without water level elevation contours in map and cross-section view showing groundwater flow directions, the data presented in this report cannot be used to support any remedy of any kind. The data presented do not follow EPA guidelines for characterization of contaminated sites. The data presented to not permit an evaluation of whether any of the monitoring well screens are located in the right places and correct depths relative to contaminant sources and groundwater recharge and discharge areas. The data presented in Table 8 do not appear to be utilized anywhere in this report to interpret the sample results and the distribution of contamination.

COMMENT REGARDING NAPL COLLECTION DATA TABLE 14:

The free product thickness measured in the November 2009 sample event was nearly 3 feet in wells RT-2 and RT-4 (Table 14). The product thickness in these wells is similar to the thickness in 2004. The product recovered during all of 2009 was less than 4 gallons (Table 14). I have no details regarding the source, the composition of the product or the method of product recovery. Product recovery has been underway for 6 years, and it appears little progress toward cleanup is being made because the NAPL thickness is about the same as it was in 2004. There does not appear to be any effective remedy or control on the DNAPL plume.

COMMENT REGARDING METALS ANALYSIS RESULTS IN GROUNDWATER TABLE 7:

Table 7 shows MCL exceedances in groundwater for arsenic, total chromium, and lead. The table also shows EPA Risk-based screening level (RSL) exceedances for chrome^{+6}. Results for iron, manganese and sulfate are not reported on this table, but they should be. Specific conductance, pH and turbidity can be indicators of high metals concentrations in groundwater. These parameters are not reported on Table 7, but they should be. Some of these parameters are presented in Table 8, but Table 8 is organized differently from Table 7 and interpretation would be difficult in this form. All of the parameters described in this paragraph should be mapped and contoured to show relationships between the distribution and migration pathways. No maps of these data were presented for this review.

COMMENT REGARDING VOC AND METALS ANALYSIS RESULTS IN SURFACE WATER TABLES 11 AND 12:

Table 11 and 12 show concentrations of chrome^{+6} in surface water can sometimes exceed the EPA Risk-based screening level (RSL) for chrome^{+6} in groundwater. This is a concern because the surface water concentrations are diluted by flow from up stream. The concentrations in groundwater flowing to the surface water body must be much higher, and the ecological impacts on biota in the stream bed must be greater than indicated by these surface water concentrations.

Table 7 shows Total Chromium and chrome^{+6} in groundwater sometimes exceed the MCL or the RSL. Again, without maps, cross-sections, well construction information and trend graphs, a relationship between chromium in surface water and groundwater cannot be evaluated. The source areas and contaminant migration pathways to the stream are not shown in this report.

COMMENT REGARDING WATER LEVEL ELEVATION CONTOURS:

Figure 5 shows the 173 foot water level goes through lagoon as if it wasn't there. It isn't clear in this report whether the lagoon has been filled in or if the lagoon contained water at the time of sampling during 2009. If the lagoon contained water in 2009, it is unlikely that the water levels around the lagoon were not affected by leakage from the lagoon. The leakage would create a mound on the water table which would alter groundwater flow and contaminant migration directions. The water level contours on Figure 5 do not show any water table mound beneath the lagoon. If the lagoon was filled in and closed by 2009, groundwater flow and contaminant migration directions under pre-filling conditions might need to be considered to explain the distribution of contamination. A water table mound beneath this and any other lagoon, pond or ditch on the site would change groundwater flow directions and contaminant migration directions.

Current and historic leakage from these areas must be considered when interpreting contaminant distributions in groundwater beneath this site. This would be much easier if water level contour maps from each sample event were used as base map for a plume map showing the distribution of contamination based on the samples from each sample event. Changes in groundwater flow directions due to lagoon filling or other causes would be apparent in the water level contours and would be expected to produce a change in plume shapes. No plume maps are presented in the current report.

The water level contours on Figure 5 are unaffected by what appear be wetlands in the SW portion of the site. Wetlands can alter groundwater flow directions, change contaminant pathways from groundwater to surface water, and may even cause phyto-remediation of VOCs. Organic carbon in sediments along the flow path to a wetland can take up metals contamination.

Most importantly, the groundwater contours on Figure 5 are drawn through the PRB wall as if it wasn't there. The 165, 166 and 167 foot contours all cross the wall. It seems unlikely that this interpretation can be correct. Further, the shape of the PRB wall, the shape of the water level contours and the path of the stream all suggest that contamination may be migrating around the ends of the walls. Additional water level measuring points probably will be needed around the ends of the wall and perhaps deeper along the front and back of the wall. Staff gauges should be installed in the lagoons, ditches and wetlands at the site to correlate surface water levels to shallow groundwater levels to define the relationships between the contaminant plumes in groundwater, the surface water bodies and the PRB at this site.

COMMENT REGARDING TABLE 5 VOC RESULTS:

There is something wrong with the last row of data for MW-4 in Table 5. The table presents two different rows of data from October 1998 (Oct. '98) for well MW04. Some of the results in the two rows are similar, but the two TCE results disagree greatly.

The second occurrence labeled "Oct. '98" is out of order and is not marked as being a duplicate. I suspect the second occurrence labeled "Oct. '98" is actually data for October 2009. Table 9 shows the depth to water in MW04 was measured on October 26, 2009. Perhaps the second row of data labeled Oct. '98 in Table 5 is actually from October 2009. If this is correct, the TCE trend graph for this well changes greatly because the last TCE result would be much higher than any previous result. For this memo, I am assuming that the correct date for the second sample from MW04 marked "Oct. '98" is really October 26, 2009. If this turns out to be incorrect, I will have to fix my graphs later. I recommend that the "**Enable AutoComplete for cell values**" function in Microsoft Excel should be turned off when creating this kind of table.

Note that Table 5 does not provide sample dates, only the month and year of the sample. All trend plots presented in this memo assume the wells were sampled on the 1st day of the month. But this assumption is not valid if laboratory results are to be compared with water level elevations, rainfall events or other factors which are measured in real time. Ultimately, Table 5 is not suitable for detailed trend evaluation. Complete sample dates should be presented in the table.

COMMENT REGARDING TABLE 7 INORGANIC RESULTS:

The page below is from the 2009 Groundwater Monitoring Report Table 7 p.13/15. The copy is poor but the table shows the hexavalent chromium result from well RT-2 in May 2009 was 0.000755 mg/L.

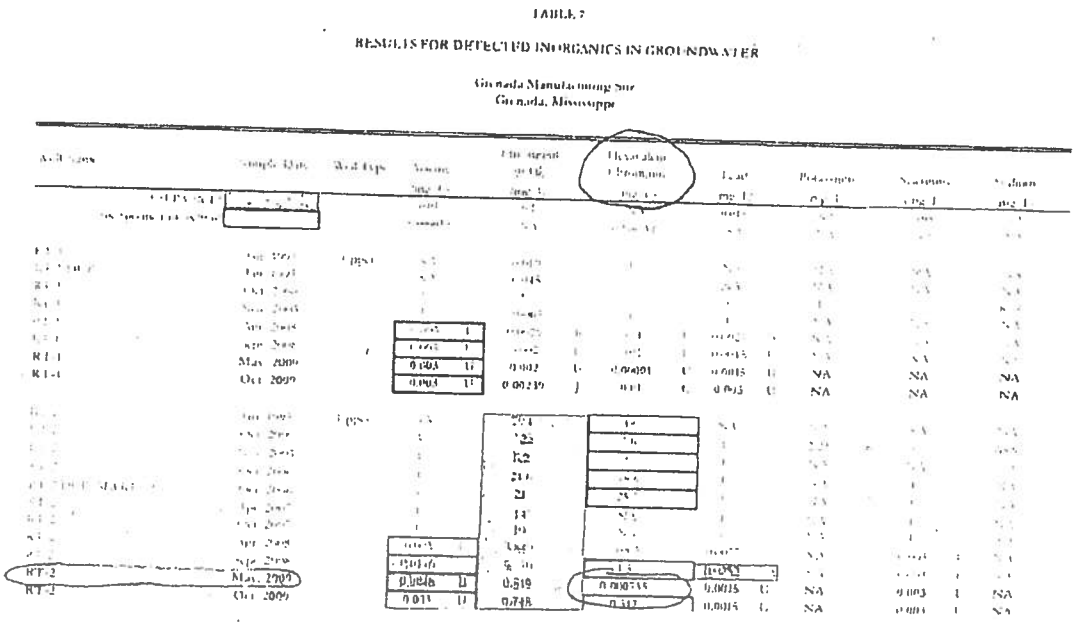


TABLE 7

RESULTS FOR DETECTED INORGANICS IN GROUNDWATER

Grenada Manufacturing Site
Grenada, Mississippi

Well ID	Sample Date	Hexavalent Chromium (mg/L)	Lead (mg/L)	Potassium (mg/L)	Selenium (mg/L)	Sodium (mg/L)
RT-1	May 2009	0.002 U	0.0015 U	NA	NA	NA
RT-1	Oct 2009	0.00239 J	0.003 U	NA	NA	NA
RT-2	May 2009	0.000755 J	0.0015 U	NA	0.003 U	NA
RT-2	Oct 2009	0.748	0.317	NA	0.003 U	NA

