



January 12, 2017

**VIA USPS PRIORITY MAIL
WITH DELIVERY CONFIRMATION**

Mr. Eric Kuhlman
Illinois Environmental Protection Agency
Bureau of Land #24
Leaking Underground Storage Tank Section
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

RE: LPC No. 0971855024 – Lake County
Wauconda/Shivam Energy, Inc.
399 West Liberty Street
LUST Incident Nos. 892744 and 903199
Leaking UST Technical File

Dear Mr. Kuhlman:

TriCore Environmental, LLC, on behalf of Shivam Energy, Inc., is providing an original and one copy of an Amended Corrective Action Plan and Budget for the leaking underground storage tank incident numbers referenced above in response to the Illinois Environmental Protection Agency letter dated October 7, 2016.

If you should have any questions concerning this submittal or require additional information, please contact the undersigned at (630) 520-9973 ext. 2 or by email at marcos.czako@tricoreweb.com.

Sincerely,

Marcos I. Czako, P.G.
Senior Project Manager

Shawn Rodeck, P.E.
President

cc: Mr. Rajani Patel, Shivam Energy, Inc., 399 West Liberty Street, Wauconda, Illinois 60084
Mr. Indravadan Patel, Jay Shri Ganesha Inc., 399 West Liberty Street, Wauconda, Illinois 60084
Ms. Patricia Oaks, CIAO, Wauconda Township, 505 West Bonner Road, Wauconda, Illinois 60084

Attachment



**ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
LEAKING UNDERGROUND STORAGE TANK SECTION
AMENDED CORRECTIVE ACTION PLAN**

Shivam Energy, Inc.
399 W. Liberty Street
Wauconda, Lake County, Illinois 60084
Leaking UST Incident Nos. 892744 and 903199
LPC No. 0971855024

Prepared for:

Shivam Energy, Inc.
Mr. Rajani Patel
399 W. Liberty Street
Wauconda, Illinois 60084

Prepared by:

TriCore Environmental, LLC
2368 Corporate Lane, Suite 116
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January 12, 2016

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Illinois Environmental Protection Agency Leaking Underground Storage Tank Program Corrective Action Plan

A. Site Identification

IEMA Incident # (6- or 8-digit): 892744, 903199 IIEPA LPC# (10-digit): 0971855024

Site Name: Shivam Energy, Inc.

Site Address (Not a P.O. Box): 399 W. Liberty Street

City: Wauconda County: Lake ZIP Code: 60084

Leaking UST Technical File

B. Site Information

1. Will the owner or operator seek reimbursement from the Underground Storage Tank Fund? Yes No

2. If yes, is the budget attached? Yes No

3. Is this an amended plan? Yes No

4. Identify the material(s) released: unleaded gasoline

5. This Corrective Action Plan is submitted pursuant to:

a. 35 Ill. Adm. Code 731.166

The material released was:

-petroleum

-hazardous substance (see Environmental Protection Act Section 3.215)

b. 35 Ill. Adm. Code 732.404

c. 35 Ill. Adm. Code 734.335

C. Proposed Methods of Remediation

1. **Soil:** On-site indicator contaminant concentrations exceeding the Tier 2 soil screening level (SSL) soil remediation objectives (SROs) for the soil component of the groundwater ingestion exposure route (SCGIER) for Class I groundwater will be remediated using the dual phase extraction (DPE) remediation system. A soil investigation is being proposed to further investigate the indicator contaminant concentrations on the residential properties located north of the site and to reevaluate the existing indicator contaminant concentrations exceeding the Tier 1 SROs located in Osage Park.

2. **Groundwater:** Indicator contaminant concentrations exceeding the Tier 1 groundwater remediation objectives (GROs) will be addressed using the DPE remediation system. A groundwater investigation is also being proposed to further investigate the indicator contaminant concentrations on the residential properties located north of the site.

3. **Soil Gas:** An evaluation of the soil gas exposure route will be completed once the remediation and investigation activities proposed in this Amended Corrective Action Plan (CAP) have been completed. The evaluation will be provided in a subsequent report.

D. Soil and Groundwater Investigation Results (for incidents subject to 35 Ill. Adm. Code 731 only or 732 that were classified using Method One or Two, if not previously provided)

This section is not applicable.

Provide the following:

1. **Description of investigation activities performed to define the extents of soil and/or groundwater contamination;**
2. **Analytical results, chain-of-custody forms, and laboratory certifications;**
3. **Tables comparing analytical results to applicable remediation objectives;**
4. **Boring logs;**
5. **Monitoring well logs; and**
6. **Site maps meeting the requirements of 35 Ill. Adm. Code 732.110(a) or 734.440 and showing:**
 - a. **Soil sample locations;**
 - b. **Monitoring well locations; and**
 - c. **Plumes of soil and groundwater contamination.**

E. Technical Information – Corrective Action Plan

Provide the following:

1. **Executive summary identifying the objectives of the corrective action plan and the technical approach to be utilized to meet such objectives;**
 - a. **The major components (e.g., treatment, containment, removal) of the corrective action plan;**

The major components of this Amended CAP are to: 1) provide a summary of the DPE system operation; 2) provide the results from the groundwater sampling activities completed on October 20, 21, and 24, and November 3, 2016; 3) provide the results from the soil investigation activities completed on November 3, 2016; 4) propose revised Tier 1 and Tier 2 remediation objectives; 5) compare the indicator contaminant concentrations to the soil saturation limits (C_{sats}); 6) provide justification that the DPE remediation system is required to remediate the indicator contaminant concentrations exceeding the applicable remediation objectives (ROs) that are located within the wellhead protection area and/or the setback zone, or have the potential to migrate into the setback zone, of the Village of Wauconda community water supply (CWS) well located in Osage Park; 7) provide information regarding the effectiveness of Redux 390 to reduce and/or eliminate excessive scaling and fouling of the DPE system components; and 8) propose soil and groundwater investigation activities to evaluate the indicator contaminant concentrations on the residential properties located north of the site and within Osage Park.

The new Tier 1 and Tier 2 remediation objectives are being proposed since the Illinois Pollution Control Board (IPCB) amended 35 Illinois Administrative Code (IAC) Part 742 to include updated TACO Tier 2 parameters for the SSL and risk based corrective action (RBCA) calculations, effective July 15, 2013.

Details regarding the DPE system operation, the groundwater sampling activities completed on October 20, 21, and 24, and November 3, 2016, and the soil investigation activities completed on November 3, 2016 are provided below in this Section. Details regarding the Tier 1 and Tier 2 evaluations and C_{sat} comparison are provided below in Section E. 2. Details regarding the DPE remediation system, Redux 390, and proposed soil and groundwater investigation activities are provided below in Section E. 3.

DPE System Operation

The DPE remediation system operated continuously from November 1, 2013 through January 22, 2014, from August 6, 2014 through January 21, 2015, from February 6 through March 12, 2015, from April 15 through July 10, 2015, and from May 13 through May 25, 2016, with periodic shutdowns for operation and maintenance (O&M), cleaning, and equipment scaling issues. On May 25, 2016, after the O&M event, the DPE system shutdown. The DPE system has remained shut down to this date.

During the operation of the remediation system, bi-weekly O&M events were conducted (or more frequently, if the system shut down in between O&M events) to inspect, monitor, and clean all system components to ensure continued operation. A typical O&M event consisted of inspecting all system components for wear and tear, and taking readings from all system gauges and meters. System components that required cleaning were dismantled and cleaned to ensure their optimal operation. The drop tubes in the system recovery wells were periodically adjusted so that the bottom of each drop tube was approximately at the same elevation so that all of the recovery wells have a more equal vacuum distribution.

Throughout the operation of the remediation system, TriCore observed heavy scaling on remediation system components including the rotometers for the recovery wells, the transfer pumps and floats for the knockout (KO) tank, oil water separator (OWS), and air stripper (AS), and the AS trays. The scaling has also caused corrosion and pitting of the floats in the KO tank and OWS, causing them to fill with water and not operate correctly. When the floats fill with water, the water level within the corresponding KO tank or OWS reaches a point that causes the remediation system to shut down or malfunction.

As a result of the corrosion, and due to additional circumstances, additional activities were conducted beyond the scope of the routine O&M. A summary of those activities were provided in the Amended Corrective Action Plan (CAP) dated June 11, 2015.

In the CAP dated June 16, 2009 and in the Amended CAP dated April 23, 2010, TriCore estimated the activities and costs associated with DPE system installation and operation. However, the actual DPE system installation and O&M included activities that were not included in the plans or budgets of previous reports, such as the following.

- Lake County Health Department recovery well installation permit fees.

- Installation of concrete pad to support the remediation trailer.
- Installation of a fence around the remediation trailer per the Village of Wauconda building permit requirements.
- Additional costs associated with remediation system trailer components such as additional air stripper tray and additional height of remediation trailer.
- Electrical wiring for infiltration gallery alarm, system timers, replacement vacuum pump, and chemical pump.
- Winterization of outside piping including above grade influent DPE lines and treated groundwater discharge line.
- Purchase and installation of the soil vapor extraction (SVE) silencer for noise reduction for the residential property north of the site.
- Installation of additional piping to re-route the AS intake away from the residential property north of the site for noise reduction.
- Vacuum pump inspections, removals, repairs, and re-installations.
- Replacement of vacuum pump due to corrosive nature of soil vapor.
- Vacuum pump oil replacement and additions
- Replacement of carbon and future replacement of carbon for the VGAC units.
- Disposal of spent carbon from the VGAC units.
- Replacement of KO tank transfer pump due to corrosive nature of groundwater.
- Additional O&M costs over the two-year operation period due to observed corrosive groundwater conditions.

The costs for the above activities have been included in the Amended Corrective Action Budget provided in Appendix A. An Owner/Operator and Licensed Professional Engineer/Geologist Budget Certification Form is provided in Appendix B. A copy of the Office of the Illinois State Fire Marshal Eligibility and Deductible Determination letter is provided in Appendix C.

DPE System Sampling

On June 1, 2015 during system operation, TriCore Environmental, LLC (TriCore) collected air sample from the SVE effluent component of the DPE system which for this system is a rotary claw vacuum pump. The air sample was collected in a summa canister and submitted under standard chain-of-custody protocol to Pace Analytical Services, Inc. (Pace) in Minneapolis, Minnesota for benzene, toluene, ethylbenzene, total xylenes (BTEX), methyl tertiary butyl ether (MTBE), and total hydrocarbons (THC) as gas using United States Environmental Protection Agency (USEPA) Method TO-15. The analytical laboratory results and the photoionization detector (PID) measurements collected from the SVE effluent assist in evaluating the system efficiency and calculating the total mass of volatile organic compounds (VOCs) removed by the SVE portion of the system. Analytical results for air samples are summarized in Table 1. A copy of the analytical laboratory report and certification is

provided in Appendix D.

On July 1, 2015 during system operation, TriCore collected DPE system influent and effluent water samples. These samples were collected to monitor the concentrations of the indicator contaminants entering the air stripper, being treated by the air stripper, and discharging into the infiltration gallery. The system water samples were collected when both the AS and groundwater discharge pumps were on and then collecting the samples from the sample ports. The water samples were collected without headspace in laboratory-provided containers. The containers were then labeled accordingly and packed in a cooler containing ice. The cooler was then shipped under standard chain-of-custody protocol to Pace in Green Bay, Wisconsin for the analysis of BTEX and MTBE using USEPA Method 8260.

Analytical laboratory results from the effluent water samples revealed indicator contaminant concentrations did not exceed the Tier 1 GROs. Analytical laboratory results are summarized in Table 2. A copy of the analytical laboratory report and certification is provided in Appendix E.

Costs associated with the activities described above have been included in the Amended Corrective Action Budget provided in Appendix A.

Removal Data for November 14, 2013 through July 11, 2015

The DPE system was removing vapors from the system wells during this time period. A summary of the removal data during this time period is provided below.

SVE Effluent Air Flow Rate:	17 to 161 scfm
SVE Effluent Air PID Measurements:	18.4 to 1,023 ppm
Mass of BTEX and MTBE Removed:	160.43 pounds
Mass of VOCs Removed:	1,125.75 pounds
Groundwater Treated and Discharged	1,124,435 gallons

Mass removal rates for the remediation system are summarized in Table 3.

Groundwater Sampling

October 20, 21, and 24, 2016, TriCore performed a groundwater monitoring and sampling event on the DPE system recovery wells (RW-1, RW-1 (04), RW-3 through RW-10, and MW-29), the groundwater monitoring wells located in Osage Park (MW-14 through MW-19), and the groundwater monitoring wells with indicator contaminants concentrations that exceeded the Tier 1 GROs during the baseline groundwater sampling event conducted on October 2 and 3, 2013. These wells included MW-2, MW-4, MW-11S, MW-13, MW-27, MW-30, and MW-32. Monitoring well MW-27 was located beneath the 55-gallon drums containing used carbons from the DPE system and MW-32 could not be located on these dates. Therefore, these monitoring wells were not sampled. At this time, the DPE system had been shut down for approximately 5 months. The locations of the wells are illustrated on Figures 1A and 1B.

Prior to sampling, the depth to groundwater was measured in the wells using an

electronic oil/water interface probe equipped with an audible signal. To prevent cross contamination between wells, the probe was washed with a distilled water and Simple Green[®] mixture between each use. During gauging, 0.02 feet of free product was detected in MW-29 and 0.38 feet of free product was detected in RW-5.

Recovery wells RW-1, RW-1 ('04), and RW-3 through RW-10 were then purged utilizing the DPE system, while the groundwater monitoring wells MW-14 through MW-19, and MW-2, MW-4, MW-11S, MW-13, MW-27, MW-30, and MW-32 were purged by removing three to five well volumes using dedicated, disposable high-density polyethylene (HDPE) bailers. The purged groundwater was poured into the influent side of the OWS of the remediation system.

After the wells were purged and allowed to recharge to at least 75% of the initial depth to groundwater, groundwater samples were collected from each well, except RW-5, using dedicated, disposable HDPE bailers. Groundwater samples were not collected from RW-5 because free product was still present in the well after it was purged. Free product was not present in MW-29 after the well was purged and allowed to recharge. Each sample was collected without headspace in laboratory-provided containers. The containers were then labeled accordingly and packed in a cooler containing ice. The cooler was shipped under standard chain-of-custody protocol to Pace in Green Bay, Wisconsin for laboratory analysis. The groundwater samples were analyzed for BTEX and MTBE using USEPA Method 8260.

Analytical laboratory results revealed indicator contaminant concentrations exceeded the Tier 1 GROs at the sample locations indicated below.

Indicator Contaminant	Sample Location Exceeding the Tier 1 GROs
Benzene	MW-2, MW-11S, MW-13, MW-15, MW-29, MW-30, RW-1, RW-1 ('04), RW-3, RW-4, RW-7, RW-8, RW-9
Ethylbenzene	MW-29

On November 3, 2016, TriCore returned to the site to install 13 soil borings. During this event, TriCore located MW-32 and therefore, collected groundwater samples from the well. Prior to sampling, the depth to groundwater was measured in MW-32 using an electronic oil/water interface probe equipped with an audible signal. Recovery RW-5 was also gauged to determine if free product was still present in the well. To prevent cross contamination between wells, the probe was washed with a distilled water and Simple Green[®] mixture between each use. No free product was detected in RW-5.

After gauging, MW-32 and RW-5 were purged and sampled using the procedures used to purge and sample the wells during the groundwater sampling event completed on October 20, 21, and 24, 2016 as described above.

The groundwater samples were shipped in a cooler under standard chain-of-custody protocol to Pace in Green Bay, Wisconsin for the analysis of BTEX and MTBE using USEPA Method 8260.

Analytical laboratory results revealed indicator contaminant concentrations exceeded the Tier 1 GROs at the sample locations indicated below.

Indicator Contaminant	Sample Location Exceeding the Tier 1 GROs
Benzene	MW-32, RW-5

Ethylbenzene	RW-5
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Analytical laboratory results and free product thicknesses are summarized in Table 4 with the indicator contaminant concentrations exceeding the Tier 1 GROs illustrated on Figure 2. A map showing the thickness of free product observed in MW-29 and RW-5 is illustrated on Figure 3. Copies of the analytical laboratory reports and certifications are provided in Appendix E.

Since all of the existing wells were not gauged during the groundwater sampling events completed in October and November 2016, the groundwater elevations from the May 7, 2015 groundwater sampling event were utilized to determine the groundwater flow direction. Based on the groundwater elevation data from the May 7, 2015 event, groundwater flow is to the north. The groundwater elevations and flow direction are illustrated on Figure 4.

Costs associated with the activities described above have been included in the Amended Corrective Action Budget provided in Appendix A.

Soil Boring Installation and Sampling

On November 3, 2016, TriCore contracted Environmental Soil Probing Corp. of St. Charles, Illinois to install 13 on-site soil borings (SB-76 through SB-88) to a maximum depth of 15 feet below land surface (bls). The soil borings were installed to evaluate the current indicator contaminant concentrations at the locations that exceed the Tier 2 SSL SROs for the SCGIER for Class I groundwater and the site-specific C_{sats} . The Tier 2 and site-specific C_{sat} evaluations are provided below in Section E. 2. The locations of the soil borings are illustrated on Figure 3. TriCore was on-site overseeing and documenting the installation activities.

It is of TriCore’s opinion that the use of a project labor agreement (PLA) for the installation of the soil borings would not advance the State’s interest of costs or efficiency due to the union drilling contractors not being able to complete the drilling activities for the Illinois Environmental Protection Agency (EPA)-approved rates. The use of a PLA for these activities would not increase the overall cost to complete the soil borings due to the consulting personnel costs associated with writing and placing a public bid, the cost to place the bid in a public paper, and the increase in cost to utilize a union drilling company. Therefore, TriCore did not utilize a PLA for the installation of the soil borings.

The soil borings were installed and sampled using the following procedures. The soil borings were drilled and sampled from ground surface to 15 feet bls with a track-mounted Geoprobe® using direct-push technology to advance the borings. Continuous soil samples were collected from ground surface to the termination depth of the borings. All soil samples were collected utilizing a dual-tube sampling system. The soil samples were collected within a 1.125-inch outside diameter by 5.0-foot long disposable liner which was placed at the end of an inner rod string. The inner rod string was then placed within a 2.125-inch inside diameter outer rod string which provided a cased hole through which to sample the soil. To prevent cross contamination between soil borings and sampling intervals, all drilling and sampling equipment was decontaminated prior to each use using a distilled water and Liquinox® solution wash, followed by a distilled

water rinse. The soil cuttings generated during the soil boring installation activities were contained on site in one 55-gallon drum for disposal. The drum was labeled with a nonhazardous waste label.

As soil samples were collected, the geology of the subsurface soil was described. Upon retrieval, a portion of each soil sample was immediately divided for field screening and laboratory analysis. Samples designated for field screening were placed in airtight plastic bags, allowed to volatilize and equilibrate, and then screened for the presence of volatile organic vapors using a PID equipped with a 10.6 electron volt lamp. The PID was field calibrated using isobutylene gas prior to use. The other portion of each sample was placed into laboratory-provided containers. The containers were then labeled accordingly and packed in a cooler containing ice. The soil samples from SB-76 through SB-79 and SB-81 through SB-88 collected from the depth intervals where historical soil samples indicated concentrations exceeded the Tier 2 SSL SROs for the SCGIER for Class I groundwater or the site-specific C_{sats} were selected for laboratory analysis if they were above the field-interpreted groundwater table. The soil samples selected for laboratory analysis were shipped in the cooler under standard chain-of-custody protocol to Pace in Green Bay, Wisconsin for the analysis of BTEX and MTBE using USEPA Method 8260. Soil samples from SB-80 were not selected for laboratory analysis.

Analytical laboratory results revealed indicator contaminant concentrations exceeded the Tier 1 SROs at the sample locations indicated below.

Indicator Contaminant	Sample Location Exceeding the Tier 1 SROs
Benzene	SB-76, SB-78, SB-83, SB-87, SB-88
Toluene	SB-76
Ethylbenzene	SB-76
Total Xylenes	SB-76, SB-83, SB-87, SB-88
MTBE	SB-76

Analytical laboratory results are summarized in Table 5 with the indicator contaminant concentrations exceeding the Tier 1 SROs illustrated on Figures 5A and 5B. A copy of the analytical laboratory report and certification is provided in Appendix F. Soil boring logs are provided in Appendix G.

After the soil samples were collected, the soil borings were backfilled with bentonite, hydrated, and capped with material similar to the surrounding ground surface.

Costs associated with the activities described above have been included in the Amended Corrective Action Budget provided in Appendix A.

b. The scope of the problems to be addressed by the proposed corrective action; and

Analytical laboratory results revealed soil and groundwater concentrations exceeding the applicable Tier 1 or Tier 2 ROs and located within the minimum setback zone and/or the wellhead protection area of the Village of Wauconda CWS located in Osage Park. By continuing the operation of the DPE system, indicator contaminant concentrations exceeding the applicable remediation objectives can be addressed. Note that operation of the DPE system to date has been inhibited by the excessive scaling and fouling of the remediation system components causing system shutdowns and

malfunctions. Installation of Redux 390 to reduce and eliminate the excessive scaling and fouling will ensure optimal operation of the DPE system to address the indicator contaminant concentrations exceeding the applicable Tier 1 and Tier 2 ROs.

Due to the limited amount of soil samples collected from the residential properties located between the site and Osage Park, several data gaps are present and it is unknown if soil contamination exists on these properties. Therefore, by proposing further investigation on these properties, it can be determined if contaminated soils are present to determine if an additional method of remediation will be required to remediate the contaminated soil.

Resampling the indicator contaminant concentrations exceeding the Tier 1 SROs located within Osage Park will determine whether an additional method of remediation will be required to remediate the soil located in Osage Park.

c. a schedule for implementation and completion of the plan;

The following is a proposed schedule for the implementation and completion of this Amended CAP once it has been approved by the Illinois EPA.

Activity	Projected Completion Time
Installation of Redux 390	Weeks 1 and 2
Obtain a permit with the Wauconda Park District for Osage Park, and access agreements with the property owners located north of the site	Weeks 1 and 2
Restart DPE system	Week 2
DPE system O&M	Weeks 2 through 52
Monthly influent and effluent compliance sampling	Weeks 2 through 52
Installation of soil borings and monitoring wells in Osage Park and on the residential properties north of the site	Week 4
Quarterly groundwater sampling	Weeks 13, 25, 37, and 49
System shutdown (as long as Tier 1, Class I GROs are met)	Week 52
Post-system shutdown soil boring installation	Week 56
Post-system shutdown groundwater sampling	Weeks 56 and 68

2. Identification of the remediation objectives proposed for the site;

Although Tier 1 and 2 evaluations were provided in the reports previously submitted to the Illinois EPA, revised Tier 1 and Tier 2 evaluations have been completed since the IPCB amended 35 IAC Part 742 to include updated TACO Tier 2 parameters for the SSL and RBCA calculations, effective July 15, 2013.

The property is currently a gasoline retail station. The current owner of the property plans to continue to utilize the property as a gasoline retail station. Therefore, the remediation objectives being proposed for the soil ingestion and outdoor inhalation exposure routes for on-site sample locations are the SROs for industrial/commercial land use and construction workers. The remediation objectives being proposed for the soil ingestion and outdoor inhalation exposure routes for off-site sample locations are the SROs for residential land use and construction workers. The remediation objectives being proposed for the SCGIER and the groundwater component of the groundwater ingestion exposure route (GCGIER) for on-site and off-site sample locations are the remediation objectives for Class I groundwater. The revised Tier 1 and Tier 2 evaluations are provided below. A comparison of the indicator contaminant concentrations to the C_{sats} is also provided below.

Tier 1 Evaluation

Pursuant to 35 IAC Section 742.500, a Tier 1 evaluation was performed by comparing the soil and groundwater concentrations to the remediation objectives for each exposure route. A comparison of the BTEX and MTBE concentrations to the applicable SROs and GROs are provided below and in Tables 4 and 5. Only the indicator contaminant concentrations exceeding the Tier 1 remediation objectives for each specific exposure route are listed below.

Soil Ingestion Exposure Route – On-Site

On-site indicator contaminant concentrations do not exceed the Tier 1 SROs for the soil ingestion exposure route for industrial/commercial land use or construction workers. Therefore, no further evaluation of this exposure route is required.

Cleared at Tier 1 Go to Tier 2 Go to Institutional Controls

Soil Ingestion Exposure Route – Off-Site

Off-site indicator contaminant concentrations do not exceed the Tier 1 SROs for the soil ingestion exposure route for residential land use or construction workers. Therefore, no further evaluation of this exposure route is required.

Cleared at Tier 1 Go to Tier 2 Go to Institutional Controls

Outdoor Inhalation Exposure Route – On-Site

Indicator Contaminant	Sample Location	Sample Depth (feet bls)	Maximum Detected Concentration (mg/kg)	Tier 1 SRO for the Outdoor Inhalation Exposure Route (mg/kg)	
				Industrial/Commercial	Construction Worker
Benzene	SB-53/MW-31	7.5-8.75	26.4	1.6	2.2
Toluene	SB-53/MW-31	7.5-8.75	313		42
Ethylbenzene	SB-53/MW-31	7.5-8.75	95.3		58
Total Xylenes	SB-76	6-8	558.000	320	5.6

Since the on-site indicator contaminants listed above exceed the Tier 1 SROs for the outdoor inhalation exposure route for industrial/commercial land use and/or construction workers, this exposure route cannot be excluded. Therefore, a Tier 2 evaluation has been completed. Additionally, since the remediation objectives for industrial/commercial land use are being utilized, an industrial/commercial land use limitation will be placed on the property.

Cleared at Tier 1 Go to Tier 2 Go to Institutional Controls

Outdoor Inhalation Exposure Route – Off-Site

Off-site indicator contaminant concentrations do not exceed the Tier 1 SROs for the outdoor inhalation exposure route for residential land use or construction workers. Therefore, no further evaluation of this exposure route is required.

Cleared at Tier 1 Go to Tier 2 Go to Institutional Controls

Soil Component of the Groundwater Ingestion Exposure Route – On-Site

Indicator Contaminant	Sample Location	Sample Depth (feet bls)	Maximum Detected Concentration (mg/kg)	Tier 1 SRO for the SCGIER (mg/kg)
				Class I
Benzene	SB-53/MW-31	7.5-8.75	26.4	0.03
Toluene	SB-53/MW-31	7.5-8.75	313	12
Ethylbenzene	SB-53/MW-31	7.5-8.75	95.3	13
Total Xylenes	SB-76	6-8	558.000	150
MTBE	SB-53/MW-31	7.5-8.75	<2.71	0.32

Since the on-site indicator contaminants listed above exceed the Tier 1 SROs for the SCGIER for Class I groundwater, this exposure route cannot be excluded. Therefore, a Tier 2 evaluation has been completed.

Cleared at Tier 1 Go to Tier 2 Go to Institutional Controls

Soil Component of the Groundwater Ingestion Exposure Route – Off-Site

Indicator Contaminant	Sample Location	Sample Depth (feet bls)	Maximum Detected Concentration (mg/kg)	Tier 1 SRO for the SCGIER (mg/kg)
				Class I
Benzene	B-5B	10-12	0.55	0.03
MTBE	SB-71	8-10	1.14	0.32

Since the off-site indicator contaminants listed above exceed the Tier 1 SROs for the SCGIER for Class I groundwater and are located within the setback zone and/or the well head protection area of the Village of Wauconda CWS well located in Osage Park, this exposure route cannot be excluded. Therefore, a soil investigation is being proposed to resample the off-site soil concentrations exceeding the Tier 1 SROs for the SCGIER for Class I groundwater. If after resampling indicator contaminant concentrations still exceed the Tier 1 SROs for the SCGIER for Class I groundwater, excavation may be proposed.

Cleared at Tier 1 Go to Tier 2 Go to Investigation

Groundwater Component of the Groundwater Ingestion Exposure Route – On-Site and Off-Site

Indicator Contaminant	Sample Location	Maximum Detected Concentration (mg/L)	Tier 1 GRO for the GCGIER (mg/L)
			Class I
Benzene	MW-15	2.500	0.005
Ethylbenzene	RW-5	1.020	0.7

Since the on-site and off-site indicator contaminants listed above exceed the Tier 1 GROs for the GCGIER for Class I groundwater and are located within the setback zone and/or the well head protection area of the Village of Wauconda CWS well located in Osage Park, this exposure route cannot be excluded. Therefore, the DPE system will be utilized to address the concentrations exceeding the Tier 1 GROs for the GCGIER for Class I groundwater.

Cleared at Tier 1 Go to Tier 2 Go to Remediation

Tier 2 Evaluation

Pursuant to 35 IAC Section 742.600, Tier 2 evaluations were performed for the indicator contaminant concentrations exceeding the Tier 1 SROs for the outdoor inhalation exposure route and the SCGIER.

Outdoor Inhalation Exposure Route – On-Site

To evaluate the on-site outdoor inhalation exposure route, Tier 2 site-specific SROs for BTEX were calculated using SSL Equations S4, S5, S6, S7, S26, and S27, located in 35 IAC Part 742, Appendix C, Table A.

Default parameters listed in 35 IAC Section 742, Appendix C, Tables B and H, and in the Toxicity Values for TACO Tier 2 and 3 Applications table located on the Illinois EPA’s website at <http://www.epa.illinois.gov/topics/cleanup-programs/taco/index>, and site-specific parameters were used in these evaluations. The site-specific input parameters are summarized in the table below.

Site-Specific Input Parameters	Value	Units
Dry Soil Bulk Density (ρ_b) (Table 6) Converted from pounds per cubic foot to grams per cubic centimeter.	1.740	g/cm ³
Mass Limiting – Depth of Source (d_s) (Table 5)	2.667	m

The Tier 2 SROs for the outdoor inhalation exposure route are summarized in the table below.

Indicator Contaminant	Sample Location	Sample Depth (feet)	Maximum Detected Concentration (mg/kg)	Tier 2 SROs for the Outdoor Inhalation Exposure Route (mg/kg)	
				Industrial/Commercial	Construction Worker
Benzene	SB-53/MW-31	7.5-8.75	26.4	10.44	217.41
Toluene	SB-53/MW-31	7.5-8.75	313		13,929.93
Ethylbenzene	SB-53/MW-31	7.5-8.75	95.3		25,073.88
Total Xylenes	SB-76	6-8	558.000	2,907.12	1,114.39

Based on the Tier 2 evaluation, indicator contaminant concentrations exceed the Tier 2 SSL SROs for the outdoor inhalation exposure route at the sample locations indicated below.

Indicator Contaminant	Sample Location Exceeding the Tier 2 SSL SRO
Benzene – Industrial/Commercial	SB-53/MW-31

Based on the Tier 2 evaluation, an engineered barrier will be required to address the indicator contaminant concentration exceeding the Tier 2 SRO. Further details regarding the engineered barrier are provided below under Institutional Controls. The calculations for the Tier 2 evaluations are provided in Appendix H.

Cleared at Tier 2 Propose Institutional Controls Propose Investigation

Soil Component of the Groundwater Ingestion Exposure Route – On-site

To evaluate on-site SCGIER, Tier 2 site-specific SROs for BTEX and MTBE were calculated using SSL Equations S18, S22, S25, and S28 located in 35 IAC Part 742, Appendix C, Table A.

Default parameters listed in 35 IAC Section 742, Appendix C, Tables B, E, and K, and

site-specific parameters were used in these evaluations. Class I GROs were utilized within the equations to calculate the Tier 2 SROs. The site-specific input parameters are summarized in the table below.

Site-Specific Input Parameters	Value	Units
Dry Soil Bulk Density (ρ_b) (Table 6) Converted from pounds per cubic foot to grams per cubic centimeter.	1.740	g/cm ³
Mass Limiting – Depth of Source (d_s) (Table 5)	2.667	m
Aquifer Thickness (d_a) (Table 4) Calculated based on the shallowest depth to water observed during the groundwater sampling activities conducted at the site (RW-1 ('04) on December 29, 2008) and the depth of the deepest installed monitoring well (MW-8D, MW-9D, MW-10D, MW-11D, MW-12D, and SUMP).	9.930	m
Hydraulic Conductivity (k) (Appendix I) Calculated from the data collected from MW-6 during a slug test conducted on September 24, 1997.	6.61x10 ⁻³	cm/sec
Hydraulic Gradient (i) (Appendix J) Calculated based on the groundwater elevations observed during the groundwater gauging activities conducted on May 7, 2015.	0.0111	cm/cm
Source Length Parallel to Groundwater Flow Direction in the Horizontal Plane (L) (Figure 6) Measured from SB-30/MW-28 to MW-19.	18,684 (613)	cm (ft)

The Tier 2 SROs for the SCGIER are summarized in the table below.

Indicator Contaminant	Sample Location	Sample Depth (feet)	Maximum Detected Concentration (mg/kg)	Tier 2 SSL SRO for the SCGIER (mg/kg)
				Class I Groundwater
Benzene	SB-53/MW-31	7.5-8.75	26.4	0.272
Toluene	SB-53/MW-31	7.5-8.75	313	54.304
Ethylbenzene	SB-53/MW-31	7.5-8.75	95.3	38.012
Total Xylenes	SB-76	6-8	558.000	543.036
MTBE	SB-53/MW-31	7.5-8.75	<2.71	3.801

Based on the Tier 2 evaluation, indicator contaminant concentrations exceed the Tier 2 SSL SROs for the SCGIER for Class I groundwater at the sample locations indicated below.

Indicator Contaminant	Sample Location Exceeding the Tier 2 SSL SRO
Benzene	SB-53/MW-31, SB-76, SB-83
Toluene	SB-53/MW-31, SB-76
Ethylbenzene	SB-53/MW-31
Total Xylenes	SB-76

Based on a comparison, the DPE system will be utilized to address the concentrations exceeding the Tier 2 SROs. The source dimension used in the Tier 2 evaluation is illustrated on Figure 6. The calculations for the Tier 2 evaluation are provided in Appendix K.

Go to Tier 2

Go to Remediation

Institutional Controls

In conjunction with the Tier 1 and Tier 2 evaluations presented above, the use of

institutional controls and engineered barriers are being proposed pursuant to 35 IAC Part 742 Subparts J and K.

Soil Ingestion Exposure Route – On-Site

Since the remediation objectives for industrial/commercial land use are being utilized for the on-site soil ingestion exposure route, an industrial/commercial land use limitation will be placed on the property.

Outdoor Inhalation Exposure Route – On-Site

Since the remediation objectives for industrial/commercial land use are being utilized for the on-site outdoor inhalation exposure route, an industrial/commercial land use limitation will be placed on the property.

To address the on-site benzene concentration in SB-53/MW-31 that exceeds the Tier 2 SSL SRO for industrial/commercial land use, an engineered barrier may be utilized. Further information regarding the engineered barrier may be provided in an Amended CAP once the proposed remediation activities are completed.

Soil Saturation Limit

An evaluation was performed by comparing the soil concentrations to the default C_{sats} for each indicator contaminant. Please note that only the maximum detected concentration of each indicator contaminant that exceeds the default C_{sat} is listed below.

Indicator Contaminant	Sample Location	Sample Depth (feet)	Maximum Detected Concentration (mg/kg)	Default C_{sat} (mg/kg)	
				Outdoor Inhalation Exposure Route	SCGIER
Toluene	SB-53/MW-31	7.5-8.75	313		290
Total Xylenes	SB-76	6-8	558.000	280	110

Since toluene and total xylenes concentrations exceed the default C_{sat} for the outdoor inhalation exposure route and/or the SCGIER, site-specific C_{sats} for toluene and total xylenes were calculated using SSL Equations S19 through S21, S24, and S29 located in 35 IAC Part 742, Appendix C, Table A.

Default input parameters listed in 35 IAC Section 742, Appendix C, Tables B, E, and K and site-specific input parameters were used in this evaluation. The site-specific input parameters are summarized in the table below.

Site-Specific Input Parameters	Value	Units
Dry Soil Bulk Density (ρ_b) (Table 6) Converted from pounds per cubic foot to grams per cubic centimeter.	1.740	g/cm^3
Soil Particle Density (ρ_b) (Table 6) Pursuant to 35 IAC Part 742 Appendix C, Table F, the specific gravity can be utilized.	2.65	
Organic Carbon Content (subsurface soils below 1 meter) (f_{oc}) (Table 6)	0.00777	g/g
Total Soil Porosity (n) (Table 6)	0.344	
Saturated Hydraulic Conductivity (K_s) Based on the geology of the subsurface soil being remediated.	1,830	m/yr
Exponential ($1/(2b+3)^b$) Based on the geology of the subsurface soil being remediated.	0.09	

The site-specific C_{sats} are summarized in the table below.

Indicator Contaminant	Sample Location	Sample Depth (feet)	Maximum Detected Concentration (mg/kg)	Site-Specific C_{sat} (mg/kg)	
				Outdoor Inhalation Exposure Route	SCGIER
Toluene	SB-53/MW-31	7.5-8.75	313		713.81
Total Xylenes	SB-76	6-8	558.000	353.28	353.28

Based on the site-specific C_{sat} evaluation, the indicator contaminants at the sample locations indicated below exceed the site-specific C_{sats} .

Indicator Contaminant	Sample Location Exceeding the Site-Specific C_{sat}
Total Xylenes	SB-53/MW-31, SB-76

Since the indicator contaminant concentrations at the sample locations indicated above exceed the site-specific C_{sats} , the indicator contaminant concentrations must be remediated to levels that do not exceed the site-specific C_{sats} . Continued operation of the DPE remediation system is being proposed to remediate the indicator contaminant concentrations at the sample locations indicated above to levels that do not exceed the site-specific C_{sats} . Further details regarding the operation of the DPE system is provided below in Section E. 3. The calculations for the site-specific C_{sat} evaluation are provided in Appendix L.

Pathway Cleared with Site-Specific Go to Remediation

3. A description of the remedial technologies selected:

Continued operation of the DPE system with the addition of Redux 390 to reduce the excessive scaling and fouling of system components is being proposed to remediate the indicator contaminant concentrations in the soil and groundwater that exceed the applicable ROs. A soil and groundwater investigation is also being proposed on the residential properties located north of the site to evaluate if indicator contaminant concentrations exceeding the application remediation objectives are present and contributing to the soil and groundwater contamination present in Osage Park. A soil and groundwater investigation is also being proposed in Osage Park to resample the indicator contaminant concentrations exceeding the applicable Tier 1 ROs to evaluate if an additional method of remediation is required to address the contamination in Osage Park. Details regarding the continued operation of the DPE system and the proposed soil and groundwater investigation activities are provided below.

DPE System Operation

Based on the analytical laboratory results from the recent soil and groundwater sampling activities, and the Tier 2 evaluation for the SCGIER for Class I groundwater, the following indicator contaminant concentrations must be remediated to the applicable remediation objectives because they are located within the minimum setback zone and/or the well head protection area of the Village of Wauconda CWS well located in Osage Park.

Indicator Contaminant	Sample Location	Concentration (mg/kg or mg/L)	Soil or Groundwater	On-Site or Off-Site	Remediation Objective Exceedance
Benzene	SB-53	26.4	Soil	On-Site	Tier 2 SSL SCGIER

Benzene	SB-69	0.0579	Soil	Off-Site	Tier 1 SCGIER
Benzene	SB-76	2.640	Soil	On-Site	Tier 2 SSL SCGIER
Benzene	SB-83	0.275	Soil	On-Site	Tier 2 SSL SCGIER
Benzene	RW-1	0.153	Groundwater	On-Site	Tier 1 GCGIER
Benzene	RW-1 ('04)	0.0842	Groundwater	On-Site	Tier 1 GCGIER
Benzene	RW-3	0.243	Groundwater	On-Site	Tier 1 GCGIER
Benzene	RW-4	0.0162	Groundwater	On-Site	Tier 1 GCGIER
Benzene	RW-5	1.600	Groundwater	On-Site	Tier 1 GCGIER
Benzene	RW-7	0.0632	Groundwater	On-Site	Tier 1 GCGIER
Benzene	RW-8	0.0395	Groundwater	On-Site	Tier 1 GCGIER
Benzene	RW-9	0.212	Groundwater	On-Site	Tier 1 GCGIER
Benzene	MW-2	0.214	Groundwater	On-Site	Tier 1 GCGIER
Benzene	MW-11S	0.193	Groundwater	Off-Site	Tier 1 GCGIER
Benzene	MW-15	2.270	Groundwater	Off-Site	Tier 1 GCGIER
Benzene	MW-23	2.500	Groundwater	Off-Site	Tier 1 GCGIER
Benzene	MW-27	0.875	Groundwater	On-Site	Tier 1 GCGIER
Benzene	MW-29	0.889	Groundwater	On-Site	Tier 1 GCGIER
Benzene	MW-30	0.213	Groundwater	On-Site	Tier 1 GCGIER
Benzene	MW-32	0.223	Groundwater	On-Site	Tier 1 GCGIER
Toluene	SB-53/ MW-31	313	Soil	On-Site	Tier 2 SSL SCGIER
Toluene	SB-76	72.400	Soil	On-Site	Tier 2 SSL SCGIER
Ethylbenzene	SB-53/ MW-31	95.4	Soil	On-Site	Tier 2 SSL SCGIER
Ethylbenzene	RW-5	1.020	Groundwater	On-Site	Tier 1 GCGIER
Ethylbenzene	MW-29	0.893	Groundwater	On-Site	Tier 1 GCGIER
Total Xylenes	SB-76	558.000	Soil	On-Site	Tier 2 SSL SCGIER and site-specific C _{sat}
MTBE	SB-71	1.14	Soil	Off-Site	Tier 1 SCGIER

In addition, free product was discovered in RW-5 and MW-29 on October 24, 2016. Although free product was not present during the gauging activities completed on November 3, 2016, the presence of free product on October 24, 2016 indicates that free product is still present within the soil pores in the unsaturated/saturated interface at the site.

Therefore, TriCore is proposing to restart and operate the DPE system through April 2018. At that time, the DPE system will be shut down and soil and groundwater sampling activities will be completed as proposed below.

The following costs are being proposed for the operation of the DPE system through April 2018, with the expectation that this Amended CAP is approved by April 2017.

- System operation (electric and phone service) through April 2018
- O&M costs through April 2018
- Redux 390 chemical costs through April 2018
- Semi-annual replacement and disposal of carbon for the VGAC units (April and October 2017)
- Laboratory analysis for the disposal parameters for the disposal of the spent carbon

- Monthly system water influent and effluent sampling (April 2017 through April 2018)
- Quarterly air stripper cleaning (July, October 2017 and January, April 2018)
- Quarterly groundwater monitoring and sampling events (July, October 2017 and January, April 2018)
- Quarterly air effluent sampling (April, July, October 2017 and January 2018)
- Monthly system water influent and effluent sampling (April 2017 through April 2018)

Monthly Influent and Effluent Water Sampling

On the day that the DPE system is restarted, and monthly thereafter during the operation of the DPE system, TriCore will collect system influent and effluent water samples to monitor the concentrations of the indicator contaminants entering the air stripper, being treated by the air stripper, and discharging into the infiltration gallery. The system water samples will be collected when both the AS and groundwater discharge pumps are on and then collecting samples from the sample ports. The water samples will be collected without headspace in laboratory-provided containers. The containers will then be labeled accordingly and packed in a cooler containing ice. The cooler will then be shipped under standard chain-of-custody protocol to Pace in Green Bay, Wisconsin and the samples will be submitted for the analysis of BTEX and MTBE using USEPA Method 8260.

If analytical laboratory results from the effluent water samples reveal that indicator contaminant concentrations exceed the Tier 1 GROs, TriCore will make system adjustments and perform additional system component cleaning to maximize the effectiveness of the remediation system to treat the influent water concentrations to levels that do not exceed the Class I Groundwater Quality Standards referenced in 35 IAC Section 620.410.

Quarterly Effluent Air Sampling

On the day that the DPE system is restarted, and quarterly thereafter during the operation of the DPE system, TriCore will collect system air samples from the SVE effluent component of the DPE system. The air samples will be collected in summa canisters and submitted under standard chain-of-custody protocol to Pace in Minneapolis, Minnesota for the analysis of BTEX, MTBE, and THC as gas using USEPA Method TO-15.

The analytical laboratory results and the PID measurements collected from the SVE effluent assist in evaluating the system efficiency and calculating the total mass of VOCs removed by the SVE portion of the system.

Quarterly Groundwater Sampling

After the DPE system has been restarted, TriCore will complete quarterly groundwater sampling events on the DPE system recovery wells (RW-1, RW-1 ('04), RW-3 through RW-10, and MW-29), the groundwater monitoring wells located in Osage Park (MW-14 through MW-19), and the groundwater monitoring wells with indicator contaminants concentrations that exceeded the Tier 1 GROs during the baseline groundwater sampling event completed on October 2 and 3, 2013 (MW-2, MW-4, MW-11S, MW-13, MW-27, MW-30, and MW-32). The locations of the wells are illustrated on Figures 1 through 6.

Prior to sampling, the depth to groundwater will be measured in all of the existing wells using an electronic oil/water interface probe equipped with an audible signal. The wells will then be purged and sampled using the procedures used to purge and sample the wells during the groundwater sampling event completed on October 20, 21, and 24, and November 3, 2016 as described above in Section E. 1. a.

The groundwater samples will be shipped in a cooler under standard chain-of-custody protocol to Pace in Green Bay, Wisconsin for the analysis of BTEX and MTBE using USEPA Method 8260.

Post-DPE System Shut Down Groundwater Sampling

After the DPE system has been shut down, TriCore will complete two quarters of groundwater sampling events on the DPE system recovery wells (RW-1, RW-1 ('04), RW-3 through RW-10, and MW-29), the groundwater monitoring wells located in Osage Park (MW-14 through MW-19), and the groundwater monitoring wells with indicator contaminants concentrations that exceeded the Tier 1 GROs during the baseline groundwater sampling event completed on October 2 and 3, 2013 (MW-2, MW-4, MW-11S, MW-13, MW-27, MW-30, and MW-32). The locations of the wells are illustrated on Figures 1 through 6.

Prior to sampling, the depth to groundwater will be measured in all of the existing wells using an electronic oil/water interface probe equipped with an audible signal. The wells will then be purged and sampled using the procedures used to purge and sample the wells during the groundwater sampling event completed on October 20, 21, and 24, and November 3, 2016 as described above in Section E. 1. a.

The groundwater samples will be shipped in a cooler under standard chain-of-custody protocol to Pace in Green Bay, Wisconsin for the analysis of BTEX and MTBE using USEPA Method 8260.

Post-DPE System Shut Down Soil Investigation

Approximately one month after the DPE system has been shut down, the on-site soil sample locations which contained indicator contaminant concentrations exceeding the Tier 2 SSL SROs for the SCGIER for Class I groundwater will be resampled. These sample locations include SB-53/MW-31, SB-76, and SB-83. The soil borings will be installed and sampled using the procedures used to install and sample the soil borings completed on November 3, 2016 as described above in Section E. 1. a.

The soil samples from each boring collected from the depth intervals where historical soil samples indicated concentrations exceeded the Tier 2 SSL SROs for the SCGIER for Class I groundwater or the site-specific C_{sats} were selected for laboratory analysis if they are above the field-interpreted groundwater table. In addition, the soil sample from each boring collected above the field interpreted water table exhibiting the highest PID measurement, if not already selected, will be selected for laboratory analysis. The soil samples selected for laboratory analysis will be shipped in a cooler under standard chain-of-custody protocol to Pace in Green Bay, Wisconsin for the analysis of BTEX and MTBE using USEPA Method 8260.

Costs associated with the activities proposed above are included in the Amended Corrective Action Budget provided in Appendix A.

DPE System Modification

As mentioned above in Section E. 1 a. and detailed in the Amended CAP dated June 11, 2015, excessive scaling and fouling was observed on the DPE system components, causing additional activities to be conducted beyond the scope of the routine O&M. The scaling has also caused corrosion and pitting of the floats in the KO tank and OWS, causing them to fill with water and not operate correctly. When the floats fill with water, the water level within the corresponding KO tank or OWS reaches a point that causes the remediation system to shut down or malfunction.

The frequent system shutdowns and additional O&M time required to mitigate the operational issues caused by the heavy scaling were investigated to determine if an alternative to additional O&M was available. Upon the recommendation of BISCO, the remediation system manufacturer, Redux Technology (Redux) was contacted. Redux specializes in the control of fouling of groundwater remediation systems. Redux suggested analyzing the influent water to the system for iron and total hardness to determine the root cause of the fouling. Therefore, on May 7, 2015, an influent system water sample was collected and submitted to Pace in Green Bay, Wisconsin for iron and total hardness.

Analytical laboratory results indicated an iron level of 4.260 milligrams per liter (mg/L) and a total hardness of 488.000 mg/L. These results were submitted to Redux to determine the appropriate course of action.

Based on the iron and total hardness results, at the recommendation of Redux, on June 9, 2015, an influent water sample was collected and submitted to Pace in Green Bay, Wisconsin for alkalinity and pH.

Analytical laboratory results indicated an alkalinity concentration of 357 mg/L and a pH of 7.8.

Analytical laboratory results are summarized in Table 7. Copies of the analytical laboratory reports are provided in Appendix E.

Based on the analytical results provided above, Redux confirmed that the iron and total hardness levels were substantially elevated and were likely causing the frequent and excessive fouling and scaling of the various system components. Redux recommends a specific aqueous blend deposit control formulation designed to control hardness deposits in groundwater remediation systems. Their blend has been aggressively studied and evaluated for fate and transport effects, to ensure that the formulation is safe for the intended application. A dosage recommendation of 1 gallon per day of Redux 390, which would be delivered via a siphoning pump that will be manually set to deliver the recommended dosage, based on a calculated DPE system average flow of 5.74 gallons per minute. The pump would be integrated into the system alarms to ensure proper operation in concert with the other system components. Specifications for the Redux 390 formulation (blend expected to be used for this site), including a Material Safety Data Sheet and the pump are provided in Appendix M. The use of Redux 390 has been approved and is currently in use at another remediation system TriCore maintains for leaking underground storage tank (LUST) incident number 980704, Clark Retail Station #2058, 117 S. US Route 12, Fox Lake, Illinois. Details regarding the effectiveness of Redux 390 in reducing the fouling and scaling of the DPE system components at LUST incident number 980704 are

provided below.

From May 30, 2013 through April 17, 2015, the remediation system at LUST incident number 980704 treated a total of 1,768,392.70 gallons of water over a period of 9,789 operational hours. A total of 119 O&M visits were completed during this 687 day time period. On April 8, 2015, the Redux 390 chemical pump was installed. On April 17, 2015, the pump was turned on, delivering Redux 390 into the influent water stream of the DPE system. From April 17, 2015 through September 8, 2016, the remediation system treated a total of 1,362,097.3 gallons of water over a period of 9,936 operational hours. A total of 66 O&M visits were completed during this 510 day time period. As presented above, the addition of Redux 390 into the influent water stream of the DPE system has substantially increased the time of operation between O&M visits, indicating that Redux 390 is an effective method of treatment to address the fouling and scaling of the system components as a result of the chemical composition of the influent water. Additional information regarding the use of Redux 390 at this site are provided in the reports previously submitted to the Illinois EPA for LUST incident number 980704.

TriCore confirmed through the Illinois EPA Bureau of Water and Bureau of Land that no additional permits or permit modifications are required for the addition and use of the Redux 390 chemical to the DPE system.

Costs associated with the implementation of the Redux 390 pump system are included in the Amended Corrective Action Budget provided in Appendix A.

Residential Property Soil and Groundwater Investigation Activities

Soil Boring and Monitoring Well Installation

Based on the geologic cross section prepared by Bradburne, Briller & Johnson, LLC (BBJ) that was provided as Figure 3 in the CAP dated January 30, 1998, a clay unit is present between two sand units in MW-11. In MW-11, a sand unit is present from 4 to 9 feet bls and again from 18 to 26 feet bls. The clay unit is present between these two sand units. On-site, this clay unit does not appear to be present below the sand unit. The extent of the clay unit observed in MW-11 extends further north across several residential properties and into the southern portion of Osage Park, as detailed in the boring logs for SB-14/MW-14, SB-15/MW-15, SB-17, and SB-22/MW-22. Although a clay unit is present in SB-23/MW-23 at a depth of 7 to 16 feet bls, the boring was terminated at 16 feet and it is unknown if a sand unit is present below 16 feet at this location. However, based on the evidence from the adjacent borings mentioned above, a sand unit would be present below the clay unit.

Analytical laboratory results revealed indicator contaminant concentrations exceeding the Tier 1 SROs in soil borings B-4C at a depth of 20-22 feet bls. Indicator contaminant concentrations exceeding the Tier 1 SROs are not present at these depths on site. Suggesting that when the releases at the site occurred, contamination within the sand unit on site traveled north, in the direction of groundwater flow, hit the clay unit present in MW-11, and migrated down along the base of the clay unit (and top of the lower sand unit) north into Osage Park.

Due to the limited amount of soil samples collected from the residential properties located between the site and Osage Park, several data gaps are present and it is unknown if soil

contamination is present on these properties. Therefore, TriCore is proposing to further investigate these properties to determine if contaminated soils are present at the base of the clay unit to determine if an additional method of remediation will be required to remediate the contaminated clay. The operation of the DPE system is addressing the soil and groundwater contamination present within the on-site sand unit but will not be effective at addressing the contaminated soil at the base of the clay unit on the residential properties, if present. If soil contamination is present within this clay unit, it may be providing a continuous leaching source contributing to the off-site groundwater contamination present in several of the monitoring wells located in Osage Park.

To further investigate the contaminated soils on the residential properties located between the site and Osage Park, TriCore is proposing the installation of six soil borings (SB-89 through SB-94) to a maximum depth of 30 feet bls. Three of the soil borings (SB-92 through SB-94) will be converted into groundwater monitoring wells. The proposed locations of the soil borings and monitoring wells are illustrated on Figure 7.

Prior to the installation of the soil borings and monitoring wells, TriCore will enter into access agreements with the owners of the residential properties for the installation of the soil borings and monitoring wells on their properties. After the access agreements are executed, but prior to the installation of the soil borings and monitoring wells, TriCore will visit the site to mark out the locations for the public utility locating service. TriCore will then contract a private utility locator to locate the utilities on the residential properties that are not marked by the public utility locating service. TriCore will be on-site with the private utility locator overseeing and documenting the utility locating activities.

After the public and private utilities are located, TriCore will contract a drilling company to install the soil borings and monitoring wells. It is of TriCore's opinion that the use of a PLA for the installation of the soil borings and monitoring wells will not advance the State's interest of costs or efficiency due to the union drilling contractors not being able to complete the drilling activities for the Illinois EPA-approved rates. The use of a PLA for these activities will increase the overall cost due to the consulting personnel costs associated with writing and placing a public bid, the cost to place the bid in a public paper, and the increase in cost to utilize a union drilling company. Therefore, TriCore requests that the use of a PLA for the installation of the proposed soil borings and monitoring wells not be required.

TriCore will be on-site overseeing and documenting the installation of the soil borings and monitoring wells. The soil borings will be installed and sampled using the procedures used to install and sample soil borings SB-76 through SB-87 on November 3, 2016, as described above in Section E. 1. a. The soil cuttings generated during the soil boring installation activities will be contained on site in the 55-gallon drum that was utilized to contain the soil cuttings generated during the soil boring and monitoring well installation activities completed on November 3, 2016.

The soil sample from each boring collected above the field interpreted water table exhibiting the highest PID measurement will be selected for laboratory analysis. The soil samples selected for laboratory analysis will be submitted under standard chain-of-custody protocol to Pace in Green Bay, Wisconsin for the analysis of BTEX and MTBE using USEPA Method 8260.

After soil samples are collected, SB-89 through SB-91 will be backfilled with bentonite, hydrated, and capped with material similar to the surrounding ground surface. While groundwater monitoring wells will be installed within SB-92 through SB-94. These monitoring wells will be identified as MW-33 through MW-35.

The monitoring wells will be installed to a maximum depth of 25 feet bls. The monitoring wells will be installed with a track-mounted drill rig using 8.25-inch outside diameter hollow stem augers. To prevent cross contamination during the installation of the wells, all drilling equipment will be decontaminated prior to each use using a distilled water and Liquinox[®] solution wash, followed by a distilled water rinse. The soil cuttings generated during the monitoring well installation activities will be contained on site in eight 55-gallon drums for disposal. The drums will be labeled with nonhazardous waste labels.

The monitoring wells will be constructed of Schedule 40 polyvinyl chloride (PVC) casing, 0.010 slot Schedule 40 PVC screen, a PVC end cap, and a well plug. The wells will be constructed so that the screened portion of the wells intersect the field-interpreted groundwater table. The annulus of the wells will be filled with washed silica sand to a minimum of 1 foot above the top of the well screen. Bentonite chips will then be added to approximately 0.75 feet below the top of the well casing. The bentonite chips will be hydrated to provide a seal to prevent potential surface water from migrating into the well through the sand pack. An 8-inch diameter, flush-mount steel manhole with a bolt-down cover was installed within a concrete pad to protect each well.

Groundwater Sampling and Surveying

Approximately 1 week after MW-33 through 35 are installed, TriCore will return to the site to sample the monitoring wells. Prior to sampling, the depth to groundwater will be measured in MW-33 through MW-35 using an electronic oil/water interface probe equipped with an audible signal. All of the other existing monitoring wells will also be gauged. To prevent cross contamination between wells, the probe will be washed with a distilled water and Simple Green[®] mixture between each use.

After gauging, MW-33 through MW-35 will be surged and developed by removing approximately three to five well volumes using dedicated, disposable HDPE bailers. The development water generated during the sampling activities will be added to the DPE system OWS for treatment.

After the wells are developed and allowed to recharge to at least 75% of the initial depth to groundwater, groundwater samples will be collected from each well using the procedures used to sample the wells on October 20, 21, and 24, 2016, as described above in Section E. 1. a. The groundwater samples will be submitted to Pace in Green Bay, Wisconsin for laboratory analysis of BTEX and MTBE using USEPA Method 8260.

After groundwater samples are collected, the top-of-casing and land surface elevations of the wells will be surveyed in reference to a site-specific bench mark so that the groundwater elevations, flow direction, and hydraulic gradient can be determined.