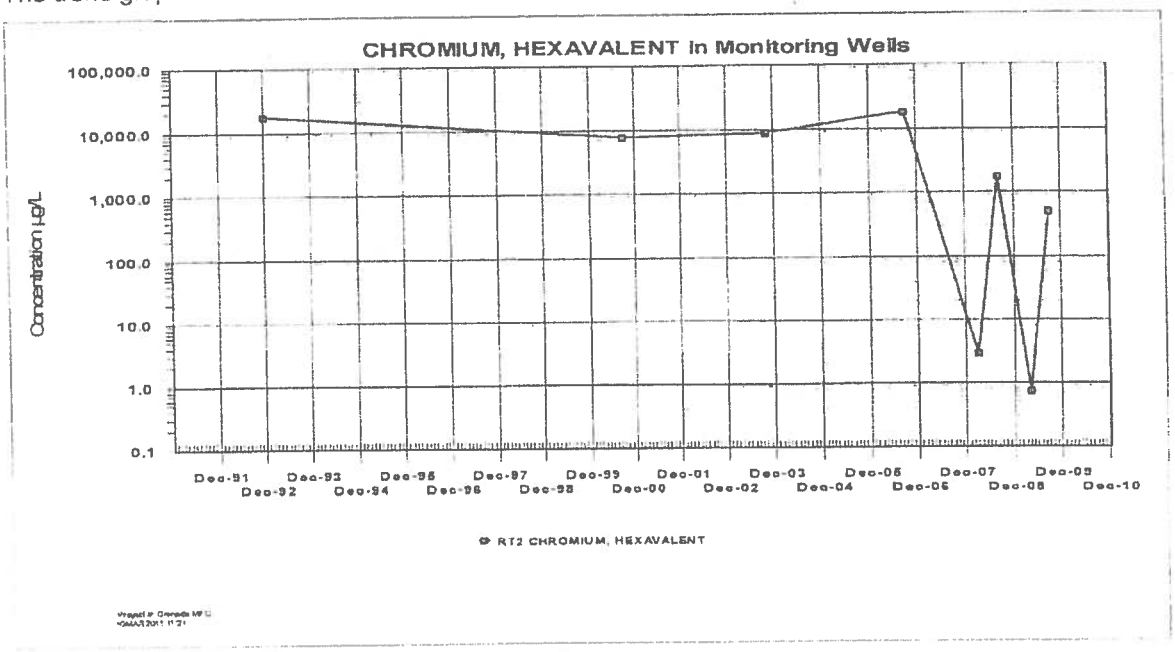
From CD in Appendix B, file Meritor WO #0905192 INORG.PDF, the laboratory report for this sample shows the hexavalent chromium result from well RT-2 in May 2009 was 0.755 mg/L.

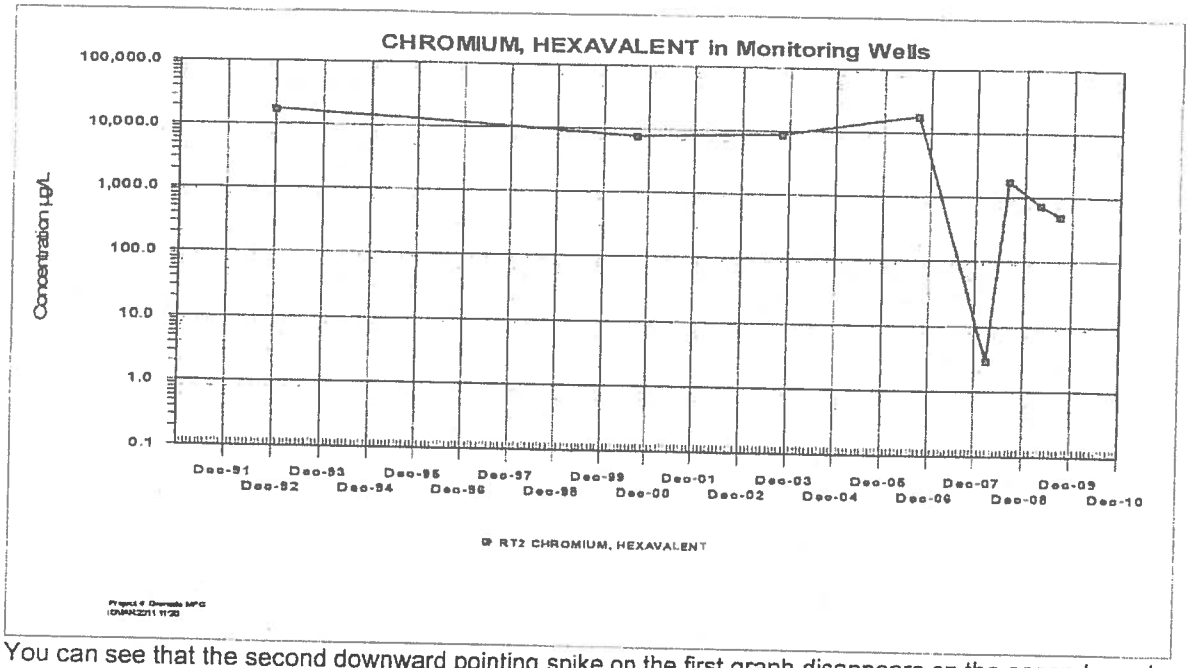
Client Sample ID: RT-2
Lab Sample ID: 0905192-07
Sample Matrix: Water

Sample Collection Date/Time: 05/20/2009 12:45
Sample Received Date/Time: 05/21/2009 08:00

Analyte	Result	MDL	RL	Units	Dilution	Analyzed	Method	Batch	Notes
Hexavalent Chromium by Spectrophotometer									
Hexavalent Chromium	0.755	0.200	0.500	mg/L	20	05/21/09 11:36	SW7196A	9E21004	D

The trend graphs below show the difference between these two results.





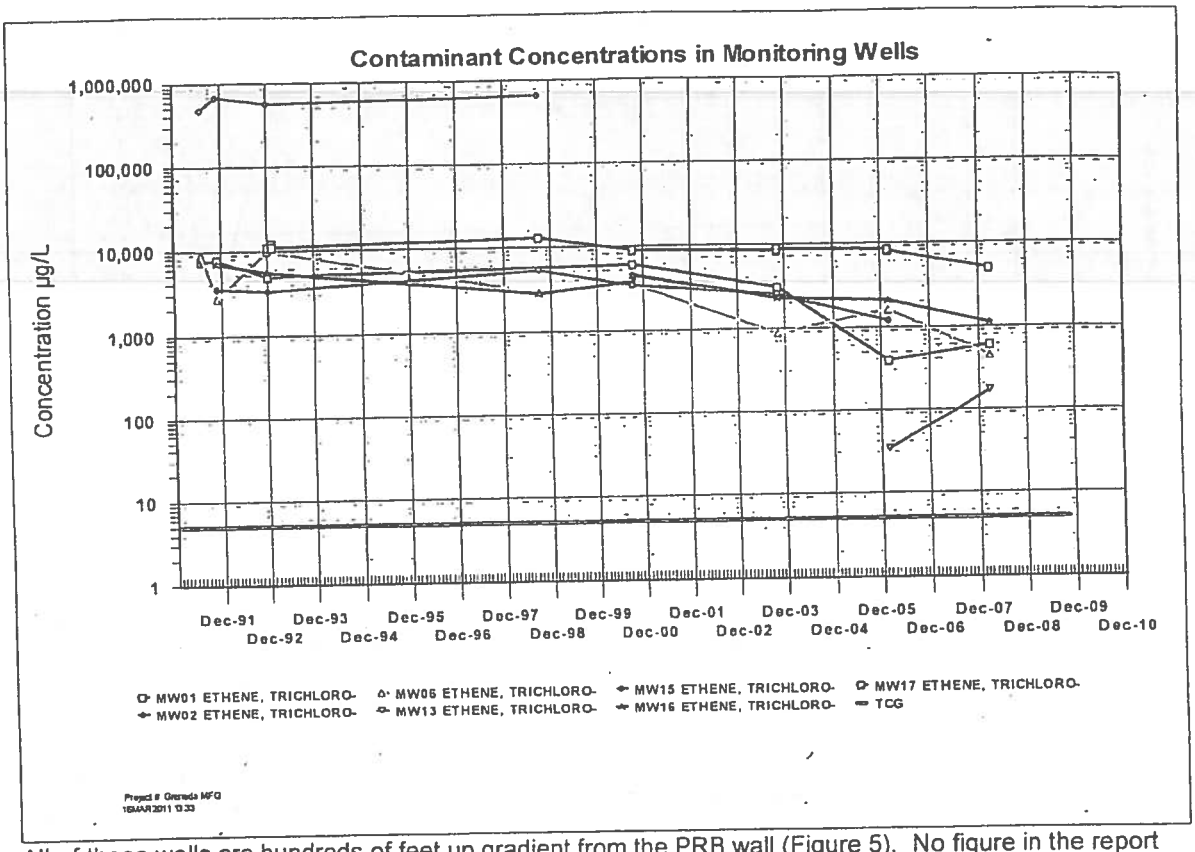
You can see that the second downward pointing spike on the first graph disappears on the second graph when the value reported from Appendix B is plotted instead of the value in Table 7. I do not have the laboratory results for 2008 and cannot check the other downward spike shown on the graph. The 2008 data does not fit the hex-chrome data trend for this well.

Other unit change errors may be present in Table 5 and Table 7. You should be cautions while making regulatory decisions regarding this site based on the data presented in the 2009 Groundwater Monitoring Report tables. Contaminant concentration trend graphs created from Tables 5 and 7 of the 2009 Monitoring Report show many erratic trend changes. Some of these erratic trends may be due to other concentration unit conversion errors like the one described above.

The detection limits are not presented in Tables 5 and 7 for many of the non-detect sample results. These results are simply noted with a "U" qualifier. Without the detection limit for that specific analysis, it isn't clear whether the detection limits were less than the target cleanup level. A "U" qualified sample without a numeric result in these tables might exceed a Maximum Contaminant Level (MCL). Regarding Table 5, many of the sample results have a "D" qualifier indicating that the sample was diluted to get the result shown. Some recent "U" results with numeric values exceed the MCLs, so it is likely that some of the older results without numeric values also exceeded the MCLs. Many more cells on Table 5 probably would have been highlighted. Most importantly, without trend graphs, it is difficult to see whether the plumes are expanding, receding or stable, and if the trends are erratic it can be hard to determine the status of the plume with trend graphs. Consequently, the statement in the first bullet of the summary (Section 4) that "... *VOC concentrations generally have decreased or have remained stable since the baseline event in 2003*" should not be used for making decisions about this site.

COMMENT REGARDING TCE UP GRADIENT WELLS:

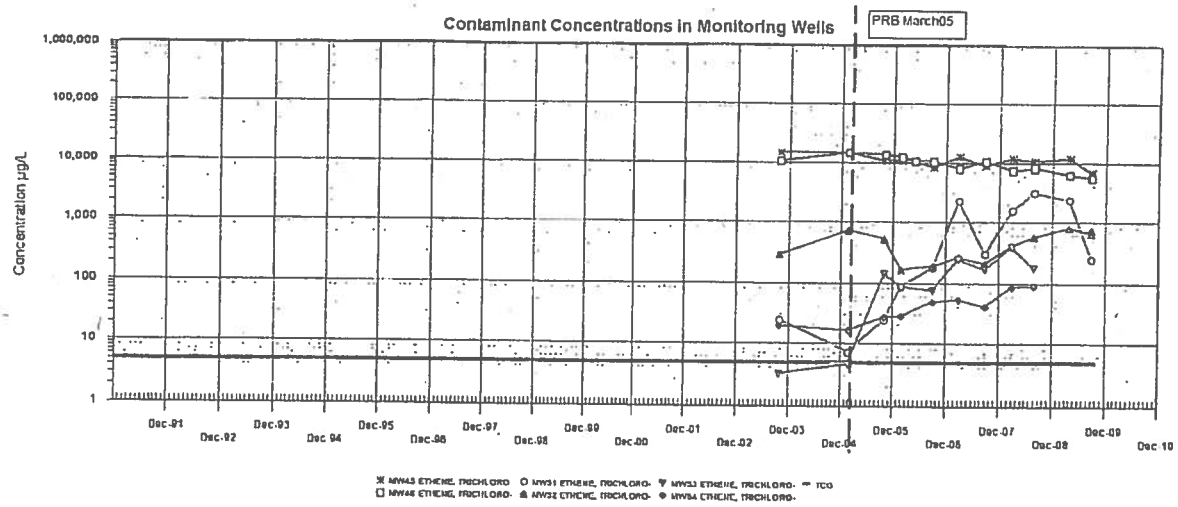
TCE concentrations in wells MW1, 2, 6, 13, 15, 16 and 17 from Table 5 are shown in the graph below:



All of these wells are hundreds of feet up gradient from the PRB wall (Figure 5). No figure in the report shows a TCE plume, but based on the TCE concentration in MW02 and the relatively stable TCE concentrations in MW17 over 15 years, the axis of this particular TCE plume is suspected to be in the upper zone near MW02. You can see that TCE concentrations in MW02 were very high when this well was sampled last in 1998. Well MW17 is located near this well, but MW02 is in the Upper zone while MW17 is in the Lower zone. TCE concentrations have decreased very little in MW17 since early 1993. Figure 5 shows there are no monitoring wells down gradient from MW02 and MW17 for at least 400 feet. The plume is migrating toward the PRB wall. The most contaminated portion of the facility has not been sampled since 1998.

The increasing TCE concentration in well MW13 is one piece of evidence that the margins of the plume are expanding northward (see the location of MW13 on Figure 5) and that the plume may flow around the north end of the PRB wall. There are not enough monitoring wells in the down gradient portion of this plume, particularly around the ends of the PRB wall.