Costs associated with the completion of the proposed soil and groundwater investigation activities described above are included in the Amended Corrective Action Budget provided in Appendix A.

Osage Park Soil and Groundwater Investigation Activities

Soil Boring and Monitoring Well Installation

Analytical laboratory results indicate that benzene concentrations exceeding the Tier 1 SROs are present in B-4c at a depth of 20 to 22 feet bls, and in B-5b at a depth of 10-12 feet bls, which is below the shallow groundwater table that exists in Osage Park. As proposed in the Amended CAP dated June 16, 2009, these concentrations should be addressed through the installation of monitoring wells at these locations and treated as a groundwater issue. Therefore, one groundwater monitoring well (SB-95/MW-36) will be installed at the location of B-4c, and one groundwater monitoring well (SB-96/MW-37) will be installed at the location of B-5b. The locations of the proposed monitoring wells are illustrated on Figure 7.

Analytical laboratory results indicate that a MTBE concentrations exceeding the Tier 1 SRO is present in SB-71. Therefore, one soil boring (SB-97) is being proposed to resample and reevaluate the MTBE concentration at this location. The location of the proposed soil boring is illustrated on Figure 7.

Prior to the installation of the soil boring and monitoring wells, TriCore will obtain an access agreement with the Wauconda Park District for their installation in Osage Park. Once the access agreement has been executed, TriCore will visit the site to mark out the soil boring and monitoring well locations for the public utility locating service.

TriCore will be on-site overseeing and documenting the installation activities. The soil boring and monitoring wells will be installed during the same event as the installation of the proposed soil borings and monitoring wells described above. It is of TriCore's opinion that the use of a PLA for the installation of the soil boring and monitoring wells will not advance the State's interest of costs or efficiency due to the union drilling contractors not being able to complete the drilling activities for the Illinois EPA-approved rates. The use of a PLA for these activities will increase the overall cost to complete the proposed soil boring and monitoring wells due to the consulting personnel costs associated with writing and placing a public bid, the cost to place the bid in a public paper, and the increase in cost to utilize a union drilling company. Therefore, TriCore requests that the use of a PLA for the installation of the proposed soil boring and monitoring wells not be required.

TriCore will be on-site overseeing and documenting the installation of the soil boring and monitoring wells. Prior to the installation of the wells, a soil boring will be installed at each location. The soil borings will be installed and sampled using the procedures used to install and sample soil borings SB-76 through SB-87 on November 3, 2016, as described above in Section E. 1. a. The soil cuttings generated during the soil boring installation activities will be contained on site in one of the 55-gallon drums that will be utilized to contain the soil cuttings generated during the proposed soil boring and monitoring well installation activities described above.

The soil sample from each boring collected above the field interpreted water table exhibiting the highest PID measurement will be selected for laboratory analysis. The soil samples selected for laboratory analysis will be submitted under standard chain-of-custody protocol to Pace in Green Bay, Wisconsin for the analysis of BTEX and MTBE using USEPA Method 8260.

After soil samples are collected, SB-97 will be backfilled with bentonite, hydrated, and

capped with material similar to the surrounding ground surface. While groundwater monitoring wells will be installed within SB-95 and SB-96. These monitoring wells will be identified as MW-36 through MW-37. The monitoring wells will be installed to a maximum depth of 25 feet bls. The monitoring wells will be installed with a track-mounted drill rig using 8.25-inch outside diameter hollow stem augers. To prevent cross contamination during the installation of the wells, all drilling equipment will be decontaminated prior to each use using a distilled water and Liquinox[®] solution wash, followed by a distilled water rinse. The soil cuttings generated during the monitoring well installation activities will be contained on site in three 55-gallon drums for disposal. The drums will be labeled with nonhazardous waste labels.

The monitoring wells will be constructed of Schedule 40 polyvinyl chloride (PVC) casing, 0.010 slot Schedule 40 PVC screen, a PVC end cap, and a well plug. The wells will be constructed so that the screened portion of the wells intersect the field-interpreted groundwater table. The annulus of the wells will be filled with washed silica sand to a minimum of 1 foot above the top of the well screen. Bentonite chips will then be added to approximately 0.75 feet below the top of the well casing. The bentonite chips will be hydrated to provide a seal to prevent potential surface water from migrating into the well through the sand pack. A stick-up well manhole with a locking cover will then be installed within a concrete pad to protect each well.

Groundwater Sampling and Surveying

Approximately 1 week after MW-36 and MW-37 are installed, TriCore will return to the site to sample the monitoring wells. Prior to sampling, the depth to groundwater will be measured in MW-36 and MW-37 using an electronic oil/water interface probe equipped with an audible signal. All of the other existing monitoring wells will also be gauged. To prevent cross contamination between wells, the probe will be washed with a distilled water and Simple Green[®] mixture between each use.

After gauging, MW-36 and MW-37 will be surged and developed by removing approximately three to five well volumes using dedicated, disposable HDPE bailers. The development water generated during the sampling activities will be added to the DPE system OWS for treatment.

After the wells are developed and allowed to recharge to at least 75% of the initial depth to groundwater, groundwater samples will be collected from each well using the procedures used to sample the wells on October 20, 21, and 24, 2016, as described above in Section E. 1. a. The groundwater samples will be submitted to Pace in Green Bay, Wisconsin for laboratory analysis of BTEX and MTBE using USEPA Method 8260.

After groundwater samples are collected, the top-of-casing and land surface elevations of the wells will be surveyed in reference to a site-specific bench mark so that the groundwater elevations, flow direction, and hydraulic gradient can be determined.

Drum Pickup, Transportation, and Disposal

After the soil boring installation, monitoring well installation, and groundwater sampling activities are completed, TriCore will contract North Branch Environmental (North Branch) of Roselle, Illinois to pick up and transport to disposal facilities the 12 55-gallon drum containing soil cuttings generated during the soil boring and monitoring well

installation activities. TriCore will be on site documenting the activities and signing the waste manifest. The drums containing soil cuttings will be transported by North Branch to Advanced Disposal's Zion Landfill in Grayslake, Illinois for disposal.

Costs associated with the completion of the proposed activities described above are included in the Amended Corrective Action Budget provided in Appendix A. Note that the costs for the installation and sampling of SB-95/MW-36 and SB-96/MW-37 in Osage Park are not included in the budget provided in Appendix A since costs for their installation and sampling were included in the Amended Corrective Action Budget dated June 16, 2009.

a. The feasibility of implementing the remedial technologies;

Since the DPE system is installed and was operating at the site, there are no features inhibiting the operation of the system. Based on the proposed locations of the soil borings and monitoring wells, there are no features inhibiting their installation.

b. Whether the remedial technologies will perform satisfactorily and reliably until the remediation objectives are achieved; and

The reduction in the groundwater concentrations while the DPE system was operating and the reduction in soil concentrations post-system shut down indicate that DPE is an effective remediation technique for the indicator contaminant concentrations exceeding the application remediation objectives.

As mentioned above in Section E. 2., if after the proposed soil investigation activities in Osage Park are completed, indicator contaminant concentrations still exceed the Tier 1 SROs, excavation may be proposed.

c. A schedule of when the technologies are expected to achieve the applicable remediation objectives;

Based on the reduction in on-site soil and groundwater concentrations because of the operation of the DPE system to date, it is anticipated that the applicable ROs on-site will be achieved once the DPE system has operated for a period of one additional year. As described above in Section E. 3., groundwater samples will be collected quarterly during the operation of the DPE system. Groundwater samples will also be collected from the wells for two quarters after the DPE system has been shut down. One month after the DPE system has been shut down, soil samples will be collected from the locations which previously exhibited soil concentrations exceeding the Tier 2 SROs for the SCGIER for Class I groundwater.

A remediation effectiveness report will be submitted to the Illinois EPA after the remediation system has operated for a period of one additional year providing the results of the soil and groundwater sampling activities. If the applicable ROs are not achieved, the DPE system may continue to operate. TriCore may propose the continued operation of the DPE system in the remediation effectiveness report or in an Amended CAP.

4. A confirmation sampling plan that describes how the effectiveness of the corrective action activities will be monitored during their implementation and after their completion;

Soil Quality Monitoring

Approximately one month after the DPE system has been shut down, the on-site soil sample locations which contained indicator contaminant concentrations exceeding the Tier 2 SSL SROs for the SCGIER for Class I groundwater will be resampled. These sample locations include SB-53/MW-31, SB-76, and SB-83. Further details regarding the proposed resampling activities are provided above in Section E. 3.

If analytical laboratory results reveal indicator contaminant concentrations exceed the Tier 2 SSL SROs for the SCGIER for Class I groundwater, the system may be restarted.

Groundwater Quality Monitoring

As described above in Section E. 3. and pursuant to the Illinois EPA letter dated October 21, 2009, groundwater samples will be collected from the recovery wells, the wells located in Osage Park, and the wells with indicator contaminant concentrations exceeding the Tier 1 GROs for Class I groundwater on a quarterly basis during the operation of the DPE system. These wells include RW-1, RW-1 ('04) RW-3 through RW-10, MW-2, MW-4, MW-11S, MW-13 through MW-19, MW-27, MW-29, MW-30, and MW-32. Quarterly groundwater monitoring and sampling will be conducted until groundwater concentrations do not exceed the Tier 1, Class I GROs for two quarters after the system has been shut down. Further details regarding the proposed quarterly groundwater sampling activities are provided above in Section E. 3.

If analytical laboratory results from the groundwater sampling events that are completed after the DPE system has been shut down reveal that indicator contaminant concentrations exceed the Tier 1 GROs for Class I groundwater, the system may be restarted.

5. A description of the current and projected future uses of the site;

The property is currently an operating gasoline retail station consisting of a single-story convenience store building, two 10,000-gallon steel unleaded gasoline underground storage tanks, three dispenser islands with one dispenser each, a canopy that covers the dispenser islands, a storage shed, and a DPE system trailer. At the time this report was written, the owner plans to continue to operate the site as a gasoline retail station. Site features are illustrated on Figures 1 through 7.

6. A description of engineered barriers or institutional controls that will be relied upon to achieve remediation objectives:

A description of the engineered barriers or institutional controls that may be relied upon to achieve the remediation objectives will be dependent on the results of the proposed remediation activities. This information will be provided in an Amended CAP or Corrective Action Completion Report (CACR).

a. An assessment of their long-term reliability;

b. Operating and maintenance plans; and

c. Maps showing area covered by barriers and institutional controls;

7. The water supply well survey:

a. Map(s) showing locations of community water supply wells and other potable

wells and the setback zone for each well;

According to maps obtained from the Illinois EPA Source Water Assessment Program (SWAP) ArcIMS Mapping Tool and the Illinois State Geological Survey (ISGS) Illinois Water Well Internet Map Service, 9 private potable water supply wells, one non-CWS well, one active CWS well, and 16 engineering wells are located within 2,500 feet of the site.

The closest private potable water supply well to the site is identified in the Illinois EPA SWAP ArcIMS Mapping Tool and the ISGS Illinois Water Well Internet Map Service as API number 120973418700. The well is located approximately 795 feet west of the site. According to the well log obtained from the ISGS, the well is owned by Paul Heinson, was drilled on August 14, 1989, and has a reported total depth of 75 feet.

The non-CWS located within 2,500 feet of the site is identified in the Illinois EPA SWAP ArcIMS Mapping Tool as API number 120974487000 and owned by Wauconda Motel. Although the well is listed in the Illinois EPA SWAP ArcIMS Mapping Tool as an ISGS database well, the well is identified as a non-CWS well in the Illinois EPA SWAP Factsheets. The well is located approximately 2,375 feet southwest of the site and does not have a reported drilling date or depth.

The active CWS well listed in the Illinois EPA SWAP ArcIMS Mapping Tool is identified as API number 120970236600 and as Well ID 20289. The well is located approximately 421 feet north of the site in Osage Park. According to the Illinois EPA SWAP ArcIMS Mapping Tool and Factsheet, the well is an active CWS well and was installed to a depth of 325 feet into shallow bedrock. The well has a reported minimum setback zone of 200 feet.

The Illinois EPA SWAP ArcIMS Mapping Tool did not provide setback zones for the private potable water supply wells or non-CWS well identified within 2,500 feet of the site. According to the Illinois Groundwater Protection Act, a minimum setback zone of 200 feet is required for any potable water supply well in which a minimum setback zone has not been established. Therefore, the private potable water supply wells and non-CWS well identified within 2,500 feet of the site have minimum setback zones of 200 feet.

Copies of the water supply well information obtained from the Illinois EPA and the ISGS are provided in Appendix N.

b. Map(s) showing regulated recharge areas and wellhead protection areas;

According to the Illinois EPA SWAP ArcIMS Mapping Tool, the site is located within the wellhead protection area of the CWS identified as API number 120970236600 and Well ID 20289 that is located approximately 421 feet north of the site in Osage Park. A map showing that the site is located within the wellhead protection area of the site is provided in Appendix N.

According to the Illinois EPA SWAP ArcIMS Mapping Tool, the site is not located within a regulated recharge area. Maps showing that the site is not located within a regulated recharge area are provided in Appendix N.

c. Map(s) showing the current extent of groundwater contamination exceeding the

most stringent Tier 1 remediation objectives;

A map showing the current extent of groundwater contamination exceeding the most stringent Tier 1 GROs is illustrated on Figure 2. Please note that this area may change after the proposed site investigation and remediation activities are completed.

d. Map(s) showing the modeled extent of groundwater contamination exceeding the most stringent Tier 1 remediation objectives;

Since the indicator contaminant concentrations exceeding the Tier 1 GROs for Class I groundwater are located within the setback zone and/or the wellhead protection area of the CWS located in Osage Park, and must be remediated to the Tier 1 GROs, a map showing the modeled extent of the existing groundwater contamination was not created.

e. Tables listing the setback zone for each community water supply well and other potable water supply wells;

A table listing all of the potable water supply wells identified in the Illinois EPA SWAP ArcIMS Mapping Tool and the ISGS Illinois Water Well Internet Map Service located within 2,500 feet of the site, the owner of the wells, the types of wells, the approximate distances and directions from the property boundaries of the site, the depth of the wells, and the minimum setback zone for each well is provided below.

API Number/ Well Number	Owner	Type	Distance (feet)	Direction	Depth (feet)	Setback Zone (feet)
120970236600	Village of Wauconda	CWS	421	N	325	200
120973418700	Paul Heinson	P	795	W	75	200
120970055900	Frank Selouke	P	884	E	201	200
120973612200	First Church Christ Scien.	P	1,167	NE	114	200
120973203500	Mike Slusser	P	1,357	SE	160	200
120972558400	Klaus Schubert	P	1,389	S	220	200
120973200900	Atlantic Richfield Co.	P	1,433	W	212	200
120974295700	Harry Milbourn	P	1,498	SE	217	200
120970166400	Mike Angelo	P	1,812	SE	150	200
120973203400	Joe Lauer	P	1,900	SW	78	200
120974487000	Wauconda Motel	Non-CWS	2,361	SW		200

f. A narrative identifying each entity contacted to identify potable water supply wells, the name and title of each person contacted, and any field observations associated with any wells identified; and

The following websites were consulted regarding the locations of potable water supply wells within 2,500 feet of the site.

1. Illinois EPA SWAP ArcIMS Mapping Tool, <http://illinois-epa.maps.arcgis.com/apps/webappviewer/index.html?id=4d37a05f5ba441f1b30da b54ccb81fc8>
2. Illinois EPA SWAP Factsheets, <http://dataservices.epa.illinois.gov/swap/factsheet.aspx>
3. ISGS Illinois Water Well Internet Map Service, <http://maps.isgs.illinois.edu/ILWATER/>

- g. A certification from a Licensed Professional Engineer or Licensed Professional Geologist that the survey was conducted in accordance with the requirements and that documentation submitted includes information obtained as a result of the survey (certification of this plan satisfies this requirement);**

A certification from a Licensed Professional Engineer is provided below in Section G.

8. Appendices:

- a. References and data sources report that are organized; and**

The following is a list of references that were utilized to complete this report.

1. CAP dated January 30, 1998, prepared by BBJ
2. CAP dated June 16, 2009, prepared by TriCore
3. Illinois EPA letter dated October 21, 2009
4. Amended CAP dated April 23, 2010, prepared by TriCore
5. Amended CAP dated June 11, 2015, prepared by TriCore
6. Illinois EPA letter dated October 7, 2016
7. Illinois EPA SWAP ArcIMS Mapping Tool, <http://illinois-epa.maps.arcgis.com/apps/webappviewer/index.html?id=4d37a05f5ba441f1b30da b54ccb81fc8>
8. Illinois EPA SWAP Factsheets, <http://dataservices.epa.illinois.gov/swap/factsheet.aspx>
9. ISGS Illinois Water Well Internet Map Service, <http://maps.isgs.illinois.edu/ILWATER/>
10. 35 IAC Part 734
11. 35 IAC Part 742
12. Toxicity Values for TACO Tier 2 and 3 Applications, <http://www.epa.illinois.gov/topics/cleanup-programs/taco/index>

- b. Field logs, well logs, and reports of laboratory analyses;**

Copies of the soil boring logs and analytical laboratory reports for the soil, groundwater, and air samples collected on and after June 1, 2015 are provided in Appendices D, E, F, and G of this Amended CAP. Copies of the soil boring logs and analytical laboratory reports for the soil, groundwater, and air samples collected prior to June 1, 2015 were provided in the reports previously submitted to the Illinois EPA.

- 9. Site map(s) meeting the requirements of 35 Ill. Adm. Code 732.110(a) or 734.440;**

Site maps meeting the requirements of 35 IAC 734.440 are illustrated on Figures 1 through 7.

- 10. Engineering design specifications, diagrams, schematics, calculations, manufacturer's specifications, etc.;**

Engineering design specifications, diagrams, and schematics for the DPE system are provided in the Amended CAP dated June 16, 2009, above in Section E., and illustrated on Figures 8 through 10.

11. A description of bench/pilot studies;

This section is not applicable since bench/pilot studies are not being proposed in this Amended CAP.

12. Cost comparison between proposed method of remediation and other methods of remediation;

A cost comparison between DPE and other methods of remediation was not performed due to the limited methods of remediation available for this site to address the indicator contaminant concentrations in the soil and groundwater that exceed the applicable ROs and the free product still present on site. Due to the location of the indicator contaminant concentrations in the soil exceeding the Tier 2 SROs in relation to the UST system, excavation is not feasible. As demonstrated in the Amended CAP dated June 16, 2009, in-situ chemical oxidation is not a feasible option due the volume of oxygen and chemical required to treat the mass of contaminants in the saturated zone.

If excavation of contaminated soil is proposed in Osage Park, a cost comparison between excavation and other methods of remediation will be provided in an Amended CAP.

13. For the proposed Tier 2 or 3 remediation objectives, provide the following:

a. The equations used;

The equations used for the Tier 2 evaluation for the outdoor inhalation exposure route are SSL Equations S4, S5, S6, S7, S26, and S27. The equations used for the Tier 2 evaluation for the SCGIER are SSL Equations S18, S22, S25, and S28. The equations used for the site-specific C_{sat} evaluation are SSL Equations S19 through S21, S24, and S29.

b. A discussion of how input variables were determined;

Site-specific input variables were determined from the data collected during the investigation activities performed at the site. Default variables were obtained from 35 IAC Section 742, Appendix C, Tables B, E, H, and K, and the Toxicity Values for TACO Tier 2 and 3 Applications table located on the Illinois EPA's website at <http://www.epa.illinois.gov/topics/cleanup-programs/taco/index>.

c. Map(s) depicting distances used in equations; and

A map depicting the distance used in the Tier 2 evaluations for the SCGIER is illustrated on Figure 6.

d. Calculations; and

Calculations for the Tier 2 evaluation for the outdoor inhalation exposure route are provided in Appendix H. Calculations for the SCGIER are provided in Appendix K.

14. Provide documentation to demonstrate the following for alternative technologies:

a. The proposed alternative technology has a substantial likelihood of successfully achieving compliance with all applicable regulations and remediation objectives;

A comparison of the analytical laboratory results from the baseline groundwater sampling event completed in 2013, the quarterly groundwater sampling event completed in May 2015 during the operation of the DPE system, and the groundwater sampling event completed in October and November 2016 after the DPE system had been shut down for 5 months indicates that concentrations decreased during the operation of the DPE system. Additionally, a comparison of the indicator contaminant concentrations from the baseline groundwater sampling event and the groundwater sampling event completed after the DPE system had been shut down indicates an overall decrease in concentrations. The data suggests that the DPE system is effective in remediating the indicator contaminant concentrations in the groundwater. Additional operation of the DPE system is required to further reduce concentrations to levels that do not exceed the Tier 1 GROs for Class I groundwater.

b. The proposed alternative technology will not adversely affect human health and safety or the environment;

TriCore has obtained an air discharge permit and water pollution control permit from the Illinois EPA. TriCore has met and will continue to meet the requirements of the permits so that the DPE technology will not adversely affect human health and safety or the environment.

c. The owner or operator will obtain all Illinois EPA permits necessary to legally authorize use of the alternative technology;

As mentioned above in Section E. 14. b., TriCore has obtained an air discharge permit and water pollution control permit from the Illinois EPA. Additionally, as mentioned above in Section E. 3., TriCore confirmed through the Illinois EPA Bureau of Water and Bureau of Land that no additional permits or permit modifications are required for the addition and use of the Redux 390 chemical to the DPE system.

d. The owner or operator will implement a program to monitor whether the requirements of subsection (14) (a) have been met;

Soil

As mentioned above in Section E. 3., one month after the remediation system has been shut down, soil samples will be collected from the locations which previously exhibited soil concentrations exceeding the Tier 2 SROs for the SCGIER for Class I groundwater.

Groundwater

As mentioned above in Section E. 3., quarterly groundwater monitoring will be conducted during the operation of the DPE system for a period of one year. Additionally, for two quarters after the DPE system has been shut down, groundwater sampling events will be completed on the wells.

e. Within one year from the date of Illinois EPA approval, the owner or operator will provide to the Illinois EPA monitoring program results establishing whether the proposed alternative technology will successfully achieve compliance with the requirements of subsection (14) (a); and

As mentioned above in Section E. 3. c., analytical laboratory results for the groundwater sampling and the soil resampling will be provided to the Illinois EPA in

a remediation effectiveness report.

- f. Demonstration that the cost of alternative technology will not exceed the cost of conventional technology and is not substantially higher than at least two other alternative technologies, if available and technically feasible.**

As mentioned above in Section E. 12., a cost comparison between DPE and other methods of remediation was not performed due to the limited methods of remediation available for this site to address the indicator contaminant concentrations in the soil and groundwater that exceed the applicable ROs and the free product still present on site. Due to the location of the indicator contaminant concentrations in the soil exceeding the Tier 2 SROs in relation to the UST system, excavation is not feasible. As demonstrated in the Amended CAP dated June 16, 2009, in-situ chemical oxidation is not a feasible option due the volume of oxygen and chemical required to treat the mass of contaminants in the saturated zone.

F. Exposure Pathway Exclusion

Provide the following:

- 1. A description of the tests to be performed in determining whether the following requirements will be met:**

- a. Attenuation capacity of the soil will not be exceeded for any of the organic contaminants;**

On December 11, 2007, two soil samples were collected from soil boring SB-38: one soil sample from a depth of 2 to 3 feet bls and one soil sample from a depth of 3 to 4 feet bls. The soil samples were submitted under standard chain-of-custody protocol to Pace in Green Bay, Wisconsin for the analysis of fraction of organic carbon (f_{oc}) content using American Society of Testing and Materials Method D2974.

Analytical laboratory results from the soil samples collected from the site indicate that BTEX and MTBE concentrations do not exceed the f_{oc} concentrations; therefore, the BTEX and MTBE concentrations do not exceed the attenuation capacity of the soil. The f_{oc} concentrations are summarized in Table 6.

Analytical laboratory results from the soil samples collected during the proposed investigation activities that are analyzed for BTEX and MTBE will be compared to the f_{oc} concentrations. This comparison will be provided in an Amended CAP.

- b. Soil saturation limit will not be exceeded for any of the organic contaminants;**

As demonstrated above in Section E. 2., the indicator contaminants at the sample locations indicated below exceed the site-specific C_{sat} for total xylenes.

Indicator Contaminant	Sample Location Exceeding the Site-Specific C_{sat}
Total Xylenes	SB-53/MW-31, SB-76

The indicator contaminant concentrations at these sample locations will be remediated utilizing DPE and the sample locations will then be resampled after the DPE system has been shut down.

Analytical laboratory results from the soil samples to be analyzed for BTEX and MTBE

from the proposed sampling activities will be compared to the default and site-specific C_{sats} for each compound. This comparison will be provided in an Amended CAP.

c. Contaminated soils do not exhibit any of the reactivity characteristics of hazardous waste per 35 Ill. Adm. Code 721.123;

On June 1, 2006, one soil sample was collected from SB-32 from a depth of 7 to 9.5 feet bls and submitted under standard chain-of-custody protocol to Pace in Green Bay, Wisconsin for analysis of reactive cyanide using USEPA Method SW 7.3.3.2 and reactive sulfide using USEPA Method SW 7.3.4.2.

Analytical laboratory results revealed that the soils do not exhibit any of the characteristics of reactivity for hazardous waste per 35 IAC Section 721.123. Analytical laboratory results are summarized in Table 6.

d. Contaminated soils do not exhibit a $pH \leq 2.0$ or ≥ 12.5 ; and

On April 11, 2005, one soil sample was collected from MP-3 from a depth of 6 to 7 feet bls and submitted under standard chain-of-custody protocol to Pace in Green Bay, Wisconsin for pH analysis using USEPA Method 9045.

Analytical laboratory results revealed a pH value of 7.2. This pH value is in compliance with 35 IAC Section 742.305 d). The analytical laboratory result is summarized in Table 6.

e. Contaminated soils which contain arsenic, barium, cadmium, chromium, lead, mercury, or selenium (or their associated salts) do not exhibit any of the toxicity characteristics of hazardous waste per 35 Ill. Adm. Code 721.124.

According to the Illinois Emergency Management Agency field reports for incident numbers 892744 and 903199, the incidents were associated with the releases of gasoline.

Pursuant to 40 Code of Federal Regulations (CFR) Section 261.4(b) (10), petroleum contaminated media and debris that fail the test for the Toxicity Characteristics of 40 CFR Section 261.24 (Hazardous Waste Codes D018 through D043 only) and are subject to the corrective action regulations under 40 CFR Part 280, are not considered hazardous waste. Due to the substances involved in the release, it is unlikely that the site soils would contain arsenic, barium, cadmium, chromium, lead, mercury, selenium, or silver.

Based on the above information, the soils should not exhibit any characteristics of toxicity for hazardous waste per 35 IAC Section 742.305 e).

2. A discussion of how any exposure pathways are to be excluded.

A discussion of how the exposure routes are to be excluded is provided above in Section C. and Section E. 2. Further discussion of how the exposure routes are to be excluded may be provided in an Amended CAP or CACR once the proposed remediation activities are completed.

G. Signatures

All plans, budgets, and reports must be signed by the owner or operator and list the owner's or operator's full name, address, and telephone number.

UST Owner or Operator

Name: Shivam Energy, Inc.
Contact: Rajani Patel
Address: 399 W. Liberty Street
City: Wauconda
State: Illinois
ZIP Code: 60084
Phone: (847) 526-3455
Signature: Rajani Patel
Date: 01/04/2017

Consultant

Company: TriCore Environmental, LLC
Contact: Marcos I. Czakó, P.G.
Address: 2368 Corporate Lane, Suite 116
City: Naperville
State: Illinois
ZIP Code: 60563
Phone: (630) 520-9973
Signature: Marcos I. Czakó
Date: 01/11/17

I certify under penalty of law that all activities that are the subject of this plan were conducted under my supervision or were conducted under the supervision of another Licensed Professional Engineer or Licensed Professional Geologist and reviewed by me; that this plan and all attachments were prepared under my supervision; that, to the best of my knowledge and belief, the work described in this plan has been completed in accordance with the Environmental Protection Act [415 ILCS 5], 35 Ill. Adm. Code 731, 732 or 734, and generally accepted standards and practices of my profession; and that the information presented is accurate and complete. I am aware there are significant penalties for submitting false statements or representations to the Illinois EPA, including but not limited to fines, imprisonment, or both as provided in Sections 44 and 57.17 of the Environmental Protection Act [415 ILCS 5/44 and 57.17].

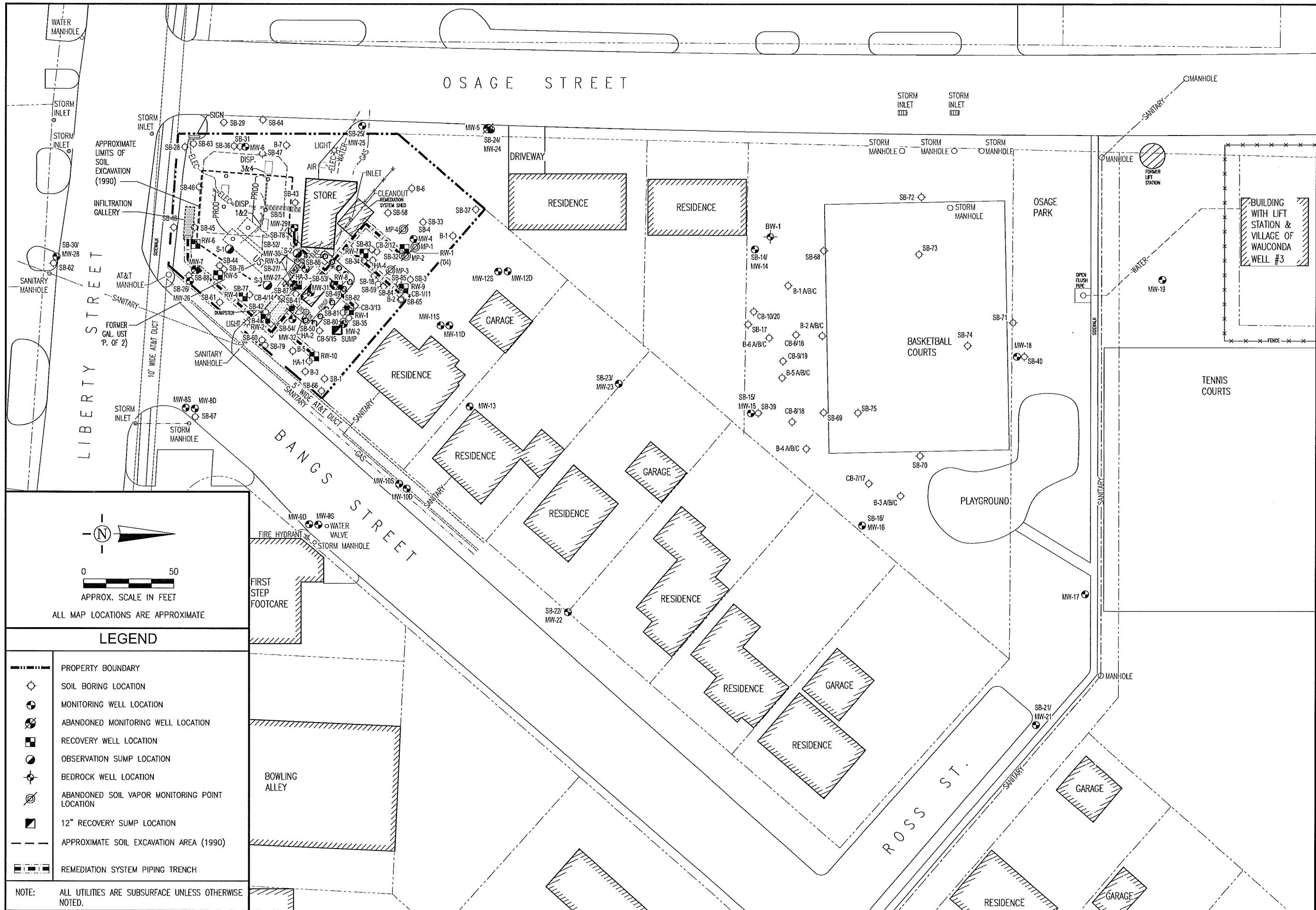
Licensed Professional Engineer or Geologist

Name: Shawn Rodeck
Company: TriCore Environmental, LLC
Address: 2368 Corporate Lane, Suite 116
City: Naperville
State: Illinois
ZIP Code: 60563
Phone: (630) 520-9973
Ill. Registration No.: 062-052879
License Expiration Date: 11/30/2017
Signature: Shawn Rodeck
Date: 01/12/2017

L.P.E. or L.P.G. Seal



FIGURES



TriCore Environmental, LLC
 2368 Corporate Lane, Suite 116
 Naperville, IL 60563
 (630) 520-9973



SHIVAM ENERGY, INC.
 399 West Liberty Street
 Wauconda, IL 60084

SITE MAP
 SHIVAM ENERGY, INC.
 399 WEST LIBERTY STREET
 WAUCONDA LAKE COUNTY, ILLINOIS 60084

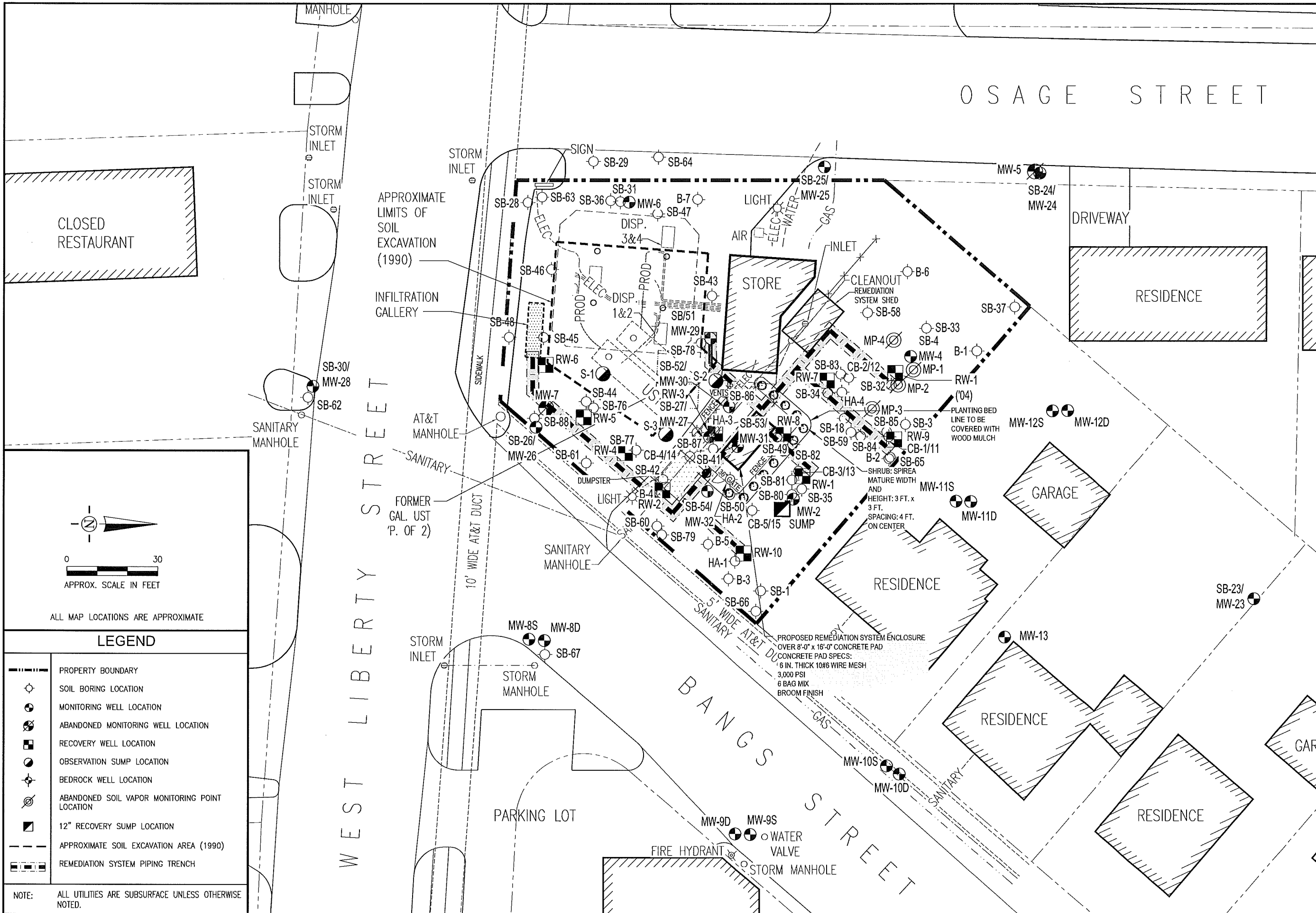
DRAWN BY: JLO
 APPROVED BY: MIC
 SCALE: 1" = 50'
 DATE: 12/29/2016
 DRAWING FILE: MD13-104

FIGURE 1A

LEGEND

- PROPERTY BOUNDARY
- SOIL BORING LOCATION
- MONITORING WELL LOCATION
- ⊙ ABANDONED MONITORING WELL LOCATION
- RECOVERY WELL LOCATION
- OBSERVATION SUMP LOCATION
- ⊙ BEDROCK WELL LOCATION
- ⊙ ABANDONED SOIL VAPOR MONITORING POINT LOCATION
- 12" RECOVERY SUMP LOCATION
- - - APPROXIMATE SOIL EXCAVATION AREA (1990)
- REMEDIATION SYSTEM PIPING TRENCH

NOTE: ALL UTILITIES ARE SUBSURFACE UNLESS OTHERWISE NOTED.



ALL MAP LOCATIONS ARE APPROXIMATE

LEGEND

- PROPERTY BOUNDARY
- SOIL BORING LOCATION
- MONITORING WELL LOCATION
- ⊗ ABANDONED MONITORING WELL LOCATION
- RECOVERY WELL LOCATION
- OBSERVATION SUMP LOCATION
- ⊕ BEDROCK WELL LOCATION
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- - - APPROXIMATE SOIL EXCAVATION AREA (1990)
- ▬▬▬ REMEDIATION SYSTEM PIPING TRENCH

NOTE: ALL UTILITIES ARE SUBSURFACE UNLESS OTHERWISE NOTED.

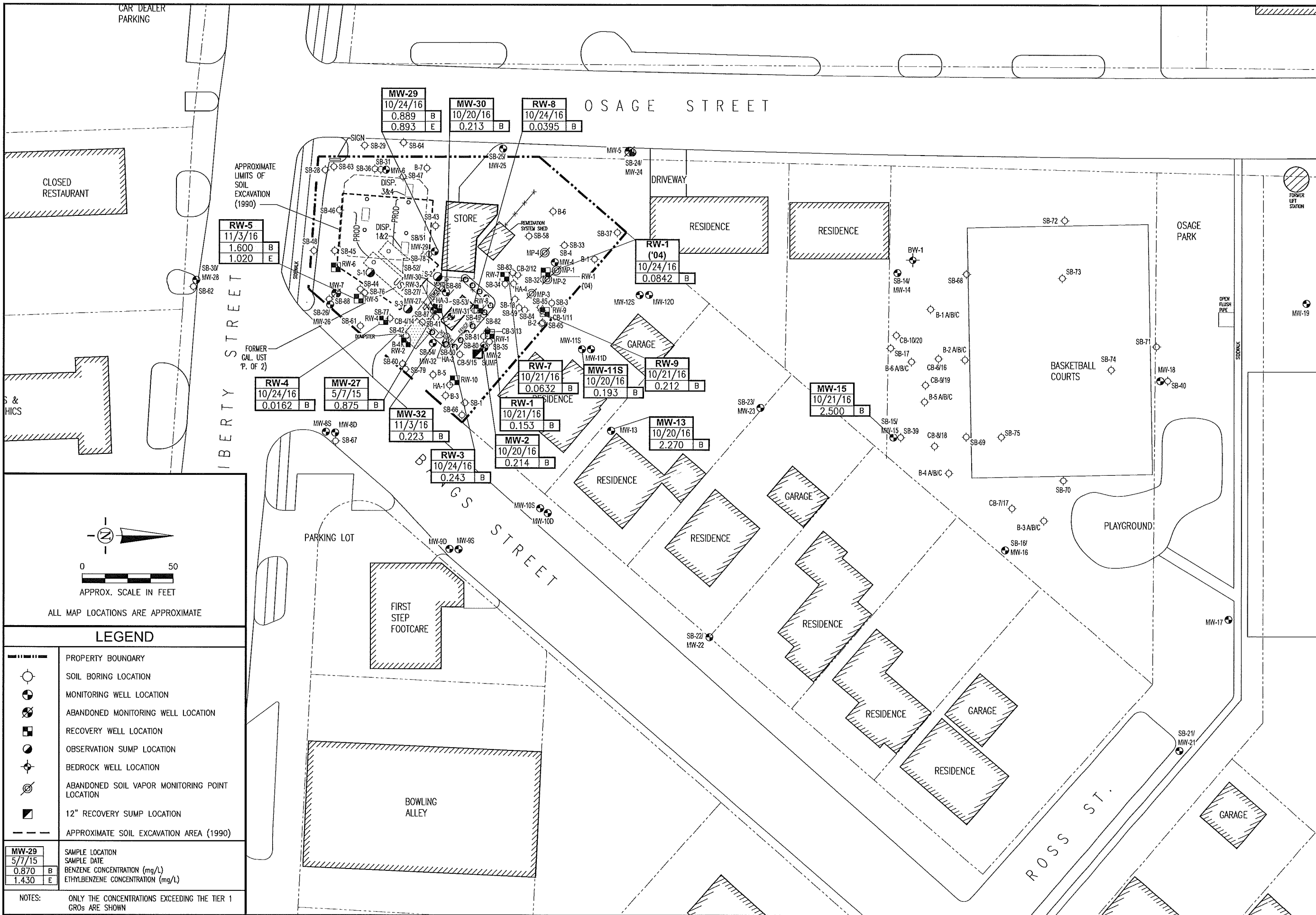
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 (630) 520-9973

SHIVAM ENERGY, INC.
 399 West Liberty Street
 Wauconda, IL 60084

SITE MAP - ON SITE AND ADJACENT AREA
 SHIVAM ENERGY, INC.
 399 WEST LIBERTY STREET
 WAUCONDA LAKE COUNTY, ILLINOIS 60084

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 APPROVED BY: MIC
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 DATE: 12/29/2016
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FIGURE 1B



APPROXIMATE LIMITS OF SOIL EXCAVATION (1990)

RW-5	11/3/16	1.600 B	1.020 E
-------------	---------	---------	---------

MW-29	10/24/16	0.889 B	0.893 E
MW-30	10/20/16	0.213 B	
RW-8	10/24/16	0.0395 B	

RW-4	10/24/16	0.0162 B	
MW-27	5/7/15	0.875 B	

MW-32	11/3/16	0.223 B	
RW-3	10/24/16	0.243 B	
RW-1	10/21/16	0.153 B	
MW-2	10/20/16	0.214 B	

RW-7	10/21/16	0.0632 B	
MW-11S	10/20/16	0.193 B	
RW-9	10/21/16	0.212 B	

MW-13	10/20/16	2.270 B	
MW-15	10/21/16	2.500 B	

RW-1 ('04)	10/24/16	0.0842 B	
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0 50
APPROX. SCALE IN FEET

ALL MAP LOCATIONS ARE APPROXIMATE

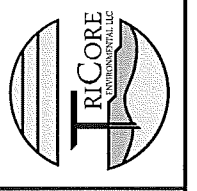
LEGEND

- PROPERTY BOUNDARY
- SOIL BORING LOCATION
- MONITORING WELL LOCATION
- ⊙ ABANDONED MONITORING WELL LOCATION
- RECOVERY WELL LOCATION
- ⊙ OBSERVATION SUMP LOCATION
- ⊙ BEDROCK WELL LOCATION
- ⊙ ABANDONED SOIL VAPOR MONITORING POINT LOCATION
- 12" RECOVERY SUMP LOCATION
- - - APPROXIMATE SOIL EXCAVATION AREA (1990)

MW-29	5/7/15	0.870 B	1.430 E
--------------	--------	---------	---------

NOTES: ONLY THE CONCENTRATIONS EXCEEDING THE TIER 1 GROs ARE SHOWN

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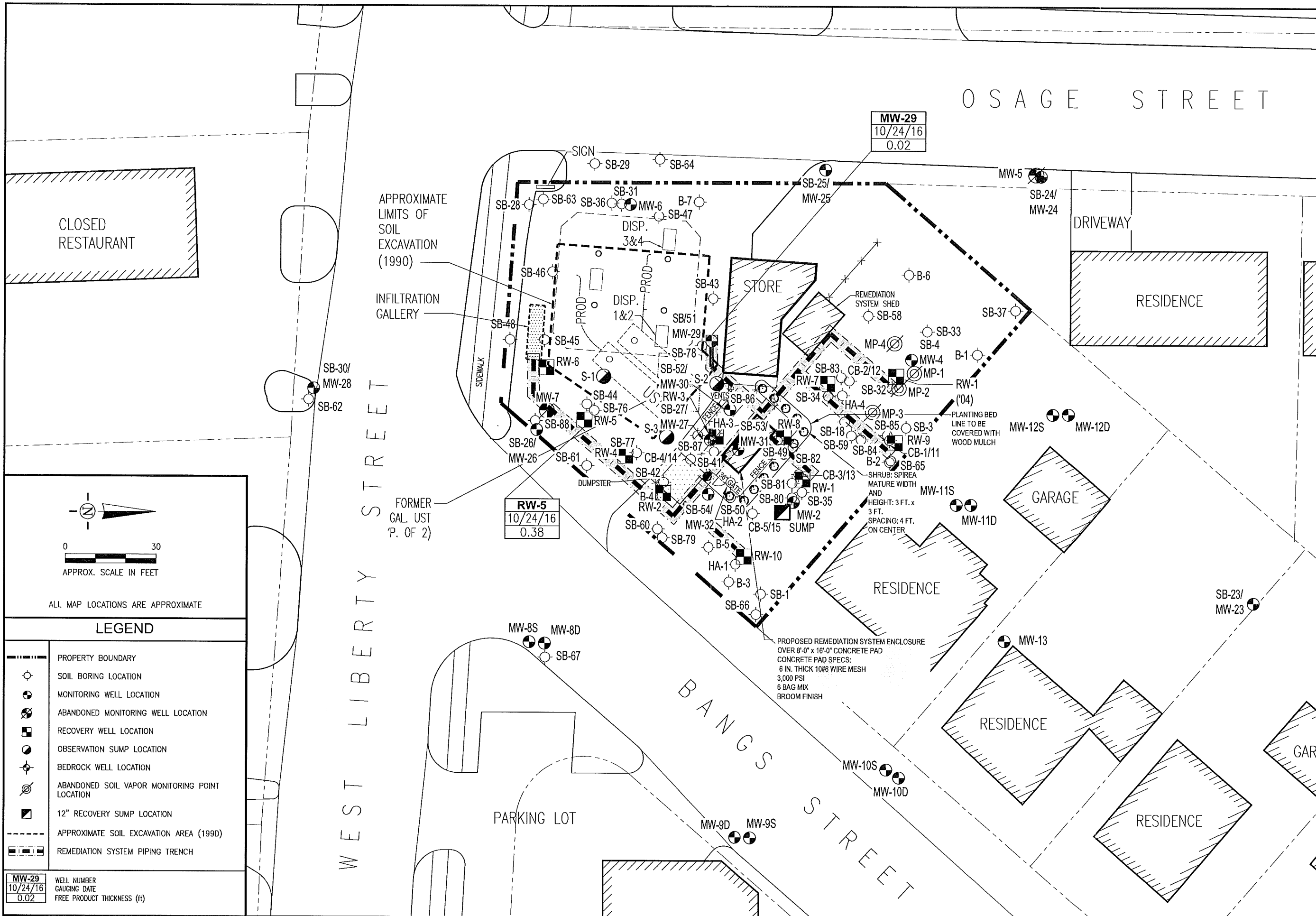


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GROUNDWATER ANALYTICAL RESULTS
 SHIVAM ENERGY, INC.
 399 WEST LIBERTY STREET
 WAUCONDA LAKE COUNTY, ILLINOIS 60084

DRAWN BY: JLO
 APPROVED BY: MIC
 SCALE: 1" = 50'
 DATE: 12/29/2016
 DRAWING FILE: MD13-104

FIGURE 2



0 30
APPROX. SCALE IN FEET

ALL MAP LOCATIONS ARE APPROXIMATE

LEGEND

- SOIL BORING LOCATION
- MONITORING WELL LOCATION
- ⊗ ABANDONED MONITORING WELL LOCATION
- RECOVERY WELL LOCATION
- ⊙ OBSERVATION SUMP LOCATION
- ⊕ BEDROCK WELL LOCATION
- ⊗ ABANDONED SOIL VAPOR MONITORING POINT LOCATION
- 12" RECOVERY SUMP LOCATION
- - - APPROXIMATE SOIL EXCAVATION AREA (1990)
- - - - - REMEDIATION SYSTEM PIPING TRENCH

MW-29 10/24/16 0.02	WELL NUMBER GAUGING DATE FREE PRODUCT THICKNESS (ft)
----------------------------------	--

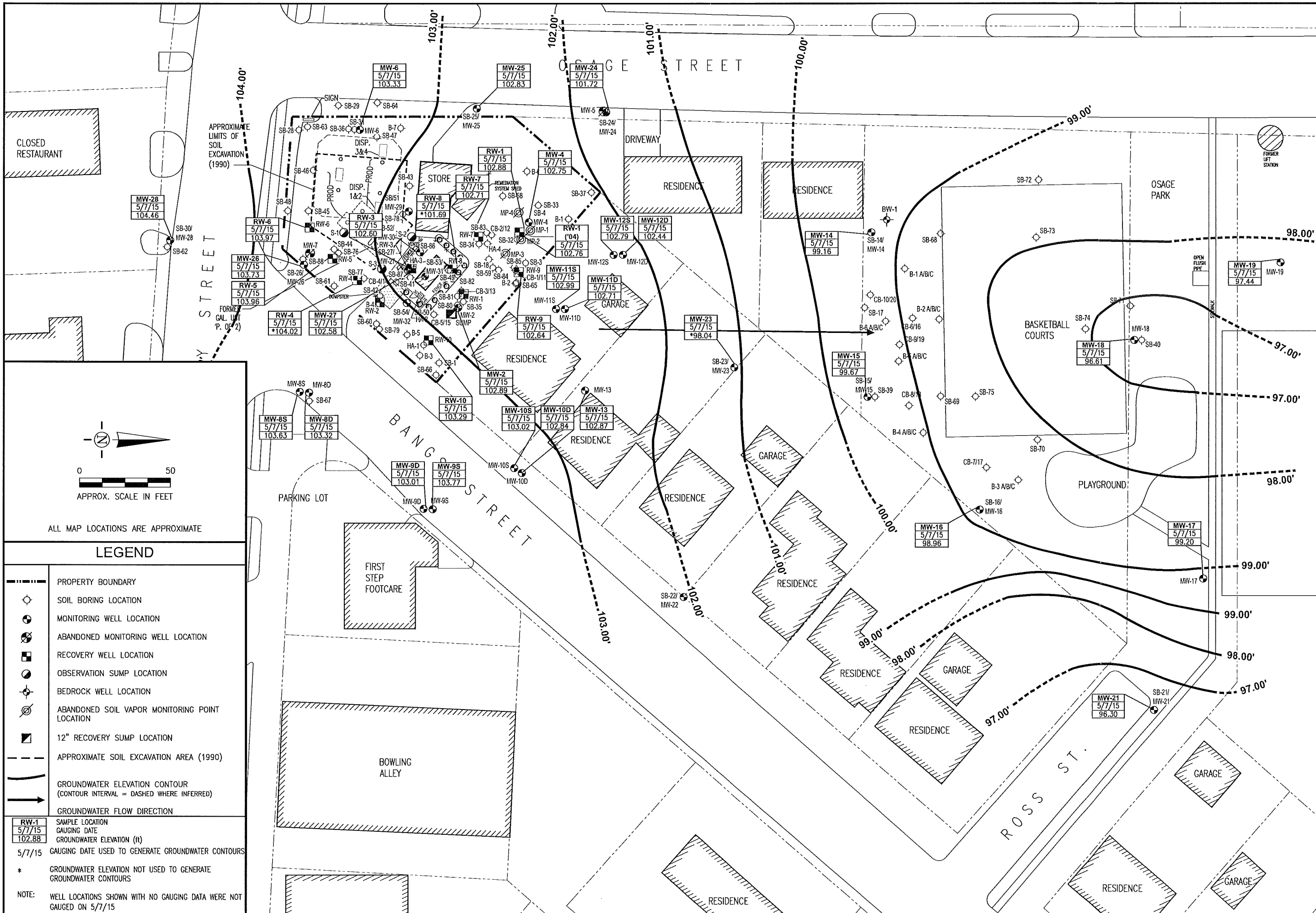
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399 West Liberty Street
Wauconda, IL 60084

FREE PRODUCT THICKNESS
SHIVAM ENERGY, INC.
399 WEST LIBERTY STREET
WAUCONDA LAKE COUNTY, ILLINOIS 60084

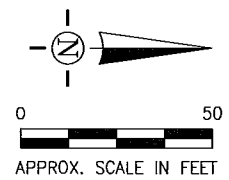
DRAWN BY:	SAA
APPROVED BY:	MIC
SCALE:	1" = 30'
DATE:	12/7/2016
DRAWING FILE:	MD13-104

FIGURE 3



CLOSED RESTAURANT

APPROXIMATE LIMITS OF SOIL EXCAVATION (1990)



ALL MAP LOCATIONS ARE APPROXIMATE

LEGEND

- PROPERTY BOUNDARY
 - SOIL BORING LOCATION
 - MONITORING WELL LOCATION
 - ABANDONED MONITORING WELL LOCATION
 - RECOVERY WELL LOCATION
 - OBSERVATION SUMP LOCATION
 - BEDROCK WELL LOCATION
 - ABANDONED SOIL VAPOR MONITORING POINT LOCATION
 - 12" RECOVERY SUMP LOCATION
 - APPROXIMATE SOIL EXCAVATION AREA (1990)
 - GROUNDWATER ELEVATION CONTOUR (CONTOUR INTERVAL = DASHED WHERE INFERRRED)
 - GROUNDWATER FLOW DIRECTION
- | | |
|--------------------------|---|
| RW-1
5/7/15
102.88 | SAMPLE LOCATION
GAUGING DATE
GROUNDWATER ELEVATION (ft) |
| 5/7/15 | GAUGING DATE USED TO GENERATE GROUNDWATER CONTOURS |
| * | GROUNDWATER ELEVATION NOT USED TO GENERATE GROUNDWATER CONTOURS |
- NOTE: WELL LOCATIONS SHOWN WITH NO GAUGING DATA WERE NOT GAUGED ON 5/7/15

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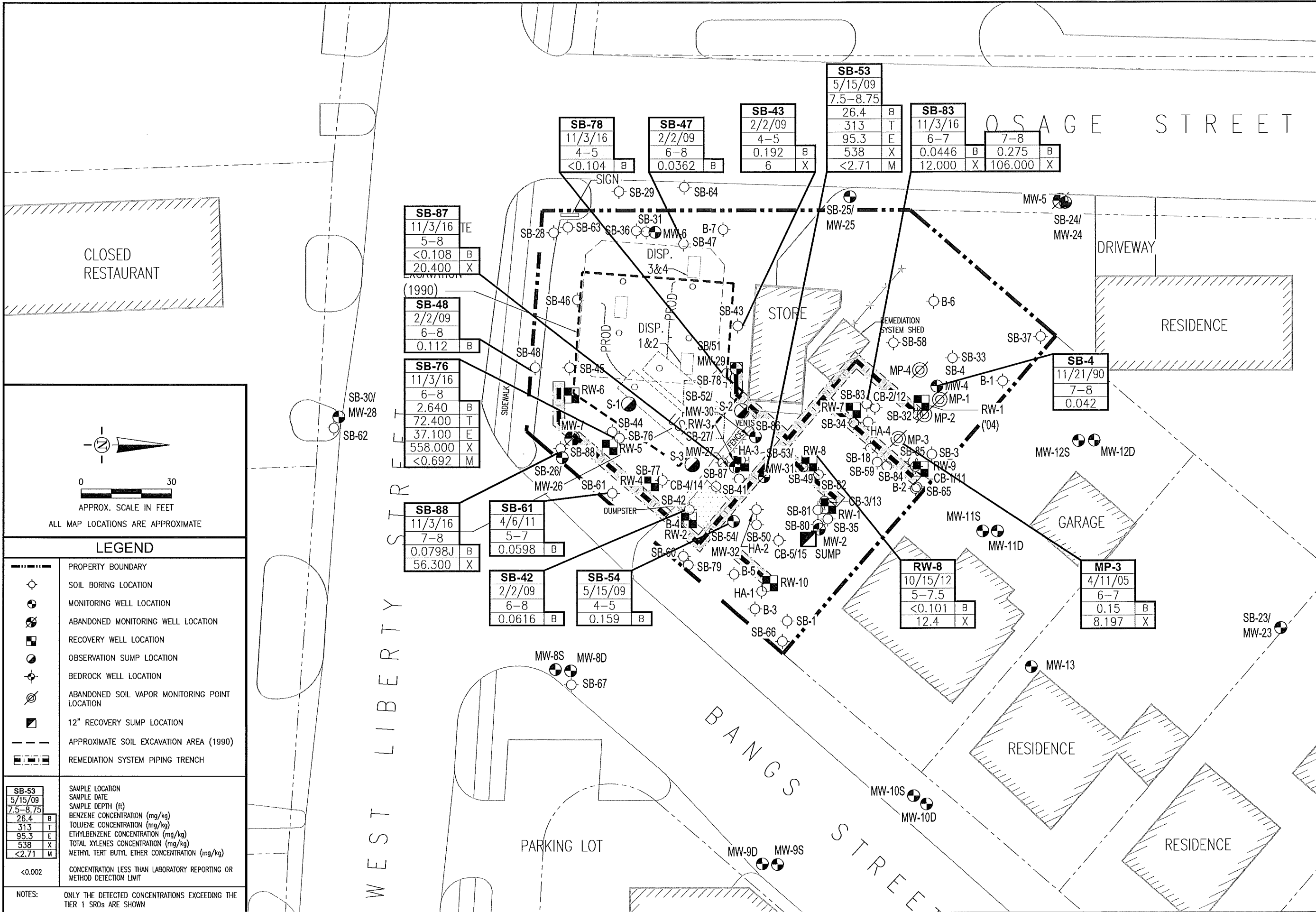


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GROUNDWATER ELEVATIONS AND FLOW DIRECTION
SHIVAM ENERGY, INC.
399 WEST LIBERTY STREET
WAUCONDA LAKE COUNTY, ILLINOIS 60084

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SCALE: 1" = 50'
DATE: 12/29/2016
DRAWING FILE: MD13-104

FIGURE 4



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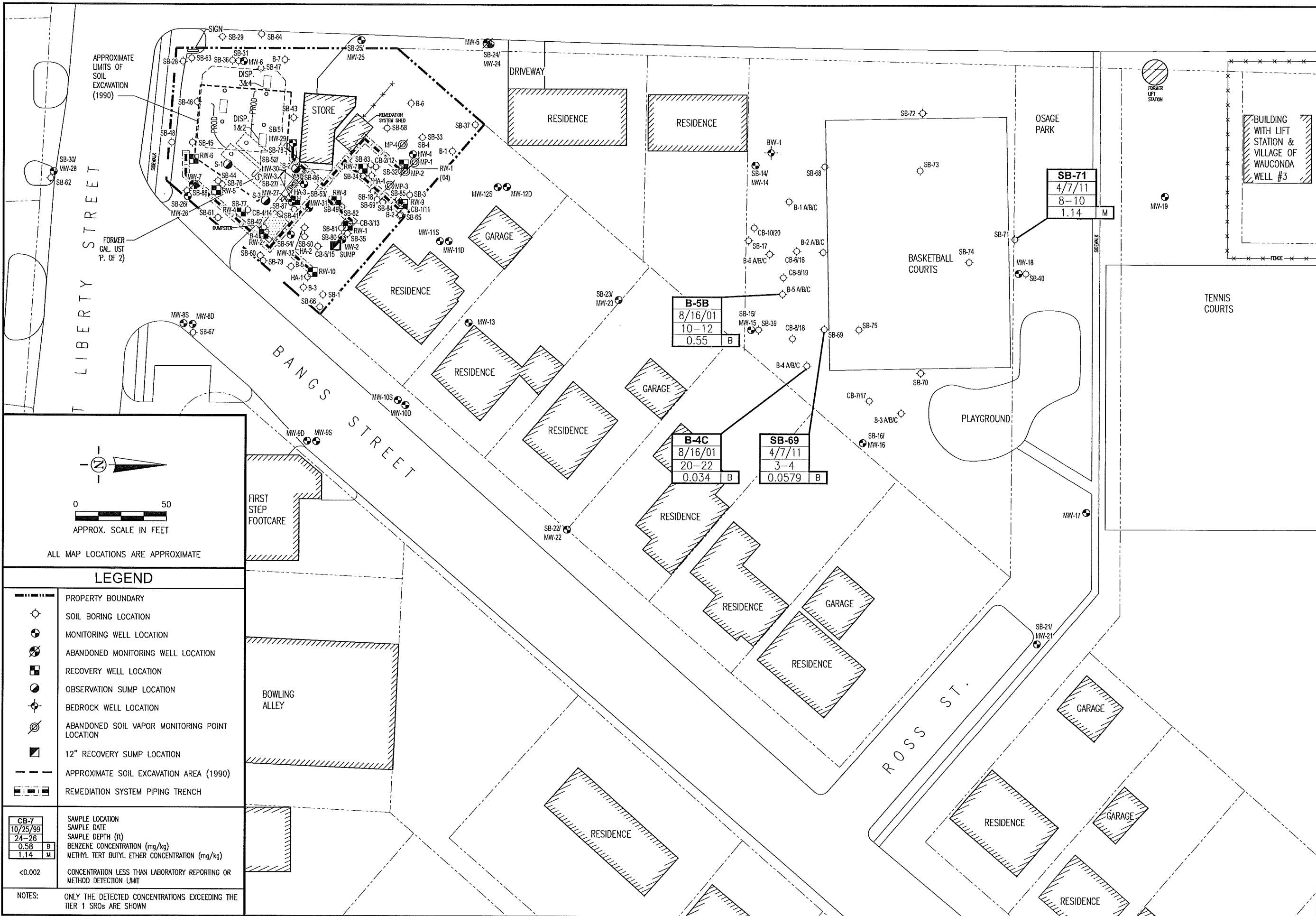
SHIVAM ENERGY, INC.
 399 West Liberty Street
 Wauconda, IL 60084

SOIL ANALYTICAL RESULTS - ON-SITE AREA
 SHIVAM ENERGY, INC.
 399 WEST LIBERTY STREET
 WAUCONDA LAKE COUNTY, ILLINOIS 60084

DRAWN BY: JLO
 APPROVED BY: MIC
 SCALE: 1" = 30'
 DATE: 12/29/2016
 DRAWING FILE: MD13-104

FIGURE 5A

LEGEND																															
	PROPERTY BOUNDARY																														
	SOIL BORING LOCATION																														
	MONITORING WELL LOCATION																														
	ABANDONED MONITORING WELL LOCATION																														
	RECOVERY WELL LOCATION																														
	OBSERVATION SUMP LOCATION																														
	BEDROCK WELL LOCATION																														
	ABANDONED SOIL VAPOR MONITORING POINT LOCATION																														
	12" RECOVERY SUMP LOCATION																														
	APPROXIMATE SOIL EXCAVATION AREA (1990)																														
	REMEDATION SYSTEM PIPING TRENCH																														
<table border="1"> <tr><td>SB-53</td><td>5/15/09</td><td>7.5-8.75</td><td>26.4</td><td>B</td></tr> <tr><td></td><td></td><td></td><td>313</td><td>T</td></tr> <tr><td></td><td></td><td></td><td>95.3</td><td>E</td></tr> <tr><td></td><td></td><td></td><td>538</td><td>X</td></tr> <tr><td></td><td></td><td></td><td><2.71</td><td>M</td></tr> <tr><td></td><td></td><td></td><td><0.002</td><td></td></tr> </table>	SB-53	5/15/09	7.5-8.75	26.4	B				313	T				95.3	E				538	X				<2.71	M				<0.002		SAMPLE LOCATION SAMPLE DATE SAMPLE DEPTH (ft) BENZENE CONCENTRATION (mg/kg) TOLUENE CONCENTRATION (mg/kg) ETHYL BENZENE CONCENTRATION (mg/kg) TOTAL XYLENES CONCENTRATION (mg/kg) METHYL TERT BUTYL ETHER CONCENTRATION (mg/kg) CONCENTRATION LESS THAN LABORATORY REPORTING OR METHOD DETECTION LIMIT
SB-53	5/15/09	7.5-8.75	26.4	B																											
			313	T																											
			95.3	E																											
			538	X																											
			<2.71	M																											
			<0.002																												
NOTES: ONLY THE DETECTED CONCENTRATIONS EXCEEDING THE TIER 1 SROs ARE SHOWN																															



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SOIL ANALYTICAL RESULTS - OFF-SITE AREA
 SHIVAM ENERGY, INC.
 399 WEST LIBERTY STREET
 WAUCONDA LAKE COUNTY, ILLINOIS 60084

DRAWN BY: JLO
 APPROVED BY: MIC
 SCALE: 1" = 50'
 DATE: 12/7/2016
 DRAWING FILE: MD13-104

FIGURE 5B

APPROXIMATE LIMITS OF SOIL EXCAVATION (1990)

LIBERTY STREET

BANGS STREET

ROSS ST.