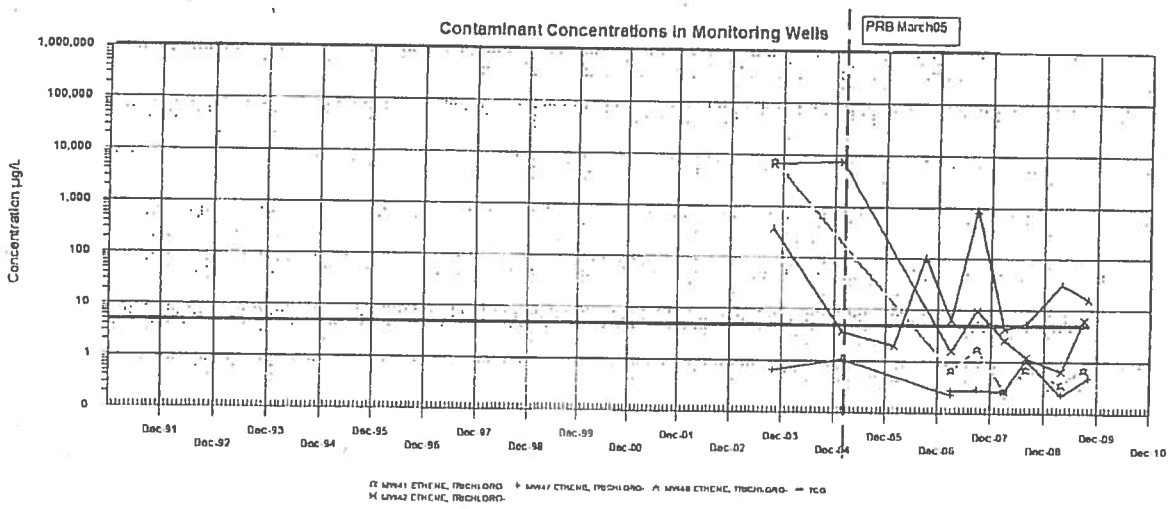
TCE concentrations in wells MW45, 46, 51, 52, 53 and 54 from Table 5 are shown in the graph below:



These wells are down gradient from the wells shown in the previous graph, but up gradient and relatively close to the PRB wall. Based on the relatively high and stable TCE concentrations, MW45 and 46 may be close to the axis of this TCE plume down gradient from MW02 and MW17. TCE concentrations in these wells are decreasing slightly, but are relatively stable; and are comparable with concentrations in up gradient well MW17 shown in the previous graph.

TCE concentrations in the deeper MW52 increased after 2006 and by 2009 became similar to concentrations observed when the wall was installed. TCE concentrations in the shallow wells MW51and MW53 and deeper well MW54 all have increased since the PRB wall was installed. The increasing TCE concentration in these wells may be evidence that the margins of the TCE plume are expanding southward (see the well locations on Figure 5) and that the plume may flow around the south end of the PRB wall.

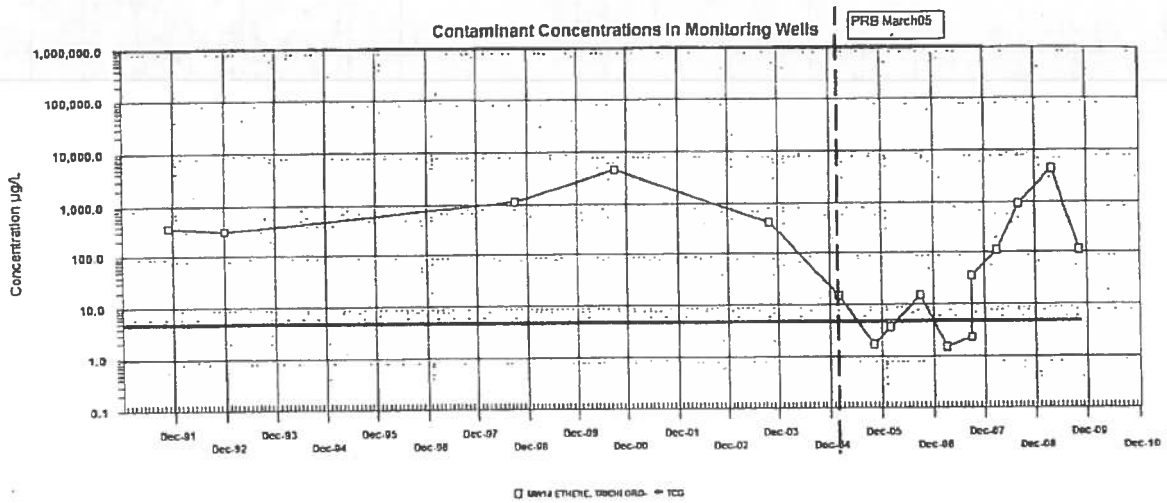
TCE concentrations in wells MW41, 42, 47 and 48 from Table 5 are shown in the graph below:



These wells are located down gradient from the PRB wall and away from the ends of the wall (see the well locations on Figure 5). TCE concentrations trends from these wells suggest the PRB wall lowered

TCE concentrations in these wells, though the concentration trend in deep well MW48 is erratic for reasons which are unclear at this time. The shallow well at this location, MW47, has never shown an exceedance for TCE. The erratic response in MW48 may be an indication that TCE contamination moves under the wall near MW48.

Unfortunately, on the down gradient side of the wall in MW14, the situation is even less clear as shown in the graph below.



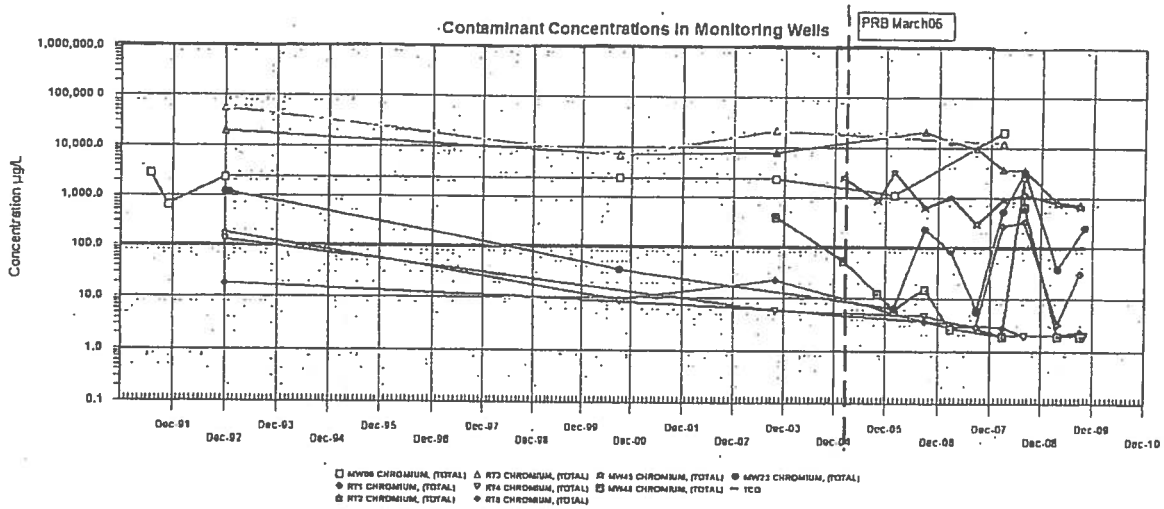
The PRB wall may not have had any influence on TCE concentrations in well MW14. TCE concentrations were decreasing before the wall was installed. Three years after the wall was installed, TCE concentrations in this well increased to levels previously observed in 2000. The cause of these concentration variations is not addressed in the 2009 Monitoring Report. What is clear from Figure 5 is that MW14 is much closer to the surface water stream than it is to the wall. The TCE plume from MW14 discharges to the stream in this area. Without well screen depth information, without estimates of the vertical hydraulic gradient near MW14 and the stream and without information regarding the depth of the PRB wall, further interpretation of these data is not possible.

COMMENT REGARDING METALS IN MONITORING WELLS:

ARSENIC: The data presented in Table 7 shows MCL exceedances for arsenic in many of the monitoring wells. Elevated arsenic concentrations are commonly found in and down gradient from chlorinated solvent plumes. The arsenic plume is not mapped in this report.

TOTAL CHROMIUM: The data presented in Table 7 shows total chromium exceedances occurred in many of the monitoring wells in samples collected in the early 1990s. Many of the sample results shown on Table 7 are non-detect results with "U" qualifiers at some unknown detection limit, so total chromium trends in most of the wells are unclear.

The MCL for total chromium is 100µg/L. Total chromium trends in selected wells are shown in the graph below and described in the following paragraphs.



Total chromium concentrations in MW06 have exceeded 1,000µg/L in 7 of 8 samples since 1991 and concentrations are increasing (Table 7 p.2/15).

Total chromium concentrations in the background well MW23 appear to be increasing, but the trend is very erratic for reasons not explained in the 2009 Monitoring Report. MW23 is the most up gradient well with MCL exceedances for total chromium; but with the erratic trend, the chromium source may be farther up gradient.

Total chromium concentrations in well RT3 have exceeded 10,000µg/L in all but one sample since the earliest reported samples in 1992.

Total chromium concentrations in well RT2 have exceeded 10,000µg/L in most samples before 2008, but recently have declined to 750µg/L.

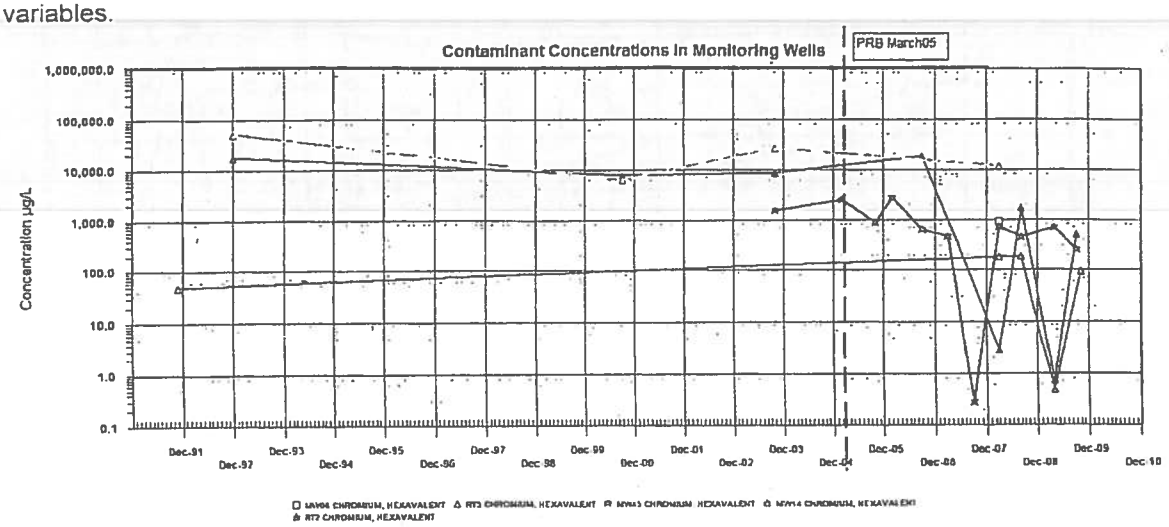
Total chromium concentrations in shallow well MW45 always exceed the MCL. Total chromium concentrations in well deeper well MW46 sometimes exceed the MCL, but the trend is erratic. The erratic trend in MW46 may be an indication that contamination sometimes passes under the wall at this location, but no information regarding the hydraulic gradients in this well pair is provided. Both of these wells screens are located relatively close to the PRB wall and are far down gradient from the RT wells.

Total chromium concentrations in well RT5 sometimes exceed the MCL, but the occasional exceedances are greatly different from the other results from this well. Turbidity in the sample might cause this response, but turbidity is not reported on Table 7.

Total chromium concentration in well RT1 has never exceeded the MCL and total chromium concentrations in well RT4 exceed the MCL only in January 1993. I first thought the old lagoon was the source of the chromium, but the typically low chromium levels in wells RT1, RT4 and RT5 suggest this is not true. MW23, RT2 and RT3 all are on the south side of the lagoon. The source of the total chromium plume is not clear from the data presented and the location of the plume is not shown on any map in this report. The extent of total chromium contamination in groundwater is appears to extend from the PRB up gradient at least as far as MW23.

HEXAVALENT CHROMIUM: There is no MCL for hexavalent chromium. Elevated concentrations of hexavalent chromium, defined for this memo as greater than 10µg/L simply to identify wells with higher hexavalent chrome levels, are observed from most samples in wells MW06, MW14, RT2, RT3, MW45 and once in MW46 (not plotted below). MW14 is down gradient from the PRB where groundwater will not

be treated. The cause of the "W" pattern in the trend graph below is unclear. Possible causes include unit conversion errors, turbidity in the samples, laboratory problems and other sampling procedure variables.



LEAD: The data presented in Table 7 shows lead exceedances occurred in many of the monitoring wells in samples collected in the early 1990s. Many other sample results shown on Table 7 are non-detect results with "U" qualifiers at some unknown detection limit, so lead concentration trends in most of the wells are unclear. Only a portion of the wells were sampled for metals in 2009, and no exceedances for lead were observed. Some exceedances were reported for lead from the 2008 sampling event.

COMMENT REGARDING BACKGROUND MONITORING WELL MW23:

Background monitoring well MW23 is between the old lagoon and the main plant building. Background well MW23 is down gradient from contaminated wells RT-1 and the NAPL recovery wells near MW24. Background well MW23 has shown MCL exceedances for TCE, cis-DCE, vinyl chloride, 1,1-DCE, arsenic, total chromium and lead. The 2009 Monitoring report states on page 3-6 "*Well MW-23 replaced RT-1 as a background monitoring well, as approved in the March 2001 permit revision.*" I do understand why EPA approved MW23 as a background well. This decision should be reevaluated.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

MAY 29 2015

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

David O'Connor
Meritor, Inc.
2135 West Maple Street
Troy, Michigan 48084

Subject: Data Transmittal for Sampling Completed in the MW-20 Area
Grenada Manufacturing, LLC
Grenada, Mississippi
MSD 007 037 278

Dear Mr. O'Connor:

The U.S. Environmental Protection Agency has reviewed T and M Associates' January 17, 2014 report regarding sampling conducted in the MW-20 area of the Grenada Manufacturing, LLC facility. In an email dated May 14, 2015 EPA requested Meritor submit an air monitoring work plan to determine if TCE vapors from the groundwater and/or soil are migrating into the residences north of the facility. This work plan should be submitted no later than 15 days following the date of a technical call currently scheduled for June 8, 2015. All references to support this approach and provide direction in the investigation are contained in the attached memoranda.

The EPA's request for indoor air monitoring was based on a review of the above referenced letter report and data from recent groundwater monitoring in 2012, 2013 and 2014. The most recently submitted 2012 Annual Report (revised in 2014) was prepared by T and M Associates, on behalf of Meritor, pursuant to the RCRA Section 3004(u) (v) Permit, issued in 2010.

The sampling report for the MW-20 area concluded that, based on site-specific conditions and modeling results, there is no inhalation risk to human health from TCE in the groundwater beneath the residences north of the facility on Lyon Drive. The EPA disagrees with this conclusion. The EPA has concluded that vapor intrusion modeling was incorrectly utilized, and, given the high concentration of TCE in nearby groundwater and the associated high hazard indices, the EPA continues to be concerned that a potential vapor intrusion pathway may exist within the residences. It is EPA Region 4 protocol to require additional monitoring (soil vapor, ambient air, indoor air, etc.) to determine risk to human health (Enclosures 1 and 2 – EPA/SSS Memorandum).

Background

A TCE plume originating from the facility is present under most of the site, to the west of highway 332 and may have also contributed to the soil gas concentrations obtained along the road, north of the railroad right of way. It is Region 4's regional practice to take the soil gas and/or groundwater data that is initially available and run that data through the Vapor Intrusion Screening Level (VISL) calculator and not to use the Johnson and Ettinger model in the screening step. Given the many uncertainties associated with the physical conditions associated with vapor intrusion, it is Region 4's practice to run the available data through the VISL calculator and if the results indicate a risk of >10-6 or a hazard index greater than 1.0, the next step is proceed to perform vapor intrusion sampling of sub-slab soil gas/crawl space air, indoor air and ambient air. This allows a risk evaluation based upon actual data collected from the potentially impacted structures, in this case, the residential structures along Lyon Drive directly north of the facility. This practice is consistent with the draft National VI Guidance that is currently under OMB review.

Using the TCE value associated with Vapor Point 5 (VP-5) of 3,400 $\mu g/m^3$, the VISL calculator return results of a risk = 7.1E-4 and a hazard index (HI) of 163. These results far exceed the lower risk threshold of 1.0E-6 and a HI of 1 and well exceed the risk threshold for prompt action; risk > 1.0E-4 and/or HI>3. These modeled risk/hazard results indicate the need for further evaluation.