OSAGE PARK

TENNIS COURTS

BASKETBALL COURTS

PLAYGROUND

BOWLING ALLEY

RESIDENCE

RESIDENCE

RESIDENCE

RESIDENCE

RESIDENCE

RESIDENCE

RESIDENCE

RESIDENCE

RESIDENCE

RESIDENCE

GARAGE

GARAGE

GARAGE

GARAGE

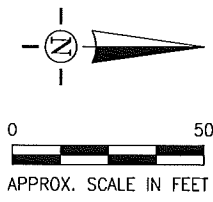
GARAGE

DRIVEWAY

FORMER CAL. UST P. OF 2)

FORMER LIFT STATION

BUILDING WITH LIFT STATION & VILLAGE OF WAUCONDA WELL #3



ALL MAP LOCATIONS ARE APPROXIMATE

LEGEND

- PROPERTY BOUNDARY
- SOIL BORING LOCATION
- MONITORING WELL LOCATION
- ⊙ ABANDONED MONITORING WELL LOCATION
- RECOVERY WELL LOCATION
- OBSERVATION SUMP LOCATION
- ⊕ BEDROCK WELL LOCATION
- ⊙ ABANDONED SOIL VAPOR MONITORING POINT LOCATION
- 12" RECOVERY SUMP LOCATION
- - - APPROXIMATE SOIL EXCAVATION AREA (1990)
- REMEDIATION SYSTEM PIPING TRENCH

CB-7	SAMPLE LOCATION
10/25/99	SAMPLE DATE
24-26	SAMPLE DEPTH (ft)
0.58 B	BENZENE CONCENTRATION (mg/kg)
1.14 M	METHYL TERT BUTYL ETHER CONCENTRATION (mg/kg)
<0.002	CONCENTRATION LESS THAN LABORATORY REPORTING OR METHOD DETECTION LIMIT

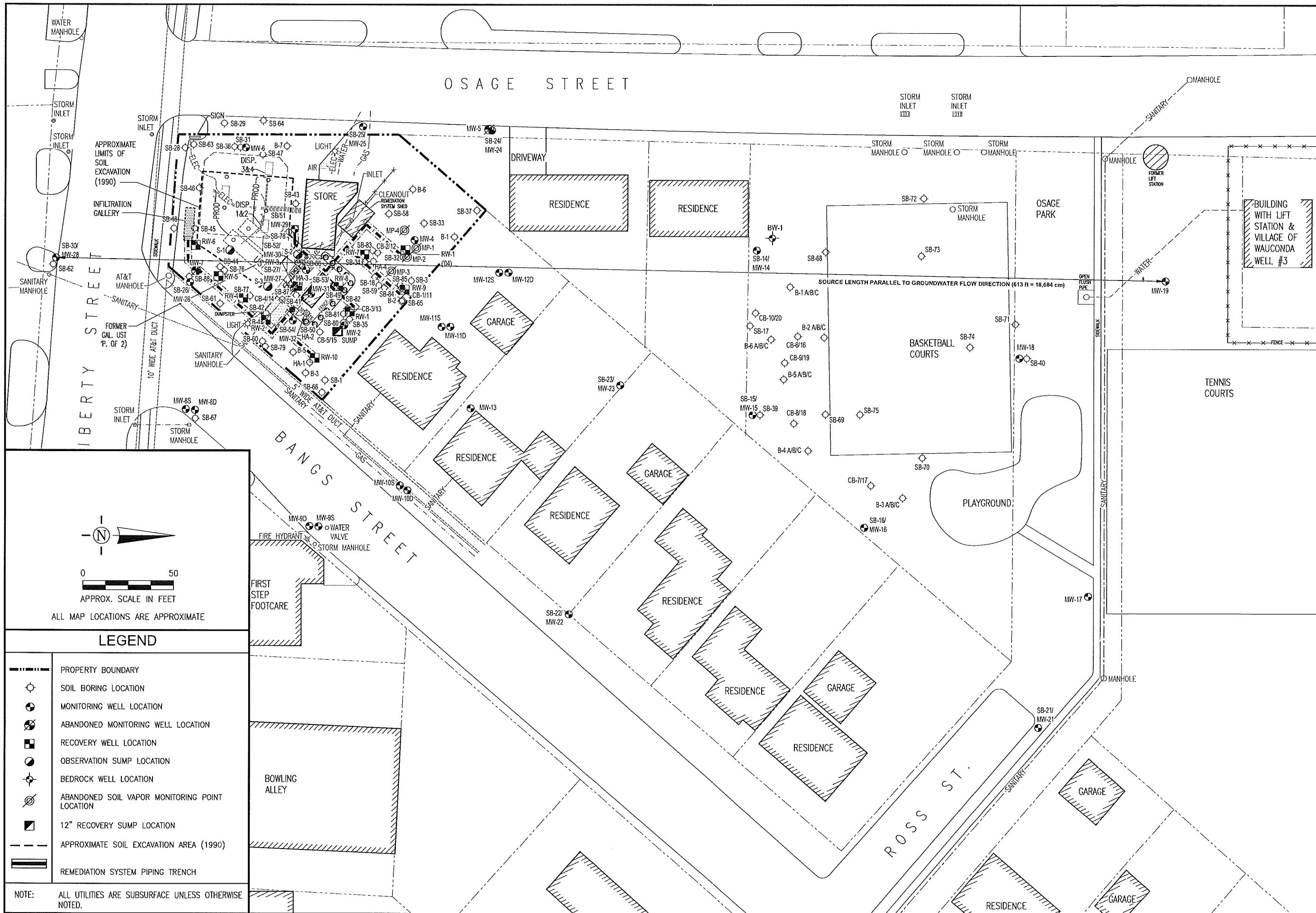
NOTES: ONLY THE DETECTED CONCENTRATIONS EXCEEDING THE TIER 1 SROs ARE SHOWN

B-5B
8/16/01
10-12
0.55 B

B-4C
8/16/01
20-22
0.034 B

SB-69
4/7/11
3-4
0.0579 B

SB-71
4/7/11
8-10
1.14 M



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SHIVAM ENERGY, INC.
 399 West Liberty Street
 Wauconda, IL 60084

**SOURCE DIMENSION FOR
 THE TIER 2 SCGIER EVALUATIONS**
 SHIVAM ENERGY, INC.
 399 WEST LIBERTY STREET
 WAUCONDA LAKE COUNTY, ILLINOIS 60084

DRAWN BY:	SAA
APPROVED BY:	MIC
SCALE:	1" = 50'
DATE:	11/21/2016
DRAWING FILE:	MD13-104

FIGURE 6

OSAGE STREET

LIBERTY STREET

BANGS STREET

ROSS ST.

OSAGE PARK

TENNIS COURTS

PLAYGROUND

BASKETBALL COURTS

RESIDENCE

RESIDENCE

RESIDENCE

RESIDENCE

RESIDENCE

RESIDENCE

RESIDENCE

RESIDENCE

RESIDENCE

GARAGE

GARAGE

GARAGE

GARAGE

GARAGE

STORE

BOWLING ALLEY

BUILDING WITH LIFT STATION & VILLAGE OF WAUCONDA WELL #3

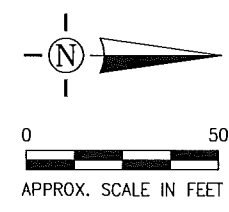
APPROXIMATE LIMITS OF SOIL EXCAVATION (1990)

INFILTRATION GALLERY

FORMER GAL. UST (P. OF 2)

FORMER LIFT STATION

OPEN FLUSH PIPE



ALL MAP LOCATIONS ARE APPROXIMATE

LEGEND

- PROPERTY BOUNDARY
- SOIL BORING LOCATION
- MONITORING WELL LOCATION
- ABANDONED MONITORING WELL LOCATION
- RECOVERY WELL LOCATION
- OBSERVATION SUMP LOCATION
- BEDROCK WELL LOCATION
- ABANDONED SOIL VAPOR MONITORING POINT LOCATION
- 12" RECOVERY SUMP LOCATION
- PROPOSED SOIL BORING LOCATION
- PROPOSED MONITORING WELL LOCATION
- APPROXIMATE SOIL EXCAVATION AREA (1990)
- REMEDIATION SYSTEM PIPING TRENCH

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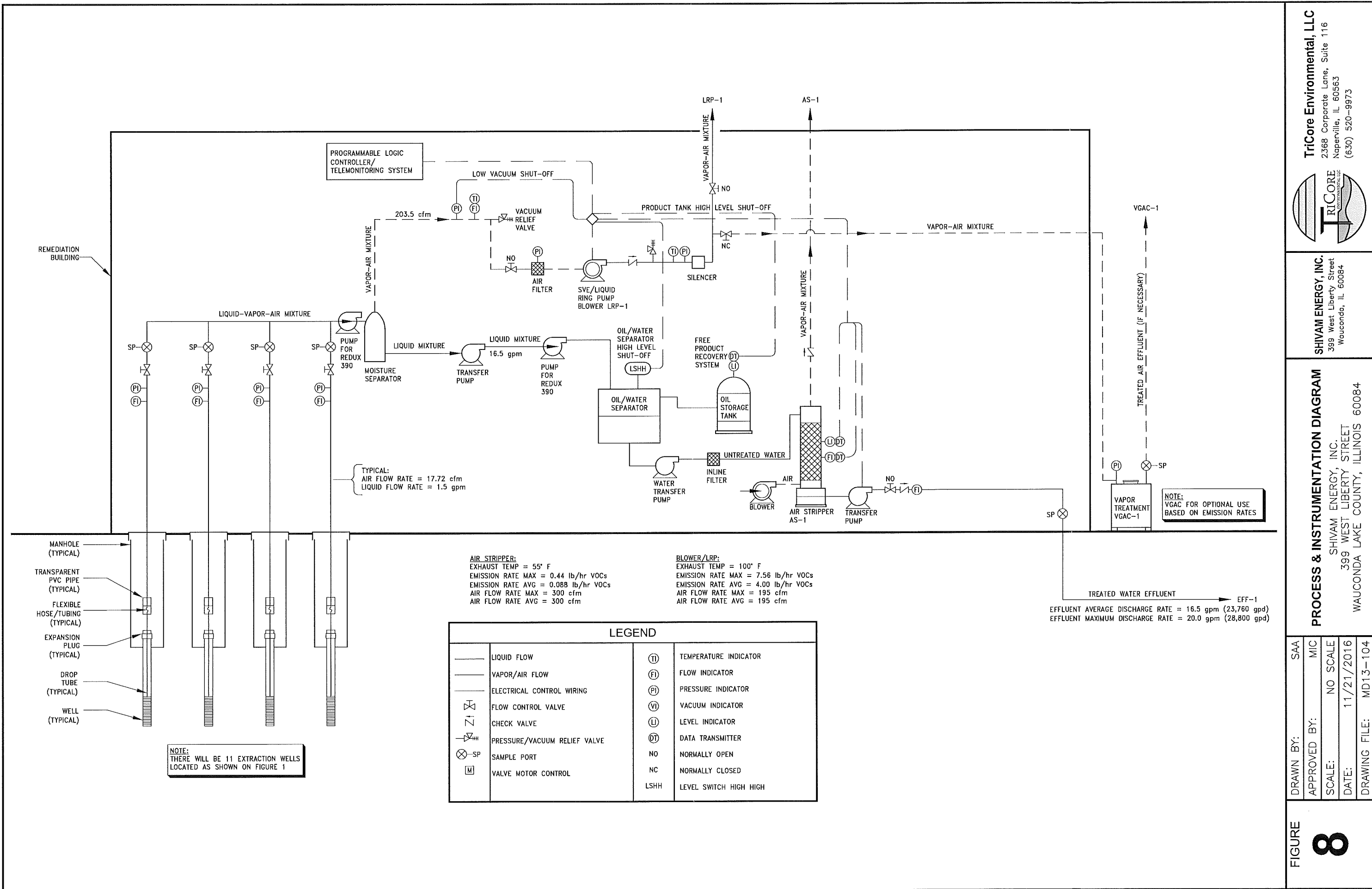


SHIVAM ENERGY, INC.
399 West Liberty Street
Wauconda, IL 60084

PROPOSED SOIL BORING AND
MONITORING WELL LOCATIONS
SHIVAM ENERGY, INC.
399 WEST LIBERTY STREET
WAUCONDA LAKE COUNTY, ILLINOIS 60084

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APPROVED BY: MIC
SCALE: 1" = 50'
DATE: 1/4/2017
DRAWING FILE: MD13-104

FIGURE
7



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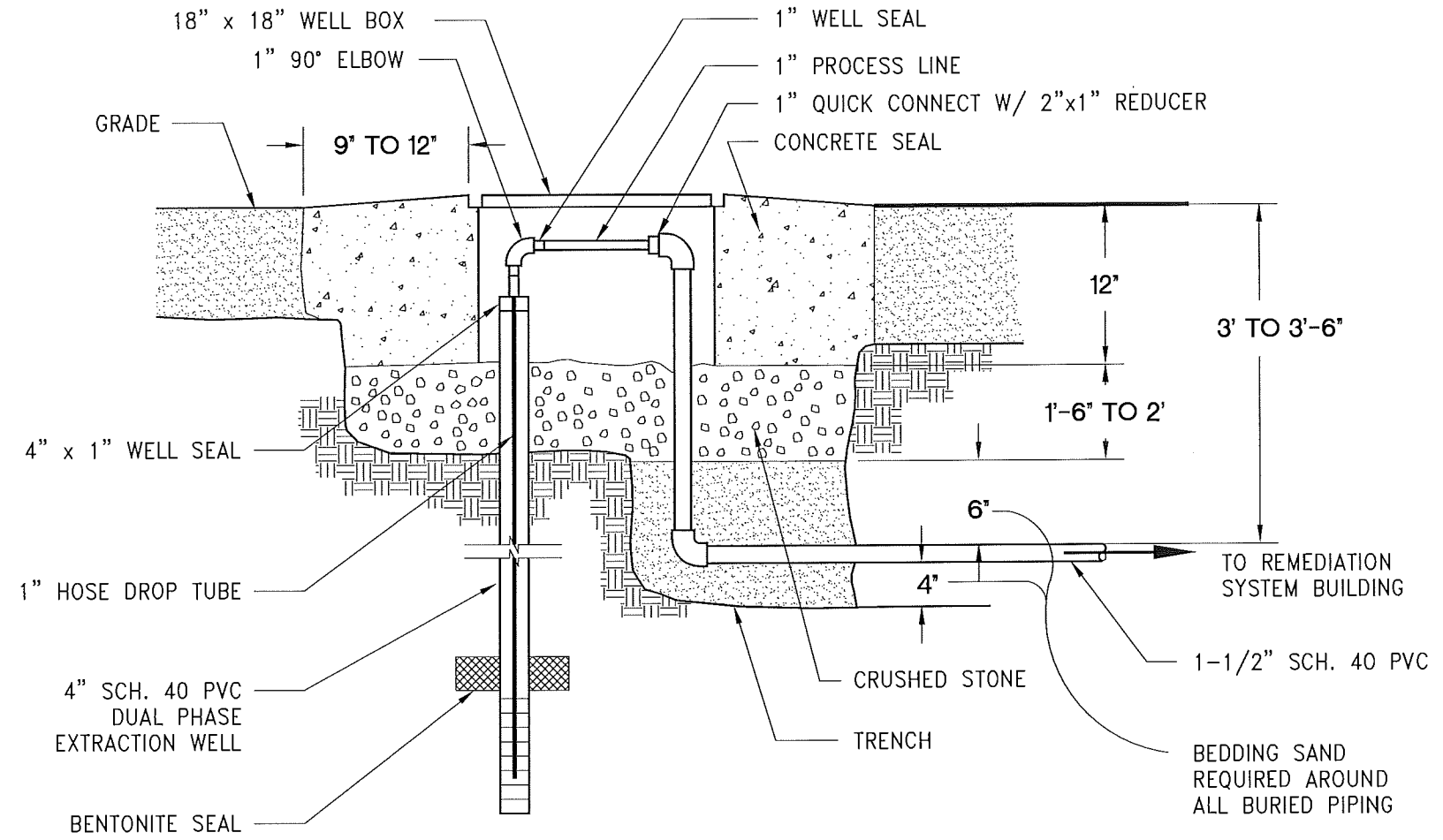


SHIVAM ENERGY, INC.
 399 West Liberty Street
 Wauconda, IL 60084

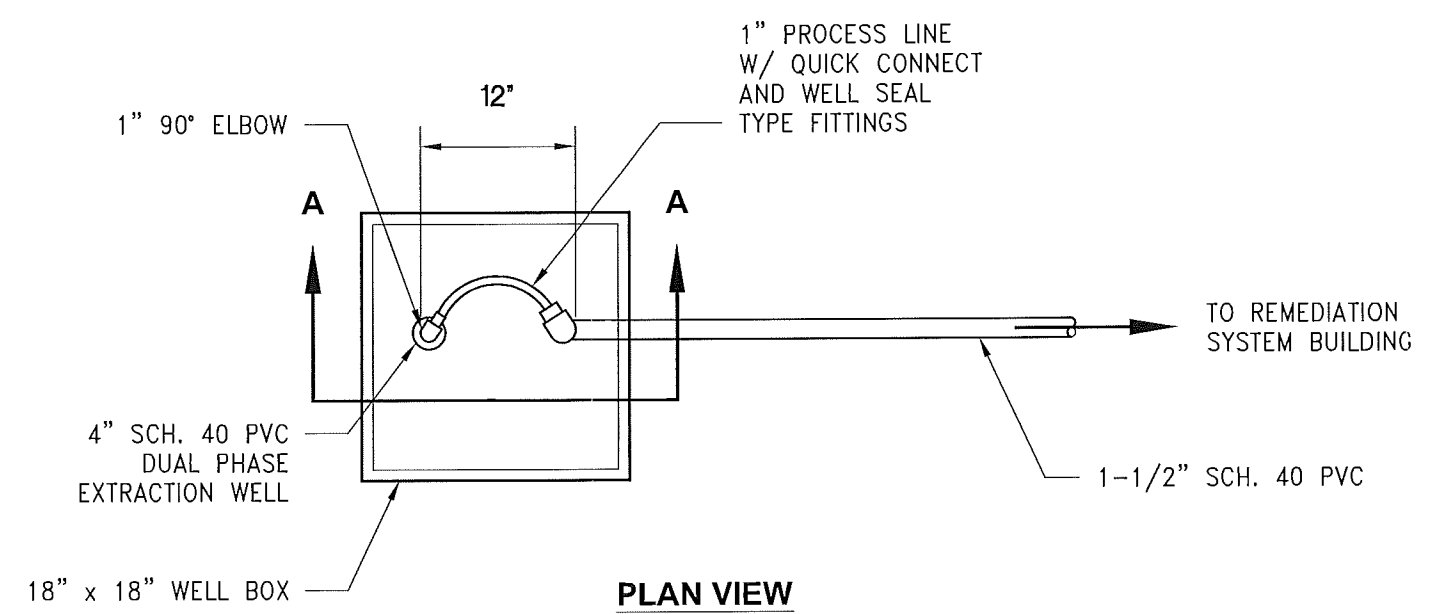
PROCESS & INSTRUMENTATION DIAGRAM
 SHIVAM ENERGY, INC.
 399 WEST LIBERTY STREET
 WAUCONDA LAKE COUNTY, ILLINOIS 60084

DRAWN BY: SAA
 APPROVED BY: MIC
 SCALE: NO SCALE
 DATE: 11/21/2016
 DRAWING FILE: MD13-104

FIGURE 8



SECTION A - A



PLAN VIEW

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SHIVAM ENERGY, INC.
 399 West Liberty Street
 Wauconda, IL 60084

DPE RECOVERY WELL DETAILS
 SHIVAM ENERGY, INC.
 399 WEST LIBERTY STREET
 WAUCONDA LAKE COUNTY, ILLINOIS 60084

DRAWN BY:	SAA
APPROVED BY:	MIC
SCALE:	NO SCALE
DATE:	11/21/2016
DRAWING FILE:	MD13-104

FIGURE 9

TABLES

Table 1

Air Analytical Results

**Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084**

Sample ID	Sample Date	Effluent PID (ppm)	Benzene (ppmv)	Toluene (ppmv)	Ethylbenzene (ppmv)	Total Xylenes (ppmv)	MTBE (ppmv)	THC Gas (ppmv)	Methane (ppmv)
VAC Effluent	11/1/13	58.0	5.6	2.1	0.49	3.14	0.15	26.2	195
VAC Effluent	8/11/14	113	2.39	3.6	1.32	7.61	0.018	181	
VAC Effluent	6/1/15	136.0	0.02	0.05	0.028	0.347	0.0067	149	

Notes:

- 1) Shaded cell = not sampled for specific analysis

Table 2

DPE System Influent and Effluent Water Analytical Results - BTEX and MTBE

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes		Indicator Contaminants and Tier 1 GROs				
		Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater		0.005	1	0.7	10	0.07
Sample ID	Sample Date	Analytical Results				
Influent	11/1/13	0.761	1.040	0.271	2.880	0.0037
Influent	11/7/13	0.298	0.649	0.0987	1.390	0.0037
Influent	11/14/13	0.202	0.497	0.0693	1.240	0.0037
Influent	11/20/13	0.200	0.374	0.0392	0.761	0.0015
Influent	12/9/13	0.0506	0.167	0.0292	0.594	0.00077
Influent	1/22/14	0.0567	0.274	0.0523	0.732	0.0020
Influent	11/25/14	0.337	0.678	0.129	1.720	0.0019
Influent	12/10/14	0.0596	0.154	0.0313	0.744	0.0012
Influent	12/23/14	0.0235	0.0783	0.0173	0.664	0.00048
Influent	1/21/15	0.0205	0.0354	0.0030	0.601	0.0025
Influent	2/17/15	0.0652	0.0616	0.0474	0.608	0.0024
Influent	3/9/15	0.181	1.010	0.305	3.980	0.0070
Influent	5/7/15	0.0404	0.0523	0.0170	0.379	0.00097
Influent	6/1/15	0.0345	0.0555	0.0228	0.388	0.00035
Influent	7/1/15	0.0350	0.0445	0.0240	0.441	0.00035
Effluent	11/1/13	0.0056	0.0092	0.0035	0.0377	<0.00037
Effluent	11/7/13	0.0039	0.00090 J	0.00054 J	0.0024 J	<0.00037
Effluent	11/14/13	0.0024	0.00083 J	<0.00034	0.0021 J	<0.00037
Effluent	11/20/13	0.0037	0.00084 J	0.00047 J	0.0013 J	<0.00037
Effluent	12/9/13	0.0010	<0.00034	0.00046 J	<0.0010	<0.00037
Effluent	1/22/14	<0.0010	<0.0010	<0.0010	<0.0030	<0.0010
Effluent	11/25/14	0.0118	0.0204	0.0056	0.0662	<0.00048
Effluent	12/10/14	0.0028	0.0062	0.0017	0.0371	<0.00048
Effluent	12/23/14	0.00076 J	<0.00039	0.00040 J	<0.0012	<0.00048
Effluent	1/21/15	<0.0010	<0.0010	<0.0010	<0.0030	<0.0010
Effluent	2/17/15	0.00044 J	<0.00039	<0.00039	<0.0012	<0.00048
Effluent	3/9/15	<0.00040	0.00041 J	0.0051	0.0138	0.0016
Effluent	5/7/15	0.00072 J	<0.00039	<0.00039	<0.0012	<0.00048
Effluent	6/1/15	<0.00050	<0.00050	<0.00050	<0.0015	<0.00017
Effluent	7/1/15	<0.00050	<0.00050	<0.00050	<0.0015	<0.00017

Notes:

- 1) **Bold** = detected concentration exceeds a Tier 1 GRO for Class I groundwater listed in 35 IAC Part 742
- 2) <0.001 = concentration less than the laboratory reporting limit or method detection limit

Table 3

Mass Removal Calculations

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Period Ending	Operation Time (hours)	Average Manifold Vacuum (in. Hg)	SVE Effluent Air Flow (scfm)	SVE Effluent PID (ppm)	Total Water Discharged (gallons)	Influent Total BTEX and MTBE (mg/L)	Mass of BTEX and MTBE Removed				Cumulative BTEX and MTBE Removed (pounds)	Cumulative VOCs Removed (pounds)
							Liquid (pounds)	Dissolved (pounds)	Vapor (pounds)	Total (pounds)		
11/14/13	Start Up				0.00	2.012						
11/18/13	9.10	12.00	141	147.1	3,985.81			0.00	0.53	0.53	0.53	1.16
11/20/13	21.40	12.50	141	104.2	31,574.20	1.376		0.00	0.61	0.61	1.14	2.50
11/26/13	167.50	9.50	155	146.8	61,002.60			0.00	7.61	7.62	8.75	19.20
12/4/13	266.20	12.50	143	76.7	99,720.10			0.00	4.62	4.62	13.37	29.32
12/9/13	387.10	10.00	147	128.0	136,503.00	0.842		0.00	5.03	5.03	18.40	40.35
12/10/13	389.10	9.50			137,753.00			0.00	0.13	0.13	18.53	40.64
12/19/13	400.00	11.50	141	198.4	142,175.00			0.00	0.72	0.72	19.25	42.22
12/26/13	542.70	11.00	161	315.2	196,732.00			0.00	15.53	15.53	34.78	76.28
1/22/14	866.55	19.00	118	269.0	350,541.00	1.117		0.00	37.10	37.10	71.88	157.64
8/6/14	868.10	12.50	31	198.0	351,012.00			0.00	0.08	0.08	71.96	158.24
8/8/14	914.00	13.50	20	97.3	363,222.00			0.00	0.49	0.49	72.45	162.03
8/12/14	937.90	14.50	17	113.0	371,280.00			0.00	0.10	0.10	72.54	163.05
9/15/14	1,239.00	12.50	48	93.5	376,255.00			0.00	2.08	2.08	74.62	185.19
9/19/14	1,310.20	21.50	71	153.8	376,471.00			0.00	1.08	1.08	75.70	196.64
9/22/14	1,381.80	15.50	57	384.1	386,078.00			0.00	2.54	2.54	78.24	223.58
11/13/14	2,322.60	6.00	66	18.7	420,500.00	1.117		0.00	24.02	24.02	102.26	478.83
11/25/14	2,470.70	15.00	59	1,023	423,070.00	2.866		0.00	9.91	9.91	112.17	584.15
11/26/14	2,489.90	14.00	77	484.0	427,265.00			0.00	2.02	2.02	114.20	605.66
12/2/14	2,635.80	5.00	32	19.9	438,261.00			0.00	4.12	4.12	118.31	649.43
12/10/14	2,827.10	14.50	52	651.0	445,108.00	0.990		0.00	5.51	5.51	123.82	707.94
12/16/14	2,953.40	15.00	57	322.8	478,956.00			0.00	6.84	6.84	130.66	780.60
12/23/14	3,115.10	13.50	55	156.9	511,742.00	0.784		0.00	4.44	4.44	135.11	827.83
12/29/14	3,258.20	16.00	55	208.8	524,811.00			0.00	2.97	2.97	138.07	859.36
1/5/15	3,421.10	12.50	71	370.0	557,175.00			0.00	6.12	6.12	144.20	924.42
1/12/15	3,587.70	17.50	48	105.0	604,558.00			0.00	4.84	4.84	149.04	975.85
1/21/15	3,750.80	17.50	54	384.3	640,854.00	0.662		0.00	4.19	4.19	153.22	1,020.34
2/6/15	3,754.40	15.00	60	66.1	642,187.00			0.00	0.10	0.10	153.32	1,021.35
2/10/15	3,814.60	17.50	46	74.4	661,202.00			0.00	0.46	0.46	153.78	1,026.25
2/16/15	3,954.80	18.00	44	63.4	705,426.00	0.785		0.00	0.89	0.89	154.67	1,035.74
3/9/15	4,134.00	19.50	45	155.0	763,283.00	5.483		0.00	1.79	1.79	156.46	1,054.73
5/5/15	4,199.40	15.50	48	68.2	778,056.00			0.00	0.69	0.69	157.15	1,062.10
5/8/15	4,267.60	19.50	43	226.0	798,345.00	0.490		0.00	0.94	0.94	158.09	1,072.05
5/15/15	4,429.30	15.00	44	226.0	871,066.00			0.00	3.26	3.26	161.35	1,106.69
5/19/15	4,460.50	15.00	45	31.7	886,505.00			0.00	0.36	0.36	161.72	1,110.57
5/22/15	4,505.40	15.75	54	189.6	914,608.00			0.00	0.50	0.50	162.22	1,115.88
5/29/15	4,527.60	18.00	49	186.1	927,191.00			0.00	0.44	0.44	162.66	1,120.55
6/1/15	4,601.30	14.50	52	83.6	962,888.00	0.501		0.00	1.03	1.03	163.69	1,131.51
6/9/15	4,673.00	17.50	46	65.2	996,307.00			0.00	0.01	0.01	163.70	1,135.39
6/12/15	4,692.70	16.50	50	18.4	1,100,474.00			0.00	0.00	0.00	163.71	1,135.98
7/1/15	4,883.10	17.50	42	67.1	1,110,256.00	0.545		0.00	0.02	0.02	163.73	1,141.59
7/10/15	5,087.20	19.50	41	71.0	1,120,410.00			0.00	0.03	0.03	163.76	1,150.29
5/13/16	5,095.50	20.50	28	69.3	1,120,507.00			0.00	0.00	0.00	163.76	1,150.59
5/18/16	5,213.80	18.00	49	56.9	1,122,301.00			0.00	0.02	0.02	163.77	1,154.88
5/25/16	5,383.30	19.00	39	63.7	1,124,435.00			0.00	0.02	0.02	163.80	1,161.55

Notes:

- 1) in. Hg = inches of mercury
- 2) scfm = standard cubic feet per minute
- 3) ppm = parts per million
- 4) µg/L = micrograms per Liter
- 5) Influent BTEX and MTBE data taken from the analytical laboratory results from the influent groundwater samples collected on a monthly basis

Equations:

- 1) Dissolved BTEX and MTBE Removed (lbs) = Total Water Discharged (gal) * sum of the Influent Total BTEX and MTBE (µg/L) * (3.78 L/1 gal) * (1 lb/4.53E8 µg)
- 2) Vapor BTEX and MTBE Removed (lbs) = sum of the vapor removed for each individual compound (lbs)
- 3) Vapor Individual Compound Removed (lbs) = compound air bag concentration (ppmv)/10⁶ (ppmv) * molecular weight of compound (lb/lb-mole) * 1/379.5 (scf/lb-mole) * air flow (cfm) * operation time (hrs) * (60 min/1hr) * SVE Effluent PID (ppm) / SVE Effluent Air Bag PID (ppm)
- 4) VOCs removed (lbs) = TPH air bag concentration (ppmv)/10⁶ (ppmv) * molecular weight of compound (lb/lb-mole) * 1/379.5 (scf/lb-mole) * air flow (cfm) * operation time (hrs) * (60 min/1hr) * SVE Effluent PID (ppm) / SVE Effluent Air

Conversions:

1 gallons =	3.785412	liters
1 pound =	453,600,000	µg
1 pound =	453,600	mg
1 feet ³ =	0.028316847	meter ³
1 gallon gas =	6.1	pounds gas
1 lb-mole =	379.5	scf
1 hr =	60	min

Molecular Weights:

Benzene =	78.11	lb/lb-mole
Toluene =	92.14	lb/lb-mole
Ethylbenzene =	106.16	lb/lb-mole
Total Xylenes =	106.16	lb/lb-mole
MTBE =	88.15	lb/lb-mole
TPH =	86.18	lb/lb-mole

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
BW-1	1/19/93						BDL	BDL	BDL	BDL	
BW-1	6/17/93						<0.001	<0.001	<0.001	<0.001	
BW-1	1/11/93						<0.001	<0.001	<0.001	<0.001	
BW-1	6/27/94						<0.001	<0.001	<0.001	<0.003	
BW-1	2/16/95						<0.002	<0.002	<0.002	<0.005	
BW-1	7/28/95						<0.002	<0.002	<0.002	<0.005	
BW-1	3/22/96						<0.002	<0.002	<0.002	<0.005	
BW-1	10/11/01	99.08		27.34		71.74	<0.001	<0.001	<0.001	<0.003	
BW-1	3/14/02	99.08		25.56		73.52	<0.001	<0.001	<0.001	<0.003	
BW-1	6/6/02	99.08		30.36		68.72	<0.001	<0.001	<0.001	<0.003	
BW-1	8/30/02	99.08		28.25		70.83	<0.001	<0.001	<0.001	<0.003	
BW-1	12/6/02	99.08		26.61		72.47	<0.001	<0.001	<0.001	<0.003	
BW-1	5/6/04	99.08					Not able to open, manhole needs to be repaired				
MP-1	4/21/05	108.51		5.09		103.42	0.49	0.013	<0.0025	0.015	0.0096
MP-1	1/6/09	108.51					0.0301	0.0011	0.0021	<0.003	0.001
MP-1	12/3/12						Well destroyed during remediation system trenching				
MP-2	4/21/05	108.72		5.31		103.41	0.23	0.0095	0.14	0.2	0.0077
MP-2	12/3/12						Well destroyed during remediation system trenching				
MP-3	4/21/05	109.30		5.89		103.41	0.13	0.65	0.13	1.2	0.011
MP-3	12/29/08	109.30		5.17		104.13					
MP-3	6/22/10	109.30		5.71		103.59					
MP-3	6/30/10	109.30		5.68		103.62					
MP-3	7/6/10	109.30		5.62		103.68					
MP-3	7/13/10	109.30		5.67		103.63					
MP-3	7/20/10	109.30		5.64		103.66					
MP-3	7/27/10	109.30		5.60		103.70					
MP-3	8/18/10	109.30		5.63		103.67					
MP-3	8/24/10	109.30		5.78		103.52					
MP-3	8/31/10	109.30		5.82		103.48					
MP-3	9/21/10	109.30		5.65		103.65					
MP-3	9/30/10	109.30		5.63		103.67					
MP-3	10/12/10	109.30		5.65		103.65					
MP-3	11/3/10	109.30		5.58		103.72					
MP-3	11/15/10	109.30		5.65		103.65					
MP-3	12/2/10	109.30		5.71		103.59					
MP-3	12/10/11	109.30		5.65		103.65					
MP-3	1/5/11	109.30		6.63		102.67					
MP-3	3/14/11	109.30		5.64		103.66					
MP-3	4/14/11	109.30		5.72		103.58	0.361	7.15	1.11	10.8	<0.05
MP-3	12/3/12						Well destroyed during remediation system trenching				
MP-4	4/21/05	109.33		5.89		103.44	0.24	0.014	<0.001	0.013	0.0061
MP-4	12/3/12						Well destroyed during remediation system trenching				
MW-2	11/29/90		10.00	10.30	0.30						
MW-2	1/27/92		FP								
MW-2	2/19/92		FP								
MW-2	8/24/92		FP								
MW-2	1/19/93		FP								
MW-2	6/17/93	101.06		10.71		90.35	0.23	3.2	0.65	15	
MW-2	11/11/93	101.06		10.96		90.10	0.134	0.01	0.052	1.43	
MW-2	6/27/94	101.06	10.95	10.96	0.01	90.11					
MW-2	2/16/95	101.06		10.36		90.70	0.178	0.0313	0.447	0.3	
MW-2	7/28/95	101.06		10.13		90.93	0.257	0.117	0.139	0.808	
MW-2	3/22/96	101.06		11.14		89.92	0.1	0.154	0.331	3.93	
MW-2	6/17/96	101.06		9.33		91.73	0.0029	0.0041	0.0107	0.355	
MW-2	9/25/96	101.06		10.68		90.38	0.0154	0.0167	0.0546	0.584	
MW-2	4/24/97	101.06		9.89		91.17	1.11	3.1	0.71	5.76	
MW-2	6/17/97	101.06		9.88		91.18	2.57	3.85	0.487	5.53	
MW-2	8/27/97	101.06		10.48		90.58	0.116	0.519	0.534	7.45	
MW-2	11/5/97	113.61		10.75		102.86	0.076	0.02	0.31	2.4	
MW-2	2/27/98	113.61		10.23		103.38	0.17	0.029	0.074	0.73	
MW-2	6/10/98	113.61		10.08		103.53	0.0079	0.0011	0.0075	0.15	
MW-2	10/8/98	113.61		10.31		103.30	0.013	0.019	0.18	1.38	
MW-2	3/31/99	113.61		10.12		103.49	0.64	0.024	0.087	250/<5	
MW-2	6/9/99	113.61		10.00		103.61	0.77	0.22	0.075	0.62	
MW-2	9/2/99	113.61		10.60		103.01	0.086	0.0076	0.029	0.066	
MW-2	10/28/99	113.61		10.52		103.09	0.16	0.0025	0.016	0.041	
MW-2	2/23/00	113.61		10.32		103.29	0.55	0.019	0.27	0.861	

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
MW-2	5/24/00	113.61		9.77		103.84	0.09	0.11	0.11	1.37	
MW-2	8/15/00	113.61		10.21		103.40	0.36	0.13	0.054	0.41	
MW-2	11/9/00	113.61		10.03		103.58	0.14	0.099	0.12	0.96	
MW-2	10/11/01	113.61		10.24		103.37	0.027	0.036	0.02	0.142	
MW-2	3/14/02	113.61		9.85		103.76	0.083	0.012	0.13	0.72	
MW-2	6/6/02	113.61		9.62		103.99	0.1	0.052	0.32	3.08	
MW-2	8/30/02	113.61		10.16		103.45	0.017	0.0058	0.073	0.448	
MW-2	12/6/02	113.61		10.62		102.99	0.012	<0.001	0.003	0.0031/-0.001	
MW-2	5/6/04	113.61		10.34		103.27	0.031	0.0014	0.0046	0.003	<0.01
MW-2	4/21/05	113.61		10.17		103.44	0.035	<0.001	0.0022	0.029	0.024
MW-2	12/31/08	113.61		9.58		104.03					
MW-2	1/5/09	113.61		9.84		103.77					
MW-2	1/6/09	113.61					Obstruction in well, not able to collect samples				
MW-2	8/18/09	113.61		6.33		107.28					
MW-2	9/1/09	113.61		10.13		103.48					
MW-2	6/22/10	113.61		10.05		103.56					
MW-2	6/30/10	113.61		10.01		103.60					
MW-2	7/6/10	113.61		10.15		103.46					
MW-2	7/13/10	113.61		10.16		103.45					
MW-2	7/20/10	113.61		10.61		103.00					
MW-2	7/27/10	113.61		10.14		103.47					
MW-2	8/18/10	113.61		10.20		103.41					
MW-2	8/24/10	113.61		10.10		103.51					
MW-2	8/31/10	113.61		10.08		103.53					
MW-2	9/21/10	113.61		10.06		103.55					
MW-2	9/30/10	113.61		10.05		103.56					
MW-2	10/12/10	113.61		10.02		103.59					
MW-2	11/3/10	113.61		9.95		103.66					
MW-2	11/15/10	113.61		9.97		103.64					
MW-2	12/2/10	113.61		9.95		103.66					
MW-2	12/10/10	113.61		9.85		103.76					
MW-2	12/22/10	113.61		9.20		104.41					
MW-2	12/27/10	113.61		9.83		103.78					
MW-2	12/3/12	113.61		10.75		102.86					
MW-2	12/6/12	113.61		10.80		102.81					
MW-2	12/10/12	113.61		10.75		102.86					
MW-2	12/14/12	113.61		10.78		102.83					
MW-2	12/18/12	113.61		10.65		102.96					
MW-2	12/27/12	113.61		10.53		103.08					
MW-2	1/7/13	113.61		10.73		102.88					
MW-2	1/14/13	113.61		10.58		103.03					
MW-2	1/28/13	113.61		10.60		103.01					
MW-2	2/6/13	113.61		10.52		103.09					
MW-2	2/11/13	113.61		10.13		103.48					
MW-2	2/18/13	113.61		10.37		103.24					
MW-2	2/27/13	113.61		10.42		103.19					
MW-2	3/4/13	113.61		10.36		103.25					
MW-2	3/25/13	113.61		10.28		103.33					
MW-2	4/4/13	113.61		10.36		103.25					
MW-2	4/8/13	113.61		10.28		103.33					
MW-2	4/15/13	113.61		10.04		103.57					
MW-2	4/22/13	113.61		9.72		103.89					
MW-2	5/8/13	113.61		10.12		103.49					
MW-2	5/23/13	113.61		10.32		103.29					
MW-2	7/3/13	113.61		10.08		103.53					
MW-2	10/2/13	113.61		10.51		103.10	3.200	0.0295	0.0817	0.127	<0.0093
MW-2	5/7/15	113.61		10.72		102.89	0.0029	0.0035	0.0855	0.795	<0.0012
MW-2	10/20/16	113.61		10.50		103.11	0.214	0.0094	0.0132	0.0084	<0.00017
MW-4	11/28/90						3.5	0.33	0.27	1.1	
MW-4	1/27/92						3.1	0.065	0.072	4.147	
MW-4	8/24/92						0.14	0.024	0.19	0.49	
MW-4	1/19/93						0.26	0.006	BDL	0.021	
MW-4	6/17/93	98.97		8.22		90.75	0.015	<0.001	<0.001	0.005	
MW-4	11/11/93	98.97		8.58		90.39	<0.001	<0.001	<0.001	<0.001	
MW-4	6/27/94	98.97		8.65		90.32	0.154	0.0243	0.0081	0.0098	
MW-4	2/16/95	98.97		8.24		90.73	0.253	0.113	0.0845	0.202	
MW-4	7/28/95	98.97		8.06		90.91	0.179	0.0115	0.175	0.261	

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
MW-4	3/22/96	98.97		8.75		90.22	0.363	0.346	0.178	0.456	
MW-4	6/17/96	98.97		5.79		93.18	<0.002	<0.002	<0.002	<0.005	
MW-4	9/25/96	98.97		8.44		90.53	0.0032	<0.002	0.0052	0.0052	
MW-4	4/24/97	98.97		7.84		91.13	0.444	0.0255	0.0945	0.11	
MW-4	6/17/97	98.97		6.87		92.10	0.386	0.0359	0.125	0.273	
MW-4	8/27/97	98.97		8.23		90.74	0.0568	0.0321	0.128	0.322	
MW-4	11/5/97	111.44		8.54		102.90	0.037	0.0035	0.043	0.11	
MW-4	2/27/98	111.44		7.98		103.46	0.13	<0.005	<0.005	0.04	
MW-4	6/10/98	111.44		7.94		103.50	0.029	0.019	0.022	0.052	
MW-4	10/8/98	111.44		8.52		102.92	0.018	0.0024	0.033	0.1/<0.001	
MW-4	3/31/99	111.44		8.07		103.37	<0.001	<0.001	<0.001	<0.003	
MW-4	6/9/99	111.44		8.07		103.37	0.36	0.028	0.28	0.8228	
MW-4	9/2/99	111.44		9.50		101.94	0.18	0.017	0.28	1.1/<0.005	
MW-4	10/28/99	111.44		8.44		103.00	0.073	0.0046	0.095	0.360/<0.004	
MW-4	2/23/00	111.44		8.17		103.27	0.57	<0.005	0.042	0.061/<0.005	
MW-4	5/24/00	111.44		7.69		103.75	0.095	0.0057	0.01	0.0089/<0.001	
MW-4	8/15/00	111.44		8.10		103.34	0.36	0.022	0.13	0.140/<0.0025	
MW-4	11/9/00	111.44		7.97		103.47	0.16	<0.025	0.13	0.064/<0.005	
MW-4	10/11/01	111.44		8.11		103.33	0.039	0.005	0.03	0.013/<0.001	
MW-4	3/14/02	111.44		7.68		103.76	0.13	0.0049	<0.001	<0.003	
MW-4	6/6/02	111.44		7.35		104.09	0.013	<0.001	0.0058	0.0025/<0.001	
MW-4	8/30/02	111.44		8.05		103.39	0.14	0.013	0.035	0.031/<0.001	
MW-4	12/6/02	111.44		8.53		102.91	0.17	0.004	0.0016	0.016/<0.001	
MW-4	5/6/04	111.44					Obstruction in well, not able to collect samples				
MW-4	4/21/05	111.44		8.07		103.37	0.14	0.003	<0.001	0.0035	0.0011
MW-4	1/5/09	111.44		7.64		103.80	Obstruction in well, not able to collect samples				
MW-4	1/6/09	111.44					Obstruction in well, not able to collect samples				
MW-4	9/1/09	111.44		8.01		103.43					
MW-4	3/4/13	111.44		8.27		103.17					
MW-4	3/25/13	111.44		7.84		103.60					
MW-4	5/23/13	111.44		8.03		103.41					
MW-4	10/2/13	111.44		8.45		102.99					
MW-4	10/3/13	111.44					0.0356	0.00041 J	<0.00034	<0.0010	0.00077 J
MW-4	5/7/15	111.44		8.69		102.75	Obstruction in well, not able to collect samples				
MW-4	10/20/16	111.44		8.42		103.02	<0.00050	<0.00050	<0.00050	<0.0015	<0.00017
MW-5	11/28/90						<0.005	<0.005	<0.005	<0.01	
MW-5	1/27/92						<0.002	<0.002	<0.002	<0.005	
MW-5	8/24/92						<0.002	<0.002	<0.002	<0.005	
MW-5	1/19/93						BDL	BDL	BDL	BDL	
MW-5	6/17/93	95.44		4.71		90.73	<0.001	<0.001	<0.001	<0.001	
MW-5	11/11/93	95.44		5.09		90.35	<0.001	<0.001	<0.001	<0.001	
MW-5	6/27/94	95.44		5.31		90.13	<0.001	<0.001	<0.001	<0.003	
MW-5	2/16/95	95.44		4.81		90.63	<0.002	<0.002	<0.002	<0.005	
MW-5	7/28/95	95.44		4.99		90.45	<0.0073	<0.002	<0.002	<0.005	
MW-5	3/22/96	95.44		5.28		90.16	<0.002	<0.002	<0.002	<0.005	
MW-5	6/17/96	95.44		4.24		91.20	<0.002	<0.002	<0.002	<0.005	
MW-5	9/25/96	95.44		5.07		90.37	<0.002	<0.002	<0.002	<0.005	
MW-5	4/24/97	95.44		4.40		91.04	<0.002	<0.002	<0.002	<0.005	
MW-5	6/17/97	95.44		4.34		91.10	<0.002	<0.002	<0.002	<0.003	
MW-5	8/27/97	95.44		4.84		90.60	<0.002	<0.002	<0.002	<0.003	
MW-5	11/5/97	108.15		5.21		102.94	<0.001	<0.001	<0.01	<0.003	
MW-5	2/27/98	108.15		4.58		103.57	<0.001	<0.001	<0.001	<0.003	
MW-5	6/10/98	108.15		4.53		103.62	<0.001	<0.001	<0.001	<0.003	
MW-5	10/8/98	108.15		4.78		103.37	<0.001	<0.001	<0.001	<0.003	
MW-5	3/31/99	108.15		4.76		103.39	0.053	0.07	0.11	0.38	
MW-5	6/9/99	108.15		4.65		103.50	<0.001	<0.001	<0.001	<0.003	
MW-5	9/2/99	108.15		5.34		102.81	<0.001	<0.001	<0.001	<0.002	
MW-5	10/28/99	108.15		5.19		102.96	<0.001	<0.001	<0.001	<0.003	
MW-5	2/23/00	108.15		4.92		103.23					
MW-5	5/24/00	108.15		4.34		103.81	<0.001	<0.001	<0.001	<0.003	
MW-5	8/15/00	108.15		4.81		103.34	<0.001	<0.001	<0.001	<0.003	
MW-5	11/9/00	108.15		4.75		103.40	<0.001	<0.001	<0.001	<0.003	
MW-5	10/11/01	108.15		4.80		103.35	<0.001	<0.001	<0.001	<0.003	
MW-5	3/14/02	108.15		4.41		103.74	<0.001	<0.001	<0.001	<0.003	
MW-5	6/6/02	108.15		4.63		103.52	<0.001	<0.001	<0.001	<0.003	
MW-5	8/30/02	108.15		4.75		103.40	<0.001	<0.001	<0.001	<0.003	
MW-5	12/6/02	108.15		5.24		102.91	<0.001	<0.001	<0.001	<0.003	