The data provided in this letter report is approximately 18 months old and may or may not be an accurate portrayal of the current concentrations in the subsurface nor the potential indoor air concentrations. Since TCE hazards may be associated with very short timeframe for exposure to sensitive sub-populations (women of child bearing age), EPA recommends that vapor intrusion pathway data be collected as soon as possible to ensure protection of the nearby residents.

Sensitive Populations

The EPA is concerned that TCE vapors from the groundwater plume may be intruding into the residences north of facility. If a completed pathway exists, exposure can potentially result in risks to human health (both long-term cancer and near-term non-cancer risk). The EPA is particularly concerned for sensitive and vulnerable populations, especially women in the first trimester of pregnancy (because of potential cardiac mal formations to the developing fetus). Women of childbearing age are considered a sensitive population since they may not realize they are pregnant during the first trimester.

Vapor Intrusion Sampling

The EPA requests that Meritor submit a work plan to conduct indoor air monitoring in the residences north of the facility to determine if there is a health risk from breathing TCE in indoor air. Additionally, the work plan should include a background inventory of potential sources of TCE inside the residences and ambient air monitoring near the facility. Soil gas samples below the slab and above the water table should also be collected at the residences to determine if vapor migration is occurring. The work plan should include analysis of all volatile organic compounds (VOCs) present in the nearby groundwater. The analyses of air samples should be conducted using EPA Method T0-15 Gas Chromatography Mass Spectrometry in selective ion mode (SIM), and should be able to detect TCE and all other VOCs below Regional Screening Levels (RSLs).

Pursuant to the 3004(u)(v) Permit issued in 2010, Meritor shall submit the air monitoring work plan for the indoor air at the residences, outside ambient air monitoring, and soil gas sampling within thirty (15) days of the technical call. The EPA recommends a more expedited response, if possible.

Due to the potential health risks from exposure to TCE vapors in indoor air, it is important that the EPA and Meritor understand if there is a health hazard at your facility, and we appreciate your cooperation and timely response to this request. For questions regarding this letter, please contact me at (404)562-8511 or bastek.brian@epa.gov.

Sincerely,

Brian Bastek
RCRA Corrective Action and Permitting Section
RCRA Cleanup and Brownfields Branch

cc: James Peeples, T and M Associates
Carla Brown, MDEQ

Enclosures (2)

1. EPA Scientific Support Section (SSS): Memorandum titled Vapor Intrusion Comments for the MW-20 Area Letter, Grenada Manufacturing Facility, Grenada, MS, January 17, 2014.

2. EPA Scientific Support Section (SSS): Memorandum titled Review of Vapor Intrusion Risk Assessment MW-20 AOC Report, Grenada Manufacturing Facility (Site), Grenada, Mississippi.

United States Environmental Protection Agency
Region 4
Atlanta Federal Center
61 Forsyth St. SW, Atlanta, Georgia 30303-8960

May 12, 2015

MEMORANDUM

SUBJECT: Vapor Intrusion Comments for the MW-20 Area Letter
Grenada Manufacturing Facility
Grenada, MS
January 17, 2014

FROM: Ben Bentkowski, P. G., Hydrologist,
Scientific Support Section
Superfund Division

THROUGH: Glenn Adams, Chief
Scientific Support Section
Superfund Division

TO: Brian Bastek
Remedial Project Manager
RCRA Division

The hydrogeologic review of the Grenada Manufacturing RCRA facility's data focused upon the volatile organic compound (VOC) detections in soil, soil gas and shallow groundwater and the vapor intrusion implications for those compounds, primarily trichloroethylene (TCE). The information reviewed included a 36 page letter report for a Data Transmittal for Sampling Completed in the MW-20 Area, boring logs and Johnson & Ettinger (J&E) modeling output provided by the facility's environmental consultant. This is the first time that this reviewer has been asked to review data associated with this site. Clearly, there is a long history for the facility that is beyond the scope of the review of this limited data set.

The second paragraph of the January 17, 2014 letter (the Letter) states that "a Vapor Intrusion Health Risk Assessment (VIRA) completed using the soil gas sampling results for the probes"

has confirmed "that the VOC results obtained from the probes do not present an imminent threat to the neighborhood north of the Site." The Superfund Scientific Support Section (SSS) cannot support that statement for a number of reasons.

1. It is Region 4's regional practice to take the soil gas and/or groundwater data that is initially available and run that data through the Vapor Intrusion Screening Level (VISL) calculator and not to use the Johnson and Ettinger model in the screening step. Given the many uncertainties associated with the physical conditions associated with vapor intrusion, it is Region 4's practice to run the available data through the VISL calculator and if the results indicate a risk of >10-6 or a hazard index greater than 1.0, the next step is proceed to perform vapor intrusion sampling of subslab soil gas/crawl space air, indoor air and ambient air. This allows a risk evaluation based upon actual data collected from the potentially impacted structures, in this case, the residential structures along Lyon Drive directly north of the facility. This practice is consistent with the draft National VI Guidance that is currently under OMB review.
2. Using the TCE value associated with Vapor Point 5 (VP-5) of 3,400 $\mu g/m^3$, the VISL calculator return results of a risk = 7.1E-4 and a hazard index (HI) of 163. These results far exceed the lower risk threshold of 1.0E-6 and a HI of 1 and well exceed the risk threshold for prompt action; risk > 1.0E-4 and/or HI>3. These modeled risk/hazard results indicate the need for further evaluation.
3. The data provided in this letter report is approximately 18 months old and may or may not be an accurate portrayal of the current concentrations in the subsurface nor the potential indoor air concentrations. Since TCE hazards may be associated with very short timeframe for exposure to sensitive sub-populations (women of child bearing age), SSS recommends that vapor intrusion pathway data be collected as soon as possible to ensure protection of the nearby residents.

It is the Scientific Support Section's recommendation that vapor intrusion sampling for the residences along Lyon Drive proceed as soon as possible. These actions may proceed in tandem with the further investigation of the source of the TCE vapors in the subsurface. SSS would be glad to provide technical assistance in scoping this additional sampling event.

The data presented in the letter report do have some inconsistencies when considered against a typical site conceptual model for shallow groundwater VOC contamination and the expected soil gas contamination. The Waterloo Profiler data collected a water sample at approximately two foot or greater intervals over an interval of 12 to 40 feet below the water table. All of the shallowest water samples had very low detections for TCE ranging from non-detect to 6.1 ug/L. If this is the case all along the line of the borings, how is it that contaminated soil gas is reported nine of the vapor sampling points? The letter report does point to the need for further investigation for a potential vadose zone source in and around VP-5. That work should proceed promptly.

The VOC soil gas data from the eastern sampling points to contamination other than TCE and DCE. Were the Waterloo Profiler samples also analyzed for the compounds noted in the soil gas samples, just not reported? If so, please report this additional data. Please note that trimethylbenzene (TMB) is commonly reported as part of TO-15 analytical results but is not part of the normal reporting package for VOCs by Method 8260. The lack of groundwater data for TMB may mean it was not reported and may not have been specified in the analytical orders. This may be a data gap.

There are several paragraphs on Page 3 that discuss the potential source(s) of the groundwater contamination. There are also statements about the likely direction groundwater flow. This reviewer does agree that an initial evaluation of topography and nearby natural surface water features would indicate an east to west flow. The pond on site may provide head to drive groundwater to the north. There is no mention of potential pumping activities in the immediate area. We look forward to seeing the "more detailed analysis" in the subsequent report. Often it is helpful to have analytical and/or potentiometric head data displayed in representative cross sections in addition to the planar view map presentations.

In summary, given the very low screening and action values for TCE in indoor air for sensitive sub-populations, it is recommended that vapor intrusion sampling of the residential buildings along Lyon Drive should proceed promptly, at least in tandem with the further characterization of the vadose zone soils and gases north of the site. SSS staff are ready to provide technical assistance to help this proceed promptly.

If you have any questions, please contact me.