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
MW-5	5/6/04						Well destroyed				
MW-6	11/28/90						<0.005	<0.005	<0.005	<0.01	
MW-6	1/19/93						BDL	BDL	BDL	BDL	
MW-6	6/17/93	98.46		7.07		91.39	<0.001	<0.001	<0.001	<0.001	
MW-6	11/11/93	98.46		7.63		90.83	<0.001	<0.001	<0.001	<0.001	
MW-6	6/27/94	98.46		7.57		90.89	<0.001	<0.001	<0.001	<0.003	
MW-6	2/16/95	98.46		7.41		91.05	<0.002	<0.002	<0.002	<0.005	
MW-6	7/28/95	98.46		7.11		91.35	0.0045	<0.002	<0.002	<0.005	
MW-6	3/22/96	98.46		7.89		90.57	<0.002	<0.002	<0.002	<0.005	
MW-6	6/17/96	98.46		6.11		92.35	<0.002	<0.002	<0.002	<0.005	
MW-6	9/25/96	98.46		7.59		90.87	<0.002	<0.002	<0.002	<0.005	
MW-6	4/24/97	98.46		6.87		91.59	<0.002	<0.002	<0.002	<0.005	
MW-6	6/17/97	98.46		6.81		91.65	<0.002	<0.002	<0.002	<0.005	
MW-6	8/27/97	98.46		7.34		91.12	<0.002	<0.002	<0.002	<0.005	
MW-6	11/5/97	111.06		7.74		103.32	<0.001	<0.001	<0.002	<0.003	
MW-6	2/27/98	111.06		7.03		104.03	<0.001	<0.001	<0.001	<0.003	
MW-6	6/10/98	111.06		6.97		104.09	<0.001	<0.001	<0.001	<0.003	
MW-6	10/8/98	111.06		7.28		103.78	<0.001	<0.001	<0.001	<0.003	
MW-6	3/31/99	111.06		7.14		103.92	<0.001	<0.001	<0.001	<0.003	
MW-6	6/9/99	111.06		6.95		104.11	<0.001	<0.001	<0.001	<0.003	
MW-6	9/2/99	111.06		7.71		103.35	<0.001	<0.001	<0.001	<0.002	
MW-6	10/28/99	111.06		7.64		103.42	<0.001	<0.001	<0.001	<0.002	
MW-6	2/23/00	111.06		7.42		103.64	<0.001	<0.001	<0.001	<0.003	
MW-6	5/24/00	111.06		6.68		104.38	<0.001	<0.001	<0.001	<0.003	
MW-6	8/15/00	111.06		7.25		103.81	0.58	3.1	0.55	2.49	
MW-6	11/9/00	111.06		7.11		103.95	0.069	1	0.35	2.3	
MW-6	10/11/01	111.06	sheen	7.39	sheen	103.67					
MW-6	3/14/02	111.06	sheen	6.93	sheen	104.13	0.0029	0.002	0.015	0.032	
MW-6	6/6/02	111.06	sheen	6.70	sheen	104.36	0.0017	0.0016	0.012	0.0256	
MW-6	8/30/02	111.06	sheen	7.27	sheen	103.79	0.0015	0.0011	0.1	0.0245	
MW-6	12/6/02	111.06	sheen	7.83	sheen	103.23	<0.001	<0.001	0.0041	0.0099	
MW-6	5/6/04	111.06	sheen	7.45	sheen	103.61	<0.001	<0.001	0.001	<0.003	<0.001
MW-6	4/21/05	111.06		7.26		103.80					
MW-6	4/22/05	111.06					<0.001	<0.001	<0.001	<0.003	<0.001
MW-6	12/29/08	111.06		6.67		104.39					
MW-6	1/5/09	111.06		7.06		104.00					
MW-6	1/6/09	111.06					<0.001	<0.001	<0.001	<0.003	<0.001
MW-6	9/1/09	111.06		7.27		103.79					
MW-6	6/22/10	111.06		7.13		103.93					
MW-6	6/30/10	111.06		7.12		103.94					
MW-6	7/6/10	111.06		7.10		103.96					
MW-6	7/13/10	111.06		7.09		103.97					
MW-6	7/20/10	111.06		7.42		103.64					
MW-6	7/27/10	111.06		7.08		103.98					
MW-6	8/18/10	111.06		7.11		103.95					
MW-6	8/24/10	111.06		7.25		103.81					
MW-6	8/31/10	111.06		7.24		103.82					
MW-6	9/21/10	111.06		7.30		103.76					
MW-6	9/30/10	111.06		7.34		103.72					
MW-6	10/12/10	111.06		7.32		103.74					
MW-6	11/3/10	111.06		7.58		103.48					
MW-6	11/15/10	111.06		7.61		103.45					
MW-6	12/2/10	111.06		7.65		103.41					
MW-6	12/10/10	111.06		7.61		103.45					
MW-6	12/22/10	111.06		7.58		103.48					
MW-6	12/27/10	111.06		7.60		103.46					
MW-6	3/2/11	111.06		7.16		103.90					
MW-6	3/7/11	111.06		7.06		104.00					
MW-6	4/14/11	111.06		7.16		103.90	<0.001	<0.001	<0.001	<0.003	<0.001
MW-6	12/3/12	111.06		8.18		102.88					
MW-6	12/6/12	111.06		8.25		102.81					
MW-6	12/10/12	111.06		8.23		102.83					
MW-6	12/14/12	111.06		8.30		102.76					
MW-6	2/18/13	111.06		Filled in with dirt							
MW-6	10/2/13	111.06		7.82		103.24					
MW-6	10/3/13	111.06					<0.00034	<0.00034	<0.00034	<0.0010	<0.00037
MW-6	5/7/15	111.06		7.73		103.33					

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
MW-7	11/29/90		7.39	7.69	0.30						
MW-7	4/21/05						Well destroyed				
MW-8S	4/1/91	86.88		6.61		80.27	<0.005	<0.005	<0.005	<0.01	
MW-8S	1/27/92						<0.002	<0.003	<0.002	<0.01	
MW-8S	8/24/92						<0.002	<0.003	<0.002	<0.007	
MW-8S	6/17/93	98.29		7.56		90.73	<0.001	<0.001	<0.001	<0.001	
MW-8S	11/11/93	98.29		7.58		90.71	<0.001	<0.001	<0.001	<0.001	
MW-8S	6/27/94	98.29		7.46		90.83	<0.001	<0.001	<0.001	<0.003	
MW-8S	2/16/95	98.29		7.43		90.86	<0.002	<0.002	<0.002	<0.005	
MW-8S	7/28/95	98.29		7.14		91.15	<0.0034	<0.002	<0.002	<0.005	
MW-8S	3/22/96	98.29		7.73		90.56	<0.002	<0.002	<0.002	<0.005	
MW-8S	6/17/96	98.29		6.46		91.83	<0.002	<0.002	<0.002	<0.005	
MW-8S	9/25/96	98.29		7.49		90.80	<0.002	<0.002	<0.002	<0.005	
MW-8S	4/24/97	98.29		6.94		91.35	<0.002	<0.002	<0.002	<0.005	
MW-8S	6/17/97	98.29		6.86		91.43	<0.002	<0.002	<0.002	<0.005	
MW-8S	8/27/97	98.29		7.26		91.03	<0.002	<0.002	<0.002	<0.005	
MW-8S	11/5/97	110.89		7.62		103.27	<0.001	<0.001	<0.001	<0.003	
MW-8S	2/27/98	110.89		7.50		103.39	<0.001	<0.001	<0.001	<0.003	
MW-8S	6/10/98	110.89		6.95		103.94	<0.001	<0.001	<0.001	<0.001	
MW-8S	10/8/98	110.89		7.19		103.70	<0.001	<0.001	<0.001	<0.003	
MW-8S	3/31/99	110.89		7.12		103.77	<0.001	<0.001	<0.001	<0.003	
MW-8S	6/9/99	110.89		7.00		103.89	<0.001	<0.001	<0.001	<0.003	
MW-8S	9/2/99	110.89		7.61		103.28	<0.001	<0.001	<0.001	<0.002	
MW-8S	10/28/99	110.89		7.56		103.33	<0.001	<0.001	<0.001	<0.002	
MW-8S	2/23/00	110.89		7.48		103.41	<0.001	0.0024	<0.001	<0.0041	
MW-8S	5/24/00	110.89		6.77		104.12	<0.001	<0.001	<0.001	<0.003	
MW-8S	8/15/00	110.89		7.62		103.27	<0.001	<0.001	<0.001	<0.003	
MW-8S	11/9/00	110.89		7.20		103.69	<0.001	<0.001	<0.001	<0.003	
MW-8S	10/11/01	110.89		7.26		103.63	<0.001	<0.001	<0.001	<0.003	
MW-8S	3/14/02	110.89		6.91		103.98	<0.001	<0.001	<0.001	<0.003	
MW-8S	6/6/02	110.89		6.71		104.18	<0.001	<0.001	<0.001	<0.003	
MW-8S	8/30/02	110.89		7.18		103.71	<0.001	<0.001	<0.001	<0.003	
MW-8S	12/6/02	110.89		7.64		103.25	<0.001	<0.001	<0.001	<0.003	
MW-8S	5/6/04	110.89		7.39		103.50	<0.001	<0.001	<0.001	<0.003	<0.001
MW-8S	4/21/05	110.89		7.22		103.67					
MW-8S	4/22/05	110.89					<0.001	<0.001	<0.001	<0.003	<0.001
MW-8S	1/5/09	110.89		6.97		103.92					
MW-8S	1/6/09	110.89		7.00		103.89	<0.001	<0.001	<0.001	<0.003	<0.001
MW-8S	9/1/09	110.89		7.22		103.67					
MW-8S	4/14/11	110.89		7.15		103.74	<0.001	<0.001	<0.001	<0.003	<0.001
MW-8S	12/3/12	110.89		7.89		103.00					
MW-8S	12/6/12	110.89		7.90		102.99					
MW-8S	12/10/12	110.89		7.87		103.02					
MW-8S	12/14/12	110.89		7.92		102.97					
MW-8S	12/18/12	110.89		7.95		102.94					
MW-8S	12/27/12	110.89		7.90		102.99					
MW-8S	1/7/13	110.89		7.89		103.00					
MW-8S	1/28/13	110.89		5.29		105.60					
MW-8S	2/11/13	110.89		7.29		103.60					
MW-8S	4/4/13	110.89		7.86		103.03					
MW-8S	4/8/13	110.89		7.67		103.22					
MW-8S	4/14/13	110.89		7.17		103.72					
MW-8S	4/22/13	110.89		5.18		105.71					
MW-8S	5/8/13	110.89		7.20		103.69					
MW-8S	5/23/13	110.89		7.22		103.67					
MW-8S	7/3/13	110.89		7.20		103.69					
MW-8S	10/2/13	110.89		7.61		103.28	<0.00034	<0.00034	<0.00034	<0.0010	<0.00037
MW-8S	5/7/15	110.89		7.26		103.63					
MW-8D	4/1/91	86.96		6.77		80.19	<0.005	<0.005	<0.005	<0.01	
MW-8D	1/27/92						<0.002	<0.002	<0.002	<0.005	
MW-8D	8/24/92						<0.002	<0.002	<0.002	<0.005	
MW-8D	11/11/93	98.31		7.50		90.81	<0.001	<0.001	<0.001	<0.001	
MW-8D	6/27/94	98.31		7.94		90.37	<0.001	<0.001	<0.001	<0.003	
MW-8D	2/16/95	98.31		7.80		90.51	<0.002	0.0039	<0.002	<0.005	
MW-8D	7/28/95	98.31		7.65		90.66	0.0023	<0.002	<0.002	0.0054	
MW-8D	3/22/96	98.31		8.06		90.25	<0.002	<0.002	<0.002	<0.005	
MW-8D	6/17/96	98.31		6.81		91.50	<0.002	<0.002	<0.002	<0.005	

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
MW-8D	9/25/96	98.31		7.55		90.76	<0.002	<0.002	<0.002	<0.005	
MW-8D	4/24/97	98.31		7.33		90.98	<0.002	<0.002	<0.002	<0.005	
MW-8D	6/17/97	98.31		7.32		90.99	<0.002	<0.002	<0.002	<0.005	
MW-8D	8/27/97	98.31		7.85		90.46	<0.002	<0.002	<0.002	<0.005	
MW-8D	11/5/97	111.03		8.06		102.97	<0.001	<0.001	<0.001	<0.003	
MW-8D	2/27/98	111.03		7.00		104.03	<0.001	<0.001	<0.001	<0.003	
MW-8D	6/10/98	111.03		7.36		103.67	<0.001	<0.001	<0.001	<0.003	
MW-8D	10/8/98	111.03		7.67		103.36	<0.001	<0.001	<0.001	<0.003	
MW-8D	3/31/99	111.03		7.40		103.63	<0.001	<0.001	<0.001	<0.003	
MW-8D	6/9/99	111.03		7.10		103.93	<0.001	<0.001	<0.001	<0.003	
MW-8D	9/2/99	111.03		8.02		103.01	<0.001	<0.001	<0.001	<0.002	
MW-8D	10/28/99	111.03		7.95		103.08	<0.001	<0.001	<0.001	<0.002	
MW-8D	2/23/00	111.03		7.92		103.11	<0.001	<0.001	<0.001	<0.003	
MW-8D	5/24/00	111.03		7.01		104.02	<0.001	<0.001	<0.001	<0.003	
MW-8D	8/15/00	111.03		7.62		103.41	<0.001	<0.001	<0.001	<0.003	
MW-8D	11/9/00	111.03		7.72		103.31	<0.001	<0.005	<0.001	<0.003	
MW-8D	10/11/01	111.03		7.67		103.36	<0.001	<0.001	<0.001	<0.003	
MW-8D	3/14/02	111.03		7.28		103.75	<0.001	<0.001	<0.001	<0.003	
MW-8D	6/6/02	111.03		7.04		103.99	<0.001	<0.001	<0.001	<0.003	
MW-8D	8/30/02	111.03		7.51		103.52	<0.001	<0.001	<0.001	<0.003	
MW-8D	12/6/02	111.03		8.00		103.03	<0.001	<0.001	<0.001	<0.003	
MW-8D	5/6/04	111.03		7.70		103.33	<0.001	<0.001	<0.001	<0.003	<0.001
MW-8D	4/21/05	111.03		7.53		103.50					
MW-8D	4/22/05	111.03					<0.001	<0.001	<0.001	<0.003	<0.001
MW-8D	1/5/09	111.03		7.14		103.89					
MW-8D	1/6/09	111.03					<0.001	<0.001	<0.001	<0.003	<0.001
MW-8D	9/1/09	111.03		7.43		103.60					
MW-8D	4/14/11	111.03		7.51		103.52	<0.001	<0.001	<0.001	<0.003	<0.001
MW-8D	12/3/12	111.03		8.23		102.80					
MW-8D	12/6/12	111.03		8.25		102.78					
MW-8D	12/10/12	111.03		8.18		102.85					
MW-8D	12/14/12	111.03		8.10		102.93					
MW-8D	12/18/12	111.03		8.09		102.94					
MW-8D	12/27/12	111.03		8.05		102.98					
MW-8D	1/7/13	111.03		8.11		102.92					
MW-8D	1/28/13	111.03		5.56		105.47					
MW-8D	2/11/13	111.03		7.51		103.52					
MW-8D	4/4/13	111.03		8.15		102.88					
MW-8D	4/8/13	111.03		8.09		102.94					
MW-8D	4/15/13	111.03		7.45		103.58					
MW-8D	4/22/13	111.03		5.40		105.63					
MW-8D	5/8/13	111.03		7.48		103.55					
MW-8D	5/23/13	111.03		7.50		103.53					
MW-8D	7/3/13	111.03		7.45		103.58					
MW-8D	10/2/13	111.03		7.88		103.15	<0.00034	<0.00034	<0.00034	<0.0010	<0.00037
MW-8D	5/7/15	111.03		7.71		103.32					
MW-9S	4/1/91	86.00		6.12		79.88	<0.005	<0.005	<0.005	<0.01	
MW-9S	1/27/92						<0.002	<0.002	<0.002	<0.005	
MW-9S	8/24/92						<0.002	<0.002	<0.002	<0.005	
MW-9S	1/19/93						BDL	BDL	BDL	BDL	
MW-9S	6/17/93	97.42		6.79		90.63	<0.001	<0.001	<0.001	<0.001	
MW-9S	11/11/93	97.42		7.04		90.38	<0.001	<0.001	<0.001	<0.001	
MW-9S	6/27/94	97.42		7.03		90.39	<0.001	<0.001	<0.001	<0.003	
MW-9S	2/16/95	97.42		7.04		90.38	<0.002	<0.002	<0.002	<0.005	
MW-9S	7/28/95	97.42		6.82		90.60	<0.002	<0.002	<0.002	<0.005	
MW-9S	3/22/96	97.42		7.32		90.10	<0.002	<0.002	<0.002	<0.005	
MW-9S	6/17/96	97.42		6.35		91.07	<0.002	<0.002	<0.002	<0.005	
MW-9S	9/25/96	97.42		7.10		90.32	<0.002	<0.002	<0.002	<0.005	
MW-9S	4/24/97	97.42		6.72		90.70	<0.002	<0.002	<0.002	<0.005	
MW-9S	6/17/97	97.42		6.74		90.68	<0.002	<0.002	<0.002	<0.005	
MW-9S	8/27/97	97.42		6.90		90.52	<0.002	<0.002	<0.001	<0.005	
MW-9S	11/5/97	110.16		7.21		102.95	<0.001	<0.001	<0.001	<0.003	
MW-9S	2/27/98	110.16		6.86		103.30	<0.001	<0.001	<0.001	<0.003	
MW-9S	6/10/98	110.16		6.67		103.49	<0.001	<0.001	<0.001	<0.003	
MW-9S	10/8/98	110.16		6.83		103.33	<0.001	<0.001	<0.001	<0.003	
MW-9S	3/31/99	110.16		6.90		103.26	<0.001	<0.001	<0.001	<0.003	
MW-9S	6/9/99	110.16		6.76		103.40	<0.001	<0.001	<0.001	<0.003	

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
MW-9S	9/2/99	110.16		7.26		102.90	<0.001	<0.001	<0.001	<0.003	
MW-9S	10/28/99	110.16		7.20		102.96	<0.001	<0.001	<0.001	<0.003	
MW-9S	2/23/00	110.16		7.90		102.26	<0.001	<0.001	<0.001	<0.003	
MW-9S	5/24/00	110.16		6.64		103.52	<0.001	<0.001	<0.001	<0.003	
MW-9S	8/15/00	110.16		6.93		103.23	<0.001	<0.001	<0.001	<0.003	
MW-9S	11/9/00	110.16		6.75		103.41	<0.001	<0.005	<0.001	<0.003	
MW-9S	10/11/01	110.16		6.96		103.20	<0.001	<0.001	<0.001	<0.003	
MW-9S	3/14/02	110.16		6.73		103.43	<0.001	<0.001	<0.001	<0.003	
MW-9S	6/6/02	110.96		6.52		104.44	<0.001	<0.001	<0.001	<0.003	
MW-9S	8/30/02	110.96		6.92		104.04	<0.001	<0.001	<0.001	<0.003	
MW-9S	12/6/02	110.96		7.27		103.69	<0.001	<0.001	<0.001	<0.003	
MW-9S	5/6/04	110.96		7.12		103.84	<0.001	<0.001	<0.001	<0.003	<0.001
MW-9S	4/21/05	110.96		6.95		104.01					
MW-9S	4/22/05	110.96					<0.001	<0.001	<0.001	<0.003	<0.001
MW-9S	1/6/09	110.96					Obstruction in well, not able to gauge or collect samples				
MW-9S	9/1/09	110.96		6.96		104.00					
MW-9S	4/14/11	110.96		6.95		104.01	<0.001	<0.001	<0.001	<0.003	<0.001
MW-9S	1/28/13	110.96		7.47		103.49					
MW-9S	10/2/13	110.96		7.31		103.65	<0.00034	<0.00034	<0.00034	<0.0010	<0.00037
MW-9S	5/7/15	110.96		7.19		103.77					
MW-9D	4/1/91	86.06		6.26		79.80	<0.005	<0.005	<0.005	<0.01	
MW-9D	1/27/92						<0.002	<0.002	<0.002	<0.005	
MW-9D	8/24/92						<0.002	<0.002	<0.002	<0.005	
MW-9D	1/19/93										
MW-9D	6/17/93										
MW-9D	11/11/93	97.48		7.13		90.35	<0.001	<0.001	<0.001	<0.001	
MW-9D	6/27/94	97.48		7.13		90.35	<0.001	<0.001	<0.001	<0.003	
MW-9D	2/16/95	97.48		7.15		90.33	<0.002	<0.002	<0.002	<0.005	
MW-9D	7/28/95	97.48		6.92		90.56	<0.002	<0.002	<0.002	<0.005	
MW-9D	3/22/96	97.48		7.42		90.06	<0.002	<0.002	<0.002	<0.005	
MW-9D	6/17/96	97.48		6.44		91.04	<0.002	<0.002	<0.002	<0.005	
MW-9D	9/25/96	97.48		7.19		90.29	<0.002	<0.002	<0.002	<0.005	
MW-9D	4/24/97	97.48		6.84		90.64	<0.002	<0.002	<0.002	<0.005	
MW-9D	6/17/97	97.48		6.79		90.69	<0.002	<0.002	<0.002	<0.005	
MW-9D	8/27/97	97.48		7.02		90.46	<0.002	<0.002	<0.002	<0.005	
MW-9D	11/5/97	110.26		7.32		102.94	<0.001	<0.001	<0.001	<0.003	
MW-9D	2/27/98	110.26		6.74		103.52	<0.001	<0.001	<0.001	<0.003	
MW-9D	6/10/98	110.26		6.79		103.47	<0.001	<0.001	<0.001	<0.003	
MW-9D	10/8/98	110.26		6.93		103.33	<0.001	<0.001	<0.001	<0.003	
MW-9D	3/31/99	110.26		7.01		103.25	<0.001	<0.001	<0.001	<0.003	
MW-9D	6/9/99	110.26		6.87		103.39	<0.001	<0.001	<0.001	<0.003	
MW-9D	9/2/99	110.26		7.41		102.85	<0.001	<0.001	<0.001	<0.003	
MW-9D	10/28/99	110.26		7.31		102.95	<0.001	<0.001	<0.001	<0.003	
MW-9D	2/23/00	110.26		7.10		103.16	<0.001	<0.001	<0.001	<0.003	
MW-9D	5/24/00	110.26		6.74		103.52	<0.001	<0.001	<0.001	<0.003	
MW-9D	8/15/00	110.26		7.07		103.19	<0.001	<0.001	<0.001	<0.003	
MW-9D	11/9/00	110.26		6.90		103.36	<0.001	<0.001	<0.001	<0.003	
MW-9D	10/11/01	110.26		7.05		103.21	<0.001	<0.001	<0.001	<0.003	
MW-9D	3/14/02	110.26		6.83		103.43	<0.001	<0.001	<0.001	<0.003	
MW-9D	6/6/02	110.26		6.62		103.64	<0.001	<0.001	<0.001	<0.003	
MW-9D	8/30/02	110.26		7.04		103.22	<0.001	<0.001	<0.001	<0.003	
MW-9D	12/6/02	110.26		7.38		102.88	<0.001	<0.001	<0.001	<0.003	
MW-9D	5/6/04	110.26		7.21		103.05	<0.001	<0.001	<0.001	<0.003	<0.001
MW-9D	4/21/05	110.26		7.04		103.22					
MW-9D	4/22/05	110.26					<0.001	<0.001	<0.001	<0.003	<0.001
MW-9D	1/5/09	110.26		6.91		103.35					
MW-9D	1/6/09	110.26					<0.001	<0.001	<0.001	<0.003	<0.001
MW-9D	9/1/09	110.26		7.05		103.21					
MW-9D	4/14/11	110.26		7.06		103.20	<0.001	<0.001	<0.001	<0.003	<0.001
MW-9D	1/28/13	110.26		7.58		102.68					
MW-9D	10/2/13	110.26		7.38		102.88	<0.00034	<0.00034	<0.00034	<0.0010	<0.00037
MW-9D	5/7/15	110.26		7.25		103.01					
MW-10S	4/1/91	85.93		5.28		80.65	<0.005	<0.005	<0.005	<0.010	
MW-10S	1/27/92						<0.002	<0.002	<0.002	<0.005	
MW-10S	8/24/92						<0.002	<0.002	<0.002	<0.005	
MW-10S	1/19/93						BDL	BDL	BDL	BDL	
MW-10S	6/17/93	96.38		5.91		90.47	<0.001	<0.001	<0.001	<0.001	

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
MW-10S	11/11/93	96.38		6.12		90.26	<0.001	<0.001	<0.001	<0.001	
MW-10S	6/27/94	96.38		6.11		90.27	<0.001	<0.001	<0.001	<0.003	
MW-10S	2/16/95	96.38		6.08		90.30	<0.002	<0.002	<0.002	<0.005	
MW-10S	7/28/95	96.38		5.84		90.54	<0.002	<0.002	<0.002	<0.005	
MW-10S	3/22/96	96.38		6.33		90.05	<0.002	<0.002	<0.002	<0.005	
MW-10S	6/17/96	96.38		5.26		91.12	<0.002	<0.002	<0.002	<0.005	
MW-10S	9/25/96	96.38		6.09		90.29	<0.002	<0.002	<0.002	<0.005	
MW-10S	4/24/97	96.38		5.73		90.65	<0.002	<0.002	<0.002	<0.005	
MW-10S	6/17/97	96.38		5.64		90.74	<0.002	<0.002	<0.002	<0.005	
MW-10S	8/27/97	96.38		5.90		90.48	0.0126	<0.002	<0.002	<0.005	
MW-10S	11/5/97	108.99		6.19		102.80	<0.001	<0.001	<0.001	<0.003	
MW-10S	2/27/98	108.99		5.77		103.22	<0.001	<0.001	<0.001	<0.003	
MW-10S	6/10/98	108.99		5.66		103.33	<0.001	<0.001	<0.001	<0.003	
MW-10S	10/8/98	108.99		5.83		103.16	<0.001	<0.001	<0.001	<0.003	
MW-10S	3/31/99	108.99		5.95		103.04	<0.001	<0.001	<0.001	<0.003	
MW-10S	6/9/99	108.99		5.76		103.23	<0.001	<0.001	<0.001	<0.003	
MW-10S	9/2/99	108.99		6.21		102.78	<0.001	<0.001	<0.001	<0.003	
MW-10S	10/28/99	108.99		6.30		102.69	<0.001	<0.001	<0.001	<0.003	
MW-10S	2/23/00	108.99		6.06		102.93	<0.001	<0.001	<0.001	<0.003	
MW-10S	5/24/00	108.99		5.68		103.31	<0.001	<0.001	<0.001	<0.003	
MW-10S	8/15/00	108.99		5.94		103.05	<0.001	<0.001	<0.001	<0.003	
MW-10S	11/9/00	108.99		5.90		103.09	<0.001	<0.005	<0.001	<0.003	
MW-10S	10/11/01	108.99		5.94		103.05	<0.001	<0.001	<0.001	<0.003	
MW-10S	3/14/02	108.99		5.79		103.20	<0.001	<0.001	<0.001	<0.003	
MW-10S	6/6/02	108.99		5.55		103.44	<0.001	<0.001	<0.001	<0.003	
MW-10S	8/30/02	108.99		5.91		103.08	<0.001	<0.001	<0.001	<0.003	
MW-10S	12/6/02	108.99		6.24		102.75	<0.001	<0.001	<0.001	<0.003	
MW-10S	5/6/04	108.99		6.15		102.84	<0.001	<0.001	<0.001	<0.003	<0.001
MW-10S	4/21/05	108.99		5.97		103.02					
MW-10S	4/22/05	108.99					<0.001	<0.001	<0.001	<0.003	<0.001
MW-10S	1/5/09	108.99		5.69		103.30					
MW-10S	1/6/09	108.99				108.99	<0.001	<0.001	<0.001	<0.003	<0.001
MW-10S	1/10/11	108.99		6.07		102.92					
MW-10S	4/14/11	108.99		5.87		103.12	<0.001	<0.001	<0.001	<0.003	<0.001
MW-10S	1/28/13	108.99		6.33		102.66					
MW-10S	10/2/13	108.99		6.20		102.79	<0.00034	<0.00034	<0.00034	<0.0010	0.0025
MW-10S	5/7/15	108.99		5.97		103.02					
MW-10D	4/1/91	85.06		5.62		79.44	<0.005	<0.005	<0.005	<0.010	
MW-10D	1/27/92						0.005	<0.002	<0.002	<0.005	
MW-10D	8/24/92						<0.002	<0.002	<0.002	<0.005	
MW-10D	11/11/93	96.31		6.21		90.10	<0.001	<0.001	<0.001	<0.001	
MW-10D	6/27/94	96.31		6.23		90.08	<0.001	<0.001	<0.001	<0.003	
MW-10D	2/16/95	96.31		6.15		90.16	<0.002	<0.002	<0.002	<0.005	
MW-10D	7/28/95	96.31		5.90		90.41	<0.002	<0.002	<0.002	<0.005	
MW-10D	3/22/96	96.31		6.42		89.89	<0.002	<0.002	<0.002	<0.005	
MW-10D	6/17/96	96.31		5.27		91.04	<0.002	<0.002	<0.002	<0.005	
MW-10D	9/25/96	96.31		6.17		90.14	<0.002	<0.002	<0.002	<0.005	
MW-10D	4/24/97	96.31		5.77		90.54	<0.002	<0.002	<0.002	<0.005	
MW-10D	6/17/97	96.31		5.74		90.57	<0.002	<0.002	<0.002	<0.005	
MW-10D	8/27/97	96.31		6.83		89.48	<0.002	<0.002	<0.002	<0.005	
MW-10D	11/5/97	108.93		6.13		102.80	<0.001	<0.001	<0.001	<0.003	
MW-10D	2/27/98	108.93		5.71		103.22	<0.001	<0.001	<0.001	<0.003	
MW-10D	6/10/98	108.93		5.61		103.32	<0.001	<0.001	<0.001	<0.003	
MW-10D	10/8/98	108.93		6.79		102.14	<0.001	<0.001	<0.001	<0.003	
MW-10D	3/31/99	108.93		5.90		103.03	<0.001	<0.001	<0.001	<0.003	
MW-10D	6/9/99	108.93		5.81		103.12	<0.001	<0.001	<0.001	<0.003	
MW-10D	9/2/99	108.93		6.18		102.75	<0.001	<0.001	<0.001	<0.003	
MW-10D	10/28/99	108.93		6.18		102.75	<0.001	<0.001	<0.001	<0.003	
MW-10D	2/23/00	108.93		6.10		102.83	<0.001	<0.001	<0.001	<0.003	
MW-10D	5/24/00	108.93		5.55		103.38	<0.001	<0.001	<0.001	<0.003	
MW-10D	8/15/00	108.93		5.91		103.02	<0.001	<0.001	<0.001	<0.003	
MW-10D	11/9/00	108.93		5.80		103.13	<0.001	<0.005	<0.001	<0.003	
MW-10D	10/11/01	108.93		5.90		103.03	<0.001	<0.001	<0.001	<0.003	
MW-10D	3/14/02	108.93		5.74		103.19	<0.001	<0.001	<0.001	<0.003	
MW-10D	6/6/02	108.93		5.52		103.41	<0.001	<0.001	<0.001	<0.003	
MW-10D	8/30/02	108.93		5.85		103.08	<0.001	<0.001	<0.001	<0.003	
MW-10D	12/6/02	108.93		6.22		102.71	<0.001	<0.001	<0.001	<0.003	

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
MW-10D	5/6/04	108.93		6.09		102.84	<0.001	<0.001	<0.001	<0.003	0.0055
MW-10D	4/21/05	108.93		5.94		102.99					
MW-10D	4/22/05	108.93					<0.001	<0.001	<0.001	<0.003	0.0041
MW-10D	1/5/09	108.93		5.62		103.31					
MW-10D	1/6/09	108.93					<0.001	<0.001	<0.001	<0.003	<0.001
MW-10D	1/10/11	108.93		6.08		102.85					
MW-10D	4/14/11	108.93		5.83		103.10	<0.001	<0.001	<0.001	<0.003	0.0035
MW-10D	1/28/13	108.93		6.30		102.63					
MW-10D	10/2/13	108.93		6.23		102.70	<0.00034	<0.00034	<0.00034	<0.0010	0.0024
MW-10D	5/7/15	108.93		6.09		102.84					
MW-11S	4/1/91	85.82		5.52		80.30	0.15	<0.005	<0.005	0.011	
MW-11S	1/27/92						3.6	0.021	0.18	4.491	
MW-11S	8/24/92						0.006	0.029	0.006	0.81	
MW-11S	1/19/93						1.3	0.007	0.03	0.1	
MW-11S	6/17/93	96.99		6.01		90.98	0.14	<0.001	<0.001	<0.001	
MW-11S	11/11/93	96.99		6.80		90.19	1.35	<0.001	<0.001	<0.001	
MW-11S	6/27/94	96.99		6.84		90.15	0.785	0.0094	0.173	0.282	
MW-11S	2/16/95	96.99		6.53		90.46	1.55	0.0248	0.163	0.239	
MW-11S	7/28/95	96.99		6.42		90.57	0.954	0.0545	0.316	0.29	
MW-11S	6/17/96	96.99		4.43		92.56	<0.002	<0.002	<0.002	<0.005	
MW-11S	9/25/96	96.99		6.77		90.22	1.76	0.0443	0.519	1.22	
MW-11S	4/24/97	96.99		6.12		90.87	0.384	0.0087	0.134	2.1	
MW-11S	6/17/97	96.99		6.11		90.88	3.94	1.02	0.734	2.06	
MW-11S	8/27/97	96.99		6.58		90.41	1.79	0.586	0.657	1.2	
MW-11S	11/5/97	109.54		6.85		102.69	1	0.05	0.37	0.023	
MW-11S	2/27/98	109.54		6.58		102.96	0.19	<0.005	0.033	0.11	
MW-11S	6/10/98	109.54		6.29		103.25	0.8	0.014	0.12	<0.001	
MW-11S	10/8/98	109.54		6.49		103.05	0.91	0.03	0.4	0.76	
MW-11S	3/31/99	109.54		6.42		103.12	0.28	<0.002	0.04	0.012/<0.002	
MW-11S	6/9/99	109.54		6.40		103.14	3.7	6.7	0.73	2.77	
MW-11S	9/2/99	109.54		7.16		102.38	1.4	0.029	0.43	1.34	
MW-11S	10/28/99	109.54		6.84		102.70	0.78	0.038	0.31	0.889	
MW-11S	2/23/00	109.54		6.25		103.29	0.0028	<0.001	<0.001	<0.003	
MW-11S	5/24/00	109.54		6.05		103.49	0.018	<0.001	0.0011	<0.003	
MW-11S	8/15/00	109.54		6.62		102.92	1.3	0.051	0.42	1.116	
MW-11S	11/9/00	109.54		6.35		103.19	0.37	<0.025	0.03	0.097/<0.005	
MW-11S	10/11/01	109.54		6.56		102.98	0.78	<0.021	0.44	0.95/<0.01	
MW-11S	3/14/02	109.54		5.89		103.65	0.024	<0.001	<0.001	<0.003	
MW-11S	6/6/02	109.54		5.43		104.11	0.073	0.0036	0.012	0.0077/<0.001	
MW-11S	8/30/02	109.54		6.52		103.02	1.2	0.051	0.55	0.86/<0.01	
MW-11S	12/6/02	109.54		6.88		102.66	2.1	0.045	0.67	0.26/<0.02	
MW-11S	5/6/04	109.54		6.59		102.95	0.059	<0.001	<0.001	<0.003	<0.001
MW-11S	4/21/05	109.54		6.38		103.16	0.012	<0.001	<0.001	<0.003	<0.001
MW-11S	1/6/09	109.54		5.65		103.89	<0.001	<0.001	<0.001	<0.003	<0.001
MW-11S	9/1/09	109.54		6.45		103.09					
MW-11S	1/10/11	109.54		6.63		102.91					
MW-11S	4/14/11	109.54		5.99		103.55	<0.001	<0.001	<0.001	<0.003	<0.001
MW-11S	1/28/13	109.54		6.95		102.59					
MW-11S	10/2/13	109.54		6.86		102.68	0.462	0.279	0.522	1.720	0.0129
MW-11S	5/7/15	109.54		6.55		102.99	0.0027	<0.00039	<0.00039	<0.0012	<0.00048
MW-11S	10/20/16	109.54		6.76		102.78	0.193	0.0030 J	0.0348	0.0651	<0.00070
MW-11D	4/1/91	85.90		6.57		79.33	<0.005	<0.005	<0.005	<0.01	
MW-11D	1/27/92						<0.002	<0.002	<0.002	<0.005	
MW-11D	8/24/92						<0.004	<0.002	<0.002	<0.005	
MW-11D	11/11/93	97.02		6.81		90.21	<0.001	<0.001	<0.001	<0.001	
MW-11D	6/27/94	97.02		6.95		90.07	0.248	0.0028	0.0637	0.135	
MW-11D	2/16/95	97.02		6.70		90.32	0.433	0.0058	0.0407	0.0446	
MW-11D	7/28/95	97.02		6.49		90.53	0.94	0.0386	0.219	0.215	
MW-11D	3/22/96	97.02		7.07		89.95	0.424	0.0075	0.0467	0.0191	
MW-11D	6/17/96	97.02		6.12		90.90	0.0482	<0.002	<0.002	<0.005	
MW-11D	9/25/96	97.02		6.89		90.13	0.392	0.0077	0.104	0.204	
MW-11D	4/24/97	97.02		6.31		90.71	0.339	0.131	0.0807	0.184	
MW-11D	6/17/97	97.02		6.32		90.70	1.56	0.368	0.278	0.956	
MW-11D	8/27/97	97.02		7.84		89.18	0.311	0.0167	0.0837	0.224	
MW-11D	11/5/97	109.58		7.13		102.45	0.17	0.0045	0.09	0.29	
MW-11D	2/27/98	109.58		6.23		103.35	0.024	<0.001	<0.001	<0.003	
MW-11D	6/10/98	109.58		6.52		103.06	0.02	<0.001	<0.001	<0.003	

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
MW-11D	10/8/98	109.58		6.76		102.82	0.12	0.004	0.038	0.044	
MW-11D	3/31/99	109.58		6.90		102.68	0.0034	<0.001	<0.001	<0.003	
MW-11D	6/9/99	109.58		6.64		102.94	0.75	1.4	0.14	0.53	
MW-11D	9/2/99	109.58		7.22		102.36	0.082	0.0048	0.037	0.1225	
MW-11D	10/28/99	109.58		7.10		102.48	0.077	0.0023	0.035	0.1	
MW-11D	2/23/00	109.58		6.91		102.67	0.16	0.0012	0.0098	0.1	
MW-11D	5/24/00	109.58		6.49		103.09	0.0011	<0.001	<0.001	<0.003	
MW-11D	8/15/00	109.58		7.04		102.54	0.014	<0.001	0.0053	0.011	
MW-11D	11/9/00	109.58		6.95		102.63	0.26	<0.012	0.027	0.059	
MW-11D	10/11/01	109.58		6.83		102.75	0.017	<0.001	0.0035	<0.003	
MW-11D	3/14/02	109.58		6.42		103.16	<0.001	<0.001	<0.001	<0.003	
MW-11D	6/6/02	109.58		6.33		103.25	<0.001	<0.001	<0.001	<0.003	
MW-11D	8/30/02	109.58		6.74		102.84	0.035	<0.001	0.0012	<0.003	
MW-11D	12/6/02	109.58		7.09		102.49	0.001	<0.001	<0.001	<0.003	
MW-11D	5/6/04	109.58		6.80		102.78	0.008	<0.001	<0.001	<0.003	0.0025
MW-11D	4/21/05	109.58		6.63		102.95	<0.001	<0.001	<0.001	<0.003	<0.001
MW-11D	1/6/09	109.58		6.26		103.32	<0.001	<0.001	<0.001	<0.003	0.0017
MW-11D	9/1/09	109.58		6.47		103.11					
MW-11D	1/10/11	109.58		6.76		102.82					
MW-11D	4/14/11	109.58		6.42		103.16	<0.001	<0.001	<0.001	<0.003	<0.001
MW-11D	1/28/13	109.58		7.10		102.48					
MW-11D	10/2/13	109.58		6.93		102.65	0.0034	0.0026	0.0014	0.0039	<0.00037
MW-11D	5/7/15	109.58		6.87		102.71					
MW-11D	10/20/16	109.58		6.87		102.71					
MW-12S	4/1/91	81.23		2.21		79.02	1.8	0.14	0.11	0.4	
MW-12S	1/27/92						0.041	0.002	0.013	0.054	
MW-12S	8/24/92						0.2	0.002	0.004	0.005	
MW-12S	1/19/93						BDL	BDL	BDL	BDL	
MW-12S	6/17/93	92.64		2.60		90.04	0.003	<0.001	<0.001	<0.001	
MW-12S	11/11/93	92.64		2.45		90.19	<0.001	<0.001	<0.001	<0.001	
MW-12S	6/27/94	92.64		2.52		90.12	0.137	<0.001	<0.001	<0.003	
MW-12S	2/16/95	92.64		2.25		90.39	0.0902	<0.002	<0.002	<0.005	
MW-12S	7/28/95	92.64		2.10		90.54	0.0137	<0.002	<0.002	<0.005	
MW-12S	3/22/96	92.64		2.62		90.02	<0.002	<0.002	<0.002	<0.005	
MW-12S	6/17/96	92.64		1.50		91.14	<0.002	<0.002	<0.002	<0.005	
MW-12S	9/25/96	92.64		2.36		90.28	<0.002	<0.002	<0.002	<0.005	
MW-12S	4/24/97	92.64		1.89		90.75	<0.002	<0.002	<0.002	<0.005	
MW-12S	6/17/97	92.64		1.76		90.88	<0.002	<0.002	<0.002	<0.005	
MW-12S	8/27/97	92.64		2.24		90.40	<0.002	<0.002	<0.002	<0.005	
MW-12S	11/5/97	105.19		2.50		102.69	0.0026	<0.001	<0.001	<0.003	
MW-12S	2/27/98	105.19		2.56		102.63	<0.001	<0.001	<0.001	<0.003	
MW-12S	6/10/98	105.19		1.90		103.29	<0.001	<0.001	<0.001	<0.003	
MW-12S	10/8/98	105.19		2.17		103.02	<0.001	<0.001	<0.001	<0.003	
MW-12S	3/31/99	105.19		2.29		102.90	<0.001	<0.001	<0.001	<0.003	
MW-12S	6/9/99	105.19		2.13		103.06	0.07	<0.001	<0.001	<0.003	
MW-12S	9/2/99	105.19		3.75		101.44	<0.001	<0.001	<0.001	<0.002	
MW-12S	10/28/99	105.19		2.58		102.61	0.16	0.0045	0.0043	0.005	
MW-12S	2/23/00	105.19		2.33		102.86	0.054	0.0021	0.011	0.012	
MW-12S	5/24/00	105.19		1.92		103.27	0.13	0.0034	0.015	0.017	
MW-12S	8/15/00	105.19		2.23		102.96	0.24	0.016	0.053	0.059	
MW-12S	11/9/00	105.19		2.15		103.04	0.27	0.037	0.12	0.2133	
MW-12S	10/11/01	105.19		2.32		102.87	0.11	0.013	0.12	0.1224	
MW-12S	3/14/02	105.19		1.98		103.21	0.18	0.0075	0.041	0.121	
MW-12S	6/6/02	105.19		1.80		103.39	0.18	0.023	0.042	0.0061	
MW-12S	8/30/02	105.19		2.20		102.99	0.2	0.027	0.077	0.1817	
MW-12S	12/6/02	105.19		2.58		102.61	0.051	0.006	0.017	0.079	
MW-12S	5/6/04	105.19		2.40		102.79	0.043	0.0035	<0.001	0.022	0.0012
MW-12S	4/21/05	105.19		2.20		102.99	0.027	0.0014	<0.001	0.0097	0.0021
MW-12S	12/29/08	105.19		1.00		104.19					
MW-12S	1/5/09	105.19		1.84		103.35					
MW-12S	1/6/09	105.19					<0.001	<0.001	<0.001	<0.003	<0.001
MW-12S	9/1/09	105.19		2.16		103.03					
MW-12S	4/14/11	105.19		2.01		103.18	<0.001	<0.001	<0.001	<0.003	<0.001
MW-12S	1/28/13	105.19		2.68		102.51					
MW-12S	10/2/13	105.19		2.50		102.69	<0.00034	<0.00034	<0.00034	<0.0010	<0.00037
MW-12S	5/7/15	105.19		2.40		102.79					
MW-12D	4/1/91	81.36		2.21		79.15	0.074	<0.005	<0.005	<0.01	

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
MW-12D	1/27/92						<0.002	<0.002	<0.002	<0.005	
MW-12D	8/24/92						<0.002	<0.002	<0.002	<0.005	
MW-12D	11/11/93	92.79		2.57		90.22	<0.001	<0.001	<0.001	<0.001	
MW-12D	6/27/94	92.79		3.38		89.41	<0.001	<0.001	<0.001	<0.003	
MW-12D	2/16/95	92.79		2.85		89.94	<0.002	<0.002	<0.002	<0.005	
MW-12D	7/28/95	92.79		2.60		90.19	<0.002	<0.002	<0.002	<0.005	
MW-12D	3/22/96	92.79		3.15		89.64	<0.002	<0.002	<0.002	<0.005	
MW-12D	6/17/96	92.79		2.08		90.71	<0.002	<0.002	<0.002	<0.005	
MW-12D	9/25/96	92.79		2.93		89.86	<0.002	<0.002	<0.002	<0.005	
MW-12D	4/24/97	92.79		2.30		90.49	<0.002	<0.002	<0.002	<0.005	
MW-12D	6/17/97	92.79		2.29		90.50	<0.002	<0.002	<0.002	<0.005	
MW-12D	8/27/97	92.79		2.75		90.04	<0.002	<0.002	<0.002	<0.005	
MW-12D	11/5/97	105.34		3.13		102.21	<0.001	<0.001	<0.001	<0.003	
MW-12D	2/27/98	105.34		1.97		103.37	<0.001	<0.001	<0.001	<0.003	
MW-12D	6/10/98	105.34		2.47		102.87	<0.001	<0.001	<0.001	<0.003	
MW-12D	10/8/98	105.34		2.86		102.48	<0.001	<0.001	<0.001	<0.003	
MW-12D	3/31/99	105.34		2.77		102.57	<0.001	<0.001	<0.001	<0.003	
MW-12D	6/9/99	105.34		2.68		102.66	<0.001	<0.001	<0.001	<0.003	
MW-12D	9/2/99	105.34		3.31		102.03	<0.001	<0.001	<0.001	<0.002	
MW-12D	10/28/99	105.34		3.20		102.14	<0.001	<0.001	<0.001	<0.002	
MW-12D	2/23/00	105.34		3.00		102.34	<0.001	<0.001	<0.001	<0.003	
MW-12D	5/24/00	105.34		2.49		102.85	<0.001	<0.001	<0.001	<0.003	
MW-12D	8/15/00	105.34		2.82		102.52	<0.001	<0.001	<0.001	<0.003	
MW-12D	11/9/00	105.34		2.75		102.59	<0.001	<0.001	<0.001	<0.003	
MW-12D	10/11/01	105.34		2.82		102.52	<0.001	<0.001	<0.001	<0.003	
MW-12D	3/14/02	105.34		2.50		102.84	<0.001	<0.001	<0.001	<0.003	
MW-12D	6/6/02	105.34		2.34		103.00	<0.001	<0.001	<0.001	<0.003	
MW-12D	8/30/02	105.34		2.81		102.53	<0.001	<0.001	<0.001	<0.003	
MW-12D	12/6/02	105.34		3.20		102.14	<0.001	<0.001	<0.001	<0.003	
MW-12D	5/6/04	105.34		2.96		102.38	<0.001	<0.001	<0.001	<0.003	<0.001
MW-12D	4/21/05	105.34		3.73		101.61	<0.001	<0.001	<0.001	<0.03	<0.001
MW-12D	1/5/09	105.34		2.31		103.03					
MW-12D	1/6/09	105.34					<0.001	<0.001	<0.001	<0.003	<0.001
MW-12D	9/1/09	105.34		2.58		102.76					
MW-12D	4/14/11	105.34		2.47		102.87	<0.001	<0.001	<0.001	<0.003	<0.001
MW-12D	1/28/13	105.34		3.35		101.99					
MW-12D	10/2/13	105.34		3.08		102.26	<0.00034	<0.00034	<0.00034	<0.0010	<0.00037
MW-12D	5/7/15	105.34		2.90		102.44					
MW-13	4/1/91	85.19		5.24		79.95	2.6	0.3	0.19	0.56	
MW-13	2/19/92						1.9	0.01	0.14	0.72	
MW-13	8/24/92						14	2.1	0.85	13	
MW-13	1/19/93						0.009	BDL	BDL	0.005	
MW-13	6/17/93	96.50		6.00		90.50	<0.001	<0.001	<0.001	<0.001	
MW-13	11/11/93	96.50		6.28		90.22	0.81	0.054	0.346	4.56	
MW-13	6/27/94	96.50		6.29		90.21	0.142	0.0037	0.119	0.413	
MW-13	2/16/95	96.50		6.20		90.30	0.0475	<0.002	0.0202	0.129	
MW-13	7/28/95	96.50		6.01		90.49	0.41	0.0051	0.56	2.548	
MW-13	3/22/96	96.50		6.53		89.97	0.212	0.0092	0.0901	0.973	
MW-13	6/17/96	96.50		3.78		92.72	<0.002	<0.002	<0.002	<0.005	
MW-13	9/25/96	96.50		6.29		90.21	0.109	0.0261	0.911	9.6	
MW-13	4/24/97	96.50		5.80		90.70	<0.002	<0.002	<0.002	<0.005	
MW-13	6/17/97	96.50		5.59		90.91	0.0195	<0.002	0.0201	0.107	
MW-13	8/27/97	96.50		6.17		90.33	1.4	0.38	0.361	3.65	
MW-13	11/5/97	109.12		6.38		102.74	0.16	<0.025	0.67	5.8	
MW-13	2/27/98	109.12		5.51		103.61	<0.001	<0.001	<0.001	<0.003	
MW-13	6/10/98	109.12		5.78		103.34	0.38	<0.025	0.67	3.4	
MW-13	10/8/98	109.12		6.02		103.10	<0.025	<0.025	0.28	3.5	
MW-13	3/31/99	109.12		6.17		102.95	0.027	<0.0025	0.11	0.81	
MW-13	6/9/99	109.12		6.07		103.05	0.008	0.013	0.13	0.903.3	
MW-13	9/2/99	109.12		6.64		102.48	0.23	<0.025	0.12	0.72	
MW-13	10/28/99	109.12		6.45		102.67	0.2	<0.01	0.11	0.718	
MW-13	2/23/00	109.12		5.50		103.62					
MW-13	5/24/00	109.12		5.91		103.21	0.0073	<0.001	0.0019	0.021	
MW-13	8/15/00	109.12		6.24		102.88	0.038	<0.005	0.3	0.5453	
MW-13	11/9/00	109.12		6.08		103.04	<0.001	<0.005	0.0014	<0.003	
MW-13	10/11/01	109.12		6.21		102.91	0.05	0.0023	0.069	0.0122	
MW-13	3/14/02	109.12		5.89		103.23	<0.001	<0.001	<0.001	<0.003	

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
MW-13	6/6/02	109.12		5.06		104.06	0.0077	<0.001	0.009	<0.003	
MW-13	8/30/02	109.12		6.15		102.97	0.013	0.0018	0.03	0.0024	
MW-13	12/6/02	109.12		6.53		102.59	0.044	<0.01	0.085	<0.03	
MW-13	5/6/04	109.12		6.37		102.75	0.0039	<0.001	0.013	<0.003	<0.001
MW-13	4/21/05	109.12		6.27		102.85					
MW-13	4/22/05	109.12					0.0077	<0.001	0.039	0.013	<0.001
MW-13	12/29/08	109.12		5.00		104.12					
MW-13	1/5/09	109.12		5.88		103.24					
MW-13	1/6/09	109.12					<0.001	<0.001	<0.001	<0.003	<0.001
MW-13	4/14/11	109.12		6.18		102.94	0.0345	<0.001	<0.001	<0.003	<0.001
MW-13	1/28/13	109.12		6.49		102.63					
MW-13	10/2/13	109.12		6.68		102.44	3.910	<0.0172	<0.0170	<0.0514	<0.0186
MW-13	5/7/15	109.12		6.25		102.87	0.00072 J	0.0019	<0.00039	<0.0012	<0.00048
MW-13	10/20/16	109.12		6.64		102.48	2.270	0.0385	<0.0050	<0.0150	<0.0017
MW-14	1/27/92						<0.002	<0.002	<0.002	<0.005	
MW-14	8/24/92						<0.002	<0.002	<0.002	<0.005	
MW-14	1/19/93						BDL	BDL	BDL	BDL	
MW-14	6/17/93	89.62		0.00		89.62	<0.001	<0.001	<0.001	<0.001	
MW-14	11/11/93	89.62		0.00		89.62	<0.001	<0.001	<0.001	<0.001	
MW-14	6/27/94	89.62		0.00		89.62	<0.001	<0.001	<0.001	<0.003	
MW-14	2/16/95	89.62		0.00		89.62	<0.002	<0.002	<0.002	<0.005	
MW-14	7/28/95	89.62		0.00		89.62	<0.002	<0.002	<0.002	<0.005	
MW-14	6/17/96	89.62		0.03		89.59	<0.002	<0.002	<0.002	<0.005	
MW-14	9/25/96	89.62		0.05		89.57	<0.002	<0.002	<0.002	<0.005	
MW-14	4/24/97	89.62		0.00		89.62	<0.002	<0.002	<0.002	<0.005	
MW-14	6/17/97	89.62		0.00		89.62	<0.002	<0.002	<0.002	<0.005	
MW-14	8/27/97	89.62		0.00		89.62	<0.002	<0.002	<0.002	<0.005	
MW-14	11/5/97	99.46		0.79		98.67	<0.001	<0.001	<0.001	<0.003	
MW-14	2/27/98	99.46		0.00		99.46	<0.001	<0.001	<0.001	<0.003	
MW-14	6/10/98	99.46		0.00		99.46	<0.001	<0.001	<0.001	<0.003	
MW-14	10/8/98	99.46		0.09		99.37	<0.001	<0.001	<0.001	<0.003	
MW-14	3/31/99	99.46		0.00		99.46	<0.001	<0.001	<0.001	<0.003	
MW-14	6/9/99	99.46		0.00		99.46	<0.001	<0.001	<0.001	<0.003	
MW-14	9/2/99	99.46		0.19		99.27	<0.001	<0.001	<0.001	<0.003	
MW-14	10/28/99	99.46		0.00		99.46	<0.001	<0.001	<0.001	<0.003	
MW-14	2/23/00	99.46		0.00		99.46	<0.001	<0.001	<0.001	<0.003	
MW-14	5/24/00			0.00			<0.001	<0.001	<0.001	<0.003	
MW-14	8/15/00			0.00			<0.001	<0.001	<0.001	<0.003	
MW-14	11/9/00			0.00			<0.001	<0.001	<0.001	<0.003	
MW-14	10/11/01	99.16		0.02		99.14	<0.001	<0.001	<0.001	<0.003	
MW-14	3/14/02	99.16		0.02		99.14	<0.001	<0.001	<0.001	<0.003	
MW-14	6/6/02	99.16		0.00		99.16	<0.001	<0.001	<0.001	<0.003	
MW-14	8/30/02	99.16		0.00		99.16	<0.001	<0.001	<0.001	<0.003	
MW-14	12/6/02	99.16		0.00		99.16	<0.001	<0.001	<0.001	<0.003	
MW-14	5/6/04	99.16		0.00		99.16	<0.001	<0.001	<0.001	<0.003	<0.001
MW-14	4/21/05	99.16		0.00		99.16					
MW-14	4/22/05	99.16					<0.001	<0.001	<0.001	<0.003	<0.001
MW-14	1/5/09	99.16		0.30		98.86					
MW-14	1/6/09	99.16					<0.001	<0.001	<0.001	<0.003	<0.001
MW-14	4/14/11	99.16		0.24		98.92	<0.001	<0.001	<0.001	<0.003	<0.001
MW-14	10/2/13	99.16		0.10		99.06	<0.00034	<0.00034	<0.00034	<0.0010	<0.00037
MW-14	5/7/15	99.16		0.00		99.16	0.506	0.235	0.367	2.220	<0.0048
MW-14	10/20/16	99.16		0.19		98.97					
MW-14	10/21/16	99.16		18.50		80.66	<0.00050	<0.00050	<0.00050	<0.0015	<0.00017
MW-15	1/27/92						0.005	<0.002	<0.002	<0.005	
MW-15	8/24/92						0.03	<0.002	<0.002	<0.005	
MW-15	1/19/93						0.24	BDL	BDL	BDL	
MW-15	6/17/93	88.40		0.00		88.40	0.85	<0.001	<0.001	<0.001	
MW-15	11/11/93	88.40		0.56		87.84	1.03	<0.001	<0.001	<0.001	
MW-15	6/27/94	88.40		0.50		87.90	2.04	<0.001	<0.001	<0.003	
MW-15	2/16/95	88.40		0.85		87.55	1.82	<0.002	<0.002	<0.005	
MW-15	7/28/95	88.40		0.20		88.20	3.55	<0.002	<0.002	<0.005	
MW-15	3/22/96	88.40		0.74		87.66	10.5	<0.002	<0.002	<0.005	
MW-15	6/17/96	88.40		0.00		88.40	9.75	<0.002	<0.002	<0.005	
MW-15	9/25/96	88.40		0.75		87.65	7.6	<0.002	<0.002	<0.005	
MW-15	4/24/97	88.40		0.16		88.24	10.7	0.0084	<0.002	<0.005	
MW-15	6/17/97	88.40		0.00		88.40	9.59	0.0381	<0.005	<0.005	

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
MW-15	8/27/97	88.40		0.40		88.00	8.32	<0.05	<0.05	<0.125	
MW-15	11/5/97	100.25		0.68		99.57	8.2	<0.05	<0.05	<0.15	
MW-15	2/27/98	100.25		0.22		100.03	7.4	<0.1	<0.1	<0.3	
MW-15	6/10/98	100.25		0.18		100.07	6.9	<0.1	<0.1	<0.3	
MW-15	10/8/98	100.25		0.43		99.82	5.4	<0.05	<0.05	<0.15	
MW-15	3/31/99	100.25		1.30		98.95	4.6	<0.025	<0.025	<0.075	
MW-15	6/9/99	100.25		1.20		99.05	4.2	0.032	<0.025	<0.075	
MW-15	9/2/99	100.25		1.55		98.70	2.9	0.036	0.034	0.079	
MW-15	10/28/99	100.25		1.44		98.81	2.5	0.049	0.078	0.165	
MW-15	2/23/00	100.25		0.90		99.35	1.2	0.045	0.091	0.2	
MW-15	5/24/00	100.25		0.71		99.54	0.97	0.034	0.11	0.255	
MW-15	8/15/00	100.25		0.86		99.39	0.58	0.024	0.12	0.264	
MW-15	11/9/00	100.25		0.75		99.50	0.13	0.0074	0.027	0.055	
MW-15	10/11/01	100.25		0.84		99.41	0.2	0.012	0.062	0.1125	
MW-15	3/14/02	100.25		0.62		99.63	0.21	0.011	0.055	0.0993	
MW-15	6/6/02	100.25		0.47		99.78	0.17	0.0055	0.033	0.0688	
MW-15	8/30/02	100.25		0.83		99.42	0.22	0.0073	0.04	0.0628	
MW-15	12/6/02	100.25		1.11		99.14	0.24	0.0062	0.031	0.0394	
MW-15	5/6/04	100.25		0.95		99.30	0.12	0.004	0.0023	0.0063	<0.001
MW-15	4/21/05	100.25		0.79		99.46					
MW-15	4/22/05	100.25					0.076	0.0024	<0.001	0.0045	<0.001
MW-15	1/5/09	100.25		0.40		99.85					
MW-15	1/6/09	100.25					0.0739	0.004	<0.001	0.0135	0.004
MW-15	4/14/11	100.25		0.43		99.82	0.411	0.0121	<0.001	0.0284	0.0023
MW-15	10/2/13	100.25		0.78		99.47	0.549	0.0121	<0.0017	0.0156	0.0019 J
MW-15	5/7/15	100.25		0.58		99.67	1.530	0.0126	<0.0039	0.0272 J	<0.0048
MW-15	10/20/16	100.25		0.59		99.66					
MW-15	10/21/16	100.25		17.21		83.04	2.500	0.0071 J	<0.0050	<0.0150	<0.0017
MW-16	1/27/92						<0.002	<0.002	<0.002	<0.005	
MW-16	8/24/92						<0.002	<0.002	<0.002	<0.005	
MW-16	1/19/93						BDL	BDL	BDL	BDL	
MW-16	6/17/93	91.82		2.23		89.59	<0.001	<0.001	<0.001	<0.001	
MW-16	11/11/93	91.82		2.47		89.35	<0.001	<0.001	<0.001	<0.001	
MW-16	6/27/94	91.82		2.59		89.23	<0.001	<0.001	<0.001	<0.003	
MW-16	2/16/95	91.82		2.60		89.22	0.0103	<0.002	<0.002	<0.005	
MW-16	7/28/95	91.82		2.44		89.38	0.182	<0.002	<0.002	<0.005	
MW-16	3/22/96	91.82		3.14		88.68	1.83	<0.002	<0.002	<0.005	
MW-16	6/17/96	91.82		1.63		90.19	2.08	<0.002	<0.002	<0.005	
MW-16	9/25/96	91.82		2.38		89.44	2.19	<0.002	<0.002	<0.005	
MW-16	4/24/97	91.82		7.95		83.87	3.53	<0.002	<0.002	<0.005	
MW-16	6/17/97	91.82		4.49		87.33	3.6	<0.002	<0.002	<0.005	
MW-16	8/27/97	91.82		5.51		86.31	4.17	0.219	<0.05	0.197	
MW-16	11/5/97	101.72		7.75		93.97	3.9	<0.025	<0.025	<0.075	
MW-16	2/27/98	101.72		6.28		95.44	4.2	<0.050	<0.05	<0.15	
MW-16	6/10/98	101.72		2.36		99.36	3.3	<0.050	<0.05	<0.15	
MW-16	10/8/98	101.72		2.55		99.17	5.1	<0.025	<0.025	<0.075	
MW-16	3/31/99	101.72		3.47		98.25	4	<0.025	<0.025	<0.075	
MW-16	6/9/99	101.72		3.30		98.42	4.6	<0.050	<0.05	<0.15	
MW-16	9/2/99	101.72		3.75		97.97	4.4	<0.050	<0.05	<0.1	
MW-16	10/28/99	101.72		3.50		98.22	4.4	<0.020	<0.02	<0.04	
MW-16	2/23/00	101.72		3.05		98.67	3.3	<0.025	<0.025	<0.075	
MW-16	5/24/00	101.72		2.91		98.81	2.6	<0.025	<0.025	<0.050	
MW-16	8/15/00	101.72		3.07		98.65	1.7	<0.010	<0.01	<0.03	
MW-16	11/9/00	101.72		3.11		98.61	1.5	<0.050	<0.01	<0.03	
MW-16	10/11/01	101.72		3.06		98.66	0.35	<0.050	<0.0025	<0.0075	
MW-16	3/14/02	101.72		2.75		98.97	0.017	<0.001	<0.001	<0.003	
MW-16	6/6/02	101.72		2.65		99.07	0.2	<0.002	<0.002	<0.006	
MW-16	8/30/02	101.72		2.97		98.75	0.13	<0.001	<0.001	<0.003	
MW-16	12/6/02	101.72		3.21		98.51	0.12	<0.001	<0.001	<0.003	
MW-16	5/6/04	101.72		3.07		98.65	0.049	<0.001	<0.001	<0.003	0.0034
MW-16	4/21/05	101.72		2.95		98.77					
MW-16	4/22/05	101.72					0.045	<0.001	<0.001	<0.003	0.0032
MW-16	1/5/09	101.72		2.58		99.14					
MW-16	1/6/09	101.72					0.0191	<0.001	<0.001	<0.003	<0.001
MW-16	4/14/11	101.72		2.62		99.10	0.006	<0.001	<0.001	<0.003	0.0034
MW-16	10/2/13	101.72		3.23		98.49	0.0070	<0.00034	<0.00034	<0.0010	0.0035
MW-16	5/7/15	101.72		2.76		98.96	0.0037	<0.00039	<0.00039	<0.0012	0.0017

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
MW-17	11/5/97	100.91		2.05		98.86	<0.001	<0.001	<0.001	<0.003	
MW-17	2/27/98	100.91		1.63		99.28	<0.001	<0.001	<0.001	<0.003	
MW-17	6/10/98	100.91		1.58		99.33	<0.001	<0.001	<0.001	<0.003	
MW-17	10/8/98	100.91		1.87		99.04	<0.001	<0.001	<0.001	<0.003	
MW-17	3/31/99	100.91		2.29		98.62	<0.001	<0.001	<0.001	<0.003	
MW-17	6/9/99	100.91		2.15		98.76	<0.001	<0.001	<0.001	<0.003	
MW-17	9/2/99	100.91		2.65		98.26	<0.001	<0.001	<0.001	<0.002	
MW-17	10/28/99	100.91		2.54		98.37	<0.001	<0.001	<0.001	<0.002	
MW-17	2/23/00	100.91		2.04		98.87	<0.001	<0.001	<0.001	<0.003	
MW-17	5/24/00	100.91		1.81		99.10	<0.001	<0.001	<0.001	<0.002	
MW-17	8/15/00	100.91		2.07		98.84	<0.001	<0.001	<0.001	<0.003	
MW-17	11/9/00	100.91		1.98		98.93	<0.001	<0.005	<0.001	<0.003	
MW-17	10/11/01	100.91		2.14		98.77	<0.001	<0.001	<0.001	<0.003	
MW-17	3/14/02	100.91		1.81		99.10	<0.001	<0.001	<0.001	<0.003	
MW-17	6/6/02	100.91		1.59		99.32	0.0024	<0.001	<0.001	<0.003	
MW-17	8/30/02	100.91		2.01		98.90	<0.001	<0.001	<0.001	<0.003	
MW-17	12/6/02	100.91		2.34		98.57	<0.001	<0.001	<0.001	<0.003	
MW-17	5/6/04	100.91		2.13		98.78	0.0011	<0.001	<0.001	<0.003	0.053
MW-17	4/21/05	100.91		1.99		98.92					
MW-17	4/22/05	100.91					0.0041	<0.001	<0.001	<0.003	0.057
MW-17	1/5/09	100.91		1.48		99.43					
MW-17	1/6/09	100.91					<0.001	<0.001	<0.001	<0.003	0.0128
MW-17	4/14/11	100.91		1.60		99.31	<0.001	<0.001	<0.001	<0.003	0.0149
MW-17	10/2/13	100.91		2.21		98.70	0.00049 J	<0.00034	<0.00034	<0.0010	0.0065
MW-17	5/7/15	100.91		1.71		99.20	0.0010	<0.00039	<0.00039	<0.0012	0.0071
MW-17	10/20/16	100.91		2.03		98.88					
MW-17	10/21/16	100.91		17.19		83.72	<0.00050	<0.00050	<0.00050	<0.0015	0.0041
MW-18	11/5/97	99.19		5.32		93.87	<0.001	<0.001	<0.001	<0.003	
MW-18	2/27/98	99.19		2.63		96.56	<0.001	<0.001	<0.001	<0.003	
MW-18	6/10/98	99.19		2.85		96.34	<0.001	<0.001	<0.001	<0.003	
MW-18	10/8/98	99.19		6.37		92.82	<0.001	<0.001	<0.001	<0.003	
MW-18	3/31/99	99.19		2.81		96.38	<0.001	<0.001	<0.001	<0.003	
MW-18	6/9/99	99.19		2.46		96.73	<0.001	<0.001	<0.001	<0.003	
MW-18	9/2/99	99.19		4.73		94.46	<0.001	<0.001	<0.001	<0.003	
MW-18	10/28/99	99.19		3.95		95.24	<0.001	<0.001	<0.001	<0.003	
MW-18	2/23/00	99.19		3.25		95.94	<0.001	<0.001	<0.001	<0.003	
MW-18	5/24/00	99.19		2.34		96.85	<0.001	<0.001	<0.001	<0.003	
MW-18	8/15/00	99.19		2.98		96.21	<0.001	<0.001	<0.001	<0.003	
MW-18	11/9/00	99.19		3.35		95.84	<0.001	<0.005	<0.001	<0.003	
MW-18	10/11/01	99.19		3.42		95.77	<0.001	<0.001	<0.001	<0.003	
MW-18	3/14/02	99.19		2.40		96.79	<0.001	<0.001	<0.001	<0.003	
MW-18	6/6/02	99.19		2.33		96.86	<0.001	<0.001	<0.001	<0.003	
MW-18	8/30/02	99.19		3.50		95.69	<0.001	<0.001	<0.001	<0.003	
MW-18	12/6/02	99.19		3.54		95.65	<0.001	<0.001	<0.001	<0.003	
MW-18	5/6/04	99.19		2.83		96.36	<0.001	<0.001	<0.001	<0.003	<0.001
MW-18	4/21/05	99.19		2.73		96.46					
MW-18	4/22/05	99.19					<0.001	<0.001	<0.001	<0.003	<0.001
MW-18	1/5/09	99.19		2.34		96.85					
MW-18	1/6/09	99.19					<0.001	<0.001	<0.001	<0.003	<0.001
MW-18	4/14/11	99.19		2.53		96.66	<0.001	<0.001	<0.001	<0.003	<0.001
MW-18	10/2/13	99.19		4.13		95.06	<0.00034	<0.00034	<0.00034	<0.0010	<0.00037
MW-18	5/7/15	99.19		2.58		96.61	<0.00040	<0.00039	<0.00039	<0.0012	<0.00048
MW-18	10/20/16	99.19		2.97		96.22	<0.00050	<0.00050	<0.00050	<0.0015	<0.00017
MW-19	10/19/01	100.62		5.42		95.20	<0.001	<0.001	<0.001	<0.003	
MW-19	3/14/02	100.62		3.70		96.92	<0.001	<0.001	<0.001	<0.003	
MW-19	6/6/02	100.62		2.90		97.72	<0.001	<0.001	<0.001	<0.003	
MW-19	8/30/02	100.62		4.85		95.77	<0.001	<0.001	<0.001	<0.003	
MW-19	12/6/02	100.62		5.71		94.91	<0.001	<0.001	<0.001	<0.003	
MW-19	5/3/04	100.62		4.10		96.52	<0.001	<0.001	<0.001	<0.003	<0.001
MW-19	4/21/05	100.62		3.77		96.85					
MW-19	4/22/05	100.62					<0.001	<0.001	<0.001	<0.003	<0.001
MW-19	1/5/09	100.62		3.33		97.29					
MW-19	1/6/09	100.62					<0.001	<0.001	<0.001	<0.003	<0.001
MW-19	4/14/11	100.62		3.00		97.62	<0.001	<0.001	<0.001	<0.003	<0.001
MW-19	10/2/13	100.62		4.75		95.87	<0.00034	<0.00034	<0.00034	<0.0010	<0.00037
MW-19	5/7/15	100.62		3.18		97.44	<0.00040	<0.00039	<0.00039	<0.0012	0.00051 J
MW-19	10/20/16	100.62		4.18		96.44	<0.00050	<0.00050	<0.00050	<0.0015	0.00085 J

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
MW-21	4/21/05	102.43		8.79		93.64					
MW-21	4/22/05	102.43					<0.001	<0.001	<0.001	<0.003	<0.001
MW-21	1/5/09	102.43		6.12		96.31					
MW-21	1/6/09	102.43					<0.001	<0.001	<0.001	<0.003	<0.001
MW-21	4/14/11	102.43		6.01		96.42	<0.001	<0.001	<0.001	<0.003	<0.001
MW-21	10/2/13	102.43		7.45		94.98	<0.00034	<0.00034	<0.00034	<0.0010	<0.00037
MW-21	5/7/15	102.43		6.13		96.30					
MW-21	10/20/16	102.43		7.09		95.34					
MW-22	4/21/05	107.15		4.62		102.53					
MW-22	4/22/05	107.15					<0.001	<0.001	<0.001	<0.003	<0.001
MW-22	1/6/09	107.15		4.34		102.81	<0.001	<0.001	<0.001	<0.003	<0.001
MW-22	4/14/11	107.15		4.51		102.64	<0.001	<0.001	<0.001	<0.003	<0.001
MW-22	10/2/13	107.15		4.75		102.40	<0.00034	<0.00034	<0.00034	<0.0010	0.0019
MW-23	4/21/05	104.89		6.90		97.99					
MW-23	4/22/05	104.89					<0.001	<0.001	<0.001	<0.003	<0.001
MW-23	1/5/09	104.89		6.78		98.11					
MW-23	1/6/09	104.89					<0.001	<0.001	<0.001	<0.003	<0.001
MW-23	4/14/11	104.89		6.83		98.06	<0.001	<0.001	<0.001	<0.003	<0.001
MW-23	10/2/13	104.89		11.26		93.63	<0.00034	<0.00034	<0.00034	<0.0010	<0.00037
MW-23	5/7/15	104.89		6.85		98.04					
MW-24	4/21/05	105.54		4.35		101.19	<0.001	<0.001	<0.001	<0.003	<0.001
MW-24	4/14/11	105.54		4.84		100.70	<0.001	<0.001	<0.001	<0.003	<0.001
MW-24	10/2/13	105.54		5.51		100.03					
MW-24	10/3/13	105.54					<0.00034	<0.00034	<0.00034	<0.0010	<0.00037
MW-24	5/7/15	105.54		3.82		101.72					
MW-25	5/24/05	107.74		4.31		103.43	<0.001	<0.001	<0.001	<0.003	<0.001
MW-25	9/1/09	107.74		4.33		103.41					
MW-25	4/14/11	107.74		4.10		103.64	<0.001	<0.001	<0.001	<0.003	<0.001
MW-25	12/6/12	107.74		5.21		102.53					
MW-25	12/10/12	107.74		8.25		99.49					
MW-25	12/14/12	107.74		5.22		102.52					
MW-25	12/18/12	107.74		5.27		102.47					
MW-25	12/27/12	107.74		5.24		102.50					
MW-25	1/7/13	107.74		5.20		102.54					
MW-25	1/28/13	107.74		5.19		102.55					
MW-25	2/11/13	107.74		5.15		102.59					
MW-25	3/25/13	107.74		4.28		103.46					
MW-25	4/4/13	107.74		5.35		102.39					
MW-25	4/8/13	107.74		5.15		102.59					
MW-25	4/15/13	107.74		4.11		103.63					
MW-25	4/22/13	107.74		3.95		103.79					
MW-25	5/8/13	107.74		4.16		103.58					
MW-25	5/23/13	107.74		4.28		103.46					
MW-25	7/3/13	107.74		4.30		103.44					
MW-25	10/2/13	107.74		4.73		103.01					
MW-25	10/3/13	107.74					<0.00034	<0.00034	<0.00034	<0.0010	<0.00037
MW-25	5/7/15	107.74		4.91		102.83					
MW-26	4/21/05	111.38		7.48		103.90					
MW-26	4/22/05	111.38					<0.001	<0.001	<0.001	<0.003	<0.001
MW-26	12/29/08	111.38		6.00		105.38					
MW-26	12/31/08	111.38		6.94		104.44					
MW-26	1/5/09	111.38		7.23		104.15					
MW-26	1/6/09	111.38					0.0403	0.0755	0.0048	0.0597	0.0017
MW-26	3/13/09	111.38		6.83		104.55					
MW-26	4/1/09	111.38		6.72		104.66					
MW-26	5/19/09	111.38		7.32		104.06					
MW-26	7/16/09	111.38	7.62	7.66	0.04	103.75					
MW-26	7/27/09	111.38	7.59	7.94	0.35	103.71					
MW-26	8/11/09	111.38	7.58	8.19	0.61	103.67					
MW-26	8/18/09	111.38	7.59	8.25	0.66	103.64					
MW-26	8/25/09	111.38	7.58	8.23	0.65	103.66					
MW-26	9/1/09	111.38	7.53	7.58	0.05	103.84					
MW-26	9/10/09	111.38	7.71	7.78	0.07	103.65					
MW-26	9/17/09	111.38	7.78	7.80	0.02	103.60					
MW-26	9/24/09	111.38	7.73	7.89	0.16	103.61					
MW-26	10/1/09	111.38		7.75		103.63					
MW-26	10/7/09	111.38	7.57	7.98	0.41	103.72					

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
MW-26	10/23/09	111.38		7.32		104.06					
MW-26	10/28/09	111.38		7.41		103.97					
MW-26	11/9/09	111.38	7.58	7.59	0.01	103.80					
MW-26	11/24/09	111.38	7.71	7.72	0.01	103.67					
MW-26	12/3/09	111.38	7.59	7.63	0.04	103.78					
MW-26	12/8/09	111.38	7.64	7.69	0.05	103.73					
MW-26	12/17/09	111.38	7.55	7.63	0.08	103.81					
MW-26	12/22/09	111.38	7.62	7.81	0.19	103.72					
MW-26	12/28/09	111.38		7.20		104.18					
MW-26	1/6/10	111.38		7.55		103.83					
MW-26	1/19/10	111.38		7.68		103.70					
MW-26	1/25/10	111.38		7.15		104.23					
MW-26	2/2/10	111.38		7.53		103.85					
MW-26	2/8/10	111.38		7.62		103.76					
MW-26	3/18/10	111.38		7.21		104.17					
MW-26	3/24/10	111.38		7.28		104.10					
MW-26	3/29/10	111.38		7.42		103.96					
MW-26	4/21/10	111.38		7.50		103.88					
MW-26	4/27/10	111.38		7.50		103.88					
MW-26	5/4/10	111.38		7.49		103.89					
MW-26	5/10/10	111.38		7.47		103.91					
MW-26	5/19/10	111.38		7.27		104.11					
MW-26	5/25/10	111.38		7.43		103.95					
MW-26	6/2/10	111.38		7.39		103.99					
MW-26	6/8/10	111.38		7.33		104.05					
MW-26	6/16/10	111.38		7.43		103.95					
MW-26	6/22/10	111.38		7.43		103.95					
MW-26	6/30/10	111.38		7.40		103.98					
MW-26	7/6/10	111.38		7.57		103.81					
MW-26	7/13/10	111.38	7.53	7.54	0.01	103.85					
MW-26	7/20/10	111.38		7.65		103.73					
MW-26	7/27/10	111.38	7.39	7.40	0.01	103.99					
MW-26	8/18/10	111.38		7.47		103.91					
MW-26	8/24/10	111.38	7.53	7.54	0.01	103.85					
MW-26	8/31/10	111.38		7.60		103.78					
MW-26	9/21/10	111.38	7.66	7.68	0.02	103.72					
MW-26	9/30/10	111.38	7.71	7.73	0.02	103.67					
MW-26	10/12/10	111.38	7.78	8.04	0.26	103.54					
MW-26	11/3/10	111.38	7.73	8.08	0.35	103.57					
MW-26	11/15/10	111.38	7.78	8.11	0.33	103.53					
MW-26	12/2/10	111.38	7.73	8.34	0.61	103.52					
MW-26	12/10/10	111.38	7.75	8.21	0.46	103.53					
MW-26	12/22/10	111.38	7.81	8.58	0.77	103.40					
MW-26	12/27/10	111.38	7.82	8.63	0.81	103.38					
MW-26	12/29/10	111.38	8.11	8.59	0.48	103.16					
MW-26	1/5/11	111.38	7.87	8.14	0.27	103.45					
MW-26	1/5/11^	111.38		8.02		103.36					
MW-26	1/13/11	111.38	8.04	8.06	0.02	103.34					
MW-26	1/13/11^	111.38		8.17		103.21					
MW-26	1/17/11	111.38	7.99	8.43	0.44	103.29					
MW-26	1/28/11	111.38	7.98	8.76	0.78	103.23					
MW-26	1/28/11^	111.38		8.48		102.90					
MW-26	2/7/11	111.38		8.05		103.33					
MW-26	3/2/11	111.38		7.52		103.86					
MW-26	3/7/11	111.38		7.50		103.88					
MW-26	3/14/11	111.38		7.45		103.93					
MW-26	3/21/11	111.38		7.10		104.28					
MW-26	3/28/11	111.38		7.39		103.99					
MW-26	4/5/11	111.38		7.52		103.86					
MW-26	4/12/11	111.38	7.42	7.43	0.01	103.95					
MW-26	4/14/11	111.38		7.52		103.86	0.002	0.013	0.0094	0.0581	<0.001
MW-26	4/19/11	111.38		7.15		104.23					
MW-26	4/26/11	111.38		6.93		104.45					
MW-26	5/5/11	111.38		7.38		104.00					
MW-26	5/11/11	111.38		7.54		103.84					
MW-26	5/17/11	111.38		7.55		103.83					
MW-26	5/23/11	111.38		7.20		104.18					

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
MW-26	6/2/11	111.38		7.30		104.08					
MW-26	6/27/11	111.38		7.58		103.80					
MW-26	7/6/11	111.38		7.72		103.66					
MW-26	7/18/11	111.38		7.83		103.55					
MW-26	7/26/11	111.38		7.52		103.86					
MW-26	8/2/11	111.38		7.51		103.87					
MW-26	8/9/11	111.38		7.44		103.94					
MW-26	8/15/11	111.38		7.58		103.80					
MW-26	8/22/11	111.38		7.50		103.88					
MW-26	8/29/11	111.38		7.63		103.75					
MW-26	9/7/11	111.38		7.75		103.63					
MW-26	9/13/11	111.38		7.83		103.55					
MW-26	9/20/11	111.38		7.77		103.61					
MW-26	9/27/11	111.38		7.50		103.88					
MW-26	10/3/11	111.38		7.64		103.74					
MW-26	10/11/11	111.38		7.82		103.56					
MW-26	10/18/11	111.38		7.75		103.63					
MW-26	10/25/11	111.38		7.67		103.71					
MW-26	11/4/11	111.38		7.63		103.75					
MW-26	11/10/11	111.38		7.36		104.02					
MW-26	11/21/11	111.38		7.56		103.82					
MW-26	11/30/11	111.38		7.58		103.80					
MW-26	12/6/11	111.38		7.46		103.92					
MW-26	12/12/11	111.38		7.63		103.75					
MW-26	12/19/11	111.38		7.53		103.85					
MW-26	12/29/11	111.38		7.45		103.93					
MW-26	1/9/12	111.38		7.66		103.72					
MW-26	1/23/12	111.38		7.57		103.81					
MW-26	1/31/12	111.38		7.54		103.84					
MW-26	2/6/12	111.38		7.55		103.83					
MW-26	2/13/12	111.38		7.68		103.70					
MW-26	2/21/12	111.38		7.67		103.71					
MW-26	2/28/12	111.38		7.48		103.90					
MW-26	3/9/12	111.38		7.64		103.74					
MW-26	3/23/12	111.38		7.55		103.83					
MW-26	3/27/12	111.38		7.53		103.85					
MW-26	4/5/12	111.38		7.67		103.71					
MW-26	4/10/12	111.38		7.73		103.65					
MW-26	4/16/12	111.38		7.33		104.05					
MW-26	4/24/12	111.38		7.55		103.83					
MW-26	5/4/12	111.38		7.51		103.87					
MW-26	5/10/12	111.38		7.45		103.93					
MW-26	5/16/12	111.38		7.62		103.76					
MW-26	5/25/12	111.38		7.65		103.73					
MW-26	5/29/12	111.38		7.73		103.65					
MW-26	6/8/12	111.38		7.68		103.70					
MW-26	6/19/12	111.38		7.82		103.56					
MW-26	6/29/12	111.38		7.95		103.43					
MW-26	7/3/12	111.38		7.98		103.40					
MW-26	7/11/12	111.38		8.08		103.30					
MW-26	7/16/12	111.38		7.80		103.58					
MW-26	8/1/12	111.38		7.91		103.47					
MW-26	8/10/12	111.38		7.93		103.45					
MW-26	9/7/12	111.38		8.00		103.38					
MW-26	9/13/12	111.38		8.04		103.34					
MW-26	10/3/12	111.38		8.14		103.24					
MW-26	11/27/12	111.38	8.21	9.19	0.98	102.95					
MW-26	12/3/12	111.38	8.23	9.31	1.08	102.91					
MW-26	12/6/12	111.38	8.29	9.27	0.98	102.87					
MW-26	12/6/12^	111.38		8.51		102.87					
MW-26	12/10/12	111.38	8.22	9.02	0.80	102.98					
MW-26	12/10/12^	111.38		8.62		102.76					
MW-26	12/14/12	111.38	8.44	9.47	1.03	102.71					
MW-26	12/14/12^	111.38		8.52		102.86					
MW-26	12/18/12	111.38	8.30	8.42	0.12	103.05					
MW-26	12/27/12	111.38		8.17		103.21					
MW-26	1/7/13	111.38	8.37	8.54	0.17	102.97					

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
MW-26	1/14/13	111.38	8.15	8.33	0.18	103.19					
MW-26	1/21/13	111.38	8.30	8.69	0.39	102.99					
MW-26	1/28/13	111.38	8.42	8.64	0.22	102.91					
MW-26	2/6/13	111.38	8.05	8.07	0.02	103.33					
MW-26	2/11/13	111.38		7.85		103.53					
MW-26	2/18/13	111.38		8.02		103.36					
MW-26	2/27/13	111.38		8.02		103.36					
MW-26	3/4/13	111.38		7.97		103.41					
MW-26	3/25/13	111.38		7.82		103.56					
MW-26	4/4/13	111.38		8.15		103.23					
MW-26	4/8/13	111.38		8.05		103.33					
MW-26	4/15/13	111.38		7.55		103.83					
MW-26	4/22/13	111.38		7.21		104.17					
MW-26	5/8/13	111.38		7.62		103.76					
MW-26	5/23/13	111.38		7.67		103.71					
MW-26	7/3/13	111.38		7.57		103.81					
MW-26	10/2/13	111.38		8.13		103.25					
MW-26	10/3/13	111.38					<0.00034	0.00051 J	0.00057 J	0.0079	0.00054 J
MW-26	5/7/15	111.38		7.65		103.73					
MW-27	4/21/05	111.15		7.54		103.61	0.048	0.0095	0.15	0.68	0.016
MW-27	12/29/08	111.15	sheen	6.83	sheen	104.32					
MW-27	12/31/08	111.15	6.97	7.03	0.06	104.17					
MW-27	1/5/09	111.15	7.25	7.35	0.10	103.88					
MW-27	1/9/09	111.15	7.29	7.39	0.10	103.84					
MW-27	1/27/09	111.15	7.59	7.72	0.13	103.53					
MW-27	1/30/09	111.15	7.66	7.68	0.02	103.49					
MW-27	2/26/09	111.15	7.28	7.36	0.08	103.85					
MW-27	3/9/09	111.15		6.50		104.65					
MW-27	3/13/09	111.15	6.82	6.83	0.00	104.33					
MW-27	4/1/09	111.15		6.71		104.44					
MW-27	5/19/09	111.15	7.37	7.39	0.02	103.78					
MW-27	7/16/09	111.15	7.42	8.34	0.92	103.53					
MW-27	9/1/09	111.15	7.43	7.73	0.30	103.65					
MW-27	9/10/09	111.15	7.55	7.56	0.01	103.60					
MW-27	9/17/09	111.15	7.56	7.58	0.02	103.59					
MW-27	9/24/09	111.15		7.53		103.62					
MW-27	10/1/09	111.15		7.59		103.56					
MW-27	10/7/09	111.15	7.53	7.84	0.31	103.55					
MW-27	10/23/09	111.15	7.30	7.53	0.23	103.80					
MW-27	10/28/09	111.15	7.39	7.58	0.19	103.72					
MW-27	11/9/09	111.15	7.51	7.78	0.27	103.58					
MW-27	11/24/09	111.15	7.60	8.07	0.47	103.45					
MW-27	12/3/09	111.15	7.53	7.87	0.34	103.55					
MW-27	12/8/09	111.15	7.56	7.96	0.40	103.50					
MW-27	12/17/09	111.15	7.49	7.77	0.28	103.60					
MW-27	12/22/09	111.15	7.55	7.94	0.39	103.51					
MW-27	12/28/09	111.15		7.20		103.95					
MW-27	1/6/10	111.15	7.51	7.53	0.02	103.64					
MW-27	1/11/10	111.15		7.65		103.50					
MW-27	1/19/10	111.15	7.63	7.65	0.02	103.52					
MW-27	1/25/10	111.15		7.13		104.02					
MW-27	2/2/10	111.15	7.51	7.53	0.02	103.64					
MW-27	2/8/10	111.15	7.60	7.63	0.03	103.54					
MW-27	2/16/10	111.15	7.72	7.74	0.02	103.43					
MW-27	2/22/10	111.15	7.50	7.72	0.22	103.60					
MW-27	3/1/10	111.15		7.48		103.67					
MW-27	3/8/10	111.15	7.37	7.61	0.24	103.73					
MW-27	3/18/10	111.15		7.23		103.92					
MW-27	3/24/10	111.15		7.29		103.86					
MW-27	3/29/10	111.15	7.42	7.43	0.01	103.73					
MW-27	4/21/10	111.15	7.46	7.56	0.10	103.67					
MW-27	4/27/10	111.15	7.48	7.61	0.13	103.64					
MW-27	5/4/10	111.15	7.49	7.61	0.12	103.63					
MW-27	5/10/10	111.15	7.45	7.54	0.09	103.68					
MW-27	5/19/10	111.15	7.25	7.37	0.12	103.87					
MW-27	5/25/10	111.15	7.39	7.51	0.12	103.73					
MW-27	6/2/10	111.15	7.42	7.46	0.04	103.72					

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
CCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
MW-27	6/8/10	111.15	7.35	7.38	0.03	103.79					
MW-27	6/16/10	111.15	7.40	7.58	0.18	103.71					
MW-27	6/22/10	111.15	7.34	7.75	0.41	103.72					
MW-27	6/30/10	111.15	7.30	7.86	0.56	103.73					
MW-27	7/6/10	111.15		7.37		103.78					
MW-27	7/13/10	111.15	7.35	8.11	0.76	103.63					
MW-27	7/20/10	111.15	7.46	7.47	0.01	103.69					
MW-27	7/27/10	111.15	7.33	7.65	0.32	103.75					
MW-27	8/18/10	111.15	7.29	8.12	0.83	103.68					
MW-27	8/24/10	111.15	7.31	8.12	0.81	103.66					
MW-27	8/31/10	111.15	7.40	7.46	0.06	103.74					
MW-27	9/21/10	111.15		7.46		103.69					
MW-27	9/30/10	111.15		7.49		103.66					
MW-27	10/12/10	111.15	7.59	8.50	0.91	103.36					
MW-27	11/3/10	111.15	7.61	8.42	0.81	103.36					
MW-27	11/15/10	111.15	7.58	8.37	0.79	103.40					
MW-27	12/2/10	111.15	7.67	8.38	0.71	103.32					
MW-27	12/10/10	111.15	7.63	8.40	0.77	103.35					
MW-27	12/22/10	111.15	7.71	8.66	0.95	103.23					
MW-27	12/27/10	111.15	7.74	8.63	0.89	103.21					
MW-27	12/29/10	111.15	8.36	8.59	0.23	102.74					
MW-27	1/5/11	111.15	7.64	8.22	0.58	103.38					
MW-27	1/5/11^	111.15	8.25	8.39	0.14	102.87					
MW-27	1/10/11	111.15		7.69		103.46					
MW-27	1/13/11	111.15	7.75	8.52	0.77	103.23					
MW-27	1/13/11^	111.15	8.12	8.13	0.01	103.03					
MW-27	1/17/11	111.15	7.74	8.63	0.89	103.21					
MW-27	1/28/11	111.15		7.79		103.36					
MW-27	1/28/11^	111.15	7.93	8.80	0.87	103.03					
MW-27	2/7/11	111.15		7.91		103.24					
MW-27	2/22/11	111.15	7.22	7.31	0.09	103.91					
MW-27	3/2/11	111.15	7.50	7.61	0.11	103.63					
MW-27	3/7/11	111.15	7.55	7.62	0.07	103.58					
MW-27	3/14/11	111.15	7.37	7.38	0.01	103.78					
MW-27	3/21/11	111.15	6.93	6.95	0.02	104.22					
MW-27	3/28/11	111.15		7.32		103.83					
MW-27	4/5/11	111.15	7.44	7.45	0.01	103.71					
MW-27	4/12/11	111.15	7.37	7.40	0.03	103.77					
MW-27	4/14/11	111.15	7.44	7.45	0.01	103.71					
MW-27	4/19/11	111.15		7.10		104.05					
MW-27	4/26/11	111.15		6.90		104.25					
MW-27	5/5/11	111.15		7.33		103.82					
MW-27	5/11/11	111.15		7.46		103.69					
MW-27	5/17/11	111.15		7.48		103.67					
MW-27	5/23/11	111.15		7.12		104.03					
MW-27	6/2/11	111.15		7.23		103.92					
MW-27	6/27/11	111.15	7.50	7.51	0.01	103.65					
MW-27	7/6/11	111.15	7.63	7.65	0.02	103.52					
MW-27	7/18/11	111.15	7.75	7.82	0.07	103.38					
MW-27	7/26/11	111.15	7.42	7.49	0.07	103.71					
MW-27	8/2/11	111.15	7.43	7.45	0.02	103.72					
MW-27	8/9/11	111.15		7.21		103.94					
MW-27	8/15/11	111.15	7.49	7.52	0.03	103.65					
MW-27	8/22/11	111.15		7.42		103.73					
MW-27	8/29/11	111.15	7.54	7.58	0.04	103.60					
MW-27	9/7/11	111.15	7.65	7.71	0.06	103.49					
MW-27	9/13/11	111.15	7.70	7.76	0.06	103.44					
MW-27	9/20/11	111.15	7.64	7.72	0.08	103.49					
MW-27	9/27/11	111.15		7.45		103.70					
MW-27	10/3/11	111.15	7.54	7.57	0.03	103.60					
MW-27	10/11/11	111.15	7.62	7.65	0.03	103.52					
MW-27	10/18/11	111.15	7.62	7.65	0.03	103.52					
MW-27	10/25/11	111.15	7.57	7.60	0.03	103.57					
MW-27	11/4/11	111.15	7.57	7.58	0.01	103.58					
MW-27	11/10/11	111.15		7.31		103.84					
MW-27	11/21/11	111.15		7.53		103.62					
MW-27	11/30/11	111.15	7.51	7.52	0.01	103.64					

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
MW-27	12/6/11	111.15	7.41	7.42	0.01	103.74					
MW-27	12/12/11	111.15	7.54	7.55	0.01	103.61					
MW-27	12/19/11	111.15		7.49		103.66					
MW-27	12/29/11	111.15		7.58		103.57					
MW-27	1/9/12	111.15		7.56		103.59					
MW-27	1/17/12	111.15		7.02		104.13					
MW-27	1/23/12	111.15		7.43		103.72					
MW-27	1/31/12	111.15		7.47		103.68					
MW-27	2/6/12	111.15		7.49		103.66					
MW-27	2/13/12	111.15	7.60	7.61	0.01	103.55					
MW-27	2/21/12	111.15	7.59	7.61	0.02	103.56					
MW-27	2/28/12	111.15	7.43	7.44	0.01	103.72					
MW-27	3/9/12	111.15	7.59	7.60	0.01	103.56					
MW-27	3/23/12	111.15		7.50		103.65					
MW-27	3/27/12	111.15		7.45		103.70					
MW-27	4/5/12	111.15		7.60		103.55					
MW-27	4/10/12	111.15	7.64	7.65	0.01	103.51					
MW-27	4/16/12	111.15		7.25		103.90					
MW-27	4/24/12	111.15	7.47	7.48	0.01	103.68					
MW-27	5/4/12	111.15		7.47		103.68					
MW-27	5/10/12	111.15		7.39		103.76					
MW-27	5/16/12	111.15		7.54		103.61					
MW-27	5/25/12	111.15		7.64		103.51					
MW-27	5/29/12	111.15	7.62	7.63	0.01	103.53					
MW-27	6/8/12	111.15		7.60		103.55					
MW-27	6/14/12	111.15	7.70	7.71	0.01	103.45					
MW-27	6/19/12	111.15	7.71	7.74	0.03	103.43					
MW-27	6/29/12	111.15	7.84	7.88	0.04	103.30					
MW-27	7/3/12	111.15	7.89	7.93	0.04	103.25					
MW-27	7/11/12	111.15		7.95		103.20					
MW-27	7/16/12	111.15	7.88	7.89	0.01	103.27					
MW-27	8/1/12	111.15		7.93		103.22					
MW-27	8/10/12	111.15	7.84	7.85	0.01	103.31					
MW-27	9/7/12	111.15		7.85		103.30					
MW-27	9/13/12	111.15		7.90		103.25					
MW-27	10/3/12	111.15	7.98	8.94	0.96	102.96					
MW-27	11/13/12	111.15	7.64	8.84	1.20	103.25					
MW-27	11/27/12	111.15	8.02	9.00	0.98	102.91					
MW-27	12/3/12	111.15	8.03	9.10	1.07	102.88					
MW-27	12/6/12	111.15	8.28	9.35	1.07	102.63					
MW-27	12/6/12^	111.15	8.31	8.34	0.03	102.83					
MW-27	12/10/12	111.15	8.05	8.96	0.91	102.90					
MW-27	12/10/12^	111.15	8.38	8.39	0.01	102.77					
MW-27	12/14/12	111.15	8.10	9.11	1.01	102.83					
MW-27	12/14/12^	111.15	8.45	8.46	0.01	102.70					
MW-27	12/18/12	111.15	7.98	8.60	0.62	103.03					
MW-27	12/27/12	111.15	7.98	8.11	0.13	103.14					
MW-27	1/7/13	111.15	8.08	8.10	0.02	103.07					
MW-27	1/14/13	111.15	7.94	7.95	0.01	103.21					
MW-27	1/21/13	111.15	8.05	8.07	0.02	103.10					
MW-27	1/28/13	111.15	8.08	8.83	0.75	102.91					
MW-27	2/6/13	111.15	7.95	8.05	0.10	103.18					
MW-27	2/11/13	111.15		7.61		103.54					
MW-27	2/18/13	111.15		7.84		103.31					
MW-27	2/27/13	111.15		7.84		103.31					
MW-27	3/4/13	111.15		7.81		103.34					
MW-27	3/25/13	111.15		7.71		103.44					
MW-27	4/4/13	111.15		7.79		103.36					
MW-27	4/8/13	111.15		7.76		103.39					
MW-27	4/15/13	111.15		7.48		103.67					
MW-27	4/22/13	111.15		7.07		104.08					
MW-27	5/6/13	111.15		7.52		103.63					
MW-27	5/23/13	111.15		7.56		103.59					
MW-27	7/3/13	111.15		7.51		103.64					
MW-27	10/2/13	111.15		7.98		103.17					
MW-27	10/3/13	111.15					3.520	2.010	0.486	4.000	<0.0093
MW-27	5/7/15	111.15		8.57		102.58	0.875	0.015	0.139	0.367	<0.0024

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
MW-28	4/21/05	112.55		8.10		104.45					
MW-28	4/22/05	112.55					<0.001	<0.001	<0.001	<0.003	<0.001
MW-28	1/5/09	112.55		7.80		104.75					
MW-28	1/6/09	112.55					<0.001	<0.001	<0.001	<0.003	<0.001
MW-28	9/1/09	112.55		8.02		104.53					
MW-28	4/14/11	112.55		7.91		104.64	<0.001	<0.001	<0.001	<0.003	<0.001
MW-28	12/6/12	112.55		9.11		103.44					
MW-28	12/10/12	112.55		9.08		103.47					
MW-28	12/14/12	112.55		9.10		103.45					
MW-28	12/18/12	112.55		9.08		103.47					
MW-28	12/27/12	112.55		9.05		103.50					
MW-28	1/7/13	112.55		9.01		103.54					
MW-28	1/28/13	112.55		9.04		103.51					
MW-28	2/11/13	112.55		8.62		103.93					
MW-28	4/4/13	112.55		7.95		104.60					
MW-28	4/8/13	112.55		7.97		104.58					
MW-28	4/15/13	112.55		7.55		105.00					
MW-28	4/22/13	112.55		7.05		105.50					
MW-28	5/8/13	112.55		7.51		105.04					
MW-28	10/2/13	112.55		8.59		103.96					
MW-28	10/3/13	112.55					<0.00034	<0.00034	<0.00034	<0.0010	<0.00037
MW-28	5/7/15	112.55		8.09		104.46					
MW-29	5/19/09		7.32	9.39	2.07						
MW-29	6/17/09		7.55	8.65	1.10						
MW-29	7/16/09		7.84	9.10	1.26						
MW-29	7/27/09		7.76	8.86	1.10						
MW-29	8/11/09		8.26	8.27	0.01						
MW-29	8/18/09		8.29	8.44	0.15						
MW-29	8/25/09		8.21	8.28	0.07						
MW-29	9/1/09		7.75	8.96	1.21						
MW-29	9/10/09		7.88	9.16	1.28						
MW-29	9/17/09		8.27	8.41	0.14						
MW-29	9/24/09		8.26	8.27	0.01						
MW-29	10/1/09			8.30							
MW-29	10/7/09		8.09	8.11	0.02						
MW-29	10/23/09		7.75	7.86	0.11						
MW-29	10/28/09		7.84	8.26	0.42						
MW-29	11/9/09		7.80	8.95	1.15						
MW-29	11/24/09		7.93	9.03	1.10						
MW-29	12/3/09		7.84	8.82	0.98						
MW-29	12/8/09		7.86	8.74	0.88						
MW-29	12/17/09		7.90	8.60	0.70						
MW-29	12/22/09		7.95	8.80	0.85						
MW-29	12/28/09		7.61	7.63	0.02						
MW-29	1/6/10		7.80	8.73	0.93						
MW-29	1/11/10		7.80	9.17	1.37						
MW-29	1/19/10		7.85	9.20	1.35						
MW-29	1/25/10		7.55	7.63	0.08						
MW-29	2/2/10		7.82	8.77	0.95						
MW-29	2/8/10		7.85	8.89	1.04						
MW-29	2/16/10		7.93	8.97	1.04						
MW-29	2/22/10		7.85	8.45	0.60						
MW-29	3/1/10		7.87	8.64	0.77						
MW-29	3/8/10		7.71	8.16	0.45						
MW-29	3/18/10		7.62	7.77	0.15						
MW-29	3/24/10		7.65	7.73	0.08						
MW-29	3/29/10		7.78	7.85	0.07						
MW-29	4/21/10		7.18	7.23	0.05						
MW-29	4/27/10		7.86	8.45	0.59						
MW-29	5/4/10		7.76	8.71	0.95						
MW-29	5/10/10		7.83	8.40	0.57						
MW-29	5/19/10		7.56	8.50	0.94						
MW-29	5/25/10		7.71	8.52	0.81						
MW-29	6/2/10		7.70	8.40	0.70						
MW-29	6/8/10		7.72	8.36	0.64						
MW-29	6/16/10		7.70	8.50	0.80						
MW-29	6/22/10		6.95	7.22	0.27						

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
MW-29	6/30/10		7.00	7.21	0.21						
MW-29	7/6/10		6.96	7.19	0.23						
MW-29	7/13/10		6.99	7.14	0.15						
MW-29	7/20/10		6.97	7.19	0.22						
MW-29	7/27/10		7.03	7.16	0.13						
MW-29	8/18/10		7.00	7.18	0.18						
MW-29	8/24/10		7.01	7.15	0.14						
MW-29	8/31/10		7.02	7.17	0.15						
MW-29	9/21/10		7.04	7.19	0.15						
MW-29	9/30/10		7.11	7.24	0.13						
MW-29	10/12/10		7.25	7.40	0.15						
MW-29	11/3/10		8.23	8.53	0.30						
MW-29	11/15/10		8.21	8.54	0.33						
MW-29	12/2/10		8.25	8.56	0.31						
MW-29	12/10/10		8.29	8.52	0.23						
MW-29	12/22/10		8.41	8.43	0.02						
MW-29	12/27/10		7.74	8.63	0.89						
MW-29	12/29/10		8.12	8.45	0.33						
MW-29	1/5/11		8.18	8.95	0.77						
MW-29	1/5/11^		8.68	8.71	0.03						
MW-29	1/13/11		8.45	8.72	0.27						
MW-29	1/13/11^		8.73	8.78	0.05						
MW-29	1/17/11		8.42	8.68	0.26						
MW-29	1/28/11		8.52	8.67	0.15						
MW-29	1/28/11^			8.90							
MW-29	2/7/11		8.64	8.72	0.08						
MW-29	2/22/11			7.72							
MW-29	3/2/11		7.85	7.99	0.14						
MW-29	3/7/11		7.78	7.86	0.08						
MW-29	3/14/11		7.70	8.29	0.59						
MW-29	3/21/11			7.34							
MW-29	3/28/11			7.65							
MW-29	4/5/11			7.60							
MW-29	4/12/11		7.61	8.74	1.13						
MW-29	4/14/11		7.68	8.77	1.09						
MW-29	4/19/11		8.21	8.40	0.19						
MW-29	4/26/11		7.19	7.50	0.31						
MW-29	5/5/11		7.63	8.34	0.71						
MW-29	5/11/11		7.70	8.81	1.11						
MW-29	5/17/11		7.93	8.24	0.31						
MW-29	5/23/11		7.58	7.63	0.05						
MW-29	6/2/11		7.57	8.25	0.68						
MW-29	6/27/11		7.68	9.02	1.34						
MW-29	7/6/11		7.55	7.96	0.41						
MW-29	7/18/11		8.06	9.12	1.06						
MW-29	7/26/11		7.79	8.55	0.76						
MW-29	8/2/11		7.73	8.53	0.80						
MW-29	8/9/11		7.72	8.46	0.74						
MW-29	8/15/11		7.92	8.13	0.21						
MW-29	8/22/11		7.84	8.16	0.32						
MW-29	8/29/11		7.85	8.67	0.82						
MW-29	9/7/11		8.05	8.70	0.65						
MW-29	9/13/11		8.15	8.60	0.45						
MW-29	9/20/11		7.98	8.90	0.92						
MW-29	9/27/11		7.90	8.08	0.18						
MW-29	10/3/11		8.00	8.12	0.12						
MW-29	10/11/11		8.14	8.21	0.07						
MW-29	10/18/11		7.78	8.73	0.95						
MW-29	10/25/11		7.72	8.68	0.96						
MW-29	11/4/11		7.82	8.60	0.78						
MW-29	11/10/11		7.62	8.36	0.74						
MW-29	11/21/11		7.88	8.31	0.43						
MW-29	11/30/11		7.89	8.35	0.46						
MW-29	12/6/11		7.81	8.11	0.30						
MW-29	12/12/11		7.89	8.49	0.60						
MW-29	12/19/11		7.86	8.23	0.37						
MW-29	12/29/11		7.93	8.19	0.26						

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs					
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)	
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07	
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results					
MW-29	1/9/12			7.95								
MW-29	1/17/12		7.83	7.88	0.05							
MW-29	1/23/12		7.86	8.38	0.52							
MW-29	1/31/12		7.90	8.45	0.55							
MW-29	2/6/12		7.88	8.38	0.50							
MW-29	2/13/12		7.94	8.73	0.79							
MW-29	2/21/12		8.00	8.68	0.68							
MW-29	2/28/12		7.85	8.22	0.37							
MW-29	3/9/12		8.40	8.45	0.05							
MW-29	3/23/12			7.85								
MW-29	4/5/12		7.91	8.79	0.88							
MW-29	4/10/12		8.00	8.72	0.72							
MW-29	4/16/12		7.70	8.30	0.60							
MW-29	4/24/12		7.85	8.50	0.65							
MW-29	5/4/12		7.84	8.43	0.59							
MW-29	5/10/12		7.81	8.25	0.44							
MW-29	5/16/12		7.88	8.76	0.88							
MW-29	5/25/12		7.92	8.60	0.68							
MW-29	5/29/12		7.93	8.97	1.04							
MW-29	6/8/12		7.97	8.00	0.03							
MW-29	6/14/12		7.99	8.98	0.99							
MW-29	6/19/12		8.12	8.86	0.74							
MW-29	6/29/12		8.21	9.13	0.92							
MW-29	7/3/12		8.25	9.16	0.91							
MW-29	7/11/12		8.24	8.29	0.05							
MW-29	7/16/12		8.37	9.21	0.84							
MW-29	8/1/12		8.13	9.03	0.90							
MW-29	8/10/12		8.18	9.20	1.02							
MW-29	9/7/12		8.31	9.71	1.40							
MW-29	9/13/12		8.31	8.39	0.08							
MW-29	10/3/12		8.43	8.45	0.02							
MW-29	11/13/12		7.64	8.84	1.20							
MW-29	11/27/12		7.82	8.81	0.99							
MW-29	12/3/12		7.96	8.50	0.54							
MW-29	12/6/12		8.03	8.36	0.33							
MW-29	12/6/12^			8.15								
MW-29	12/10/12		8.00	8.07	0.07							
MW-29	12/10/12^		8.10	8.12	0.02							
MW-29	12/14/12		8.12	8.29	0.17							
MW-29	12/14/12^			8.23								
MW-29	12/18/12		7.90	7.95	0.05							
MW-29	12/27/12		7.78	8.02	0.24							
MW-29	1/7/13		7.91	7.93	0.02							
MW-29	1/14/13		7.75	7.78	0.03							
MW-29	1/21/13		7.85	7.87	0.02							
MW-29	1/28/13		7.93	7.94	0.01							
MW-29	2/6/13		7.65	8.24	0.59							
MW-29	2/11/13		7.34	7.35	0.01							
MW-29	2/18/13		7.51	7.78	0.27							
MW-29	2/21/13	111.44	7.52	7.55	0.03	103.91	9.700	19.500	2.680	19.600	<0.0476	
MW-29	2/27/13	111.44	7.58	7.72	0.14	103.83						
MW-29	3/4/13	111.44	7.56	7.57	0.02	103.88						
MW-29	3/25/13	111.44		7.43		104.01						
MW-29	4/4/13	111.44		7.55		103.89						
MW-29	4/8/13	111.44	7.54	7.56	0.02	103.90						
MW-29	4/15/13	111.44	Sheen	7.11	Sheen	104.33						
MW-29	4/22/13	111.44		6.72		104.72						
MW-29	5/8/13	111.44	7.21	7.22	0.01	104.23						
MW-29	5/23/13	111.44		7.27		104.17						
MW-29	7/3/13	111.44	7.14	7.15	0.01	104.30						
MW-29	5/5/15	111.44					0.870	1.430	0.555	9.750	<0.0242	
MW-29	10/24/16	111.44	8.20	8.22	0.02	103.24	0.889	0.227	0.893	5.170	<0.0035	
MW-30	5/19/09		7.46	7.54	0.08							
MW-30	6/17/09		7.29	8.19	0.90							
MW-30	7/16/09		7.54	8.55	1.01							
MW-30	8/25/09		7.66	8.54	0.88							
MW-30	9/1/09		7.58	7.91	0.33							

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
MW-30	9/10/09		7.65	8.52	0.87						
MW-30	9/17/09			7.68							
MW-30	9/24/09			7.69							
MW-30	10/1/09			7.72							
MW-30	10/7/09		7.64	7.65	0.01						
MW-30	10/23/09		7.41	7.64	0.23						
MW-30	10/28/09		7.54	7.71	0.17						
MW-30	11/9/09		7.67	7.83	0.16						
MW-30	11/24/09		7.81	7.95	0.14						
MW-30	12/3/09		7.70	7.93	0.23						
MW-30	12/8/09		7.71	7.80	0.09						
MW-30	12/17/09		7.63	7.72	0.09						
MW-30	12/22/09		7.73	8.00	0.27						
MW-30	12/28/09		7.27	7.33	0.06						
MW-30	1/6/10		7.63	7.74	0.11						
MW-30	1/11/10		7.73	7.83	0.10						
MW-30	1/19/10		7.77	7.82	0.05						
MW-30	1/25/10			7.23							
MW-30	2/2/10		7.63	7.68	0.05						
MW-30	2/8/10		7.72	7.88	0.16						
MW-30	2/16/10		7.78	7.82	0.04						
MW-30	2/22/10		7.67	7.70	0.03						
MW-30	3/1/10		7.67	7.70	0.03						
MW-30	3/8/10		7.54	7.57	0.03						
MW-30	3/18/10		7.32	7.35	0.03						
MW-30	3/24/10		7.40	7.46	0.06						
MW-30	3/29/10		7.52	7.57	0.05						
MW-30	4/21/10		7.60	7.72	0.12						
MW-30	4/27/10		7.62	7.73	0.11						
MW-30	5/4/10		7.61	7.72	0.11						
MW-30	5/10/10		7.57	7.67	0.10						
MW-30	5/19/10		7.37	7.46	0.09						
MW-30	5/25/10		7.53	7.60	0.07						
MW-30	6/2/10		7.53	7.60	0.07						
MW-30	6/8/10		7.45	7.54	0.09						
MW-30	6/16/10		7.54	7.62	0.08						
MW-30	6/22/10		7.41	8.03	0.62						
MW-30	6/30/10		7.37	8.18	0.81						
MW-30	7/6/10		7.49	7.51	0.02						
MW-30	7/13/10			7.51							
MW-30	7/20/10		7.60	8.38	0.78						
MW-30	7/27/10			7.45							
MW-30	8/18/10		7.37	8.30	0.93						
MW-30	8/24/10			7.40							
MW-30	8/31/10		7.45	7.51	0.06						
MW-30	9/21/10			7.52							
MW-30	9/30/10			7.60							
MW-30	10/12/10		7.58	8.71	1.13						
MW-30	11/3/10		7.69	8.59	0.90						
MW-30	11/15/10		7.50	8.43	0.93						
MW-30	12/2/10		7.74	8.59	0.85						
MW-30	12/10/10		7.71	8.55	0.84						
MW-30	12/22/10		7.90	8.89	0.99						
MW-30	12/27/10		7.84	8.82	0.98						
MW-30	12/29/10		7.97	8.48	0.51						
MW-30	1/5/11		7.74	8.40	0.66						
MW-30	1/5/11^		8.19	8.20	0.01						
MW-30	1/10/11			7.80							
MW-30	1/13/11		7.86	8.73	0.87						
MW-30	1/13/11^			8.29							
MW-30	1/17/11		7.88	8.84	0.96						
MW-30	1/28/11		7.91	8.95	1.04						
MW-30	1/28/11^		8.25	8.27	0.02						
MW-30	2/7/11		7.97	9.09	1.12						
MW-30	2/22/11		7.35	7.37	0.02						
MW-30	3/2/11		7.56	7.58	0.02						
MW-30	3/7/11		7.46	7.49	0.03						

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
 399 West Liberty Street
 Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs						
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)		
CGGIER - Class I Groundwater							0.005	1	0.7	10	0.07		
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results						
MW-30	3/14/11		7.48	7.49	0.01								
MW-30	3/21/11		6.99	7.00	0.01								
MW-30	3/28/11			7.43									
MW-30	4/5/11		7.56	7.58	0.02								
MW-30	4/12/11		7.49	7.51	0.02								
MW-30	4/14/11			7.55									
MW-30	4/19/11			7.20									
MW-30	4/26/11		Sheen	6.96	Sheen								
MW-30	5/5/11			7.44									
MW-30	5/11/11		7.58	7.60	0.02								
MW-30	5/17/11		7.61	7.63	0.02								
MW-30	5/23/11			7.23									
MW-30	6/2/11			7.33									
MW-30	6/27/11		7.62	7.64	0.02								
MW-30	7/6/11		7.76	7.78	0.02								
MW-30	7/18/11		7.91	7.93	0.02								
MW-30	7/26/11		7.57	7.59	0.02								
MW-30	8/2/11		7.55	7.57	0.02								
MW-30	8/9/11		7.50	7.53	0.03								
MW-30	8/15/11		7.62	7.64	0.02								
MW-30	8/22/11			7.54									
MW-30	8/29/11		7.66	7.69	0.03								
MW-30	9/7/11		7.76	7.80	0.04								
MW-30	9/13/11		7.84	7.89	0.05								
MW-30	9/20/11		7.79	7.81	0.02								
MW-30	9/27/11			7.59									
MW-30	10/3/11			7.65									
MW-30	10/11/11			7.71									
MW-30	10/18/11		7.77	7.80	0.03								
MW-30	10/25/11		7.70	7.71	0.01								
MW-30	11/4/11		7.66	7.70	0.04								
MW-30	11/10/11		7.45	7.47	0.02								
MW-30	11/21/11		7.64	7.65	0.01								
MW-30	11/30/11		7.63	7.66	0.03								
MW-30	12/6/11		7.53	7.55	0.02								
MW-30	12/12/11		7.66	7.69	0.03								
MW-30	12/19/11			7.60									
MW-30	12/29/11			7.45									
MW-30	1/9/12			7.72									
MW-30	1/17/12			7.80									
MW-30	1/23/12		7.58	7.59	0.01								
MW-30	1/31/12			7.59									
MW-30	2/6/12			7.80									
MW-30	2/13/12			7.75									
MW-30	2/21/12			7.73									
MW-30	2/28/12			7.53									
MW-30	3/9/12			7.60									
MW-30	3/23/12			7.61									
MW-30	3/27/12			7.58									
MW-30	4/5/12			7.72									
MW-30	4/10/12		7.76	7.77	0.01								
MW-30	4/16/12			7.36									
MW-30	4/24/12		7.59	7.60	0.01								
MW-30	5/4/12		7.56	7.57	0.01								
MW-30	5/10/12			7.52									
MW-30	5/16/12			7.67									
MW-30	5/25/12			7.69									
MW-30	5/29/12			7.76									
MW-30	6/8/12			7.73									
MW-30	6/14/12			7.82									
MW-30	6/19/12		7.85	7.86	0.01								
MW-30	6/29/12		7.98	7.99	0.01								
MW-30	7/3/12		8.01	8.02	0.01								
MW-30	7/11/12		8.10	8.11	0.01								
MW-30	7/16/12			8.14									
MW-30	8/1/12			8.06									
MW-30	8/10/12			8.00									