Ben Bentkowski, 404-562-8507
Bentkowski.Ben@epa.gov

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
61 Forsyth Street, S.W.
Atlanta, Georgia 30303

April 5, 2015

MEMORANDUM

SUBJECT: Review of Vapor Intrusion Risk Assessment
MW-20 AOC Report
Grenada Manufacturing Facility (Site)
Grenada, Mississippi

FROM: Ofia Hodoh
Scientific Support Section
Resource and Scientific Integrity Branch

TO: Brian Bastek, Corrective Action Specialist
Resource Conservation and Restoration Division

THROUGH: Glenn Adams, Chief
Scientific Support Section
Superfund Support Branch

Per your request, I have reviewed the Vapor Intrusion Investigation Risk Assessment, MW-20 AOC Report for the **Grenada Manufacturing Facility (Site)**, located in Grenada, MS. My review has focused on the human health risk aspects of the document as it pertains to vapor intrusion.

Comment to Corrective Action Specialist:
The author briefly discussed the results of the VI risk assessment based on the Johnson-Ettinger (J&E) modeled indoor air for vapor intrusion. Please consult with a Scientific Support Section (SSS) Hydrogeologist to confirm the accuracy of the J&E modeling parameters.

SPECIFIC COMMENTS:

1. **Section 1.1, 3rd paragraph, p. 2.** The author indicated that USEPA's J&E vapor intrusion model is the standard method for evaluating VI risks, citing a 2004 USEPA document that does not exist. Please be advised that USEPA has modified its approach to vapor intrusion and does not recommend modeling as the only line of evidence to screen out a site (USEPA, 2013a; USEPA, 2014e). In general, therefore, it is recommended that collection and evaluation of multiple lines of evidence is needed to support decision-making regarding the VI pathway (USEPA, 2012c).

2. **Section 1.1, 3rd paragraph, p. 2.** The air Regional Screening Levels (RSLs) and Vapor Intrusion Screening Levels (VISLs) for cis-1,2-DCE have been withdrawn from the screening tables therefore, IRIS does not support inhalation RfCs for this chemical (EPA, 2014g).

3. **Section 1.2, 2nd paragraph, p. 3.** This section states that the J&E model was used to determine total VI risks at each probe. This approach is outdated and problematic.
   a) USEPA recommends that soil gas samples are compared to the soil gas VISLs (USEPA, 2014f).
   b) USEPA's VISL calculator is recommended for use in evaluating whether the vapor intrusion pathway has the potential to pose a health concern.
   c) The J&E model does not account for COPCs that act via a mutagenic mode of action (MMOA) thus underestimating risk posed by the vapor intrusion pathway. Consistent with the Superfund guidance on MMOA, methylene chloride and trichloroethylene (TCE) are categorized as chemicals with a MMOA and their cancer risks shall be estimated using age-dependent adjustment factors (ADAFs) (USEPA, 2005a,b).
   d) USEPA has recently updated its Standard Default Exposure Factors (USEPA, 2014c) to reduce variability and uncertainty in the exposure assumptions for human health risk assessments. The averaging time and exposure duration used in the J&E model calculation should be revised to 26 years.

4. **Section 1.3, p.3.** It is indicated that the cumulative cancer risk for the nine probes are below 1E-5, and only one HI slightly exceeded 1. Based on the VISL calculator and modified exposure parameters, SSS noted that four of the nine locations exceeded the 1E-6 risk level (VP-2, VP-3, VP-5 and VP-6); and two locations exceeded the 1E-4 risk level (VP-3 and VP-5). Two locations greatly exceeded an HQ

of 1, due mainly to TCE (VP-3 at HQ of 34, and VP-5 at HQ of 160). The VP-2 location slightly exceeded an HQ of 1.

Recommendation: Since TCE is a site-related constituent, a carcinogen, a developmental toxicant and the highest detected probe (VP-5) is less than 100 ft from the nearest house, it does appear that imminent threat may be present. Early action is warranted to determine if vapor intrusion is occurring at the nearby residence.

✓ SSS recommends a multiple lines of evidence approach in evaluating and making decisions about risks from vapor intrusion. The recommendations for future analysis at the VP-5 residence should include:

1. Contact the resident to determine if women of reproductive age (or known pregnancy status) live at the residence located near probe VP-5.
2. Concurrently collecting indoor air samples with subslab soil gas or crawlspace air and outdoor (ambient) air. Comparing these results to each other and to results for subsurface vapor sources can foster insights and support findings about the relative contribution of vapor intrusion and 'background' sources to indoor air concentrations.
3. Collect a time-integrated sample in the area directly above the foundation floor (crawl space) and one from the first floor living or occupied area. In general, samples should be collected at the breathing zone level for the most sensitive receptor. The crawl-space subfloor soil gas data (preferably from more than one sampling event to account for seasonal variability) is vital to assess concentrations potentially available for entry with any intruding soil gas.
4. Prior to sampling indoor air in residential buildings, a home survey form should be completed to identify products used or stored within the residence that can act as potential indoor air sources. Examples of building surveys can be found in the EPA's 2002 guidance (Appendix I, USEPA 2002) and ITRC's 2007 guidance (Appendix G, ITRC 2007).
5. Indoor air sampling data (preferably from more than one sampling event to account for seasonal variability) to assess the presence of subsurface contaminants in indoor air and assess potential exposure levels to building occupants.
6. Collect outdoor air samples from a representative upwind location, away from wind obstructions (e.g., trees or buildings), and at a breathing-zone height (3 to 5 feet). A representative sample is one that is not biased toward obvious sources of volatile chemicals (e.g., automobiles, lawn mowers, chemical storage tanks, gasoline stations, industrial facilities, etc.).

If I can be of any further assistance or if you have any questions, please call me at 404 562 9176.

References:

Interstate Technology and Regulatory Council (ITRC). 2007. Vapor Intrusion Pathway: A Practical Guideline. VI-1. Washington, D.C.: Interstate Technology & Regulatory Council, Vapor Intrusion Team. www.itrcweb.org/Documents/VI-1.pdf

U.S. EPA, 2002c. Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance). Office of Solid Waste and Emergency Response, FR Notice November 29, 2002.

U.S. EPA, 2005a. Guidelines for Carcinogenic Risk Assessment. EPA/630/P-03/001F. March.

U.S. EPA, 2005b. Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens. Risk Assessment Forum. EPA/630/R-03/003F March 2005. http://epa-prgs.ornl.gov/chemicals/help/documents/CHILDRENS_SUPPLEMENT_FINAL_[1].pdf

U.S. EPA, 2012c. Superfund Vapor Intrusion FAQs. February 2012. http://www.epa.gov/superfund/sites/npl/Vapor_Intrusion_FAQs_Feb2012.pdf

U.S. EPA, 2013a. OSWER Final Guidance For Assessing and Mitigating The Vapor Intrusion Pathway From Subsurface Sources To Indoor Air (External Review Draft). Office of Solid Waste and Emergency Response, April 2013. http://www.epa.gov/oswer/vaporintrusion/documents/vaporIntrusion-final-guidance-20130411-reviewdraft.pdf

U.S. EPA, 2014c. OSWER Memo, Human Health Evaluation Manual, Supplemental Guidance: Update of Standard Default Exposure Factors, OSWER Directive 9200.1-120, February 6, 2014. http://www.epa.gov/oswer/riskassessment/pdf/superfund-hh-exposure/OSWER-Directive-9200-1-120-ExposureFactors.pdf

U.S. EPA, 2014e. EPA's Vapor Intrusion Website. Last updated on Wednesday, June 6, 2014. www.epa.gov/oswer/vaporintrusion/

U.S. EPA, 2014f. OSWER Vapor Intrusion Assessment, Vapor Intrusion Screening Levels, Version 3.3.1, June 2014, found at EPA's Vapor Intrusion Website, www.epa.gov/oswer/vaporintrusion/

EPA, 2014g. Integrated Risk and Information System, National Center for Environmental Assessment, Office of Research & Development, USEPA. http://www.epa.gov/ncea/iris/
(updates added periodically).

J&P Enterprises, LLC
616 Solar Rd. NW, Albuquerque, NM 87107
Tel (505) 550-5024
Brinkman.jim@comcast.net

June 26, 2015

Mr. Ted Lyon
18601 LBJ Fwy # 525
Mesquite, TX 75150

Dear Ted,

For the last four months, I have been reviewing reports and data and directing sampling and analysis of soil and water to investigate contamination emanating from the Grenada Stamping & Assembly facility and its off-site waste disposal areas. I have found that sources above the watertable are continuing to contaminate the groundwater at massive and increasing concentrations and that the groundwater plumes have not been contained and continue to spread further and further offsite. This extensive contamination clearly has endangered and continues to endanger the health and well-being of workers, nearby residents and recreational users of the nearby creek. The threat to the Upper Wilcox aquifer continues to increase every day as the pollution spreads to the north, east, south, west and downward. The threat to human health is not only from the soil and water contamination but has been moving upward from the groundwater into breathable air. In addition, the environment, fish, water fowl and other birds, domestic animals and every living being in the vicinity of this blight have been exposed and potentially damaged. My perspective is that the total lack of a vigilant effort to mitigate these obvious and critical hazards is deplorable.

These hazardous sources and resulting contamination plumes must be contained and cleaned up. As time passes, not only do the impacts to health and environmental increase but the clean-up costs and duration also increase. It is imperative to begin mitigating the impacts as soon as possible.

I believe the most critical threat is from trichloroethene (TCE) resulting from improper disposal and incomplete cleanup at the facility and nearby Moose Lodge Road Disposal Area. The most immediate receptors are the plant workers, residents at the adjacent Eastern Heights Neighborhood and Riverdale Creek. However, our sampling and investigations have identified other contaminants including semi-volatile organic compounds and metals. Other pathways including groundwater vaporizing into the air and contamination moving into deeper groundwater (Upper Wilcox) through sabotaged water well boreholes. Other sites include the known disposal site north of Grenada Lake, as well as possible disposal in the Eastern Heights neighborhood and elsewhere around Grenada County.

Much of the data and analyses in the following summary are detailed in the PowerPoint™ that I delivered to you. Some of the critical findings are as follows:

- Since 1989, TCE has been found in monitoring wells at concentrations that are 1000s of times to more than 100,000s times the drinking water standard. These extreme concentrations continue to this day.
- In more than 40 percent of the facility monitoring wells, the TCE concentrations have been trending upward, indicating that soil and free solvent product are continuing to contaminate the groundwater.
- Although the Permeable Reactive Barrier was installed to protect groundwater flowing to the west and discharging to Riverdale Creek, our samples and the facility samples show unsafe levels (above standards) for TCE, other solvents, lead and arsenic in groundwater discharging to the creek, groundwater beneath the creek, and in the creek water itself. Even the furthest downstream sample, almost ½ downstream of the plant, has unsafe levels of TCE and vinyl chloride.
- Well PZ-45 is the Moose Lodge Road Disposal Area monitoring well that is closest to the Eastern Heights Neighborhood. The TCE in samples from this well has increased by 70 percent in the last six years. In the most recent sample, the TCE was 440 times the standard. The groundwater flow direction from the Moose Lodge Road Disposal Area is directly to the northwest – directly to the Eastern Heights Neighborhood.
- Our monitoring wells and borings installed beneath the neighborhood show shallow groundwater contamination beneath at least 30 percent of the neighborhood at TCE concentration as high as 258 times the standard. In one of the borings at a depth of 12-13 feet, we found a sludge with vinyl chloride at 4,750 times the EPA soil screening level.

A vigorous effort to clean up these hazardous wastes and plumes is essential for the community of Grenada and the State of Mississippi.

Respectfully,

James Brinkman

James Brinkman, MS RPG # 0161

EPA Overlooked Obvious Environmental Concerns and Health Risks and Hazards

Summary of overlooked concerns – Even though the following occurrences were as early as 1993, until recently EPA has not commented or shown concerns on any of these findings.

1) A remedial investigation was conducted in 1993. Samples collected from monitoring wells had TCE results greater than the EPA Maximum Contaminant Level (MCL) in offsite wells to the north (MW-20) to the south (MW-21) and to the east (MW-16). The only direction for which the extent of shallow TCE contamination was defined was to the west with groundwater discharging to Riverdale Creek. **EPA did not require the responsible parties (RPs) to define the extent of shallow groundwater contamination to the east, south or north.**
2) The remedial investigation reported a sample from one of the Wilcox aquifer plant water supply wells with a detection of TCE at an estimated level. **EPA did not require the RP to further investigate contamination in the Wilcox, the primary water source for Grenada and surrounding counties.**
3) Apparently, the Moose Lodge Road (MLR) disposal area was "discovered" in 1993 by MDEQ while investigating the facility's on-site landfill and other facility investigations. The MLR site is less than 100 feet east of the facility. The groundwater solvent plumes from the MLR site and the facility's multiple sources are clearly co-mingled and must be investigated and remediated simultaneously. **At the Eastern Heights subdivision meet and greet on September 1, 2015, the EPA representative indicated no knowledge of the MLR site.**
4) Most of the facility's Solid Waste Management Units (SWMUs) have been "closed" with EPA allowing soil removal to concentrations protective of industrial dermal contact. This level for TCE is more than 1,000 times the level protective of groundwater. **As a result, more than 40 percent of the consistently-sampled monitoring wells are still showing increases rather than decreases in TCE concentrations.**
5) In 2004, a Permeable Reactive Barrier (PRB) was approved by EPA as the final solution for groundwater remediation. The PRB has failed and was sure to fail for the following reasons:
    a. PRBs are only designed to last 10-15 years, which is not long enough to capture the TCE plumes
    b. The PRB does not capture contamination to the north and south
    c. The PRB only worked for 1 to 2 years, if it worked at all.
6) Borehole samples beneath the plant building were collected in August 2005 and reported to EPA the next year. TCE concentrations were as high as 270 mg/kg. According to a letter from the facility to Meritor, "The U.S. EPA verbally informed us that the conditions identified by the new data fall within the scope of the already identified solid waste management unit at the site which covers the groundwater contamination plume area". **These high levels of soil contamination are about 50,000 times levels protective of groundwater, indicate a high probability of the presence of dense non-aqueous phase liquid (DNAPL) and should have been alarming to EPA.**
7) The Facility 2006 Annual Report documents air samples taken within the building in 2003, 2004 and 2006. In 2006, the TCE concentrations were greater than the industrial exposure screening level of 3.7 ppb$_v$ in 7 of the 12 samples. TCE was detected in all 12 samples in concentrations ranging from 2.1 to 10 ppb$_v$. **Based on the available record, EPA did not**

comment on these detections and exceedances and did not request mitigation or additional sampling. Note: Since 2006, studies have shown that TCE is much more toxic and carcinogenic than previous known resulting in lower EPA risk levels and hazard indices. The current industrial worker TCE inhalation concerns are a cancer risk level of 0.55 ppb_v and a non-carcinogenic hazard index of 1.6 ppb_v. The TCE concentrations measured in all 12 indoor samples collected in 2006 were above both these levels of concern.

8) A resident of the Eastern Heights Subdivision, Viola Adams, wrote a letter to EPA's Meredith Anderson dated July 2, 2010 expressing concerns regarding reissuing the facility's Hazardous and Solid Waste Amendments (HSWA) permit without changes to the existing cleanup. An EPA response was sent on July 26, 2010, stating "As we discussed, there are no known hazards to human health or the environment from the Grenada site. The contaminants of concern are located within the property boundary in sub-surface soils and the upper portions of the groundwater table and are inaccessible to exposure. Groundwater flows toward Riverdale Creek and is intercepted by an underground treatment barrier, thus preventing discharge of contaminants to the creek". These statements are generally false in that:
   a) Offsite groundwater contamination was identified to the north, east and south of the facility in 1993.
   b) Contamination to the used groundwater was identified in 1993.
   c) The PRB had failed to prevent contamination to Riverdale Creek.

Monitoring well, MW-20, is offsite, 40 feet from the Eastern Heights Subdivision boundary and 100 feet from the nearest home. The first sample from this well collected in 1993 showed TCE contamination in this well at more than 3 times the MCL. The TCE concentrations have increased by a factor of more than 20 since that first sample. Only now, in September 2015, 22 years after contamination was identified, is EPA instructing and overseeing the RPs investigation of the air, soil and water contamination in the subdivision.