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
MW-30	9/7/12		8.14	8.15	0.01						
MW-30	9/13/12			8.18							
MW-30	10/3/12		8.28	8.46	0.18						
MW-30	11/27/12		8.21	8.97	0.76						
MW-30	12/3/12		8.72	9.50	0.78						
MW-30	12/6/12		8.39	8.75	0.36						
MW-30	12/6/12 ^A		8.46	8.47	0.01						
MW-30	12/10/12		8.21	8.91	0.70						
MW-30	12/10/12 ^A			8.52							
MW-30	12/14/12		8.33	9.41	1.08						
MW-30	12/14/12 ^A			8.61							
MW-30	12/18/12		8.06	8.86	0.80						
MW-30	12/27/12		8.07	8.40	0.33						
MW-30	1/7/13		8.21	8.84	0.63						
MW-30	1/14/13		8.07	8.55	0.48						
MW-30	1/21/13		8.21	8.68	0.47						
MW-30	1/28/13		8.29	8.68	0.39						
MW-30	2/6/13		8.05	8.06	0.01						
MW-30	2/11/13		7.70	7.80	0.10						
MW-30	2/18/13		7.94	7.95	0.01						
MW-30	2/27/13		7.95	7.97	0.02						
MW-30	3/4/13		7.93	7.94	0.01						
MW-30	3/25/13			7.81							
MW-30	4/4/13			7.90							
MW-30	4/8/13			7.90							
MW-30	4/15/13			7.55							
MW-30	4/22/13			7.15							
MW-30	5/8/13			7.62							
MW-30	5/23/13			7.68							
MW-30	7/3/13			7.58							
MW-30	10/2/13		8.10	8.11	0.01						
MW-30	10/3/13			8.11			6.430	4.170	0.314	9.720	<0.0186
MW-30	10/20/16			8.06			0.213	0.0061	0.0255	0.315	<0.00044
MW-31	5/19/09			7.36							
MW-31	6/17/09		7.36	7.86	0.50						
MW-31	7/16/09		7.80	7.82	0.02						
MW-31	7/27/09		7.83	7.87	0.04						
MW-31	8/11/09		7.87	7.90	0.03						
MW-31	8/18/09		7.66	8.32	0.66						
MW-31	8/25/09		7.71	8.03	0.32						
MW-31	9/1/09		7.54	7.87	0.33						
MW-31	9/10/09		7.66	8.03	0.37						
MW-31	9/17/09		7.81	7.86	0.05						
MW-31	9/24/09			7.83							
MW-31	10/1/09			7.81							
MW-31	10/7/09		7.70	7.71	0.01						
MW-31	10/23/09		8.02	8.03	0.01						
MW-31	10/28/09		7.69	7.73	0.04						
MW-31	11/9/09		7.75	7.96	0.21						
MW-31	11/24/09		7.80	7.81	0.01						
MW-31	12/3/09		7.83	7.94	0.11						
MW-31	12/8/09		7.81	7.90	0.09						
MW-31	12/17/09		7.67	7.69	0.02						
MW-31	12/22/09		7.80	8.13	0.33						
MW-31	12/28/09		7.95	8.03	0.08						
MW-31	1/6/10		7.47	7.57	0.10						
MW-31	1/11/10		7.40	7.50	0.10						
MW-31	1/19/10		7.41	7.50	0.09						
MW-31	1/25/10			7.23							
MW-31	2/2/10			7.65							
MW-31	2/8/10		7.61	7.88	0.27						
MW-31	2/16/10		7.77	7.97	0.20						
MW-31	2/22/10		7.56	7.91	0.35						
MW-31	3/1/10		7.54	7.82	0.28						
MW-31	3/8/10		7.46	7.68	0.22						
MW-31	3/18/10		7.28	7.36	0.08						
MW-31	3/24/10		7.30	7.36	0.06						

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs					
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)	
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07	
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results					
MW-31	3/29/10		7.32	7.37	0.05							
MW-31	4/21/10		7.40	7.49	0.09							
MW-31	4/27/10		7.54	7.63	0.09							
MW-31	5/4/10		7.41	7.43	0.02							
MW-31	5/10/10		7.39	7.43	0.04							
MW-31	5/19/10		7.43	7.75	0.32							
MW-31	6/2/10		7.20	7.22	0.02							
MW-31	6/8/10		7.21	7.23	0.02							
MW-31	6/16/10		7.19	7.21	0.02							
MW-31	6/22/10		6.22	6.24	0.02							
MW-31	6/30/10		6.21	6.23	0.02							
MW-31	7/6/10		6.22	6.24	0.02							
MW-31	7/13/10		6.21	6.23	0.02							
MW-31	7/20/10		6.22	6.24	0.02							
MW-31	7/27/10		6.24	6.26	0.02							
MW-31	8/18/10		6.20	6.23	0.03							
MW-31	8/24/10		6.18	6.21	0.03							
MW-31	8/31/10		6.20	6.23	0.03							
MW-31	9/21/10		6.18	6.21	0.03							
MW-31	9/30/10		6.18	6.21	0.03							
MW-31	10/12/10		6.16	6.19	0.03							
MW-31	11/3/10		7.88	8.27	0.39							
MW-31	11/15/10		7.73	8.11	0.38							
MW-31	12/2/10		7.76	8.13	0.37							
MW-31	12/10/10		7.73	8.10	0.37							
MW-31	12/22/10			6.10								
MW-31	12/27/10			6.11								
MW-31	1/10/11			7.85								
MW-31	1/13/11		8.09	8.74	0.65							
MW-31	1/13/11^		8.10	8.12	0.02							
MW-31	1/17/11		8.02	8.51	0.49							
MW-31	1/28/11		7.92	8.63	0.71							
MW-31	1/28/11^		7.95	8.83	0.88							
MW-31	2/22/11		6.67	6.69	0.02							
MW-31	3/2/11		7.77	7.80	0.03							
MW-31	3/7/11		7.68	7.71	0.03							
MW-31	3/14/11		7.40	7.58	0.18							
MW-31	3/21/11			7.05								
MW-31	3/28/11			6.32								
MW-31	4/5/11			6.30								
MW-31	4/12/11		7.56	7.60	0.04							
MW-31	4/14/11		7.85	7.89	0.04							
MW-31	4/19/11		7.74	7.76	0.02							
MW-31	4/26/11			6.98								
MW-31	5/5/11		7.00	7.76	0.76							
MW-31	5/11/11			6.96								
MW-31	5/17/11			6.98								
MW-31	5/23/11			6.96								
MW-31	6/2/11			7.30								
MW-31	6/27/11		7.49	7.91	0.42							
MW-31	7/6/11		7.64	7.89	0.25							
MW-31	7/18/11		7.78	7.81	0.03							
MW-31	7/26/11		7.51	7.60	0.09							
MW-31	8/2/11		7.54	7.61	0.07							
MW-31	8/9/11		7.43	7.54	0.11							
MW-31	8/15/11		7.51	7.53	0.02							
MW-31	8/22/11			7.41								
MW-31	8/29/11		7.51	7.52	0.01							
MW-31	9/7/11		7.65	7.66	0.01							
MW-31	9/13/11		7.64	7.68	0.04							
MW-31	9/20/11			7.80								
MW-31	9/27/11			7.92								
MW-31	10/3/11			7.96								
MW-31	10/11/11			8.04								
MW-31	10/18/11		7.68	7.78	0.10							
MW-31	10/25/11		7.62	7.72	0.10							
MW-31	11/4/11		7.61	7.69	0.08							

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
MW-31	11/10/11		7.51	7.56	0.05						
MW-31	11/30/11		7.54	7.68	0.14						
MW-31	12/6/11			7.44							
MW-31	12/12/11		7.58	7.70	0.12						
MW-31	12/19/11		7.51	7.61	0.10						
MW-31	12/29/11			7.83							
MW-31	1/9/12			7.59							
MW-31	1/17/12			7.63							
MW-31	1/23/12		7.52	7.56	0.04						
MW-31	1/31/12		7.51	7.59	0.08						
MW-31	2/6/12		7.56	7.59	0.03						
MW-31	2/13/12		7.65	7.77	0.12						
MW-31	2/21/12		7.67	7.68	0.01						
MW-31	2/28/12		7.49	7.52	0.03						
MW-31	3/9/12		7.60	7.61	0.01						
MW-31	3/23/12		7.55	7.58	0.03						
MW-31	3/27/12		7.51	7.56	0.05						
MW-31	4/5/12		7.85	7.87	0.02						
MW-31	4/10/12		7.85	7.86	0.01						
MW-31	4/16/12		7.44	7.45	0.01						
MW-31	4/24/12			7.65							
MW-31	5/4/12		7.57	7.58	0.01						
MW-31	5/10/12		7.53	7.54	0.01						
MW-31	5/25/12			7.63							
MW-31	5/29/12		7.83	7.91	0.08						
MW-31	6/8/12		7.83	7.87	0.04						
MW-31	6/14/12		7.86	7.88	0.02						
MW-31	6/19/12		7.90	7.92	0.02						
MW-31	6/29/12		7.91	7.92	0.01						
MW-31	7/3/12		7.92	7.93	0.01						
MW-31	7/11/12		8.20	8.33	0.13						
MW-31	7/16/12		8.15	8.30	0.15						
MW-31	8/1/12		8.03	8.07	0.04						
MW-31	8/10/12		7.91	8.15	0.24						
MW-31	9/7/12			8.30							
MW-31	9/13/12			8.20							
MW-31	10/3/12			8.32							
MW-31	11/27/12		8.45	8.75	0.30						
MW-31	12/3/12		8.22	8.57	0.35						
MW-31	12/6/12		8.75	8.90	0.15						
MW-31	12/6/12^		8.32	8.45	0.13						
MW-31	12/10/12		8.38	8.80	0.42						
MW-31	12/10/12^			8.45							
MW-31	12/14/12		8.40	8.90	0.50						
MW-31	12/14/12^		8.44	8.46	0.02						
MW-31	12/18/12		8.27	8.55	0.28						
MW-31	12/27/12		8.22	8.30	0.08						
MW-31	1/7/13		8.35	8.36	0.01						
MW-31	1/14/13		Sheen	7.97	Sheen						
MW-31	1/28/13		8.19	8.62	0.43						
MW-31	2/6/13		8.00	8.08	0.08						
MW-31	2/11/13		7.65	7.66	0.01						
MW-31	2/18/13			7.89							
MW-31	2/27/13			7.82							
MW-31	3/4/13		7.89	7.90	0.01						
MW-31	4/25/13			7.55							
MW-32	5/19/09			7.43							
MW-32	7/16/09			7.69							
MW-32	8/25/09			7.72							
MW-32	9/1/09			7.58							
MW-32	9/10/09			7.74							
MW-32	9/17/09			7.81							
MW-32	9/24/09			7.78							
MW-32	10/1/09			7.83							
MW-32	10/7/09			7.67							
MW-32	10/23/09			7.43							
MW-32	6/22/10			7.49							

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Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs							
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)			
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07			
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results							
MW-32	6/30/10			7.48										
MW-32	7/6/10			7.58										
MW-32	7/13/10			7.57										
MW-32	7/20/10			7.67										
MW-32	7/27/10			7.45										
MW-32	8/18/10			7.52										
MW-32	8/24/10			7.56										
MW-32	8/31/10		7.67	7.69	0.02									
MW-32	9/21/10			7.68										
MW-32	9/30/10			7.54										
MW-32	10/12/10			7.83										
MW-32	11/3/10			7.82										
MW-32	11/15/10			7.91										
MW-32	12/2/10			7.84										
MW-32	12/10/10			7.81										
MW-32	12/22/10			7.92										
MW-32	12/27/10			7.96										
MW-32	1/10/11			7.88										
MW-32	3/2/11			7.51										
MW-32	4/14/11			7.51			0.757	0.174	0.0903	0.343	0.0104			
MW-32	12/3/12			8.29										
MW-32	12/6/12			8.40										
MW-32	12/10/12			8.38										
MW-32	12/14/12			8.35										
MW-32	12/18/12			8.14										
MW-32	12/27/12			8.05										
MW-32	1/7/13			8.21										
MW-32	1/14/13			8.05										
MW-32	1/28/13			8.15										
MW-32	2/6/13			7.98										
MW-32	2/11/13			7.58										
MW-32	2/18/13			7.85										
MW-32	2/27/13			7.88										
MW-32	3/4/13			7.83										
MW-32	3/25/13			7.73										
MW-32	4/4/13			7.82										
MW-32	4/8/13			7.85										
MW-32	4/15/13			7.17										
MW-32	5/8/13			7.55										
MW-32	5/23/13			7.60										
MW-32	10/2/13			7.99										
MW-32	10/3/13						0.583	0.0172	0.265	0.357	0.0023 J			
MW-32	5/7/15			7.62			0.0086 J	0.0096 J	0.114	1.150	<0.0097			
MW-32	11/3/16			7.65			0.223	0.0038 J	0.0539	0.0261	<0.00070			
RW-1	1/6/09						0.764	<0.005	0.0052	<0.015	0.0118			
RW-1	5/19/09			6.10										
RW-1	8/25/09			6.39										
RW-1	9/1/09			6.22										
RW-1	9/10/09			6.35										
RW-1	9/17/09			6.38										
RW-1	9/24/09			6.35										
RW-1	10/1/09			6.40										
RW-1	10/7/09			6.27										
RW-1	10/23/09			6.03										
RW-1	1/10/11			6.49										
RW-1	4/14/11			6.12			1.09	0.0196	0.007	0.0361	0.0076			
RW-1	12/3/12			7.20										
RW-1	12/6/12			6.38										
RW-1	12/10/12			6.30										
RW-1	12/14/12			6.35										
RW-1	12/18/12			6.20										
RW-1	12/27/12			6.19										
RW-1	1/7/13			6.30										
RW-1	1/14/13			6.10										
RW-1	1/28/13			6.13										
RW-1	2/6/13			6.91										
RW-1	2/11/13			6.55										

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Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs							
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)			
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07			
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results							
RW-1	2/18/13			6.78										
RW-1	2/21/13	110.00	Sheen	6.74	Sheen	103.26	1.520	0.245	0.0399	0.223	<0.0019			
RW-1	2/27/13	110.00	Sheen	6.80	Sheen	103.20								
RW-1	3/4/13	110.00		6.78		103.22								
RW-1	3/25/13	110.00	Sheen	6.68	Sheen	103.32								
RW-1	4/4/13	110.00	Sheen	6.74	Sheen	103.26								
RW-1	4/8/13	110.00		6.72		103.28								
RW-1	4/15/13	110.00	Sheen	6.42	Sheen	103.58								
RW-1	4/22/13	110.00		6.09		103.91								
RW-1	5/8/13	110.00		6.43		103.57								
RW-1	5/23/13	110.00	Sheen	6.64	Sheen	103.36								
RW-1	7/3/13	110.00		6.45		103.55								
RW-1	5/5/15	110.00					0.200	0.0343	0.130	0.506	<0.0024			
RW-1	5/7/15	110.00		7.12		102.88								
RW-1	10/21/16	110.00		6.93		103.07	0.153	0.0027	0.0213	0.0941	<0.00035			
RW-1 ('04)	4/21/05	108.01		4.58		103.43	0.44	0.0097	0.028	0.11	0.01			
RW-1 ('04)	12/29/08	108.01		2.42		105.59								
RW-1 ('04)	1/5/09	108.01		3.93		104.08								
RW-1 ('04)	1/10/11	108.01		5.35		102.66								
RW-1 ('04)	12/6/12	108.01		4.96		103.05								
RW-1 ('04)	12/10/12	108.01		4.76		103.25								
RW-1 ('04)	12/14/12	108.01		4.85		103.16								
RW-1 ('04)	12/18/12	108.01	Sheen	4.70	Sheen	103.31								
RW-1 ('04)	12/27/12	108.01		4.60		103.41								
RW-1 ('04)	1/7/13	108.01		4.78		103.23								
RW-1 ('04)	1/14/13	108.01		4.62		103.39								
RW-1 ('04)	1/28/13	108.01		4.52		103.49								
RW-1 ('04)	2/6/13	108.01		4.59		103.42								
RW-1 ('04)	2/11/13	108.01		4.60		103.41								
RW-1 ('04)	2/18/13	108.01		4.30		103.71								
RW-1 ('04)	2/21/13	108.11		4.13		103.98	0.0064	0.0258	0.0076	0.0598	<0.00038			
RW-1 ('04)	2/27/13	108.11		4.39		103.72								
RW-1 ('04)	3/4/13	108.11		4.40		103.71								
RW-1 ('04)	3/25/13	108.11		4.15		103.96								
RW-1 ('04)	4/4/13	108.11		4.36		103.75								
RW-1 ('04)	4/8/13	108.11		4.45		103.66								
RW-1 ('04)	4/15/13	108.11		3.15		104.96								
RW-1 ('04)	4/22/13	108.11		2.80		105.31								
RW-1 ('04)	5/8/13	108.11		4.11		104.00								
RW-1 ('04)	5/23/13	108.11		4.18		103.93								
RW-1 ('04)	7/3/13	108.11		4.17		103.94								
RW-1 ('04)	5/5/15	108.11					0.0610	0.00073 J	<0.00039	<0.0012	<0.00048			
RW-1 ('04)	5/7/15	108.11		5.35		102.76								
RW-1 ('04)	10/24/16	108.11		5.09		103.02	0.0842	0.0102	0.0105	<0.0150	<0.0017			
RW-2	4/1/09			9.40										
RW-2	5/19/09			9.70										
RW-2	7/16/09			9.72										
RW-2	8/18/09			9.72										
RW-2	8/25/09			9.73										
RW-2	9/1/09			9.72										
RW-2	9/10/09			9.72										
RW-2	9/17/09			9.73										
RW-2	9/24/09			9.74										
RW-2	10/1/09			9.73										
RW-2	10/7/09			9.72										
RW-2	10/23/09			9.72										
RW-2	6/22/10		9.72	9.73	0.01									
RW-2	6/30/10		9.72	9.73	0.01									
RW-2	7/6/10			9.73										
RW-2	7/13/10			9.72										
RW-2	7/20/10			9.73										
RW-2	7/27/10			9.72										
RW-2	8/18/10			9.72										
RW-2	8/24/10			9.72										
RW-2	8/31/10			9.74										
RW-2	9/21/10			9.78										
RW-2	9/30/10			9.76										

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs							
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)			
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07			
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results							
RW-2	10/12/10			9.72										
RW-2	11/3/10			9.73										
RW-2	11/15/10			9.81										
RW-2	12/2/10			9.75										
RW-2	12/10/10			9.80										
RW-2	12/22/10			9.20										
RW-2	12/27/10			9.75										
RW-2	12/29/10			9.76										
RW-2	1/5/11			9.75										
RW-2	1/10/11			9.71										
RW-2	3/2/11			9.76										
RW-2	4/14/11			9.72										
RW-2	12/3/12			6.75										
RW-2	12/6/12			6.72										
RW-2	12/10/12			6.78										
RW-2	12/14/12			6.45										
RW-2	12/18/12			6.78										
RW-2	12/27/12			6.79										
RW-2	1/7/13		Sheen	6.75	Sheen									
RW-2	1/14/13			6.78										
RW-2	1/28/13			6.78										
RW-2	2/6/13			6.78										
RW-2	2/11/13			6.80										
RW-2	2/18/13			7.83										
RW-2	2/21/13			6.80										
RW-2	3/4/13			Dry										
RW-2	3/25/13			Dry										
RW-2	4/15/13			Dry										
RW-2	4/22/13			Dry										
RW-2	5/8/13			6.72										
RW-3	5/19/09			7.20										
RW-3	6/17/09		7.20	7.34	0.14									
RW-3	7/16/09		7.52	7.53	0.01									
RW-3	7/27/09		7.50	7.52	0.02									
RW-3	8/18/09		7.58	7.59	0.01									
RW-3	8/25/09		7.55	7.57	0.02									
RW-3	9/1/09		7.34	7.47	0.13									
RW-3	9/10/09		7.71	7.72	0.01									
RW-3	9/17/09		7.70	7.71	0.01									
RW-3	9/24/09		7.58	7.60	0.02									
RW-3	10/1/09		7.69	7.70	0.01									
RW-3	10/7/09		7.48	7.49	0.01									
RW-3	10/23/09		7.43	7.46	0.03									
RW-3	10/28/09		7.38	7.39	0.01									
RW-3	11/9/09		7.53	7.55	0.02									
RW-3	11/24/09		7.55	7.56	0.01									
RW-3	12/3/09		7.40	7.42	0.02									
RW-3	12/8/09		7.42	7.45	0.03									
RW-3	12/17/09		7.42	7.51	0.09									
RW-3	12/22/09		7.65	7.80	0.15									
RW-3	12/28/09		7.16	7.19	0.03									
RW-3	1/6/10		7.58	7.65	0.07									
RW-3	1/11/10		7.50	7.55	0.05									
RW-3	1/19/10		7.52	7.54	0.02									
RW-3	1/25/10		6.98	6.99	0.01									
RW-3	2/2/10		7.86	7.89	0.03									
RW-3	2/8/10		7.45	7.48	0.03									
RW-3	2/16/10		7.56	7.57	0.01									
RW-3	2/22/10		7.52	7.54	0.02									
RW-3	3/1/10			7.40										
RW-3	3/8/10			7.52										
RW-3	3/18/10			7.07										
RW-3	3/24/10			7.12										
RW-3	3/29/10			7.14										
RW-3	4/21/10		7.59	7.60	0.01									
RW-3	4/27/10			7.36										
RW-3	5/4/10		7.34	7.37	0.03									

Table 4

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Shivam Energy, Inc.
 399 West Liberty Street
 Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
RW-3	5/10/10		7.35	7.39	0.04						
RW-3	5/19/10		7.40	7.44	0.04						
RW-3	5/25/10		6.03	6.12	0.09						
RW-3	6/2/10		6.05	6.15	0.10						
RW-3	6/8/10		6.00	6.10	0.10						
RW-3	6/16/10		6.02	6.12	0.10						
RW-3	6/22/10		6.06	6.09	0.03						
RW-3	6/30/10		6.05	6.08	0.03						
RW-3	7/6/10		6.05	6.08	0.03						
RW-3	7/13/10		6.01	6.04	0.03						
RW-3	7/20/10		6.04	6.06	0.02						
RW-3	7/27/10		6.07	6.09	0.02						
RW-3	8/18/10		7.49	7.50	0.01						
RW-3	8/24/10		7.50	7.51	0.01						
RW-3	8/31/10		7.48	7.49	0.01						
RW-3	9/21/10		7.51	7.52	0.01						
RW-3	9/30/10		7.49	7.51	0.02						
RW-3	10/12/10		7.54	7.56	0.02						
RW-3	11/3/10		7.53	8.03	0.50						
RW-3	11/15/10		7.65	8.12	0.47						
RW-3	12/2/10		7.02	7.08	0.06						
RW-3	12/10/10		7.06	7.13	0.07						
RW-3	12/22/10		8.05	8.08	0.03						
RW-3	12/27/10		8.03	8.07	0.04						
RW-3	12/29/10		8.04	8.08	0.04						
RW-3	1/5/11		7.69	8.19	0.50						
RW-3	1/5/11^		7.90	7.91	0.01						
RW-3	1/10/11			7.57							
RW-3	1/13/11		7.95	8.46	0.51						
RW-3	1/13/11^			8.00							
RW-3	1/17/11		7.60	7.90	0.30						
RW-3	1/28/11		7.69	8.34	0.65						
RW-3	1/28/11^		7.95	8.05	0.10						
RW-3	2/7/11			7.83							
RW-3	2/22/11		7.06	7.19	0.13						
RW-3	3/2/11		7.45	7.49	0.04						
RW-3	3/7/11		7.32	7.34	0.02						
RW-3	3/14/11		7.20	7.21	0.01						
RW-3	3/21/11			8.00							
RW-3	3/28/11			7.05							
RW-3	4/5/11			7.07							
RW-3	4/12/11		7.42	7.43	0.01						
RW-3	4/14/11		7.24	7.25	0.01						
RW-3	4/19/11			7.18							
RW-3	4/26/11		6.71	6.72	0.01						
RW-3	5/5/11		7.05	7.07	0.02						
RW-3	5/11/11		7.29	7.30	0.01						
RW-3	5/17/11			7.30							
RW-3	5/23/11			7.22							
RW-3	6/2/11		7.04	7.05	0.01						
RW-3	6/27/11		7.32	7.34	0.02						
RW-3	7/6/11		7.46	7.50	0.04						
RW-3	7/18/11		7.82	7.83	0.01						
RW-3	7/26/11			7.43							
RW-3	8/2/11			7.20							
RW-3	8/9/11			7.30							
RW-3	8/15/11			7.35							
RW-3	8/22/11			7.38							
RW-3	8/29/11		7.49	7.50	0.01						
RW-3	9/7/11			7.60							
RW-3	9/13/11			7.90							
RW-3	9/20/11			7.82							
RW-3	9/27/11			7.90							
RW-3	10/3/11			7.96							
RW-3	10/11/11			8.03							
RW-3	10/18/11			7.50							
RW-3	10/25/11			7.45							

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Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs						
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)		
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07		
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results						
RW-3	11/4/11			7.41									
RW-3	11/10/11			7.55									
RW-3	11/21/11			7.49									
RW-3	11/30/11			7.33									
RW-3	12/6/11			7.24									
RW-3	12/12/11			7.37									
RW-3	12/19/11		7.29	7.30	0.01								
RW-3	12/29/11			7.42									
RW-3	1/9/12			7.39									
RW-3	1/17/12			7.38									
RW-3	1/23/12			7.30									
RW-3	1/31/12			7.29									
RW-3	2/6/12		Sheen	7.30	Sheen								
RW-3	2/13/12		7.43	7.44	0.01								
RW-3	2/21/12		Sheen	7.42	Sheen								
RW-3	2/28/12		Sheen	7.24	Sheen								
RW-3	3/9/12			7.32									
RW-3	3/23/12		Sheen	7.32	Sheen								
RW-3	3/27/12			7.29									
RW-3	4/5/12			7.42									
RW-3	4/10/12			7.49									
RW-3	4/16/12		7.06	7.07	0.01								
RW-3	4/24/12			7.30									
RW-3	5/4/12			7.27									
RW-3	5/10/12		Sheen	7.21	Sheen								
RW-3	5/16/12			7.38									
RW-3	5/25/12			7.42									
RW-3	5/29/12			7.46									
RW-3	6/8/12			7.43									
RW-3	6/14/12			7.54									
RW-3	6/19/12			7.54									
RW-3	6/29/12			7.68									
RW-3	7/3/12			7.74									
RW-3	7/11/12			7.78									
RW-3	7/16/12		7.81	7.82	0.01								
RW-3	8/1/12			7.78									
RW-3	8/10/12		Sheen	7.69	Sheen								
RW-3	9/7/12		Sheen	7.85	Sheen								
RW-3	9/13/12			7.89									
RW-3	10/3/12			8.02									
RW-3	11/27/12		7.47	8.40	0.93								
RW-3	12/3/12		7.47	8.45	0.98								
RW-3	12/6/12		7.75	8.55	0.80								
RW-3	12/6/12^		7.75	7.78	0.03								
RW-3	12/10/12		7.53	8.12	0.59								
RW-3	12/10/12^		8.00	8.02	0.02								
RW-3	12/14/12		7.55	8.51	0.96								
RW-3	12/14/12^			7.90									
RW-3	12/18/12		7.40	8.05	0.65								
RW-3	12/27/12		7.38	7.58	0.20								
RW-3	1/7/13		7.50	7.51	0.01								
RW-3	1/14/13		Sheen	7.37	Sheen								
RW-3	1/21/13			7.49									
RW-3	1/28/13		7.51	8.17	0.66								
RW-3	2/6/13			7.39									
RW-3	2/11/13			7.03									
RW-3	2/18/13			7.22									
RW-3	2/21/13	111.11		7.21		103.90	4.930	9.090	1.590	10.600	<0.0190		
RW-3	2/27/13	111.11		7.26		103.85							
RW-3	3/4/13	111.11	7.22	7.23	0.01	103.89							
RW-3	3/25/13	111.11		7.14		103.97							
RW-3	4/4/13	111.11		7.20		103.91							
RW-3	4/8/13	111.11		7.01		104.10							
RW-3	4/15/13	111.11		6.87		104.24							
RW-3	4/22/13	111.11		6.46		104.65							
RW-3	5/8/13	111.11		6.94		104.17							
RW-3	5/23/13	111.11		6.97		104.14							

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Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
CCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
RW-3	7/3/13	111.11		6.87		104.24					
RW-3	5/5/15	111.11				111.11	<0.00040	<0.00039	<0.00039	<0.0012	<0.00048
RW-3	5/7/15	111.11		8.51		102.60					
RW-3	10/24/16	111.11		7.94		103.17	0.243	0.0072	0.0651	0.637	<0.00087
RW-4	5/19/09			7.36							
RW-4	6/17/09			7.37							
RW-4	7/16/09			7.63							
RW-4	8/11/09		7.53	7.57	0.04						
RW-4	8/18/09		7.70	7.71	0.01						
RW-4	8/25/09		7.70	7.71	0.01						
RW-4	9/1/09		7.51	7.53	0.02						
RW-4	9/10/09		7.68	7.70	0.02						
RW-4	9/17/09			7.76							
RW-4	9/24/09		7.68	7.70	0.02						
RW-4	10/1/09		7.73	7.74	0.01						
RW-4	10/7/09		7.58	7.60	0.02						
RW-4	10/23/09		7.35	7.40	0.05						
RW-4	10/28/09		7.39	7.50	0.11						
RW-4	11/9/09		7.55	7.56	0.01						
RW-4	11/24/09		7.65	7.83	0.18						
RW-4	12/3/09		7.58	7.70	0.12						
RW-4	12/8/09		7.60	7.74	0.14						
RW-4	12/17/09		7.55	7.63	0.08						
RW-4	12/22/09		7.61	7.75	0.14						
RW-4	12/28/09		7.16	7.27	0.11						
RW-4	1/6/10		7.50	7.60	0.10						
RW-4	1/11/10		7.58	7.71	0.13						
RW-4	1/19/10		7.62	7.73	0.11						
RW-4	1/25/10		7.14	7.21	0.07						
RW-4	2/2/10		7.48	7.60	0.12						
RW-4	2/8/10		7.56	7.74	0.18						
RW-4	2/16/10		7.60	7.80	0.20						
RW-4	2/22/10		7.50	7.63	0.13						
RW-4	3/1/10		7.51	7.61	0.10						
RW-4	3/8/10		7.38	7.45	0.07						
RW-4	3/18/10		7.18	7.30	0.12						
RW-4	3/24/10		7.26	7.38	0.12						
RW-4	3/29/10		7.34	7.49	0.15						
RW-4	4/21/10		7.42	7.61	0.19						
RW-4	4/27/10		7.43	7.60	0.17						
RW-4	5/4/10		7.43	7.60	0.17						
RW-4	5/10/10		7.41	7.56	0.15						
RW-4	5/19/10		7.25	7.37	0.12						
RW-4	5/25/10		7.35	7.49	0.14						
RW-4	6/2/10		7.35	7.52	0.17						
RW-4	6/8/10		7.31	7.43	0.12						
RW-4	6/16/10		7.37	7.54	0.17						
RW-4	6/22/10		7.36	7.53	0.17						
RW-4	6/30/10		7.36	7.52	0.16						
RW-4	7/6/10			7.48							
RW-4	7/13/10		7.45	7.68	0.23						
RW-4	7/20/10		7.54	7.82	0.28						
RW-4	7/27/10		7.33	7.51	0.18						
RW-4	8/18/10		7.38	7.68	0.30						
RW-4	8/24/10		7.43	7.75	0.32						
RW-4	8/31/10		7.53	7.92	0.39						
RW-4	9/21/10		7.54	7.92	0.38						
RW-4	9/30/10		7.53	7.61	0.08						
RW-4	10/12/10		7.68	8.06	0.38						
RW-4	11/3/10		7.68	8.10	0.42						
RW-4	11/15/10		7.72	8.08	0.36						
RW-4	12/2/10		7.65	8.35	0.70						
RW-4	12/10/10		7.62	8.33	0.71						
RW-4	12/22/10		7.75	8.62	0.87						
RW-4	12/27/10		7.73	8.63	0.90						
RW-4	12/29/10		8.37	8.65	0.28						
RW-4	1/5/11		7.59	8.32	0.73						

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
RW-4	1/5/11 ^A		7.93	7.95	0.02						
RW-4	1/13/11		7.89	8.15	0.26						
RW-4	1/13/11 ^A		7.99	8.02	0.03						
RW-4	1/17/11			7.93							
RW-4	1/28/11		7.83	8.68	0.85						
RW-4	1/28/11 ^A			8.23							
RW-4	2/7/11		8.05	8.08	0.03						
RW-4	2/22/11			7.25							
RW-4	3/2/11		7.41	7.42	0.01						
RW-4	3/7/11		7.28	7.29	0.01						
RW-4	3/14/11			7.38							
RW-4	3/21/11		7.01	7.02	0.01						
RW-4	3/28/11			7.30							
RW-4	4/5/11		7.43	7.44	0.01						
RW-4	4/12/11			7.38							
RW-4	4/14/11			7.42			10.2	16.3	1.69	11.8	<0.125
RW-4	4/19/11			7.08							
RW-4	4/26/11			6.91							
RW-4	5/5/11			7.32							
RW-4	5/11/11			7.45							
RW-4	5/17/11			7.47							
RW-4	5/23/11			7.15							
RW-4	6/2/11			7.20							
RW-4	6/27/11		7.45	7.51	0.06						
RW-4	7/6/11		7.60	7.65	0.05						
RW-4	7/18/11		7.72	7.78	0.06						
RW-4	7/26/11		7.40	7.43	0.03						
RW-4	8/2/11		7.40	7.44	0.04						
RW-4	8/9/11		7.34	7.35	0.01						
RW-4	8/15/11		7.45	7.51	0.06						
RW-4	8/22/11			7.38							
RW-4	8/29/11			1.48							
RW-4	9/7/11			7.52							
RW-4	9/13/11		7.67	7.80	0.13						
RW-4	9/20/11		7.62	7.73	0.11						
RW-4	9/27/11		7.41	7.43	0.02						
RW-4	10/3/11		7.51	7.53	0.02						
RW-4	10/11/11		7.52	7.54	0.02						
RW-4	10/18/11		7.60	7.68	0.08						
RW-4	10/25/11		7.53	7.59	0.06						
RW-4	11/4/11		7.52	7.55	0.03						
RW-4	11/10/11		Sheen	7.29	Sheen						
RW-4	11/21/11		7.48	7.50	0.02						
RW-4	11/30/11		7.50	7.51	0.01						
RW-4	12/6/11			7.39							
RW-4	12/12/11		7.53	7.54	0.01						
RW-4	12/19/11			7.44							
RW-4	1/9/12			7.42							
RW-4	1/17/12			7.45							
RW-4	1/23/12			7.45							
RW-4	1/31/12			7.45							
RW-4	2/6/12		Sheen	7.43	Sheen						
RW-4	2/13/12		Sheen	7.59	Sheen						
RW-4	2/21/12			7.58							
RW-4	2/28/12		Sheen	7.40	Sheen						
RW-4	3/9/12			7.38							
RW-4	3/23/12		Sheen	7.46	Sheen						
RW-4	3/27/12			7.43							
RW-4	4/5/12			7.55							
RW-4	4/10/12			7.61							
RW-4	4/16/12			7.25							
RW-4	4/24/12			7.45							
RW-4	5/4/12			7.43							
RW-4	5/10/12			7.37							
RW-4	5/16/12			7.49							
RW-4	5/25/12			7.54							
RW-4	5/29/12		7.59	7.62	0.03						

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
RW-4	6/8/12			7.58							
RW-4	6/14/12		7.56	7.57	0.01						
RW-4	6/19/12		7.58	7.60	0.02						
RW-4	6/29/12			7.81							
RW-4	7/3/12			7.91							
RW-4	7/11/12			7.92							
RW-4	7/16/12			7.95							
RW-4	8/1/12			7.64							
RW-4	8/10/12			7.79							
RW-4	9/7/12			7.92							
RW-4	9/13/12			7.98							
RW-4	10/3/12		8.09	8.10	0.01						
RW-4	11/27/12			7.67							
RW-4	12/3/12		7.69	8.05	0.36						
RW-4	12/6/12		7.92	8.18	0.26						
RW-4	12/6/12 ^A		7.80	7.92	0.12						
RW-4	12/10/12		7.75	7.78	0.03						
RW-4	12/10/12 ^A		7.70	7.71	0.01						
RW-4	12/14/12		7.83	7.85	0.02						
RW-4	12/18/12			7.65							
RW-4	12/27/12			7.55							
RW-4	1/7/13			7.71							
RW-4	1/14/13		Sheen	7.54	Sheen						
RW-4	1/21/13			7.68							
RW-4	1/28/13			7.75							
RW-4	2/6/13		Sheen	7.47	Sheen						
RW-4	2/11/13		Sheen	7.15	Sheen						
RW-4	2/18/13			7.35							
RW-4	2/21/13	111.35	Sheen	7.30	Sheen	104.05	1.250	1.930	0.481	5.240	<0.0076
RW-4	2/27/13	111.35	Sheen	7.31	Sheen	104.04					
RW-4	3/4/13	111.35		7.33		104.02					
RW-4	3/25/13	111.35		6.95		104.40					
RW-4	4/4/13	111.35		7.26		104.09					
RW-4	4/8/13	111.35		7.14		104.21					
RW-4	4/15/13	111.35		6.81		104.54					
RW-4	4/22/13	111.35		6.41		104.94					
RW-4	5/8/13	111.35	7.01	7.02	0.01	104.34					
RW-4	5/23/13	111.35		7.03		104.32					
RW-4	7/3/13	111.35		6.96		104.39					
RW-4	5/5/15	111.35				111.35	0.207	0.0381	0.287	1.510	<0.0097
RW-4	5/7/15	111.35		7.33		104.02					
RW-4	10/24/16	111.35		8.02		103.33	0.0162	0.0033 J	0.0040 J	0.119	<0.00087
RW-5	5/19/09		6.93	8.40	1.47						
RW-5	6/17/09		7.01	8.13	1.12						
RW-5	7/16/09			7.51							
RW-5	8/11/09		7.51	8.05	0.54						
RW-5	8/18/09		7.38	8.51	1.13						
RW-5	8/25/09		7.37	8.54	1.17						
RW-5	9/1/09		7.18	8.28	1.10						
RW-5	9/10/09		7.31	8.63	1.32						
RW-5	9/17/09		7.39	7.42	0.03						
RW-5	9/24/09		7.39	8.61	1.22						
RW-5	10/1/09		7.44	7.47	0.03						
RW-5	10/7/09			7.35							
RW-5	10/23/09		7.16	7.41	0.25						
RW-5	10/28/09		7.19	7.33	0.14						
RW-5	11/9/09		7.33	7.34	0.01						
RW-5	11/24/09		7.42	8.33	0.91						
RW-5	12/3/09		7.32	8.18	0.86						
RW-5	12/8/09		7.38	8.25	0.87						
RW-5	12/17/09		7.30	8.23	0.93						
RW-5	12/22/09		7.33	7.55	0.22						
RW-5	12/28/09		7.07	7.30	0.23						
RW-5	1/6/10		7.40	7.88	0.48						
RW-5	1/11/10		7.48	7.94	0.46						
RW-5	1/19/10		7.54	7.87	0.33						
RW-5	1/25/10		7.09	7.10	0.01						

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
RW-5	2/2/10		7.31	7.33	0.02						
RW-5	2/8/10		7.53	8.10	0.57						
RW-5	2/16/10		7.50	8.18	0.68						
RW-5	2/22/10		7.39	7.78	0.39						
RW-5	3/1/10		7.40	7.86	0.46						
RW-5	3/8/10		7.51	7.91	0.40						
RW-5	3/18/10		7.08	7.30	0.22						
RW-5	3/24/10		7.09	7.51	0.42						
RW-5	3/29/10		7.19	7.73	0.54						
RW-5	4/21/10		7.25	7.92	0.67						
RW-5	4/27/10		7.24	7.92	0.68						
RW-5	5/4/10		7.24	7.90	0.66						
RW-5	5/10/10		7.80	7.92	0.12						
RW-5	5/19/10		7.04	7.80	0.76						
RW-5	5/25/10		7.18	7.25	0.07						
RW-5	6/2/10		7.20	7.29	0.09						
RW-5	6/8/10		7.25	7.33	0.08						
RW-5	6/16/10		7.24	7.32	0.08						
RW-5	6/22/10			7.25							
RW-5	6/30/10			7.23							
RW-5	7/6/10			7.31							
RW-5	7/13/10			7.30							
RW-5	7/20/10			7.28							
RW-5	7/27/10			7.25							
RW-5	8/18/10			7.30							
RW-5	8/24/10			7.26							
RW-5	8/31/10			7.23							
RW-5	9/21/10			7.33							
RW-5	9/30/10			7.26							
RW-5	10/12/10		7.52	7.88	0.36						
RW-5	11/3/10		7.69	8.30	0.61						
RW-5	11/15/10		7.71	8.31	0.60						
RW-5	12/2/10		7.67	8.35	0.68						
RW-5	12/10/10		7.66	8.21	0.55						
RW-5	12/22/10		7.78	8.66	0.88						
RW-5	12/27/10		7.76	8.65	0.89						
RW-5	12/29/10		8.34	8.62	0.28						
RW-5	1/5/11		7.63	8.34	0.71						
RW-5	1/5/11^		7.90	7.93	0.03						
RW-5	1/13/11		7.71	8.54	0.83						
RW-5	1/13/11^			8.00							
RW-5	1/17/11		7.94	8.34	0.40						
RW-5	1/28/11		7.83	8.68	0.85						
RW-5	1/28/11^		8.21	8.23	0.02						
RW-5	2/7/11		7.90	7.92	0.02						
RW-5	2/22/11		7.25	7.26	0.01						
RW-5	3/2/11		7.49	7.51	0.02						
RW-5	3/7/11		7.50	7.52	0.02						
RW-5	3/14/11		7.29	7.30	0.01						
RW-5	3/21/11			6.69							
RW-5	3/28/11			7.17							
RW-5	4/5/11		7.05	7.07	0.02						
RW-5	4/12/11			7.40							
RW-5	4/14/11		7.42	7.43	0.01						
RW-5	4/19/11			7.38							
RW-5	4/26/11			6.81							
RW-5	5/5/11		7.21	7.26	0.05						
RW-5	5/11/11			7.82							
RW-5	5/17/11		7.39	7.47	0.08						
RW-5	5/23/11		7.22	7.27	0.05						
RW-5	6/2/11		7.18	7.22	0.04						
RW-5	6/27/11		7.43	7.60	0.17						
RW-5	7/6/11		7.65	7.67	0.02						
RW-5	7/18/11		7.48	8.33	0.85						
RW-5	7/26/11			7.29							
RW-5	8/2/11		7.28	7.58	0.30						
RW-5	8/9/11		7.25	7.41	0.16						

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399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
RW-5	8/15/11		7.32	7.68	0.36						
RW-5	8/22/11		7.27	7.47	0.20						
RW-5	8/29/11		7.36	7.78	0.42						
RW-5	9/7/11		7.44	8.06	0.62						
RW-5	9/13/11		7.47	8.22	0.75						
RW-5	9/20/11		7.52	8.02	0.50						
RW-5	9/27/11		7.95	8.15	0.20						
RW-5	10/3/11		8.05	8.20	0.15						
RW-5	10/11/11		8.23	8.33	0.10						
RW-5	10/18/11		7.66	7.93	0.27						
RW-5	10/25/11		7.76	7.88	0.12						
RW-5	11/4/11		7.70	7.84	0.14						
RW-5	11/10/11		7.46	7.50	0.04						
RW-5	11/21/11		7.44	7.46	0.02						
RW-5	11/30/11		7.41	7.44	0.03						
RW-5	12/6/11			7.31							
RW-5	12/12/11		7.41	7.60	0.19						
RW-5	12/19/11		7.36	7.37	0.01						
RW-5	12/29/11			7.63							
RW-5	1/9/12			7.42							
RW-5	1/17/12			7.45							
RW-5	1/23/12		7.38	7.50	0.12						
RW-5	1/31/12		7.35	7.44	0.09						
RW-5	2/6/12		7.37	7.42	0.05						
RW-5	2/13/12		7.46	7.71	0.25						
RW-5	2/21/12		7.45	7.70	0.25						
RW-5	2/28/12		Sheen	7.31	Sheen						
RW-5	3/9/12		7.63	7.65	0.02						
RW-5	3/23/12		7.53	7.54	0.01						
RW-5	3/27/12			7.23							
RW-5	4/5/12			7.26							
RW-5	4/10/12			7.30							
RW-5	4/16/12			7.15							
RW-5	4/24/12		7.43	7.44	0.01						
RW-5	5/4/12		7.44	7.45	0.01						
RW-5	5/10/12		Sheen	7.41	Sheen						
RW-5	5/16/12			7.53							
RW-5	5/25/12			7.60							
RW-5	5/29/12		7.63	7.68	0.05						
RW-5	6/8/12			7.62							
RW-5	6/14/12		7.53	7.86	0.33						
RW-5	6/19/12		7.56	7.83	0.27						
RW-5	6/29/12		7.62	7.83	0.21						
RW-5	7/3/12		7.66	7.78	0.12						
RW-5	7/11/12		7.73	7.75	0.02						
RW-5	7/16/12		7.83	7.85	0.02						
RW-5	8/1/12		7.61	7.83	0.22						
RW-5	8/10/12		7.72	7.73	0.01						
RW-5	9/7/12		7.93	7.94	0.01						
RW-5	9/13/12		7.87	7.90	0.03						
RW-5	10/3/12		8.12	8.14	0.02						
RW-5	11/27/12		7.71	8.59	0.88						
RW-5	12/3/12		7.60	8.35	0.75						
RW-5	12/6/12		7.88	8.45	0.57						
RW-5	12/6/12^		7.75	7.85	0.10						
RW-5	12/10/12		7.90	7.96	0.06						
RW-5	12/10/12^		7.85	7.86	0.01						
RW-5	12/14/12		8.00	8.05	0.05						
RW-5	12/18/12		7.95	8.04	0.09						
RW-5	12/27/12		7.48	7.49	0.01						
RW-5	1/7/13		7.78	7.80	0.02						
RW-5	1/14/13		7.62	7.64	0.02						
RW-5	1/21/13		7.73	7.81	0.08						
RW-5	1/28/13		7.83	7.86	0.03						
RW-5	2/6/13		7.39	7.40	0.01						
RW-5	2/11/13		7.09	7.12	0.03						
RW-5	2/18/13		7.21	7.23	0.02						

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Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
CCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
RW-5	2/21/13	111.35	Sheen	7.19	Sheen	104.16	3.300	0.513	0.583	1.760	0.0081 J
RW-5	2/27/13	111.35	7.22	7.23		104.12					
RW-5	3/4/13	111.35	7.20	7.21	0.01	104.15					
RW-5	3/25/13	111.35	7.07	7.08	0.01	104.28					
RW-5	4/4/13	111.35		8.00		103.35					
RW-5	4/8/13	111.35		7.11		104.24					
RW-5	4/15/13	111.35	6.79	6.80	0.01	104.56					
RW-5	4/22/13	111.35		6.37		104.98					
RW-5	5/8/13	111.35	6.86	6.90	0.04	104.48					
RW-5	5/23/13	111.35		6.90		104.45					
RW-5	7/3/13	111.35	6.83	6.84	0.01	104.52					
RW-5	5/5/15	111.35					1.610	0.827	0.694	4.430	<0.0097
RW-5	5/7/15	111.35		7.39		103.96					
RW-5	10/24/16	111.35	7.83	8.21	0.38	103.44					
RW-5	11/3/16	111.35		7.49		103.86	1.600	0.192	1.020	1.520	<0.0017
RW-6	5/19/09			7.05							
RW-6	7/16/09		7.25	7.83	0.58						
RW-6	7/27/09		7.28	7.92	0.64						
RW-6	8/11/09		7.31	8.04	0.73						
RW-6	8/18/09		7.40	8.02	0.62						
RW-6	8/25/09		7.33	8.02	0.69						
RW-6	9/1/09			7.32							
RW-6	9/10/09		7.43	7.70	0.27						
RW-6	9/17/09			7.63							
RW-6	9/24/09		7.57	7.60	0.03						
RW-6	10/1/09			7.61							
RW-6	10/7/09		7.45	7.46	0.01						
RW-6	10/23/09		7.41	7.42	0.01						
RW-6	10/28/09			7.22							
RW-6	11/9/09		7.33	7.42	0.09						
RW-6	11/24/09			7.51							
RW-6	12/3/09		7.34	7.38	0.04						
RW-6	12/8/09		7.54	7.59	0.05						
RW-6	12/17/09		7.31	7.40	0.09						
RW-6	12/22/09		7.42	7.55	0.13						
RW-6	1/6/10			7.23							
RW-6	1/11/10		7.40	7.42	0.02						
RW-6	1/19/10		7.41	7.42	0.01						
RW-6	1/25/10			6.87							
RW-6	2/2/10		7.25	7.28	0.03						
RW-6	2/8/10			7.34							
RW-6	2/16/10		7.39	7.40	0.01						
RW-6	2/22/10		7.25	7.30	0.05						
RW-6	3/1/10		7.25	7.31	0.06						
RW-6	3/8/10		7.11	7.17	0.06						
RW-6	3/18/10		6.92	6.98	0.06						
RW-6	3/24/10		6.95	7.01	0.06						
RW-6	3/29/10		7.01	7.07	0.06						
RW-6	4/21/10			7.28							
RW-6	4/27/10		7.25	7.26	0.01						
RW-6	5/4/10			7.30							
RW-6	5/10/10		7.20	7.21	0.01						
RW-6	5/19/10		6.96	7.04	0.08						
RW-6	5/25/10		7.12	7.20	0.08						
RW-6	6/2/10		7.10	7.15	0.05						
RW-6	6/8/10		7.03	7.13	0.10						
RW-6	6/16/10		7.15	7.20	0.05						
RW-6	6/22/10		7.13	7.19	0.06						
RW-6	6/30/10		7.11	7.17	0.06						
RW-6	7/6/10		7.25	7.37	0.12						
RW-6	7/13/10		7.24	7.33	0.09						
RW-6	7/20/10		7.37	7.46	0.09						
RW-6	7/27/10		7.09	7.19	0.10						
RW-6	8/18/10		7.16	7.34	0.18						
RW-6	8/24/10		7.19	7.33	0.14						
RW-6	8/31/10		7.30	7.67	0.37						
RW-6	9/21/10			7.32							

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
CCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
RW-6	9/30/10		7.35	7.72	0.37						
RW-6	10/12/10		7.45	8.02	0.57						
RW-6	11/3/10		7.43	8.08	0.65						
RW-6	11/15/10		7.50	8.12	0.62						
RW-6	12/2/10		7.50	8.09	0.59						
RW-6	12/10/10		7.42	8.04	0.62						
RW-6	12/22/10		7.60	8.20	0.60						
RW-6	12/27/10		7.64	8.22	0.58						
RW-6	12/29/10		8.18	8.20	0.02						
RW-6	1/5/11		7.42	7.97	0.55						
RW-6	1/5/11^		7.73	7.76	0.03						
RW-6	1/13/11		7.72	7.82	0.10						
RW-6	1/13/11^		7.93	7.95	0.02						
RW-6	1/17/11		7.27	7.85	0.58						
RW-6	1/28/11		7.81	7.96	0.15						
RW-6	1/28/11^		8.30	8.35	0.05						
RW-6	2/7/11			7.78							
RW-6	2/22/11		6.93	7.27	0.34						
RW-6	3/2/11		7.11	7.31	0.20						
RW-6	3/7/11		7.15	7.30	0.15						
RW-6	3/14/11		7.09	7.17	0.08						
RW-6	3/21/11		6.69	6.71	0.02						
RW-6	3/28/11		7.02	7.03	0.01						
RW-6	4/5/11		7.15	7.19	0.04						
RW-6	4/12/11		7.09	7.10	0.01						
RW-6	4/14/11		7.15	7.16	0.01						
RW-6	4/19/11			7.05							
RW-6	4/26/11		6.55	6.56	0.01						
RW-6	5/5/11		7.00	7.05	0.05						
RW-6	5/11/11		7.20	7.23	0.03						
RW-6	5/17/11		7.19	7.23	0.04						
RW-6	5/23/11			6.82							
RW-6	6/2/11		6.91	6.98	0.07						
RW-6	6/27/11		7.23	7.26	0.03						
RW-6	7/6/11		7.38	7.41	0.03						
RW-6	7/18/11		Sheen	7.59	Sheen						
RW-6	7/26/11			7.24							
RW-6	8/2/11			7.53							
RW-6	8/9/11			7.14							
RW-6	8/15/11		7.31	7.35	0.04						
RW-6	8/22/11			7.23							
RW-6	8/29/11			7.31							
RW-6	9/7/11			7.45							
RW-6	9/13/11			7.50							
RW-6	9/20/11			7.44							
RW-6	9/27/11			7.16							
RW-6	10/3/11			7.27							
RW-6	10/11/11			7.61							
RW-6	10/18/11			7.41							
RW-6	10/25/11			7.32							
RW-6	11/4/11			7.30							
RW-6	11/10/11		7.02	7.03	0.01						
RW-6	11/4/11			7.22							
RW-6	11/30/11		7.25	7.26	0.01						
RW-6	12/6/11		7.14	7.15	0.01						
RW-6	12/12/11			7.29							
RW-6	12/19/11			7.21							
RW-6	12/29/11			7.34							
RW-6	1/9/12			7.32							
RW-6	1/17/12			7.42							
RW-6	1/23/12			7.22							
RW-6	1/31/12			7.19							
RW-6	2/6/12			7.22							
RW-6	2/13/12			7.35							
RW-6	2/21/12			7.33							
RW-6	2/28/12		Sheen	7.11	Sheen						
RW-6	3/9/12			7.28							

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs					
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)	
CCGIER - Class I Groundwater							0.005	1	0.7	10	0.07	
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results					
RW-6	3/23/12		Sheen	7.20	Sheen							
RW-6	3/27/12			7.17								
RW-6	4/5/12			7.32								
RW-6	4/10/12			7.39								
RW-6	4/16/12			6.96								
RW-6	4/24/12			7.20								
RW-6	5/4/12			7.18								
RW-6	5/10/12			7.12								
RW-6	5/16/12		Sheen	7.28	Sheen							
RW-6	5/25/12		Sheen	7.31	Sheen							
RW-6	5/29/12			7.37								
RW-6	6/8/12			7.34								
RW-6	6/14/12			7.44								
RW-6	6/19/12			7.48								
RW-6	6/29/12			7.63								
RW-6	7/3/12			7.72								
RW-6	7/11/12			7.77								
RW-6	7/16/12			7.80								
RW-6	8/1/12			7.62								
RW-6	8/10/12			7.65								
RW-6	9/7/12			7.85								
RW-6	9/13/12			7.91								
RW-6	10/3/12			8.18								
RW-6	11/27/12		7.12	8.09	0.97							
RW-6	12/3/12		7.16	8.13	0.97							
RW-6	12/6/12		7.22	8.20	0.98							
RW-6	12/6/12^		7.41	7.48	0.07							
RW-6	12/10/12		7.13	7.87	0.74							
RW-6	12/10/12^		7.85	7.90	0.05							
RW-6	12/14/12		7.18	7.96	0.78							
RW-6	12/14/12^		7.75	7.76	0.01							
RW-6	12/18/12		7.05	7.70	0.65							
RW-6	12/27/12		7.00	7.40	0.40							
RW-6	1/7/13			7.17								
RW-6	1/14/13			6.97								
RW-6	1/28/13		7.16	7.95	0.79							
RW-6	2/6/13		6.99	7.00	0.01							
RW-6	2/11/13			6.70								
RW-6	2/18/13		Sheen	6.87	Sheen							
RW-6	2/21/13	111.01		6.80		104.21	0.281	1.130	0.392	2.700	0.0051 J	
RW-6	2/27/13	111.01	6.86	6.87	0.01	104.15						
RW-6	3/4/13	111.01	6.86	6.87		104.14						
RW-6	3/25/13	111.01	6.71	6.72	0.01	104.30						
RW-6	4/4/13	111.01	6.82	6.83	0.01	104.19						
RW-6	4/8/13	111.01	6.67	6.68	0.01	104.34						
RW-6	4/15/13	111.01	Sheen	6.42	Sheen	104.59						
RW-6	4/22/13	111.01		9.02		101.99						
RW-6	5/8/13	111.01		6.47		104.54						
RW-6	5/23/13	111.01	Sheen	6.53	Sheen	104.48						
RW-6	7/3/13	111.01	Sheen	6.48	Sheen	104.53						
RW-6	5/5/15	111.01					0.0142 J	0.288	0.258	3.060	<0.0097	
RW-6	5/7/15	111.01		7.04		103.97						
RW-6	10/24/16	111.01		7.54		103.47	<0.0050	0.0567	0.161	2.320	<0.0017	
RW-7	12/3/12			7.16								
RW-7	12/6/12			7.21								
RW-7	12/10/12			7.10								
RW-7	12/14/12			7.19								
RW-7	12/18/12			7.01								
RW-7	12/27/12			6.90								
RW-7	1/7/13			7.11								
RW-7	1/14/13			6.95								
RW-7	1/28/13			7.93								
RW-7	2/6/13			6.90								
RW-7	2/11/13			6.62								
RW-7	2/18/13		Sheen	6.70	Sheen							
RW-7	2/21/13	110.51		6.71		103.80	0.620	0.465	0.211	0.754	0.0037 J	
RW-7	2/27/13	110.51		6.73		103.78						

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
RW-7	3/4/13	110.51		6.73		103.78					
RW-7	3/25/13	110.51		6.60		103.91					
RW-7	4/4/13	110.51		6.69		103.82					
RW-7	4/8/13	110.51		6.64		103.87					
RW-7	4/15/13	110.51		6.30		104.21					
RW-7	4/22/13	110.51		5.94		104.57					
RW-7	5/8/13	110.51		6.41		104.10					
RW-7	5/23/13	110.51	Sheen	6.48	Sheen	104.03					
RW-7	7/3/13	110.51		6.37		104.14					
RW-7	5/5/15	110.51					0.379	0.188	0.146	0.731	0.0020 J
RW-7	5/7/15	110.51		7.80		102.71					
RW-7	10/21/16	110.51		7.40		103.11	0.0632	0.0199	0.0292	0.229	<0.00035
RW-8	12/3/12		7.00	8.25	1.25						
RW-8	12/6/12		7.01	8.31	1.30						
RW-8	12/6/12 ^A		7.10	8.15	1.05						
RW-8	12/10/12		7.00	8.10	1.10						
RW-8	12/10/12 ^A		7.76	7.79	0.03						
RW-8	12/14/12		6.99	8.09	1.10						
RW-8	12/14/12 ^A		8.30	8.63	0.33						
RW-8	12/18/12		6.95	7.75	0.80						
RW-8	12/27/12		6.97	7.35	0.38						
RW-8	1/7/13		7.02	7.22	0.20						
RW-8	1/14/13		7.05	7.06	0.01						
RW-8	1/21/13		6.99	7.80	0.81						
RW-8	1/28/13		7.04	7.98	0.94						
RW-8	2/6/13			7.00							
RW-8	2/11/13			6.60							
RW-8	2/18/13			6.82							
RW-8	2/21/13	110.63	Sheen	6.80	Sheen	103.83	4.140	8.700	1.300	7.670	<0.0190
RW-8	2/27/13	110.63		6.86		103.77					
RW-8	3/4/13	110.63	Sheen	6.83	Sheen	103.80					
RW-8	3/25/13	110.63		6.70		103.93					
RW-8	4/4/13	110.63	6.80	6.81	0.01	103.82					
RW-8	4/8/13	110.63	6.75	6.76	0.01	103.87					
RW-8	4/15/13	110.63	Sheen	6.45	Sheen	104.18					
RW-8	4/22/13	110.63		6.05		104.58					
RW-8	5/8/13	110.63	6.51	6.52	0.01	104.12					
RW-8	5/23/13	110.63		6.59		104.04					
RW-8	7/3/13	110.63		6.48		104.15					
RW-8	5/5/15	110.63					0.798	0.624	0.287	3.840	<0.0097
RW-8	5/7/15	110.63		8.94		101.69					
RW-8	10/24/16	110.63		7.50		103.13	0.0395	0.0442	0.0517	0.603	<0.00087
RW-9	12/6/12			5.26							
RW-9	12/10/12			5.16							
RW-9	12/14/12			5.21							
RW-9	12/18/12			5.09							
RW-9	12/27/12			5.02							
RW-9	1/7/13			5.16							
RW-9	1/14/13		Sheen	5.06	Sheen						
RW-9	1/28/13			5.20							
RW-9	2/6/13			4.93							
RW-9	2/11/13			5.12							
RW-9	2/18/13			4.79							
RW-9	2/21/13	108.50	Sheen	4.74	Sheen	103.76	0.391	0.0130	0.0123	0.0050 J	0.0031
RW-9	2/27/13	108.50	Sheen	4.82	Sheen	103.68					
RW-9	3/4/13	108.50	Sheen	4.78	Sheen	103.72					
RW-9	3/25/13	108.50	Sheen	4.67	Sheen	103.83					
RW-9	4/4/13	108.50		4.75		103.75					
RW-9	4/8/13	108.50		4.69		103.81					
RW-9	4/15/13	108.50		4.38		104.12					
RW-9	4/22/13	108.50		4.05		104.45					
RW-9	5/8/13	108.50		4.49		104.01					
RW-9	5/23/13	108.50	Sheen	4.55	Sheen	103.95					
RW-9	7/3/13	108.50		4.45		104.05					
RW-9	5/5/15	108.50					0.0936	0.0032	0.0053	0.0176	0.0022
RW-9	5/7/15	108.50		5.86		102.64					
RW-9	10/21/16	108.50		5.48		103.02	0.212	0.0037	0.0042	0.0059 J	<0.00044

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
 399 West Liberty Street
 Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
RW-10	12/3/12			7.62							
RW-10	12/6/12			7.65							
RW-10	12/10/12			7.61							
RW-10	12/14/12			7.62							
RW-10	12/18/12			7.51							
RW-10	12/27/12			7.43							
RW-10	1/7/13			7.62							
RW-10	1/14/13			7.42							
RW-10	1/28/13			7.80							
RW-10	2/6/13			7.39							
RW-10	2/11/13			7.07							
RW-10	2/18/13			7.26							
RW-10	2/21/13	111.01		7.23		103.78	0.00043 J	<0.00042	<0.00041	<0.0013	0.0028
RW-10	2/27/13	111.01		7.28		103.73					
RW-10	3/4/13	111.01		7.23		103.78					
RW-10	3/25/13	111.01		7.18		103.83					
RW-10	4/4/13	111.01		7.25		103.76					
RW-10	4/8/13	111.01		7.19		103.82					
RW-10	4/15/13	111.01		6.99		104.02					
RW-10	4/22/13	111.01		6.75		104.26					
RW-10	5/8/13	111.01		7.04		103.97					
RW-10	5/23/13	111.01		7.05		103.96					
RW-10	7/3/13	111.01		7.02		103.99					
RW-10	5/5/15	111.01					0.00064 J	<0.00039	0.0026	0.0037	0.0076
RW-10	5/7/15	111.01		7.72		103.29					
RW-10	10/21/16	111.01		7.92		103.09	0.0028	<0.00050	0.0050	0.0028 J	<0.00017
S-1	7/16/09		7.49	7.59	0.10						
S-1	7/27/09		7.46	7.54	0.08						
S-1	8/11/09		7.71	7.79	0.08						
S-1	8/18/09		7.61	7.72	0.11						
S-1	8/25/09		7.53	7.61	0.08						
S-1	9/1/09		7.01	7.05	0.04						
S-1	9/10/09		7.63	7.68	0.05						
S-1	9/17/09			7.86							
S-1	9/24/09		7.73	7.78	0.05						
S-1	10/1/09		7.87	7.89	0.02						
S-1	10/7/09		7.41	7.42	0.01						
S-1	10/23/09		6.79	6.81	0.02						
S-1	10/28/09		6.97	7.03	0.06						
S-1	11/9/09		7.33	7.38	0.05						
S-1	11/24/09		7.68	7.76	0.08						
S-1	12/3/09		7.40	7.46	0.06						
S-1	12/8/09		7.57	7.64	0.07						
S-1	12/17/09		7.31	7.39	0.08						
S-1	12/22/09		7.43	7.51	0.08						
S-1	12/28/09		6.52	6.59	0.07						
S-1	1/6/10		7.15	7.24	0.09						
S-1	1/11/10		7.38	7.45	0.07						
S-1	1/19/10		7.54	7.62	0.08						
S-1	1/25/10		7.01	7.04	0.03						
S-1	2/2/10		7.25	7.30	0.05						
S-1	2/8/10		7.37	7.42	0.05						
S-1	2/16/10		7.55	7.62	0.07						
S-1	2/22/10		7.43	7.47	0.04						
S-1	3/1/10		7.35	7.40	0.05						
S-1	3/8/10		7.45	7.49	0.04						
S-1	3/18/10		6.79	6.82	0.03						
S-1	3/24/10		6.75	6.79	0.04						
S-1	3/29/10		7.01	7.05	0.04						
S-1	4/21/10		7.45	7.51	0.06						
S-1	4/27/10		7.27	7.29	0.02						
S-1	5/4/10		7.27	7.30	0.03						
S-1	5/10/10		7.13	7.16	0.03						
S-1	5/19/10		6.58	6.65	0.07						
S-1	5/25/10		6.86	6.95	0.09						
S-1	6/2/10		6.95	7.04	0.09						
S-1	6/8/10		6.96	7.01	0.05						

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
S-1	6/16/10		7.02	7.06	0.04						
S-1	6/22/10		7.05	7.09	0.04						
S-1	6/30/10		7.05	7.09	0.04						
S-1	7/6/10		7.27	7.30	0.03						
S-1	7/13/10		7.27	7.35	0.08						
S-1	7/20/10		7.47	7.50	0.03						
S-1	7/27/10		6.95	7.00	0.05						
S-1	8/18/10		7.16	7.29	0.13						
S-1	8/24/10		7.29	7.41	0.12						
S-1	8/31/10		7.57	7.72	0.15						
S-1	9/21/10		7.58	7.61	0.03						
S-1	9/30/10		7.32	7.35	0.03						
S-1	10/12/10		7.87	8.19	0.32						
S-1	11/3/10		7.90	8.36	0.46						
S-1	11/15/10		7.93	8.35	0.42						
S-1	12/2/10		7.93	8.58	0.65						
S-1	12/10/10		7.97	8.54	0.57						
S-1	12/22/10		7.90	8.48	0.58						
S-1	12/27/10		7.92	8.50	0.58						
S-1	1/5/11		7.58	8.00	0.42						
S-1	1/5/11^		9.56	9.63	0.07						
S-1	1/10/11		8.17	8.90	0.73						
S-1	1/13/11		8.22	8.96	0.74						
S-1	1/13/11^		9.00	9.02	0.02						
S-1	1/17/11		9.02	9.30	0.28						
S-1	1/28/11		8.44	8.75	0.31						
S-1	1/28/11^		10.32	10.40	0.08						
S-1	2/7/11		8.89	9.00	0.11						
S-1	2/22/11		7.85	7.91	0.06						
S-1	3/2/11		6.92	7.00	0.08						
S-1	3/7/11		6.99	7.04	0.05						
S-1	3/14/11		6.77	6.81	0.04						
S-1	3/21/11			6.57							
S-1	3/28/11		6.65	6.69	0.04						
S-1	4/5/11		6.94	6.97	0.03						
S-1	4/12/11		6.90	6.94	0.04						
S-1	4/14/11		6.97	7.02	0.05						
S-1	4/19/11		6.58	6.60	0.02						
S-1	4/26/11			6.28							
S-1	5/5/11		6.65	6.67	0.02						
S-1	5/11/11		6.92	6.94	0.02						
S-1	5/17/11		7.00	7.02	0.02						
S-1	5/23/11		6.99	7.00	0.01						
S-1	6/2/11		6.58	6.59	0.01						
S-1	6/27/11		7.08	7.10	0.02						
S-1	7/6/11		7.38	7.40	0.02						
S-1	7/18/11		7.71	7.74	0.03						
S-1	7/26/11		7.11	7.12	0.01						
S-1	8/2/11		7.03	7.05	0.02						
S-1	8/9/11		7.02	7.03	0.01						
S-1	8/15/11		7.15	7.17	0.02						
S-1	8/22/11		7.10	7.12	0.02						
S-1	8/29/11		7.13	7.14	0.01						
S-1	9/13/11		7.60	7.64	0.04						
S-1	9/20/11		7.51	7.53	0.02						
S-1	9/27/11			6.85							
S-1	10/3/11		6.99	7.00	0.01						
S-1	10/11/11		7.03	7.04	0.01						
S-1	10/18/11		7.36	7.38	0.02						
S-1	10/25/11		7.32	7.33	0.01						
S-1	11/4/11		7.32	7.33	0.01						
S-1	11/10/11		6.99	7.00	0.01						
S-1	11/21/11		Sheen	7.25	Sheen						
S-1	11/30/11			7.14							
S-1	12/6/11		7.17	7.18	0.01						
S-1	12/12/11			7.20							
S-1	12/19/11		Heavy sheen	7.16	Heavy sheen						

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs						
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)		
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07		
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results						
S-1	12/29/11			7.24									
S-1	1/9/12			7.42									
S-1	1/17/12			7.55									
S-1	1/23/12		Sheen	7.16	Sheen								
S-1	1/31/12		Sheen	7.26	Sheen								
S-1	2/6/12		Sheen	7.35	Sheen								
S-1	2/13/12		Sheen	7.44	Sheen								
S-1	2/21/12		Sheen	7.43	Sheen								
S-1	2/28/12		Sheen	7.18	Sheen								
S-1	3/9/12		Sheen	7.13	Sheen								
S-1	3/23/12		Sheen	7.09	Sheen								
S-1	3/27/12		Sheen	6.99	Sheen								
S-1	4/5/12			7.25									
S-1	4/10/12		Sheen	7.38	Sheen								
S-1	4/16/12			7.12									
S-1	4/24/12		Sheen	7.19	Sheen								
S-1	5/4/12		Sheen	7.12	Sheen								
S-1	5/10/12		Sheen	7.07	Sheen								
S-1	5/16/12		Sheen	7.22	Sheen								
S-1	5/25/12		Sheen	7.28	Sheen								
S-1	5/29/12			7.42									
S-1	6/8/12		Sheen	7.18	Sheen								
S-1	6/14/12			7.41									
S-1	6/19/12			7.42									
S-1	6/29/12		Sheen	7.76	Sheen								
S-1	7/3/12		Sheen	7.78	Sheen								
S-1	7/11/12			8.03									
S-1	7/16/12		Sheen	8.13	Sheen								
S-1	8/1/12		Sheen	7.30	Sheen								
S-1	8/10/12		Sheen	7.69	Sheen								
S-1	9/7/12		Sheen	8.05	Sheen								
S-1	9/13/12		Sheen	8.05	Sheen								
S-1	10/3/12		Sheen	8.39	Sheen								
S-1	11/27/12		Sheen	8.35	Sheen								
S-1	12/3/12		Sheen	8.62	Sheen								
S-1	12/6/12		Sheen	8.65	Sheen								
S-1	12/10/13		Sheen	8.77	Sheen								
S-1	12/14/12		Sheen	8.75	Sheen								
S-1	12/18/12		Sheen	8.60	Sheen								
S-1	12/27/12		Sheen	8.21	Sheen								
S-1	1/7/13		Sheen	8.44	Sheen								
S-1	1/14/13		Sheen	8.34	Sheen								
S-1	1/21/13		Sheen	8.38	Sheen								
S-1	1/28/13		Sheen	8.45	Sheen								
S-1	2/6/13		Sheen	7.65	Sheen								
S-1	2/11/13		Sheen	7.02	Sheen								
S-1	2/18/13		Sheen	7.47	Sheen								
S-1	2/27/13		Sheen	7.58	Sheen								
S-1	3/4/13		Sheen	7.64	Sheen								
S-1	3/25/13		Sheen	7.31	Sheen								
S-1	4/4/13		Sheen	7.35	Sheen								
S-1	4/8/13		Sheen	7.40	Sheen								
S-1	4/15/13		Sheen	6.80	Sheen								
S-1	4/22/13		Sheen	5.83	Sheen								
S-1	5/8/13		Sheen	6.74	Sheen								
S-1	5/23/13		Sheen	6.95	Sheen								
S-1	7/3/13		Sheen	6.47	Sheen								
S-1	11/3/16			7.35									
S-2	7/16/09		7.59	7.62	0.03								
S-2	7/27/09		7.56	7.64	0.08								
S-2	8/11/09		7.70	7.81	0.11								
S-2	8/18/09		7.68	7.80	0.12								
S-2	8/25/09		7.61	7.71	0.10								
S-2	9/1/09		7.00	7.01	0.01								
S-2	9/10/09		7.62	7.67	0.05								
S-2	9/17/09			7.85									
S-2	9/24/09		7.73	7.79	0.06								

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
S-2	10/1/09		7.89	7.91	0.02						
S-2	10/7/09		7.50	7.55	0.05						
S-2	10/23/09		6.86	6.87	0.01						
S-2	10/28/09		6.99	7.02	0.03						
S-2	11/9/09		7.41	7.47	0.06						
S-2	11/24/09		7.78	7.85	0.07						
S-2	12/3/09		7.49	7.54	0.05						
S-2	12/8/09		7.63	7.70	0.07						
S-2	12/17/09		7.39	7.45	0.06						
S-2	12/22/09		7.54	7.61	0.07						
S-2	12/28/09		6.61	6.65	0.04						
S-2	1/6/10		7.23	7.30	0.07						
S-2	1/11/10		7.47	7.52	0.05						
S-2	1/19/10		7.62	7.68	0.06						
S-2	1/25/10		7.08	7.10	0.02						
S-2	2/2/10		7.34	7.39	0.05						
S-2	2/8/10		7.45	7.52	0.07						
S-2	2/16/10		7.65	7.73	0.08						
S-2	2/22/10		7.52	7.55	0.03						
S-2	3/1/10		7.43	7.49	0.06						
S-2	3/8/10		7.51	7.57	0.06						
S-2	3/18/10		6.85	6.89	0.04						
S-2	3/24/10		6.85	6.88	0.03						
S-2	3/29/10		7.08	7.12	0.04						
S-2	4/21/10		7.37	7.41	0.04						
S-2	4/27/10		7.27	7.31	0.04						
S-2	5/4/10		7.36	7.39	0.03						
S-2	5/10/10		7.21	7.24	0.03						
S-2	5/19/10		6.67	6.71	0.04						
S-2	5/25/10		6.93	7.02	0.09						
S-2	6/2/10		7.00	7.10	0.10						
S-2	6/8/10		6.99	7.04	0.05						
S-2	6/16/10		7.09	7.12	0.03						
S-2	6/22/10		7.12	7.16	0.04						
S-2	6/30/10		7.13	7.17	0.04						
S-2	7/6/10		7.36	7.39	0.03						
S-2	7/13/10		7.35	7.43	0.08						
S-2	7/20/10		7.55	7.63	0.08						
S-2	7/27/10		7.03	7.09	0.06						
S-2	8/18/10		7.25	7.36	0.11						
S-2	8/24/10		7.37	7.49	0.12						
S-2	8/30/10		7.60	7.75	0.15						
S-2	9/21/10		7.67	7.86	0.19						
S-2	9/30/10		7.71	7.74	0.03						
S-2	10/12/10		7.95	8.26	0.31						
S-2	11/3/10		7.96	8.44	0.48						
S-2	11/15/10		7.93	8.42	0.49						
S-2	12/2/10		7.96	8.65	0.69						
S-2	12/10/10		8.02	8.63	0.61						
S-2	12/22/10		8.01	8.49	0.48						
S-2	12/27/10		8.03	8.60	0.57						
S-2	1/5/11		7.67	8.05	0.38						
S-2	1/5/11^		8.90	9.09	0.19						
S-2	1/10/11		8.25	8.97	0.72						
S-2	1/13/11		8.22	8.98	0.76						
S-2	1/13/11^			9.02							
S-2	1/17/11		9.09	9.39	0.30						
S-2	1/28/11		8.53	8.85	0.32						
S-2	1/28/11^		9.83	9.99	0.16						
S-2	2/7/11		8.94	9.05	0.11						
S-2	2/22/11		6.93	6.98	0.05						
S-2	3/2/11		7.00	7.06	0.06						
S-2	3/7/11		7.05	7.09	0.04						
S-2	3/14/11		6.85	6.89	0.04						
S-2	3/21/11			6.65							
S-2	3/28/11		6.74	6.77	0.03						
S-2	4/5/11		7.02	7.06	0.04						

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
S-2	4/12/11		6.98	7.02	0.04						
S-2	4/14/11		7.06	7.11	0.05						
S-2	4/19/11		6.60	6.61	0.01						
S-2	4/26/11			6.35							
S-2	5/5/11		6.73	6.76	0.03						
S-2	5/11/11		7.02	7.06	0.04						
S-2	5/17/11		7.03	7.05	0.02						
S-2	5/23/11		7.09	7.10	0.01						
S-2	6/2/11		6.56	6.58	0.02						
S-2	6/27/11		7.16	7.18	0.02						
S-2	7/6/11		7.45	7.49	0.04						
S-2	7/18/11		7.80	7.83	0.03						
S-2	7/26/11		7.18	7.19	0.01						
S-2	8/2/11		7.12	7.14	0.02						
S-2	8/9/11		7.10	7.12	0.02						
S-2	8/15/11		7.25	7.27	0.02						
S-2	8/22/11		7.18	7.20	0.02						
S-2	8/29/11		7.21	7.22	0.01						
S-2	9/13/11		7.68	7.70	0.02						
S-2	9/20/11		7.59	7.61	0.02						
S-2	9/27/11		6.91	6.92	0.01						
S-2	10/3/11		7.04	7.05	0.01						
S-2	10/11/11		7.07	7.08	0.01						
S-2	10/18/11		7.45	7.47	0.02						
S-2	10/25/11		7.39	7.41	0.02						
S-2	11/4/11		7.41	7.42	0.01						
S-2	11/10/11		7.02	7.03	0.01						
S-2	11/21/11		Sheen	7.33	Sheen						
S-2	11/30/11		7.22	7.26	0.04						
S-2	12/6/11		7.14	7.15	0.01						
S-2	12/12/11		7.28	7.29	0.01						
S-2	12/29/11		7.23	7.24	0.01						
S-2	1/9/12			9.50							
S-2	1/17/12			8.96							
S-2	1/31/12		Sheen	7.34	Sheen						
S-2	2/6/12		7.41	7.42	0.01						
S-2	2/13/12		Sheen	7.53	Sheen						
S-2	2/21/12		Sheen	7.51	Sheen						
S-2	2/28/12		Sheen	7.28	Sheen						
S-2	3/9/12		Sheen	7.20	Sheen						
S-2	3/23/12		Sheen	7.13	Sheen						
S-2	3/27/12			7.09							
S-2	4/5/12			7.33							
S-2	4/10/12		7.46	7.47	0.01						
S-2	4/16/12		Sheen	7.21	Sheen						
S-2	4/24/12		Sheen	7.26	Sheen						
S-2	5/4/12		Sheen	7.20	Sheen						
S-2	5/10/12		Sheen	7.15	Sheen						
S-2	5/16/12		Sheen	7.30	Sheen						
S-2	5/25/12		Sheen	7.34	Sheen						
S-2	5/29/12		7.50	7.51	0.01						
S-2	6/8/12		Sheen	7.26	Sheen						
S-2	6/14/12		7.49	7.50	0.01						
S-2	6/19/12		7.51	7.52	0.01						
S-2	6/29/12		Sheen	7.83	Sheen						
S-2	7/3/12		Sheen	7.86	Sheen						
S-2	7/11/12		Sheen	8.11	Sheen						
S-2	7/16/12		Sheen	8.22	Sheen						
S-2	8/1/12		Sheen	7.38	Sheen						
S-2	8/10/12		Sheen	7.78	Sheen						
S-2	9/7/12		Sheen	8.14	Sheen						
S-2	9/13/12		Sheen	8.13	Sheen						
S-2	10/3/12		Sheen	8.47	Sheen						
S-2	11/27/12		Sheen	8.61	Sheen						
S-2	12/3/12		Sheen	8.68	Sheen						
S-2	12/6/12		Sheen	8.73	Sheen						
S-2	12/10/12		Sheen	8.86	Sheen						

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
S-2	12/14/12		Sheen	8.82	Sheen						
S-2	12/18/12		Sheen	8.69	Sheen						
S-2	12/27/12		Sheen	8.30	Sheen						
S-2	1/7/13		Sheen	8.51	Sheen						
S-2	1/14/13		Sheen	8.41	Sheen						
S-2	1/21/13		Sheen	8.47	Sheen						
S-2	1/28/13		Sheen	8.59	Sheen						
S-2	2/6/13		Sheen	8.75	Sheen						
S-2	2/11/13		Sheen	7.11	Sheen						
S-2	2/18/13		Sheen	7.55	Sheen						
S-2	2/27/13		Sheen	7.65	Sheen						
S-2	3/4/13		Sheen	7.73	Sheen						
S-2	3/25/13		Sheen	7.41	Sheen						
S-2	4/4/13		Sheen	7.46	Sheen						
S-2	4/8/13		Sheen	7.49	Sheen						
S-2	4/15/13		Sheen	6.83	Sheen						
S-2	4/22/13		Sheen	5.92	Sheen						
S-2	5/8/13		Sheen	6.82	Sheen						
S-2	5/23/13		Sheen	7.03	Sheen						
S-2	7/3/13		Sheen	6.55	Sheen						
S-2	11/3/16			7.39							
S-3	7/27/09		7.56	7.59	0.03						
S-3	8/11/09		7.69	7.81	0.12						
S-3	8/18/09		7.69	7.80	0.11						
S-3	8/25/09		7.61	7.71	0.10						
S-3	9/1/09		7.03	7.08	0.05						
S-3	9/10/09		7.66	7.68	0.02						
S-3	9/17/09			7.88							
S-3	9/24/09		7.74	7.80	0.06						
S-3	10/1/09		7.88	7.89	0.01						
S-3	10/7/09		7.50	7.51	0.01						
S-3	10/23/09		6.26	6.27	0.01						
S-3	10/28/09		6.97	7.02	0.05						
S-3	11/9/09		7.40	7.45	0.05						
S-3	11/24/09		7.76	7.86	0.10						
S-3	12/3/09		7.49	7.55	0.06						
S-3	12/8/09		7.64	7.70	0.06						
S-3	12/17/09		7.39	7.47	0.08						
S-3	12/22/09		7.53	7.59	0.06						
S-3	12/28/09		6.61	6.67	0.06						
S-3	1/6/10		7.23	7.31	0.08						
S-3	1/11/10		7.47	7.54	0.07						
S-3	1/19/10		7.62	7.70	0.08						
S-3	1/25/10		7.08	7.11	0.03						
S-3	2/2/10		7.34	7.40	0.06						
S-3	2/8/10		7.45	7.52	0.07						
S-3	2/16/10		7.64	7.70	0.06						
S-3	2/22/10		7.52	7.54	0.02						
S-3	3/1/10		7.42	7.47	0.05						
S-3	3/8/10		7.51	7.57	0.06						
S-3	3/18/10		6.88	6.91	0.03						
S-3	3/24/10		6.83	6.87	0.04						
S-3	3/29/10		7.11	7.15	0.04						
S-3	4/21/10		7.37	7.42	0.05						
S-3	4/27/10		7.29	7.32	0.03						
S-3	5/4/10		7.37	7.40	0.03						
S-3	5/10/10		7.24	7.27	0.03						
S-3	5/19/10		6.67	6.72	0.05						
S-3	5/25/10		6.94	7.03	0.09						
S-3	6/2/10		7.01	7.11	0.10						
S-3	6/8/10		7.00	7.05	0.05						
S-3	6/16/10		7.09	7.13	0.04						
S-3	6/22/10		7.13	7.14	0.01						
S-3	6/30/10		7.12	7.16	0.04						
S-3	7/6/10		7.35	7.38	0.03						
S-3	7/13/10		7.34	7.42	0.08						
S-3	7/20/10		7.55	7.63	0.08						

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
S-3	7/27/10		7.03	7.09	0.06						
S-3	8/18/10		7.28	7.40	0.12						
S-3	8/24/10		7.38	7.50	0.12						
S-3	8/31/10		7.59	7.74	0.15						
S-3	9/21/10		7.68	7.85	0.17						
S-3	9/30/10		7.72	7.75	0.03						
S-3	10/12/10		7.95	8.24	0.29						
S-3	11/3/10		7.97	8.44	0.47						
S-3	11/15/10		7.96	8.42	0.46						
S-3	12/2/10		7.96	8.66	0.70						
S-3	12/10/10		8.03	8.64	0.61						
S-3	12/22/10		8.01	8.49	0.48						
S-3	12/27/10		8.03	8.60	0.57						
S-3	1/5/11		7.67	8.06	0.39						
S-3	1/5/11^		8.87	9.03	0.16						
S-3	1/10/11		8.25	8.98	0.73						
S-3	1/13/11		8.22	8.96	0.74						
S-3	1/13/11^		9.82	10.08	0.26						
S-3	1/17/11		9.10	9.39	0.29						
S-3	1/28/11		8.55	8.84	0.29						
S-3	1/28/11^		10.07	10.21	0.14						
S-3	2/7/11		8.96	9.07	0.11						
S-3	2/22/11		6.93	6.99	0.06						
S-3	3/2/11		7.02	7.06	0.04						
S-3	3/7/11		7.04	7.08	0.04						
S-3	3/14/11		6.85	6.90	0.05						
S-3	3/21/11		6.65	6.66	0.01						
S-3	3/28/11		6.74	6.78	0.04						
S-3	4/5/11		7.02	7.07	0.05						
S-3	4/12/11		6.98	7.02	0.04						
S-3	4/14/11		7.07	7.11	0.04						
S-3	4/19/11		6.59	6.60	0.01						
S-3	4/26/11			6.36							
S-3	5/5/11		6.74	6.78	0.04						
S-3	5/11/11		7.00	7.05	0.05						
S-3	5/17/11		7.03	7.06	0.03						
S-3	5/23/11		7.08	7.09	0.01						
S-3	6/2/11		6.56	6.58	0.02						
S-3	6/27/11		7.16	7.18	0.02						
S-3	7/6/11		7.46	7.50	0.04						
S-3	7/18/11		7.80	7.83	0.03						
S-3	7/26/11		7.18	7.19	0.01						
S-3	8/2/11		7.12	7.14	0.02						
S-3	8/9/11		7.10	7.12	0.02						
S-3	8/15/11		7.25	7.27	0.02						
S-3	8/22/11		7.18	7.20	0.02						
S-3	8/29/11		7.21	7.22	0.01						
S-3	9/13/11		7.68	7.70	0.02						
S-3	9/20/11		7.59	7.61	0.02						
S-3	9/27/11		6.91	6.92	0.01						
S-3	10/3/11		7.04	7.05	0.01						
S-3	10/11/11		7.07	7.08	0.01						
S-3	10/18/11		7.45	7.47	0.02						
S-3	10/25/11		7.39	7.41	0.02						
S-3	11/4/11		7.41	7.42	0.01						
S-3	11/10/11		7.02	7.03	0.01						
S-3	11/4/11		Sheen	7.34	Sheen						
S-3	11/30/11		7.25	7.26	0.01						
S-3	12/6/11		7.14	7.15	0.01						
S-3	12/12/11		7.28	7.29	0.01						
S-3	12/19/11		7.23	7.24	0.01						
S-3	1/9/12			9.50							
S-3	1/17/12			8.96							
S-3	1/23/12			7.25							
S-3	1/31/12		Sheen	7.34	Sheen						
S-3	2/6/12		7.41	7.42	0.01						
S-3	2/13/12		Sheen	7.53	Sheen						

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
S-3	2/21/12		Sheen	7.51	Sheen						
S-3	2/28/12		Sheen	7.28	Sheen						
S-3	3/9/12		Sheen	7.20	Sheen						
S-3	3/23/12		Sheen	7.13	Sheen						
S-3	3/27/12			7.10							
S-3	4/5/12			7.33							
S-3	4/10/12		7.46	7.47	0.01						
S-3	4/16/12		Sheen	7.21	Sheen						
S-3	4/16/12		Sheen	7.26	Sheen						
S-3	5/4/12		Sheen	7.20	Sheen						
S-3	5/10/12		Sheen	7.15	Sheen						
S-3	5/16/12		Sheen	7.30	Sheen						
S-3	5/25/12		Sheen	7.34	Sheen						
S-3	5/29/12		7.50	7.51	0.01						
S-3	6/8/12		Sheen	7.26	Sheen						
S-3	6/14/12		7.49	7.50	0.01						
S-3	6/19/12		7.51	7.52	0.01						
S-3	6/29/12		Sheen	7.83	Sheen						
S-3	7/3/12		Sheen	7.86	Sheen						
S-3	7/11/12		Sheen	8.11	Sheen						
S-3	7/16/12		Sheen	8.22	Sheen						
S-3	8/1/12		Sheen	7.38	Sheen						
S-3	8/10/12		Sheen	7.78	Sheen						
S-3	9/7/12		Sheen	8.14	Sheen						
S-3	9/13/12		Sheen	8.13	Sheen						
S-3	10/3/12		Sheen	8.47	Sheen						
S-3	11/27/12		Sheen	8.62	Sheen						
S-3	12/3/12		Sheen	8.68	Sheen						
S-3	12/6/12		Sheen	8.73	Sheen						
S-3	12/10/12		Sheen	8.87	Sheen						
S-3	12/14/12		Sheen	8.82	Sheen						
S-3	12/18/12		Sheen	8.69	Sheen						
S-3	12/28/12		Sheen	8.31	Sheen						
S-3	1/7/13		Sheen	8.51	Sheen						
S-3	1/14/13		Sheen	8.41	Sheen						
S-3	1/21/13		Sheen	8.48	Sheen						
S-3	1/28/13		Sheen	8.58	Sheen						
S-3	2/6/13		Sheen	8.75	Sheen						
S-3	2/11/13		Sheen	7.11	Sheen						
S-3	2/18/13		Sheen	7.56	Sheen						
S-3	2/27/13		Sheen	7.65	Sheen						
S-3	3/4/13		Sheen	7.73	Sheen						
S-3	3/25/13		Sheen	7.41	Sheen						
S-3	4/4/13		Sheen	7.46	Sheen						
S-3	4/8/13		Sheen	7.49	Sheen						
S-3	4/15/13		Sheen	6.83	Sheen						
S-3	4/22/13		Sheen	5.92	Sheen						
S-3	5/8/13		Sheen	6.82	Sheen						
S-3	5/23/13		Sheen	7.03	Sheen						
S-3	7/3/13		Sheen	6.55	Sheen						
S-3	11/3/16			7.39							
SUMP	6/22/10			4.38							
SUMP	6/30/10			4.36							
SUMP	7/6/10			4.37							
SUMP	7/13/10			4.36							
SUMP	7/20/10			4.29							
SUMP	7/27/10			4.20							
SUMP	8/18/10			4.42							
SUMP	8/24/10			4.40							
SUMP	8/31/10			4.38							
SUMP	9/21/10			4.35							
SUMP	9/30/10			4.40							
SUMP	10/12/10			4.45							
SUMP	11/3/10			4.54							
SUMP	11/15/10			4.66							
SUMP	12/2/10			4.70							
SUMP	12/10/10			4.68							

Table 4

Groundwater Elevations and Analytical Results

Shivam Energy, Inc.
 399 West Liberty Street
 Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes							Indicator Contaminants and Tier 1 GROs				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCGIER - Class I Groundwater							0.005	1	0.7	10	0.07
Sample Location	Sample Date	Reference Elevation (feet)	Static Depth to Free Product (feet below TOC)	Static Depth to Water (feet below TOC)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Analytical Results				
SUMP	1/10/11			7.88							
SUMP	3/2/11			4.42							
SUMP	3/7/11			4.38							

Notes:

- 1) Bold = detected concentration exceeds a Tier 1 GRO listed in 35 IAC Part 742 based on the groundwater classification designated below
- 2) For the GCGIER, Class I GROs were utilized for on-site and off-site sample locations.
- 3) ^ = Gauging performed after high vacuum extraction event
- 4) <0.001 = concentration less than the laboratory reporting limit or method detection limit
- 5) J = estimated concentration above the adjusted method detection limit and below the adjusted reporting limit
- 6) Shaded cell = not applicable or not available
- 7) Groundwater elevations are relative to a site specific datum of 100 feet.

Table 5

Soil Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes				Indicator Contaminants and Tier 1 SROs				
				Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)
Soil Ingestion - Residential				12	16,000	7,800	16,000	780
Soil Ingestion - Industrial/Commercial				100	410,000	200,000	410,000	20,000
Soil Ingestion - Construction Worker				2,300	410,000	20,000	41,000	2,000
Inhalation - Residential				0.8	650	400	320	8,800
Inhalation - Industrial/Commercial				1.6	650	400	320	8,800
Inhalation - Construction Worker				2.2	42	58	5.6	140
SCGIER - Class I Groundwater				0.03	12	13	150	0.32
Soil Saturation Limit - Outdoor Inhalation				800	580	350	280	8,400
Soil Saturation Limit - SCGIER				580	290	150	110	11,000
Location	Sample Date	Sample Depth (feet bls)	PID Reading (ppm)	Analytical Results				
SB-1	11/21/90	4-5	20	<0.005	0.083	<0.005	0.085	
SB-2/MW-2	11/21/90	4-5	20	<0.005	0.11	0.29	1.8	
SB-3	11/21/90	4-5	>100	<0.005	0.2	0.22	2	
SB-4/MW-4	11/21/90	7-8	50	0.042	0.11	<0.005	<0.01	
SB-5/MW-5	11/21/90	9-10	0	0.041	0.11	<0.005	<0.01	
SB-6/MW-6	11/21/90	7-8	50	2.9	58	27	150	
SB-7/MW-7	11/21/90	7-8	200	0.27	33	20	120	
B-1	6/14/94	4-5.5	1	<0.002	<0.002	<0.002	<0.005	
B-2	6/14/94	1-3	10	<0.002	<0.002	<0.002	0.0085	
B-3	6/14/94	5-7	60	<0.002	<0.002	<0.002	0.342	
B-4	6/14/94	5-7	50	<0.002	<0.002	<0.002	0.098	
B-5	6/14/94	2-4	13	<0.002	<0.002	<0.002	<0.005	
B-6	6/14/94	2-4	500	<0.002	<0.002	<0.002	<0.005	
B-7	6/14/94			0.029	0.0168	0.219	0.066	
HA-1	8/27/97	7.5-8	0	<0.002	<0.002	<0.002	<0.005	
HA-2	8/27/97	7.5-8	12	<0.002	0.147	0.0068	0.376	
HA-3	8/27/97	7.5-8	212	8.21	92.4	39.4	238	
HA-4	8/27/97	6.0-6.5	284	1.45	6.06	3.46	44.5	
SB-19/MW-17	10/31/97	10-12	0	<0.01	<0.01	<0.01	<0.03	
SB-19/MW-17	10/31/97	20-22	0	<0.01	<0.01	<0.01	<0.03	
SB-20/MW-18	10/31/97	12-14	0	<0.01	<0.01	<0.01	<0.03	
SB-20/MW-18	10/31/97	20-22	0	<0.01	<0.01	<0.01	<0.03	
CB-1	10/25/99	6-8	104	0.2	0.35	0.72	<0.03	
CB-2	10/25/99	8-10	294	26	240	89	38	
CB-3	10/25/99	6-8	510	4.7	190	95	49	
CB-4	10/25/99	8-10	90	<0.12	1.9	3.4	200/<60	
CB-5	10/25/99	8-10	21.9	<0.028	<0.056	<0.056	37	
CB-6	10/25/99	4-6	6.6	<0.029	<0.058	<0.058	0.72	
CB-7	10/25/99	24-26	2.6	0.58	<0.063	<0.063	<0.6	
CB-8	10/25/99	22-24	6.3	0.57	<0.06	<0.06	<0.179	
CB-9	10/25/99	26-28	7.6	1.6	<0.06	<0.06	<0.178	
CB-10	10/25/99	10-12	2.6	<0.14	<0.28	<0.28	<0.167	
CB-11	7/26/00	10-12	321	0.7	13	5.9	3.9	
CB-12	7/26/00	6-8	553	<0.049	4.8	5.5	540	
CB-13	7/26/00	8-10	307	<0.03	0.11	0.085	590	
CB-14	7/26/00	8-10	514	<0.052	0.76	3.4	22.7	
CB-15	7/26/00	8-10	18	<0.03	<0.060	<0.060	<0.166	

Table 5

Soil Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes				Indicator Contaminants and Tier 1 SROs				
				Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)
Soil Ingestion - Residential				12	16,000	7,800	16,000	780
Soil Ingestion - Industrial/Commercial				100	410,000	200,000	410,000	20,000
Soil Ingestion - Construction Worker				2,300	410,000	20,000	41,000	2,000
Inhalation - Residential				0.8	650	400	320	8,800
Inhalation - Industrial/Commercial				1.6	650	400	320	8,800
Inhalation - Construction Worker				2.2	42	58	5.6	140
SCGIER - Class I Groundwater				0.03	12	13	150	0.32
Soil Saturation Limit - Outdoor Inhalation				800	580	350	280	8,400
Soil Saturation Limit - SCGIER				580	290	150	110	11,000
Location	Sample Date	Sample Depth (feet bls)	PID Reading (ppm)	Analytical Results				
CB-16	7/26/00	6-8	2.7	<0.021	<0.200	<0.2	<0.178	
CB-17	7/26/00	2-4	3.0	<0.029	<0.059	<0.059	<0.193	
CB-18	7/26/00	6-8	3.6	<0.029	<0.058	<0.058	<0.18	
CB-19	7/26/00	0-2	3.3	<0.029	<0.057	<0.057	<0.18	
CB-20	7/26/00	6-8	3.2	<0.018	<0.17	<0.17	<0.84	
MW-19	8/17/01	22-24		<0.029	<0.057	<0.057	<0.51	
B-1a	8/17/01	4-6		<0.029	<0.058	<0.058	<0.167	
B-1b	8/17/01	16-18		<0.03	<0.06	<0.06	<0.178	
B-1c	8/17/01	22-24		<0.029	<0.058	<0.058	<0.18	
B-2a	8/16/01	8-10		<0.029	<0.057	<0.057	<0.178	
B-2b	8/16/01	16-18		<0.0079	<0.120	<0.12	<0.167	
B-2c	8/16/01	22-24		<0.029	<0.058	<0.058	<0.35	
B-3a	8/16/01	8-10		<0.03	<0.06	<0.06	<0.178	
B-3b	8/16/01	16-18		<0.03	<0.059	<0.059	<0.18	
B-3c	8/16/01	22-24		<0.03	<0.059	<0.059	<0.179	
B-4a	8/16/01	8-10		<0.029	<0.059	<0.059	<0.179	
B-4b	8/16/01	16-18		<0.029	<0.057	<0.057	<0.179	
B-4c	8/16/01	20-22		0.034	<0.066	<0.066	<0.167	
B-5a	8/16/01	8-10		<0.028	<0.057	<0.057	<0.196	
B-5b	8/16/01	10-12		0.55	<0.058	<0.058	<0.167	
B-5c	8/16/01	22-24		<0.029	<0.057	<0.057	<0.178	
B-6a	8/16/01	2-4		<0.029	<0.059	<0.059	<0.167	
B-6b	8/16/01	16-18		<0.03	<0.060	<0.060	<0.179	
B-6c	8/16/01	20-22		<0.03	<0.059	<0.059	<0.017	
RW-1	4/11/05	4	1.3	<0.024	<0.059	<0.059	<0.12	<0.059
MP-1	4/11/05	5-7	0.8	<0.025	<0.062	<0.062	<0.12	<0.062
MP-2	4/11/05	5-6	0.7	<0.024	<0.06	<0.06	<0.12	<0.06
MP-3	4/11/05	6-7	238	0.15	0.13	1.7	8.197	0.16
MP-4	4/11/05	5-6	24.5	<0.023	<0.059	<0.059	<0.12	<0.059
SB-21/MW-21	4/12/05	2-3	5.1	<0.027	<0.067	<0.067	<0.2	<0.067
SB-22/MW-22	4/12/05	3	1.7	<0.025	<0.063	<0.063	<0.19	<0.063
SB-24/MW-24	4/12/05	4-5	0.9	<0.024	<0.059	<0.059	<0.18	<0.059
SB-25/MW-25	4/12/05	4	0.6	<0.023	<0.058	<0.058	<0.17	<0.058
SB-26/MW-26	4/12/05	5-6	5.3	<0.003	<0.074	<0.074	<0.22	<0.074
SB-27/MW-27	4/12/05	3-4	1.6	<0.023	<0.058	<0.058	<0.17	<0.058
SB-28	4/12/05	5-7	0.6	<0.02	<0.05	<0.05	<0.15	<0.05
SB-29	4/12/05	7-8	1.2	<0.023	<0.058	<0.058	<0.17	<0.058

Table 5

Soil Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes				Indicator Contaminants and Tier 1 SROs				
				Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)
Soil Ingestion - Residential				12	16,000	7,800	16,000	780
Soil Ingestion - Industrial/Commercial				100	410,000	200,000	410,000	20,000
Soil Ingestion - Construction Worker				2,300	410,000	20,000	41,000	2,000
Inhalation - Residential				0.8	650	400	320	8,800
Inhalation - Industrial/Commercial				1.6	650	400	320	8,800
Inhalation - Construction Worker				2.2	42	58	5.6	140
SCGIER - Class I Groundwater				0.03	12	13	150	0.32
Soil Saturation Limit - Outdoor Inhalation				800	580	350	280	8,400
Soil Saturation Limit - SCGIER				580	290	150	110	11,000
Location	Sample Date	Sample Depth (feet bls)	PID Reading (ppm)	Analytical Results				
SB-23/MW-23	4/15/05	4-5	1.3	<0.023	<0.056	<0.056	<0.17	<0.056
SB-30/MW-28	4/15/05	4-5	0.9	<0.024	<0.059	<0.059	<0.18	<0.18
SB-31	6/1/06	7-8	0.0	<0.023	<0.057	<0.057	<0.11	<0.057
SB-41	2/2/09	4-5	901	0.289	0.619	0.0731	0.731	<0.056
SB-41	2/2/09	5-8	>9,999	1.4	29.3	13.3	70.1	<0.673
SB-42	2/2/09	2-3	0.0	<0.0236	<0.059	<0.059	<0.177	<0.059
SB-42	2/2/09	6-8	629	0.0616	0.378	0.101	0.722	<0.0537
SB-43	2/2/09	4-5	33.7	<0.0232	<0.058	<0.058	<0.174	<0.058
SB-43	2/2/09	6-8	70.8	0.192	0.0798	1.24	6	0.219
SB-44	2/2/09	2-4	38.1	<0.0229	<0.0572	<0.0572	<0.171	<0.0572
SB-44	2/2/09	6-8	9,914	104	1,000	294	1,530	30.1
SB-45	2/2/09	4-5	7.8	<0.0233	<0.0581	<0.0581	<0.174	<0.0581
SB-45	2/2/09	5-7	16.0	<0.0234	<0.0585	<0.0585	<0.176	<0.0585
SB-46	2/2/09	1.5-2	11.4	<0.0237	<0.0593	<0.0593	<0.178	<0.0593
SB-46	2/2/09	6-8	314	<0.023	<0.0576	0.245	0.461	0.116
SB-47	2/2/09	2-4	0.6	<0.0227	<0.0567	<0.0567	<0.17	<0.0567
SB-47	2/2/09	6-8	6.8	0.0362	<0.058	<0.058	<0.174	0.108
SB-48	2/2/09	2-4	0.0	<0.028	<0.0701	<0.0701	<0.21	<0.0701
SB-48	2/2/09	6-8	>9,999	0.112	0.94	0.557	3.51	<0.0577
SB-49	2/2/09	3-4	63.7	0.709	2.48	0.175	2.57	<0.0573
SB-49	2/2/09	4-8	7,109	12.7	143	46.8	246	2.92
SB-50	2/2/09	5-8	8.5	<0.0268	<0.0669	<0.0669	<0.201	<0.0669
SB-51/MW-29	5/15/09	5-7.5	82.3	4.39	14.8	2.17	11	<0.0591
SB-52/MW-30	5/15/09	7.5-9	1,496	120	1,030	280	1,530	8.47
SB-53/MW-31	5/15/09	7.5-8.75	1,660	26.4	313	95.3	538	<2.71
SB-54/MW-32	5/15/09	4-5	261	0.159	0.526	0.0798	0.446	<0.0537
RW-4	5/15/09	5-7.5	1,890	37.7	337	85.2	465	<2.64
SB-58	4/6/11	7-8	2.9	<0.004	<0.0131	<0.0091	<0.0292	<0.0125
SB-59	4/6/11	4-5	79.8	1.66	1.99	0.0365 J	3.53	0.0326 J
SB-60	4/6/11	7-8	3865	0.566	13.4	7.98	55.8	<0.093
SB-61	4/6/11	5-7	1890	0.0598	0.524	0.201	1.58	<0.0115
SB-62	4/6/11	3-4	0.7	<0.0039	<0.0129	<0.009	<0.0288	<0.0123
SB-63	4/6/11	8-9	0.6	<0.004	<0.0132	<0.0091	<0.0294	<0.0126
SB-64	4/6/11	2-3	2.3	<0.0042	<0.0137	<0.0095	<0.0304	<0.013
SB-65	4/6/11	4-5	1.3	<0.0043	<0.014	<0.0097	<0.0313	<0.0134
SB-66	4/6/11	3-4	2.1	0.0081 J	0.0526	<0.0084	<0.0269	<0.0115
SB-67	4/7/11	2-3	4.2	<0.004	<0.0132	<0.0092	<0.0294	<0.0126

Table 5

Soil Analytical Results

Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084

Tier 1 Exposure Routes				Indicator Contaminants and Tier 1 SROs				
				Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)
Soil Ingestion - Residential				12	16,000	7,800	16,000	780
Soil Ingestion - Industrial/Commercial				100	410,000	200,000	410,000	20,000
Soil Ingestion - Construction Worker				2,300	410,000	20,000	41,000	2,000
Inhalation - Residential				0.8	650	400	320	8,800
Inhalation - Industrial/Commercial				1.6	650	400	320	8,800
Inhalation - Construction Worker				2.2	42	58	5.6	140
SCGIER - Class I Groundwater				0.03	12	13	150	0.32
Soil Saturation Limit - Outdoor Inhalation				800	580	350	280	8,400
Soil Saturation Limit - SCGIER				580	290	150	110	11,000
Location	Sample Date	Sample Depth (feet bls)	PID Reading (ppm)	Analytical Results				
				Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)
SB-68	4/7/11	2-3	0.5	<0.0044	<0.0146	<0.0102	<0.0326	<0.014
SB-69	4/7/11	3-4	5.2	0.0579	0.0486 J	0.0275 J	0.0835	<0.0126
SB-70	4/7/11	4-5	0.5	<0.0048	<0.0159	<0.011	<0.0355	<0.0152
SB-71	4/7/11	8-10	636.5	<0.0231	<0.0761	<0.0529	<0.17	1.14
SB-72	4/7/11	4-5	0.7	<0.0041	<0.0134	<0.0093	<0.03	<0.0128
RW-7	10/15/12	5-7.5	1.6	<0.0238	<0.0594	<0.0594	<0.0594	<0.178
RW-8	10/15/12	5-7.5	1,744	<0.101	0.943	1.73	12.4	<0.252
RW-9	10/15/12	5-7.5	7.8	0.0522	<0.0592	<0.0592	<0.178	<0.0592
RW-10	10/15/12	5-7.5	15.8	<0.0207	<0.0517	<0.0517	<0.155	<0.0517
SB-73	11/30/12	4-5	0.0	<0.0041	<0.0135	<0.0094	<0.0300	<0.0129
SB-74	11/30/12	4-5	0.0	<0.0042	<0.0139	<0.0097	<0.0311	<0.0133
SB-75	11/30/12	4-5	0.0	0.0274	<0.0142	<0.0099	0.0354 J	<0.0136
SB-76	11/3/16	6-8	1,178	2.640	72.400	37.100	558.000	<0.692
SB-77	11/3/16	5-7.5	580.7	<0.0102	<0.0124	<0.0137	0.0550 J	<0.0140
SB-78	11/3/16	4-5	84.0	<0.104	<0.126	0.722	5.550	<0.143
SB-78	11/3/16	5-7.5	582.7	<0.0105	<0.0127	0.0177 J	<0.0550	<0.0144
SB-79	11/3/16	7-7.75	512.0	<0.0199	<0.0242	<0.0268	0.753	<0.0273
SB-81	11/3/16	6-8	165.1	<0.0104	<0.0126	<0.0140	<0.0544	<0.0142
SB-82	11/3/16	3-4	19.7	<0.0104	<0.0127	<0.0141	<0.0548	<0.0143
SB-82	11/3/16	6-8	378.2	<0.0099	<0.0121	<0.0134	0.0584 J	<0.0136
SB-83	11/3/16	6-7	114.0	0.0446	0.0357 J	0.530	12.000	<0.0146
SB-83	11/3/16	7-8	888.6	0.275	0.315 J	11.100	106.000	<0.122
SB-84	11/3/16	4-5	15.3	<0.0116	<0.0141	<0.0156	<0.0609	<0.0159
SB-85	11/3/16	6-7	20.4	<0.0110	<0.0134	<0.0149	<0.0579	<0.0151
SB-86	11/3/16	7.5-8.5	15.1	<0.0100	<0.0122	<0.0135	<0.0526	<0.0137
SB-87	11/3/16	4-5	5.2	<0.0106	<0.0129	<0.0143	<0.0556	<0.0145
SB-87	11/3/16	5-8	351.9	<0.108	<0.0132	0.0317 J	20.400	<0.149
SB-88	11/3/16	7-8	778.1	0.0798 J	1.750	4.360	56.300	<0.107

Notes:

- 1) **Bold** = detected concentration, laboratory reporting limit, or method detection limit exceeds an applicable Tier 1 SRO listed in 35 IAC Part 742 based on the land use and groundwater classification designated below
- 2) For the soil ingestion and outdoor inhalation exposure routes, the SROs for industrial/commercial land use and construction workers were utilized for on-site sample locations, and the SROs for residential land use and construction workers were utilized for off-site sample locations.
- 3) For the SCGIER, Class I SROs were utilized for on-site and off-site sample locations.
- 4) <0.0122 = concentration less than the laboratory reporting limit or method detection limit
- 5) J = estimated concentration above the adjusted method detection limit and below the adjusted reporting limit
- 6) Shaded cell = not applicable, not available, or sample location was resampled

TABLE 6

Soil Characterization Results

Shivam Energy, Inc.
 399 West Liberty Street
 Wauconda, Lake County, Illinois 60084

Sample ID	Date Sampled	Sample Depth (feet bis)	PID Reading (ppm)	Geochemical and Geotechnical Parameters																
				Total Organic Carbon (mg/kg)	pH (---)	Reactive Cyanide (mg/kg)	Reactive Sulfide (mg/kg)	Grain Size Analysis (---)	Visual Soil Classification (---)	Total Porosity (%)	Moisture Content (%)	Dry Bulk Density (pcf)	Wet Bulk Density (pcf)	Specific Gravity (---)	TPH Gasoline Range Organics (mg/kg)	Chemical Oxygen Demand (mg/L)	Fraction of Organic Carbon (%)			
MP-2	4/11/05	1-3	0.5	14,000																
MP-2	4/11/05	5-6	0.7	19,000																
MP-3	4/11/06	6-7	238		7.2															
SB-32	6/11/06	7-9.5	414			<0.025	<20													
SB-32	6/11/06	9.5-11	NA					97% Sand 3% Silt	Dark grayish brown, fine grained SAND (SP)	34.4	17.2	108.6	127.2	2.65						
SB-33	1/18/07	10-11	31																	
SB-34	1/18/07	8-10	1,333																	
SB-35	1/18/07	8-10	118																	
SB-36	1/18/07	10-11	0.3																	
SB-37	1/18/07	6-8	0.4																	
SB-38	12/11/07	2-3	0.1																	
SB-38	12/11/07	3-4	0.1																	
SB-39	8/7/08	14.25-15.25	NA																	
SB-40	8/7/08	16-17	0																	

Notes:

Table 7

DPE System Influent Water Analytical Results - Fe and Total Hardness

**Shivam Energy, Inc.
399 West Liberty Street
Wauconda, Lake County, Illinois 60084**

Sample ID	Sample Date	Iron (mg/L)	Total Hardness (mg/L)	Alkalinity (mg/L)	pH
Influent	5/7/15	4.260	488.000		
Influent	6/9/15			357	7.8

Notes:

APPENDIX A

AMENDED CORRECTIVE ACTION BUDGET



Illinois Environmental Protection Agency

Bureau of Land • 1021 N. Grand Avenue E. • P.O. Box 19276 • Springfield • Illinois • 62794-9276

General Information for the Budget and Billing Forms

LPC #: 0971855024 County: Lake

City: Wauconda Site Name: Shivam Energy, Inc.

Site Address: 399 West Liberty Street

IEMA Incident No.: 892744 903199

IEMA Notification Date: Dec 27, 1989 Oct 30, 1990

Date this form was prepared: Jan 12, 2017

This form is being submitted as a (check one, if applicable):

- Budget Proposal
- Budget Amendment (Budget amendments must include only the costs over the previous budget.)
- Billing Package

Please provide the name(s) and date(s) of report(s) documenting the costs requested:

Name(s): _____

Date(s): _____

This package is being submitted for the site activities indicated below:

35 III. Adm. Code 734:

- Early Action
- Free Product Removal after Early Action
- Site Investigation Stage 1: Stage 2: Stage 3:
- Corrective Action Actual Costs

35 III. Adm. Code 732:

- Early Action
- Free Product Removal after Early Action
- Site Classification
- Low Priority Corrective Action
- High Priority Corrective Action

35 III. Adm. Code 731:

- Site Investigation
- Corrective Action

General Information for the Budget and Billing Forms

The following address will be used as the mailing address for checks and any final determination letters regarding payment from the Fund.

Pay to the order of: Shivam Energy, Inc.

Send in care of: Shawn Rodeck

Address: P.O. Box 825

City: Warrenville

State: IL

Zip: 60555-0825

The payee is the: Owner Operator (Check one or both.)

Rajemi Palil
 Signature of the owner or operator of the UST(s) (required)

W-9 must be submitted.
[Click here to print off a W-9 Form.](#)

Number of petroleum USTs in Illinois presently owned or operated by the owner or operator; any subsidiary, parent or joint stock company of the owner or operator; and any company owned by any parent, subsidiary or joint stock company of the owner or operator:

Fewer than 101: 101 or more:

Number of USTs at the site: 4 (Number of USTs includes USTs presently at the site and USTs that have been removed.)

Number of incidents reported to IEMA for this site: 3

Incident Numbers assigned to the site due to releases from USTs: 892744 903199

Please list all tanks that have ever been located at the site and tanks that are presently located at the site.

Product Stored in UST	Size (gallons)	Did UST have a release?	Incident No.	Type of Release Tank Leak / Overfill / Piping Leak
Gasoline	6,000	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	892744	Tank Leak
(same as UST above)	6,000	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	903199	Tank Leak
Gasoline	6,000	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	892744	Tank Leak
(same as UST above)	6,000	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	903199	Tank Leak
Gasoline	10,000	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	NA	
Gasoline	10,000	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	NA	
		Yes <input type="checkbox"/> No <input type="checkbox"/>		
		Yes <input type="checkbox"/> No <input type="checkbox"/>		
		Yes <input type="checkbox"/> No <input type="checkbox"/>		

Add More Rows

Undo Last Add

Budget Summary

Choose the applicable regulation: 734 732

734	Free Product	Stage 1 Site Investigation	Stage 2 Site Investigation	Stage 3 Site Investigation	Corrective Action
					Proposed
Drilling and Monitoring Well Costs Form	\$	\$	\$	\$	\$ 9,594.38
Analytical Costs Form	\$	\$	\$	\$	\$ 3,670.15
Remediation and Disposal Costs Form	\$	\$	\$	\$	\$ 41,032.48
UST Removal and Abandonment Costs Form	\$	\$	\$	\$	\$.00
Paving, Demolition, and Well Abandonment Costs Form	\$	\$	\$	\$	\$ 910.00
Consulting Personnel Costs Form	\$	\$	\$	\$	\$ 112,599.07
Consultant's Materials Costs Form	\$	\$	\$	\$	\$ 11,992.97
Handling Charges Form	Handling charges will be determined at the time a billing package is submitted to the Illinois EPA. The amount of allowable handling charges will be determined in accordance with the Handling Charges Form.				
Total	\$	\$	\$	\$	\$ 179,799.05

Drilling and Monitoring Well Costs Form

1. Drilling

Number of Borings to Be Drilled	Type HSA/PUSH/ Injection	Depth (feet) of Each Boring	Total Feet Drilled	Reason for Drilling
4	PUSH	15.00	60.00	SB-85 to SB-88 (above previously approved budget)

Subpart H minimum payment amount applies.

	Total Feet	Rate per Foot (\$)	Total Cost (\$)
Total Feet via HSA:			
Total Feet via PUSH:	60.00	22.30	1,338.00
Total Feet for Injection via PUSH:			
Total Drilling Costs:			1,501.84

2. Monitoring / Recovery Wells

Number of Wells	Type of Well HSA / PUSH / 4" or 6" Recovery / 8" Recovery	Diameter of Well (inches)	Depth of Well (feet)	Total Feet of Wells to Be Installed (\$)

Well Installation	Total Feet	Rate per Foot (\$)	Total Cost (\$)
Total Feet via HSA:			
Total Feet via PUSH:			
Total Feet of 4" or 6" Recovery:			
Total Feet of 8" or Greater Recovery:			
Total Well Costs:			

Total Drilling and Monitoring Well Costs:	\$1,501.84
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Drilling and Monitoring Well Costs Form

1. Drilling

Number of Borings to Be Drilled	Type HSA/PUSH/ Injection	Depth (feet) of Each Boring	Total Feet Drilled	Reason for Drilling
3	PUSH	15.00	45.00	Post-DPE system shutdown resampling of SB-53, SB-76, and SB-83

Subpart H minimum payment amount applies.

	Total Feet	Rate per Foot (\$)	Total Cost (\$)
Total Feet via HSA:			
Total Feet via PUSH:	45.00		
Total Feet for Injection via PUSH:			
Total Drilling Costs:			1,501.84

2. Monitoring / Recovery Wells

Number of Wells	Type of Well HSA / PUSH / 4" or 6" Recovery / 8" Recovery	Diameter of Well (inches)	Depth of Well (feet)	Total Feet of Wells to Be Installed (\$)

Well Installation	Total Feet	Rate per Foot (\$)	Total Cost (\$)
Total Feet via HSA:			
Total Feet via PUSH:			
Total Feet of 4" or 6" Recovery:			
Total Feet of 8" or Greater Recovery:			
Total Well Costs:			

Total Drilling and Monitoring Well Costs:	\$1,501.84
--	-------------------

Drilling and Monitoring Well Costs Form

1. Drilling

Number of Borings to Be Drilled	Type HSA/PUSH/ Injection	Depth (feet) of Each Boring	Total Feet Drilled	Reason for Drilling
7	PUSH	30.00	210.00	SB-89 through SB-94 and SB-97

Subpart H minimum payment amount applies.

	Total Feet	Rate per Foot (\$)	Total Cost (\$)
Total Feet via HSA:			
Total Feet via PUSH:	210.00	22.53	4,731.30
Total Feet for Injection via PUSH:			
Total Drilling Costs:			4,731.30

2. Monitoring / Recovery Wells

Number of Wells	Type of Well HSA / PUSH / 4" or 6" Recovery / 8" Recovery	Diameter of Well (inches)	Depth of Well (feet)	Total Feet of Wells to Be Installed (\$)
3	HSA	2.00	30.00	90.00

Well Installation	Total Feet	Rate per Foot (\$)	Total Cost (\$)
Total Feet via HSA:	90.00	20.66	1,859.40
Total Feet via PUSH:			
Total Feet of 4" or 6" Recovery:			
Total Feet of 8" or Greater Recovery:			
Total Well Costs:			1,859.40

Total Drilling and Monitoring Well Costs:	\$6,590.70
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Analytical Costs Form

Laboratory Analysis	Number of Samples		Cost (\$) per Analysis		Total per Parameter
Chemical Analysis					
BETX Soil with MTBE EPA 8260	16	X	38.00	=	\$608.00
BETX Water with MTBE EPA 8260	46	X	38.00	=	\$1,748.00
COD (Chemical Oxygen Demand)		X		=	
Corrosivity		X		=	
Flash Point or Ignitability Analysis EPA 1010	1	X	41.29	=	\$41.29
Fraction Organic Carbon Content (f _{OC}) ASTM-D 2974-00		X		=	
Fat, Oil, & Grease (FOG)		X		=	
LUST Pollutants Soil - analysis must include volatile, base/neutral, polynuclear aromatics and metals list in Section 732. Appendix B and 734. Appendix B		X		=	
Dissolved Oxygen (DO)		X		=	
Paint Filter (Free Liquids)	1	X	17.52	=	\$17.52
PCB / Pesticides (combination)		X		=	
PCBs		X		=	
Pesticides		X		=	
pH	1	X	17.52	=	\$17.52
Phenol		X		=	
Polynuclear Aromatics PNA, or PAH SOIL EPA 8270		X		=	
Polynuclear Aromatics PNA, or PAH WATER EPA 8270		X		=	
Reactivity		X		=	
SVOC - Soil (Semi-Volatile Organic Compounds)		X		=	
SVOC - Water (Semi-Volatile Organic Compounds)		X		=	
TKN (Total Kjeldahl) "nitrogen"		X		=	
TPH (Total Petroleum Hydrocarbons)		X		=	
VOC (Volatile Organic Compounds) - Soil (Non-Aqueous)		X		=	
VOC (Volatile Organic Compounds) - Water		X		=	
BTEX, MTBE, and THC as Gas TO-15	3	X	190.00	=	\$570.00
		X		=	
		X		=	
		X		=	
		X		=	
Geo-Technical Analysis					
Soil Bulk Density (p _b) ASTM D2937-94		X		=	
Ex-situ Hydraulic Conductivity / Permeability		X		=	
Moisture Content (w) ASTM D2216-92 / D4643-93		X		=	
Porosity		X		=	
Rock Hydraulic Conductivity Ex-situ		X		=	
Sieve / Particle Size Analysis ASTM D422-63 / D1140-54		X		=	
Soil Classification ASTM D2488-90 / D2487-90		X		=	
Soil Particle Density (p _s) ASTM D854-92		X		=	
		X		=	
		X		=	
		X		=	

Analytical Costs Form

Metals Analysis					
Soil preparation fee for Metals TCLP Soil (one fee per soil sample)	2	X	98.87	=	\$197.74
Soil preparation fee for Metals Total Soil (one fee per soil sample)	1	X	20.01	=	\$20.01
Water preparation fee for Metals Water (one fee per water sample)		X		=	
Arsenic TCLP Soil		X		=	
Arsenic Total Soil		X		=	
Arsenic Water		X		=	
Barium TCLP Soil		X		=	
Barium Total Soil		X		=	
Barium Water		X		=	
Cadmium TCLP Soil		X		=	
Cadmium Total Soil		X		=	
Cadmium Water		X		=	
Chromium TCLP Soil		X		=	
Chromium Total Soil		X		=	
Chromium Water		X		=	
Cyanide TCLP Soil		X		=	
Cyanide Total Soil		X		=	
Cyanide Water		X		=	
Iron TCLP Soil		X		=	
Iron Total Soil		X		=	
Iron Water		X		=	
Lead TCLP Soil	1	X	20.01	=	\$20.01
Lead Total Soil	1	X	20.01	=	\$20.01
Lead Water		X		=	
Mercury TCLP Soil		X		=	
Mercury Total Soil		X		=	
Mercury Water		X		=	
Selenium TCLP Soil		X		=	
Selenium Total Soil		X		=	
Selenium Water		X		=	
Silver TCLP Soil		X		=	
Silver Total Soil		X		=	
Silver Water		X		=	
Metals TCLP Soil (a combination of all metals) RCRA		X		=	
Metals Total Soil (a combination of all metals) RCRA		X		=	
Metals Water (a combination of all metals) RCRA		X		=	
Benzene TCLP Soil	1	X	42.55	=	\$42.55
TerraCore (SB-85 to SB-88)	4	X	12.39	=	\$49.56
Ice	2	X	2.50	=	\$5.00
		X		=	
Other					
EnCore® Sampler, purge-and-trap sampler, or equivalent sampling device	10	X	12.52	=	\$125.20
Sample Shipping per sampling event ¹	3	X	62.58	=	\$187.74

¹A sampling event, at a minimum, is all samples (soil and groundwater) collected in a calendar day.

Total Analytical Costs: \$ 3,670.15

Remediation and Disposal Costs Form

A. Conventional Technology

Excavation, Transportation, and Disposal of contaminated soil and/or the 4-foot backfill material removal during early action activities:

Number of Cubic Yards	Cost per Cubic Yard (\$)	Total Cost

Backfilling the Excavation:

Number of Cubic Yards	Cost per Cubic Yard (\$)	Total Cost

Overburden Removal and Return:

Number of Cubic Yards	Cost per Cubic Yard (\$)	Total Cost

B. Alternative Technology

Alternative Technology Selected:	DPE System	
Number of Cubic Yards of Soil to Be Remediated		
Total Non-Consulting Personnel Costs Summary Sheet (\$)		3,360.00
Total Remediation Materials Costs Summary Sheet (\$)		29,224.72
Total Cost of the System		\$32,584.72

Remediation and Disposal Costs Form

C. Groundwater Remediation and/or Free Product Removal System

Total Non-Consulting Personnel Costs Summary Sheet (\$)	
Total Remediation Materials Costs Summary Sheet (\$)	
Total Cost of the System	

D. Groundwater and/or Free Product Removal and Disposal

Subpart H minimum payment amount applies.

Number of Gallons	Cost per Gallon (\$)	Total Cost (\$)

E. Drum Disposal

Subpart H minimum payment amount applies.

Number of Drums of Solid Waste	Cost per Drum (\$)	Total Cost (\$)
12	312.88	3,754.56
15	312.88	4,693.20
Number of Drums of Liquid Waste	Cost per Drum (\$)	Total Cost (\$)
Total Drum Disposal Costs		8,447.76

Total Remediation and Disposal Costs:	\$41,032.48
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Non-Consulting Personnel Costs Summary Sheet

Employee Name	Personnel Title	Hours	Rate (\$)	Total Cost
Task				

Van-Hoesen Industries, Inc.	Senior Technician	32.00	105.00	\$3,360.00
Technician to help lift and remove AS trays followed by scraping scaling and reinstallation quarterly 4/2017 through 4/2018				

Total of Non-Consulting Personnel Costs	\$3,360.00
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Remediation Materials Costs Summary Sheet

Materials, Equipment, or Field Purchase	Time or Amount Used	Rate (\$)	Unit	Total Cost
Subcontractor (if applicable)				
12/10/15 - AT&T	1.00	69.65	each	\$69.65
Telephone service for system				
12/28/15 - Commonwealth Edison	1.00	218.21	each	\$218.21
Electrical service for system				
1/10/16 - AT&T	1.00	71.47	each	\$71.47
Telephone service for system				
1/27/16 - Commonwealth Edison	1.00	351.30	each	\$351.30
Electrical service for system				
Blue Ribbon Electrical, Inc.	1.00	1,169.76	total	\$1,169.76
Electrician services for installation of heat trace for remediation system piping				
2/10/16 - AT&T	1.00	69.90	each	\$69.90
Telephone service for system				
2/25/16 - Commonwealth Edison	1.00	301.62	each	\$301.62
Electrical service for system				
1/28/16 - Blue Ribbon Electrical, Inc.	1.00	281.00	total	\$281.00
Electrical contractor for system check of heat trace system				
3/10/16 - AT&T	1.00	69.90	each	\$69.90
Telephone service for system				

Materials, Equipment, or Field Purchase	Time or Amount Used	Rate (\$)	Unit	Total Cost
Subcontractor (if applicable)				
3/28/16 - Commonwealth Edison	1.00	301.78	each	\$301.78
Electrical service for system				
4/10/16 - AT&T	1.00	72.78	each	\$72.78
Telephone service for system				
4/25/16 - Commonwealth Edison	1.00	300.03	each	\$300.03
Electrical service for system				
5/10/16 - AT&T	1.00	69.88	each	\$69.88
Telephone service for system				
5/25/16 - Commonwealth Edison	1.00	453.45	each	\$453.45
Electrical service for system				
6/10/16 - AT&T	1.00	71.43	each	\$71.43
Telephone service for system				
6/24/16 - Commonwealth Edison	1.00	102.61	each	\$102.61
Electrical service for system				
7/10/16 - AT&T	1.00	70.76	each	\$70.76
Telephone service for system				
7/25/16 - Commonwealth Edison	1.00	37.02	each	\$37.02
Electrical service for system				

Materials, Equipment, or Field Purchase	Time or Amount Used	Rate (\$)	Unit	Total Cost
Subcontractor (if applicable)				
8/10/16 - AT&T	1.00	70.56	each	\$70.56
Telephone service for system				
8/11/16 - Blue Ribbon Electrical	1.00	486.00	each	\$486.00
Electrical service				
08/22/16 - Commonwealth Edison	1.00	78.41	each	\$78.41
Electrician services for replacement of electric motor for vacuum pump				
9/10/16 - AT&T	1.00	70.56	each	\$70.56
Telephone service for system				
9/22/16 - Commonwealth Edison	1.00	32.61	each	\$32.61
Electrical service for system				
10/10/16 - AT&T	1.00	132.82	each	\$132.82
Telephone service for system				
10/20/16 - Commonwealth Edison	1.00	56.12	each	\$56.12
Electrical service for system				
11/10/16 - AT&T	1.00	48.78	each	\$48.78
Telephone service for system				
11/21/16 - Commonwealth Edison	1.00	97.61	each	\$97.61
Electrical service for system				

Materials, Equipment, or Field Purchase	Time or Amount Used	Rate (\$)	Unit	Total Cost
Subcontractor (if applicable)				
8/02/16 - Factory Mation	1.00	508.00	each	\$508.00
AC Motor replacement for vacuum pump				
8/05/16 - Ace Hardware	1.00	5.55	each	\$5.55
Hardware Products - Fasteners				
Redux 390 Technology	12.00	890.00	month	\$10,680.00
Redux 390 drum delivery to the site from April 2017 through April 2018				
Van Hoesen Industries, Inc.	4.00	150.00	event	\$600.00
Box truck for quarterly air stripper cleaning from July 2017 through April 2018				
AT&T	12.00	75.00	month	\$900.00
Telephone service for the system from April 2017 through April 2018				
Commonwealth Edison	12.00	321.07	month	\$3,852.84
Electrical service for the system from April 2017 through April 2018				
TIGG Corporation	2.00	1,459.00	each	\$2,918.00
1,000 pounds of re-activated carbon to replace spent carbon in VGAC units semi-annually				
Aronson Fence Co., Inc.	1.00	2,825.00	each	\$2,825.00
Fence and installation per the Village of Wauconda code requirements				
Delta-Therm	1.00	1,070.25	total	\$1,070.25
Heat trace components and parts for outside piping				

Materials, Equipment, or Field Purchase	Time or Amount Used	Rate (\$)	Unit	Total Cost
Subcontractor (if applicable)				
Stoddard Silencers, Inc.	1.00	507.60	total	\$507.60
Silencer for exhaust of vacuum blower installed for noise concerns with adjacent residential owner				
NEEP Systems	1.00	201.46	total	\$201.46
Replacement floats for transfer pump operation in remediation system.				

Total of Remediation Materials Costs	\$29,224.72
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Paving, Demolition, and Well Abandonment Costs Form

A. Concrete and Asphalt Placement/Replacement

Number of Square Feet	Asphalt or Concrete	Thickness (inches)	Cost (\$) per Square Foot	Replacement or Placement for an Engineered Barrier	Total Cost
200.00	Concrete	5.00	4.55	Placement	\$910.00

Total Concrete and Asphalt Placement/Replacement Costs:	\$910.00
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B. Building Destruction or Dismantling and Canopy Removal

Item to Be Destroyed, Dismantled, or Removed	Unit Cost (\$)	Total Cost (\$)

Total Building Destruction or Dismantling and Canopy Removal Costs:	
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Consulting Personnel Costs Form

Employee Name		Personnel Title	Hours	Rate* (\$)	Total Cost
Remediation Category	Task				
Kimberly Henkel		Senior Acct. Technician	8.00	68.41	\$547.28
CA-Pay	Reimbursement prep				
Kimberly Henkel		Senior Admin. Assistant	.75	55.76	\$41.82
CCAP	Document copying and shipping				
Marcos Czako		Geologist III	12.25	109.04	\$1,335.74
CCAP	CAP prep, field prep, system install, O&M				
Shawn Rodeck		Senior Project Manager	3.75	123.91	\$464.66
CCAP	Project management				
Philip Titean		Scientist I	6.75	74.34	\$501.80
CCAP	Project management				
Shawn Rodeck		Senior Acct. Technician	8.00	68.41	\$547.28
CA-Pay	Reimbursement prep				
Philip Titean		Account Technician I	2.50	43.37	\$108.42
CA-Pay	Reimbursement prep				
Shawn Rodeck		Senior Prof. Engineer	5.25	161.09	\$845.71
CA-Pay	Review and certification for reimbursement, chemical feed evaluation				
Shawn Rodeck		Engineer III	10.25	123.91	\$1,270.08
CCAP	O&M troubleshooting, heat trace, review response				

Employee Name		Personnel Title	Hours	Rate* (\$)	Total Cost
Remediation Category	Task				
Randy Wilson		Senior Technician	56.50	80.54	\$4,550.51
CCA-Field	O&M, winterize DPE system				
Marcos Czako		Geologist III	10.25	109.04	\$1,117.63
CCA-Field	O&M, winterize DPE system				
Randy Wilson		Senior Technician	1.00	80.54	\$80.54
CCAP	Project management				
Kim Miller		Senior Project Manager	.25	123.91	\$30.98
CCAP	Project management				
Meyer Design		Senior Draftperson/CAD	7.00	70.19	\$491.36
CCAP	Map for site work				
Kimberly Henkel		Senior Acct. Technician	14.25	68.14	\$971.00
CA-Pay	Reimbursement prep				
Marcos Czako		Senior Project Manager	2.75	123.91	\$340.75
CCAP	CAP prep				
Randy Wilson		Project Manager	4.00	111.52	\$446.08
CCAP	Field notes				
Kimberly Henkel		Senior Acct. Technician	15.00	68.83	\$1,032.46
CA-Pay	Reimbursement prep				

Employee Name	Personnel Title	Hours	Rate* (\$)	Total Cost
Remediation Category	Task			
Kimberly Henkel	Senior Admin. Assistant	.25	56.32	\$14.08
CCAP	Report prep			
Marcos Czako	Senior Project Manager	73.50	125.15	\$9,198.52
CCAP	Project management, ACAP prep, IEPA correspondence regarding ACAP, prep of extension letters			
Philip Titean	Account Technician I	7.25	43.80	\$317.55
CA-Pay	Reimbursement prep			
Shawn Rodeck	Senior Project Manager	4.25	125.15	\$531.89
CCAP	Project management - update letter, 363 Bangs, Gayle Carey, support field tech			
Randy Wilson	Project Manager	1.00	112.64	\$112.64
CCAP	Waste disposal management coordination			
Shawn Rodeck	Senior Prof. Engineer	1.75	162.70	\$284.73
CCAP	Project Review, cross-section review			
Randy Wilson	Senior Technician	19.25	81.34	\$1,565.85
CCA-Field	Replaced the motor on the DPE claw vacuum pump			
Marcos Czako	Geologist III	6.00	110.13	\$660.79
CCAP	Field prep			
Shawn Rodeck	Engineer III	.50	125.15	\$62.58
CCAP	Free product evaluation			

Employee Name		Personnel Title	Hours	Rate* (\$)	Total Cost
Remediation Category	Task				
Randy Wilson		Senior Technician	22.50	81.34	\$1,830.22
CCA-Field	Groundwater sampling, winterize DPE system				
Marcos Czako		Geologist III	10.50	110.13	\$1,156.38
CCA-Field	Oversee the installation of 13 SBs, soil sampling				
Meyer Design		Senior Draftperson/CAD	.50	72.88	\$36.44
CCA-Field	Map for site work				
Shawn Rodeck		Engineer III	11.75	121.49	\$1,427.51
CCAP	Troubleshoot/adjustments, AS differential				
Shawn Rodeck		Engineer III	19.25	121.49	\$2,338.68
CCA-Field	Check system operation and shut down all wells except RW-2. AS transfer pump cleaning				
Marcos Czako		Geologist III	107.00	106.91	\$11,439.37
CCAP	Project management and coordination, CAP prep, O&M, update O&M and mass removal tables				
Kimberly Henkel		Senior Acct. Technician	38.25	66.81	\$2,555.48
CA-Pay	Reimbursement preparation				
Kimberly Henkel		Senior Admin. Assistant	5.75	54.67	\$314.35
CCAP	Copying and mailing of reports				
Shawn Rodeck		Senior Prof. Engineer	10.00	157.94	\$1,579.40
CCAP	System O&M adjustments, status/discharge report				

Employee Name		Personnel Title	Hours	Rate* (\$)	Total Cost
Remediation Category	Task				
Shawn Rodeck		Senior Acct. Technician	15.00	66.81	\$1,002.15
CA-Pay	Reimbursement preparation				
Shawn Rodeck		Senior Project Manager	1.25	121.49	\$151.86
CCAP	Project management				
Shawn Rodeck		Engineer III	17.25	121.49	\$2,095.70
CCA-Field	Check the blower for leaks w/ subcontractor, reassembled, repaired the AS trays, reset the system				
Kyle Arney		Geologist III	17.50	106.91	\$1,870.93
CCA-Field	Groundwater sampling				
Kim Miller		Senior Project Manager	.50	121.49	\$60.74
CCAP	Project management				
Kim Miller		Engineer III	2.00	121.49	\$242.98
CCAP	O&M				
Kim Miller		Engineer III	2.50	121.49	\$303.73
CCA-Field	O&M				
Randy Wilson		Senior Technician	3.50	78.96	\$276.36
CCAP	Field preparation				
Meyer Design		Senior Draftperson/CAD	13.25	70.19	\$930.02
CCAP	Figures preparation				

Employee Name		Personnel Title	Hours	Rate* (\$)	Total Cost
Remediation Category	Task				
Randy Wilson		Senior Technician	24.50	80.54	\$1,973.23
CCA-Field	System O&M, new carbon/filter, install exhaust, collect readings				
Kimberly Henkel		Senior Acct. Technician	21.00	68.41	\$1,436.61
CA-Pay	Reimbursement preparation				
Marcos Czako		Geologist III	8.00	109.04	\$872.32
CCA-Field	O&M				
Shawn Rodeck		Engineer III	.25	123.91	\$30.98
CCAP	Risk evaluation				
Shawn Rodeck		Senior Project Manager	.50	123.91	\$61.95
CCAP	Project management				
Philip Titean		Account Technician I	2.00	43.37	\$86.74
CCAP-Budget	Reimbursement preparation				
Kimberly Henkel		Senior Admin. Assistant	.75	55.76	\$41.82
CCAP	Report preparation				
Randy Wilson		Senior Technician	208.00	81.34	\$16,918.72
CCA-Field	Bi-weekly O&M events from 4/1/17 through 4/1/2018				
Randy Wilson		Senior Technician	40.00	81.34	\$3,253.60
CCA-Field	Quarterly air stripper cleaning events with subcontractor personnel from 4/1/17 through 4/1/18				

Employee Name		Personnel Title	Hours	Rate* (\$)	Total Cost
Remediation Category	Task				
Kimberly Henkel	Senior Acct. Technician	60.00	68.83	\$4,129.80	
CA-Pay	Preparation of a reimbursement claim in April, July, October 2017 and January, April 2018				
Shawn Rodeck	Senior Prof. Engineer	10.00	162.70	\$1,627.00	
CCAP	Review and certification of reimbursement claims in April, July, October 2017 and January, April 2018				
Randy Wilson	Senior Technician	48.00	81.34	\$3,904.32	
CCA-Field	Post-DPE system shut down groundwater sampling events (2 quarters)				
Marcos Czako	Geologist III	48.00	110.13	\$5,286.24	
CCA-Field	Post-DPE system shut down groundwater sampling events (2 quarters)				
Marcos Czako	Geologist III	8.00	110.13	\$881.04	
CCA-Field	Oversee the post-DPE system shut down soil investigation; soil sampling				
Marcos Czako	Senior Project Manager	20.00	125.15	\$2,503.00	
CCA-Field	Obtain access agreements with residential property owners and the Wauconda Park District				
Marcos Czako	Geologist III	48.00	110.13	\$5,286.24	
CCA-Field	Oversee the installation of the proposed SBs and MWs; soil sampling				

Employee Name	Personnel Title	Hours	Rate* (\$)	Total Cost
Remediation Category	Task			
Randy Wilson	Senior Technician	8.00	81.34	\$650.72
CCA-Field	Groundwater sampling and surveying of the proposed MWs			
Marcos Czako	Geologist III	8.00	110.13	\$881.04
CCA-Field	Groundwater sampling and surveying of the proposed MWs			
Randy Wilson	Senior Technician	4.00	81.34	\$325.36
CCA-Field	Oversee 55-gallon drum pick up; waste manifest signing			
Meyer Design	Senior Draftperson/CAD	18.00	75.08	\$1,351.44
CCAP	Figures preparation for CAP and off-site access agreements			
Marcos Czako	Senior Project Manager	.75	109.05	\$81.79
CCA-Field	Fence installation coordination and management			
Shawn Rodeck	Engineer III	2.00	109.05	\$218.10
CCA-Field	Fence installation coordination and management			
Randy Wilson	Senior Technician	10.00	70.88	\$708.80
CCA-Field	Fence installation oversight			
Phil Titean	Scientist I	40.00	75.08	\$3,003.20
CCAP	Geological cross section from south side of Liberty Street to south of Village of Wauconda CWS			

*Refer to the applicable Maximum Payment Amounts document.

Total of Consulting Personnel Costs	\$112,599.07
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Consultant's Materials Costs Form

Materials, Equipment, or Field Purchase		Time or Amount Used	Rate (\$)	Unit	Total Cost
Remediation Category	Description/Justification				
12/14/16 - USPS		1.00	5.05	each	\$5.05
CCAP	Document shipping				
Truck		630.00	.54	day	\$340.20
CCA-Field	Used for consultants transportation to and from site				
Nitrile Gloves		24.00	.50	pair	\$12.00
CCA-Field	Used to protect hands during recovery activities				
2/11/16 - USPS		1.00	7.90	each	\$7.90
CA-Pay	Reimbursement prep				
2/11/16 - USPS		1.00	5.75	each	\$5.75
CA-Pay	Reimbursement prep				
3/24/16 - USPS		1.00	5.75	each	\$5.75
CCAP	Document shipping				
5/5/16 - USPS		1.00	5.75	each	\$5.75
CCAP	Document shipping				
7/07/16 - USPS		1.00	5.75	each	\$5.75
CCAP	Document Shipping				
Air Flow Meter		2.50	25.00	day	\$62.50
CCA-Field	Used to collect air samples				

Materials, Equipment, or Field Purchase		Time or Amount Used	Rate (\$)	Unit	Total Cost
Remediation Category	Description/Justification				
Truck		361.00	.54	mile	\$194.94
CCA-Field	Used for consultants transportation to and from site				
9/09/16 - USPS		1.00	.94	each	\$.94
CCAP	Document shipping				
8/05/16 - I-Pass		1.00	1.90	each	\$1.90
CCAP	Illinois Toll Road				
Nitrile Gloves		182.00	.25	each	\$45.50
CCA-Field	Used to protect hands during recovery activities				
Disposable Bailer		23.00	10.00	each	\$230.00
CCA-Field	Used to collect groundwater samples				
Rope		430.00	.05	foot	\$21.50
CCA-Field	Used to lower the bailer into the wells				
Interface Probe		5.00	48.00	day	\$240.00
CCA-Field	Used to gauge the wells				
10/20/16 - I-Pass		1.00	12.10	each	\$12.10
CCA-Field	Illinois Toll Road				
Metal Detector		1.00	25.00	day	\$25.00
CCA-Field	Used to locate monitoring wells				

Materials, Equipment, or Field Purchase		Time or Amount Used	Rate (\$)	Unit	Total Cost
Remediation Category	Description/Justification				
PID		3.50	75.00	day	\$262.50
CCA-Field	Used to screen samples during soil boring installation activities				
Baggies		122.00	.22	each	\$26.84
CCA-Field	Used to collect soil samples in for head space screening				
11/03/16 - IPass		1.00	6.20	total	\$6.20
CCA-Field	Illinois Toll Road				
Truck		1,050.00	.54	mile	\$567.00
CCA-Field	Used for consultants transportation to and from the site				
PID		14.25	75.00	day	\$1,068.75
CCA-Field	Used to screen air discharge samples to determine mass removal rates				
Nitrile Gloves		241.00	.25	pair	\$60.25
CCA-Field	Used to protect hands during O&M, recovery, and sampling activities				
Interface Probe		1.00	48.00	day	\$48.00
CCA-Field	Used to gauge the wells				
Air Flow Meter		15.50	25.00	day	\$387.50
CCA-Field	Used to collect air flow readings to determine mass removal rates				
Truck		2,450.00	.54	mile	\$1,323.00
CCA-Field	Used for consultants transportation to and from the site				

Materials, Equipment, or Field Purchase		Time or Amount Used	Rate (\$)	Unit	Total Cost
Remediation Category	Description/Justification				
PID		18.25	75.00	day	\$1,368.75
CCA-Field	Used to screen air discharge samples to determine mass removal rates				
Rope		450.00	.05	foot	\$22.50
CCA-Field	Used to lower the bailers into the wells				
Disposable Bailers		19.00	10.00	each	\$190.00
CCA-Field	Used to collect groundwater samples				
Interface Probe		1.00	48.00	day	\$48.00
CCA-Field	Used to gauge the wells				
Truck		2,870.00	.54	mile	\$1,549.80
CCA-Field	Used for consultants transportation to and from the site for the proposed activities				
PID		26.00	75.00	day	\$1,950.00
CCA-Field	Used to screen soil samples and air discharge samples during the proposed activities				
Nitrile Gloves		379.00	.25	pair	\$94.75
CCA-Field	Used to protect hands during the proposed sampling and O&M activities				
Interface Probe		4.00	48.00	day	\$192.00
CCA-Field	Used to gauge the wells during the proposed activities				
Air Flow Meter		26.00	25.00	day	\$650.00
CCA-Field	Used to collect air flow reading to determine mass removal rates during the proposed act.				

Materials, Equipment, or Field Purchase	Time or Amount Used	Rate (\$)	Unit	Total Cost
Remediation Category	Description/Justification			
Disposable Bailers	52.00	10.00	bailer	\$520.00
CCA-Field	Used to collect groundwater samples during the proposed activities			
Rope	1,040.00	.05	foot	\$52.00
CCA-Field	Used to lower the bailers into the wells during the proposed activities			
Access Agreement Shipping	6.00	8.00	agr.	\$48.00
CCA-Field	Shipping of the access agreements to the residential properties and Wauconda Park Dist.			
Amended CAP Shipping	1.00	12.00	ACAP	\$12.00
CCAP	Shipping of the Amended CAP and Budget			
Reimbursement Claim Shipping	4.00	12.00	claim	\$48.00
CA-Pay	Shipping of reimbursement claims			
Baggies	180.00	.22	baggie	\$39.60
CCA-Field	Used to collect soil samples in for head space screening for the proposed activities			
3/15/16 - Illinois Environmental Protection Agency	1.00	235.00	total	\$235.00
CCA-Field	ROSS air pollution control site fee			

Total of Consultant Materials Costs	\$11,992.97
--	--------------------

APPENDIX B

**OWNER/OPERATOR AND LICENSED PROFESSIONAL
ENGINEER/GEOLOGIST BUDGET CERTIFICATION FORM**

Owner/Operator and Licensed Professional Engineer/Geologist Budget Certification Form

I hereby certify that I intend to seek payment from the UST Fund for costs incurred while performing corrective action activities for Leaking UST incident 903199. I further certify that the costs set forth in this budget are for necessary activities and are reasonable and accurate to the best of my knowledge and belief. I also certify that the costs included in this budget are not for corrective action in excess of the minimum requirements of 415 ILCS 5/57, no costs are included in this budget that are not described in the corrective action plan, and no costs exceed Subpart H: Maximum Payment Amounts, Appendix D Sample Handling and Analysis amounts, and Appendix E Personnel Titles and Rates of 35 Ill. Adm. Code 732 or 734. I further certify that costs ineligible for payment from the Fund pursuant to 35 Ill. Adm. Code 732.606 or 734.630 are not included in the budget proposal or amendment. Such ineligible costs include but are not limited to:

- Costs associated with ineligible tanks.
- Costs associated with site restoration (e.g., pump islands, canopies).
- Costs associated with utility replacement (e.g., sewers, electrical, telephone, etc.).
- Costs incurred prior to IEMA notification.
- Costs associated with planned tank pulls.
- Legal fees or costs.
- Costs incurred prior to July 28, 1989.
- Costs associated with installation of new USTs or the repair of existing USTs.

Owner/Operator: Shivam Energy, Inc.

Authorized Representative: Rajani Patel

Title: Owner

Signature: Rajani Patel

Date: 01/04/2017

Subscribed and sworn to before me the 4 day of January, 2017

Sandra L. Rodeck
(Notary Public)

Seal:

OFFICIAL SEAL
SANDRA L. RODECK
Notary Public - State of Illinois
My Commission Expires January 24, 2020

In addition, I certify under penalty of law that all activities that are the subject of this plan, budget, or report were conducted under my supervision or were conducted under the supervision of another Licensed Professional Engineer or Licensed Professional Geologist and reviewed by me; that this plan, budget, or report and all attachments were prepared under my supervision; that, to the best of my knowledge and belief, the work described in the plan, budget, or report has been completed in accordance with the Environmental Protection Act [415 ILCS 5], 35 Ill. Adm. Code 732 or 734, and generally accepted standards and practices of my profession; and that the information presented is accurate and complete. I am aware there are significant penalties for submitting false statements or representations to the Illinois EPA, including but not limited to fines, imprisonment, or both as provided in Sections 44 and 57.17 of the Environmental Protection Act [415 ILCS 5/44 and 57.17].

L.P.E./L.P.G.: Shawn Rodeck

L.P.E./L.P.G. Seal:

L.P.E./L.P.G. Signature: Shawn Rodeck

Date: 01/12/2017

Subscribed and sworn to before me the 12 day of January, 2017

Kimberly A. Henkel
(Notary Public)

Seal:

OFFICIAL SEAL
KIMBERLY A. HENKEL
NOTARY PUBLIC - STATE OF ILLINOIS
MY COMMISSION EXPIRES 07/08/17

The Illinois EPA is authorized to require this information under 415 ILCS 5/1. Disclosure of this information is required. Failure to do so may result in the delay or denial of any budget or payment requested hereunder.

APPENDIX C

OSFM ELIGIBILITY AND DEDUCTIBLE DETERMINATION LETTER



Office of the Illinois
State Fire Marshal

"Partnering With the Fire Service to Protect Illinois"

CERTIFIED MAIL - RECEIPT REQUESTED #7008 2810 0000 2103 5290

April 28, 2009

Shivam Energy, Inc.
399 W. Liberty Street
Wauconda, IL 60084

In Re: Facility No. 2-010129
IEMA Incident No. 90-3199
Liberty Clark
399 Liberty Street
Wauconda, Lake Co., IL

Dear Applicant:

The Reimbursement Eligibility and Deductible Application received on April 24, 2009 for the above referenced occurrence has been reviewed. The following determinations have been made based upon this review.

You have filed an "Election to Proceed as Owner" and have received acceptance from the Illinois Environmental Protection Agency. It has been determined that you are eligible to seek payment of costs in excess of \$10,000. The costs must be in response to the occurrence referenced above and associated with the following tanks:

Eligible Tanks

Tank 1 6,000 gallon Gasoline
Tank 2 6,000 gallon Gasoline

You must contact the Illinois Environmental Protection Agency to receive a packet of Agency billing forms for submitting your request for payment.

An owner or operator is eligible to access the Underground Storage Tank Fund if the eligibility requirements are satisfied:

1. Neither the owner nor the operator is the United States Government,
2. The tank does not contain fuel which is exempt from the Motor Fuel Tax Law,
3. The costs were incurred as a result of a confirmed release of any of the following substances:

"Fuel", as defined in Section 1.19 of the Motor Fuel Tax Law

Aviation fuel

Heating oil

Kerosene

Used oil, which has been refined from crude oil used in a motor vehicle, as defined in Section 1.3 of the Motor Fuel Tax Law.

4. The owner or operator registered the tank and paid all fees in accordance with the statutory and regulatory requirements of the Gasoline Storage Act.
5. The owner or operator notified the Illinois Emergency Management Agency of a confirmed release, the costs were incurred after the notification and the costs were a result of a release of a substance listed in this Section. Costs of corrective action or indemnification incurred before providing that notification shall not be eligible for payment.
6. The costs have not already been paid to the owner or operator under a private insurance policy, other written agreement, or court order.
7. The costs were associated with "corrective action".

This constitutes the final decision as it relates to your eligibility and deductibility. We reserve the right to change the deductible determination should additional information that would change the determination become available. An underground storage tank owner or operator may appeal the decision to the Illinois Pollution Control Board (Board), pursuant to Section 57.9 (c) (2). An owner or operator who seeks to appeal the decision shall file a petition for a hearing before the Board within 35 days of the date of mailing of the final decision, (35 Illinois Administrative Code 105.102(a) (2)).

For information regarding the filing of an appeal, please contact:

Dorothy Gunn, Clerk
Illinois Pollution Control Board
State of Illinois Center
100 West Randolph, Suite 11-500
Chicago, Illinois 60601
(312) 814-3620

The following tanks are also listed for this site:

Tank 3 10,000 gallon Gasoline
Tank 4 10,000 gallon Gasoline

Your application indicates that there has not been a release from these tanks under this incident number. You may be eligible to seek payment of corrective action costs associated with these tanks if it is determined that there has been a release from one or more of these tanks. Once it is determined that there has been a release from one or more of these tanks you may submit a separate application for an eligibility determination to seek corrective action costs associated with this/these tanks.

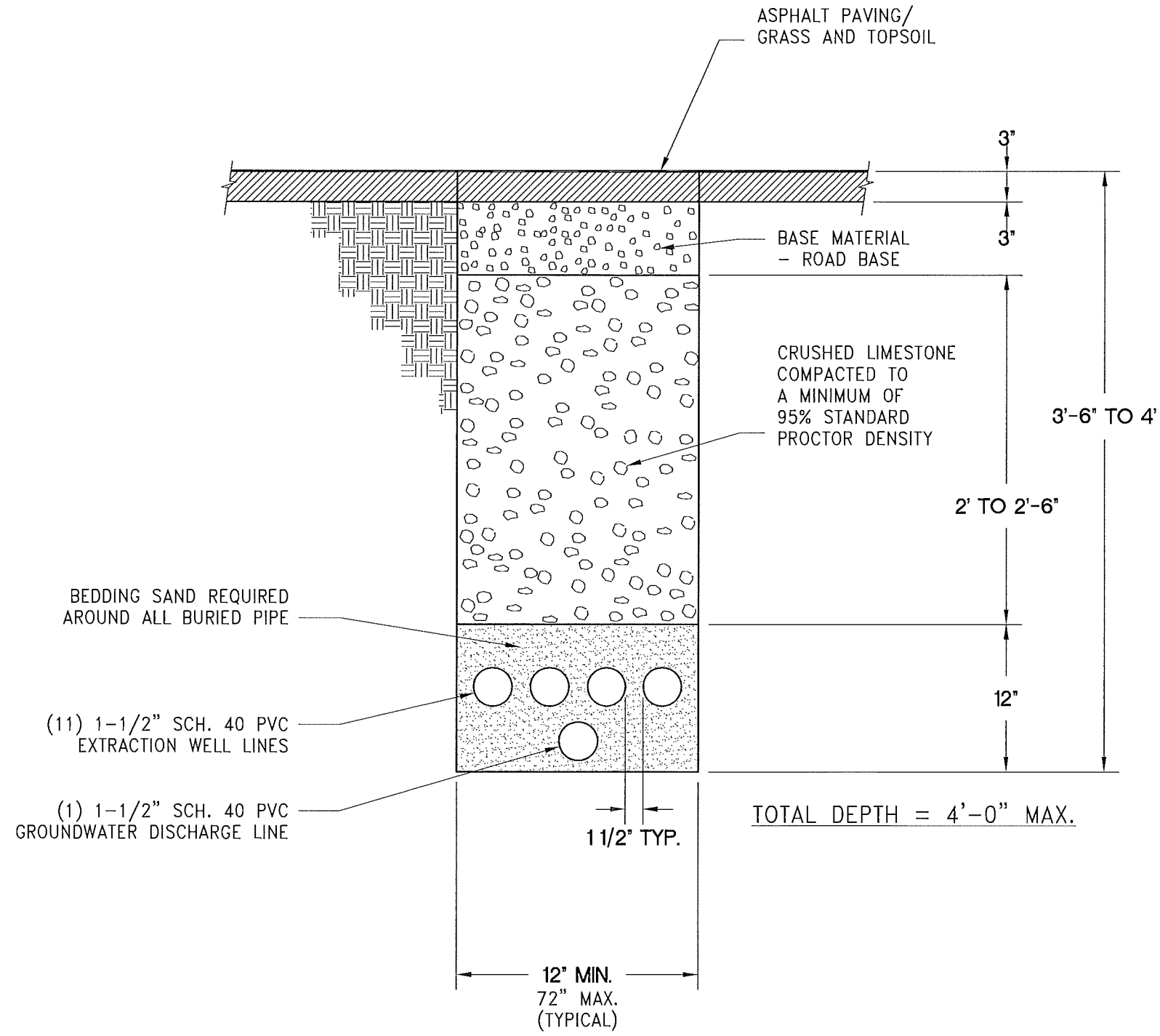
If you have any questions, please contact our Office at (217) 785-1020 or (217) 785-5878.

Sincerely,



Deanne Lock
Administrative Assistant
Division of Petroleum and Chemical Safety

cc: IEPA
Facility File



TRENCH SECTION SHOWING BACKFILL

FIGURE

10

DRAWN BY: SAA
 APPROVED BY: MIC
 SCALE: NO SCALE
 DATE: 11/21/2016
 DRAWING FILE: MD13-104

SURFACE/TRENCH BACKFILL DETAILS
 SHIVAM ENERGY, INC.
 399 WEST LIBERTY STREET
 WAUCONDA LAKE COUNTY, ILLINOIS 60084

SHIVAM ENERGY, INC.
 399 West Liberty Street
 Wauconda, IL 60084



TriCore Environmental, LLC
 2368 Corporate Lane, Suite 116
 Naperville, IL 60563
 (630) 520-9973

APPENDIX D

AIR ANALYTICAL LABORATORY REPORT AND CERTIFICATION

June 16, 2015

Marcos Czako
TriCore Environmental, LLC
1800 West Hawthorne Lane
Suite P
West Chicago, IL 60185

RE: Project: 100018 Former Clark 646
Pace Project No.: 10308631

Dear Marcos Czako:

Enclosed are the analytical results for sample(s) received by the laboratory on June 03, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carolynne Trout

Carolynne Trout
carolynne.trout@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

CERTIFICATIONS

Project: 100018 Former Clark 646
Pace Project No.: 10308631

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
A2LA Certification #: 2926.01
Alaska Certification #: UST-078
Alaska Certification #MN00064
Alabama Certification #40770
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
Colorado Certification #Pace
Connecticut Certification #: PH-0256
EPA Region 8 Certification #: 8TMS-L
Florida/NELAP Certification #: E87605
Guam Certification #: 14-008r
Georgia Certification #: 959
Georgia EPD #: Pace
Idaho Certification #: MN00064
Hawaii Certification #MN00064
Illinois Certification #: 200011
Indiana Certification#C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky Dept of Envi. Protection - DW #90062
Kentucky Dept of Envi. Protection - WW #:90062
Louisiana DEQ Certification #: 3086
Louisiana DHH #: LA140001
Maine Certification #: 2013011
Maryland Certification #: 322
Michigan DEPH Certification #: 9909

Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New York Certification #: 11647
North Carolina Certification #: 530
North Carolina State Public Health #: 27700
North Dakota Certification #: R-036
Ohio EPA #: 4150
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Oregon Certification #: MN300001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Saipan (CNMI) #:MP0003
South Carolina #:74003001
Texas Certification #: T104704192
Tennessee Certification #: 02818
Utah Certification #: MN000642013-4
Virginia DGS Certification #: 251
Virginia/VELAP Certification #: Pace
Washington Certification #: C486
West Virginia Certification #: 382
West Virginia DHHR #:9952C
Wisconsin Certification #: 999407970

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 100018 Former Clark 646
Pace Project No.: 10308631

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10308631001	Effluent Air	Air	06/01/15 14:10	06/03/15 09:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 100018 Former Clark 646
Pace Project No.: 10308631

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10308631001	Effluent Air	TO-15	MJL	7

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 100018 Former Clark 646
Pace Project No.: 10308631

Sample: Effluent Air		Lab ID: 10308631001	Collected: 06/01/15 14:10	Received: 06/03/15 09:30	Matrix: Air			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
Benzene	64.7	ug/m3	10.9	33.6		06/05/15 15:09	71-43-2	
Ethylbenzene	123	ug/m3	29.6	33.6		06/05/15 15:09	100-41-4	
Methyl-tert-butyl ether	ND	ug/m3	24.5	33.6		06/05/15 15:09	1634-04-4	
THC as Gas	646000	ug/m3	2040	33.6		06/05/15 15:09		E
Toluene	193	ug/m3	25.9	33.6		06/05/15 15:09	108-88-3	
m&p-Xylene	1110	ug/m3	59.5	33.6		06/05/15 15:09	179601-23-1	
o-Xylene	429	ug/m3	29.6	33.6		06/05/15 15:09	95-47-6	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 100018 Former Clark 646
Pace Project No.: 10308631

QC Batch: AIR/23407 Analysis Method: TO-15
QC Batch Method: TO-15 Analysis Description: TO15 MSV AIR Low Level
Associated Lab Samples: 10308631001

METHOD BLANK: 1986596 Matrix: Air
Associated Lab Samples: 10308631001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/m3	ND	0.32	06/05/15 11:31	
Ethylbenzene	ug/m3	ND	0.88	06/05/15 11:31	
m&p-Xylene	ug/m3	ND	1.8	06/05/15 11:31	
Methyl-tert-butyl ether	ug/m3	ND	0.73	06/05/15 11:31	
o-Xylene	ug/m3	ND	0.88	06/05/15 11:31	
THC as Gas	ug/m3	ND	60.8	06/05/15 11:31	
Toluene	ug/m3	ND	0.77	06/05/15 11:31	

LABORATORY CONTROL SAMPLE: 1986597

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/m3	32.5	36.1	111	64-139	
Ethylbenzene	ug/m3	44.2	56.9	129	71-136	
m&p-Xylene	ug/m3	88.3	114	129	71-134	
Methyl-tert-butyl ether	ug/m3	36.7	40.9	112	73-134	
o-Xylene	ug/m3	44.2	57.1	129	75-134	
THC as Gas	ug/m3	3520	2970	84	66-135	
Toluene	ug/m3	38.3	47.2	123	70-129	

SAMPLE DUPLICATE: 1987257

Parameter	Units	10308849004 Result	Dup Result	RPD	Max RPD	Qualifiers
Benzene	ug/m3	3.1	3.2	4	25	
Ethylbenzene	ug/m3	1.9	1.9	1	25	
m&p-Xylene	ug/m3	5.9	6.2	5	25	
Methyl-tert-butyl ether	ug/m3	ND	ND		25	
o-Xylene	ug/m3	2.0	2.0	2	25	
THC as Gas	ug/m3	351	353	1	25	
Toluene	ug/m3	8.9	9.1	3	25	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 100018 Former Clark 646
Pace Project No.: 10308631

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above adjusted reporting limit.
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
PQL - Practical Quantitation Limit.
RL - Reporting Limit.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The NELAC Institute.

ANALYTE QUALIFIERS

E Analyte concentration exceeded the calibration range. The reported result is estimated.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 100018 Former Clark 646

Pace Project No.: 10308631

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10308631001	Effluent Air	TO-15	AIR/23407		

REPORT OF LABORATORY ANALYSIS

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1050 8651



AIR: CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information: **15937** Page: 1 of 1

Section B Required Project Information:

Section C Invoice Information:

Company: **Tricare Environmental LLC** Attention: **SHAWN RODECK**

Address: **2368 Corporate Lane Suite 116 Naperville, IL 60563** Company Name: **Tricare Environmental**

Email To: **MCzako@tricareweb.com** Purchase Order No.: **100018**

Phone: **(630) 520-9973** Fax: **(630) 520-9976** Project Name: **Former Clark 646**

Requested Due Date/TAT: **100018** Project Profile #: **---**

Location of Sampling by State: **IL** Reporting Units: **mg/m³**

Method: **PM10** 3C-Fixed Gas (%) **TO3** TO3M (Methane) **TO4 (PCBs)** **TO-13 (PAH)** **TO-14** **TO-15 BTEX/MBE** **TO-15 Short List** **THE GAS 10-15**

ITEM #	Section D Required Client Information		COLLECTED		Canister Pressure		Summa Can Number	Flow Control Number	RELINQUISHED BY / AFFILIATION		ACCEPTED BY / AFFILIATION		SAMPLE CONDITIONS						
	AIR SAMPLE ID	Sample IDs MUST BE UNIQUE	DATE	TIME	Initial Field - (psig)	Final Field - (psig)			DATE	TIME	DATE	TIME	Received on Ice	Custody Sealed Cooler	Samples Intact				
1	Effluent Air		6/1/15	14:10	30	0	2788A9822		Randy Wilson	Tricare	6-1-15	15:30	6-1-15	15:30	Y/N	Y/N	Y/N	Y/N	
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			

Comments:

RELINQUISHED BY / AFFILIATION: Randy Wilson, Tricare, 6-1-15, 15:30

ACCEPTED BY / AFFILIATION: [Signature], 6-1-15, 15:30

Received on Ice: Y/N

Custody Sealed Cooler: Y/N

Samples Intact: Y/N

Temp In °C: Amb

SAMPLER NAME AND SIGNATURE: Randy Wilson

PRINT Name of SAMPLER: Randy Wilson

SIGNATURE OF SAMPLER: [Signature]

DATE SIGNED (MM/DD/YY): 06/01/2015

ORIGINAL



Document Name:
Air Sample Condition Upon Receipt
Document No.:
F-MN-A-106-rev.09

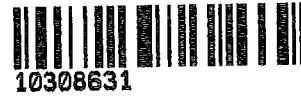
Document Revised: 26Dec2013
Page 1 of 1
Issuing Authority:
Pace Minnesota Quality Office

Air Sample Condition
Upon Receipt

Client Name:
TriCore Enviro

Project #:

WO#: **10308631**



Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

Tracking Number: *6322 3811 1104*

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No

Optional: Proj. Due Date: _____ Proj. Name: _____

Packing Material: Bubble Wrap Bubble Bags Foam None Other: _____ Temp Blank rec: Yes No

Temp. (TO17 and TO13 samples only) (°C): *X* Corrected Temp (°C): *X* Thermom. Used: B88A912167504 72337080
 B88A9132521491 80512447

Temp should be above freezing to 6°C Correction Factor: *X* Date & Initials of Person Examining Contents: *DLB 3/15*

Type of ice Received Blue Wet None

Comments:

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Media: <i>air can</i>		11.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.

Canisters		Flow Controllers		Stand Alone G	
Sample Number	Can ID	Sample Number	Can ID	Sample Number	Can ID
<i>eFluent</i>	<i>2788</i>				

CLIENT NOTIFICATION/RESOLUTION Field Data Required? Yes No
 Person Contacted: _____ Date/Time: _____
 Comments/Resolution: _____

Project Manager Review: _____ Date: _____

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)



Pace Analytical Services, Inc.
 1700 Elm Street – Suite 200
 Minneapolis, MN 55414
 Phone: 612.607.1700
 Fax: 612.607.6444

ANALYTICAL RESULTS

Client: TriCore Environmental, LLC
 Phone: 630-520-9973

Lab Project Number: 10308631
 Project Name: 100018 Former Clark 646

Lab Sample No: 10308631001
 Client Sample ID: Effluent Air

ProjSampleNum: 10308631001
 Matrix: Air

Date Collected: 06/01/15 14:10
 Date Received: 06/03/15 9:30

Parameters	Report Limit ug/m3	Results ug/m3	Report Limit ppmv	Results ppmv	DF	Analyzed	CAS No.
Air							
TO-15							
Benzene	10.9	64.7	0.0034	0.02	33.6	06/05/15 15:09 MJL	71-43-2
Ethylbenzene	29.6	123	0.0067	0.028	33.6	06/05/15 15:09 MJL	100-41-4
m&p-Xylene	59.5	1110	0.013	0.25	33.6	06/05/15 15:09 MJL	179601-23-1
Methyl-tert-butyl ether	24.5	ND	0.0067	ND	33.6	06/05/15 15:09 MJL	1634-04-4
o-Xylene	29.6	429	0.0067	0.097	33.6	06/05/15 15:09 MJL	95-47-6
THC as Gas	2040	646000	0.47	149	33.6	06/05/15 15:09 MJL	
Toluene	25.9	193	0.0068	0.05	33.6	06/05/15 15:09 MJL	108-88-3

SUPPLEMENTAL REPORT

Units Conversion Request

This page can be completed online.

The Agency is authorized to require this information under Section 4 and Title XVI of the Environmental Protection Act (415 ILCS 5/4, 5/57 - 5/57.17). Failure to disclose this information may result in a civil penalty of not to exceed \$50,000.00 for the violation and an additional civil penalty of not to exceed \$10,000.00 for each day during which the violation continues (415 ILCS 5/42). Any person who knowingly makes a false material statement or representation in any label, manifest, record, report, permit, or license, or other document filed, maintained or used for the purpose of compliance with Title XVI commits a Class 4 felony. Any second or subsequent offense after conviction hereunder is a Class 3 felony (415 ILCS 5/57.17). This form has been approved by the Forms Management Center.

**Illinois Environmental Protection Agency
Leaking Underground Storage Tank Program
Laboratory Certification for Chemical Analysis**

A. Site Identification

IEMA Incident #: 892744, 903199 IEPA LPC# (10-digit): 0971855024
Site Name: Former Clark Retail Station #646
Site Address (Not a P.O. Box): 399 West Liberty Street
City: Wauconda County: Lake ZIP Code: 60084

B. Sample Collector

I certify that:

1. Appropriate sampling equipment/methods were utilized to obtain representative samples.
2. Chain-of-custody procedures were followed in the field.
3. Sample integrity was maintained by proper preservation.
4. All samples were properly labeled.

PCW
(initial)

PCW
(initial)

PCW
(initial)

PCW
(initial)

C. Laboratory Representative

I certify that:

1. Proper chain-of-custody procedures were followed as documented on the chain-of-custody forms
2. Sample integrity was maintained by proper preservation.
3. All samples were properly labeled.

PCW
(initial)

PCW
(initial)

PCW
(initial)

This page can be completed online.

4. Quality assurance/quality control procedures were established and carried out.
5. Sample holding times were not exceeded.
6. SW-846 Analytical Laboratory Procedure (USEPA) methods were used for the analyses.
7. An accredited lab performed quantitative analysis using test methods identified in 35 IAC 186.180 (for samples collected on or after January 1, 2003).

W
(initial)

W
(initial)

W
(initial)

W
(initial)

D. Signatures

I hereby affirm that all information contained in this form is true and accurate to the best of my knowledge and belief. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sample Collector

Name: Randy Wilson

Title: Senior Technician

Company: TriCore Environmental, LLC

Address: 2368 Corporate Lane, Suite 116

City, State, ZIP: Naperville, Illinois 60563

Phone: (630) 520-9973

Signature: Randy Wilson

Date: 7/14/15

Laboratory Representative

Name: Carolynne Trout / Scott Kuz

Title: Project Manager

Company: Pace Analytical Services, Inc.

Address: 1700 Elm Street, Suite 200

City, State, ZIP: Minneapolis, MN 55414

Phone: (612) 607-1700

Signature: Scott Kuz

Date: 07/14/15

APPENDIX E

**GROUNDWATER ANALYTICAL LABORATORY REPORTS AND
CERTIFICATIONS**



May 15, 2015

Marcos Czako
TriCore Environmental, LLC.
2368 Corporate Lane
Suite 116
Naperville, IL 60563

RE: Project: 100018 FORMER CLARK 646
Pace Project No.: 40114429

Dear Marcos Czako:

Enclosed are the analytical results for sample(s) received by the laboratory on May 08, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Laurie Woelfel
laurie.woelfel@pacelabs.com
Project Manager

Enclosures



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CERTIFICATIONS

Project: 100018 FORMER CLARK 646
Pace Project No.: 40114429

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334

North Dakota Certification #: R-150
South Carolina Certification #: 83006001
Texas Certification #: T104704529-14-1
US Dept of Agriculture #: S-76505
Wisconsin Certification #: 405132750

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SAMPLE SUMMARY

Project: 100018 FORMER CLARK 646
Pace Project No.: 40114429

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40114429001	INFLUENT	Water	05/07/15 11:45	05/08/15 10:45
40114429002	INFLUENT	Water	05/07/15 13:05	05/08/15 10:45
40114429003	EFFLUENT	Water	05/07/15 11:50	05/08/15 10:45
40114429004	MW-32	Water	05/07/15 14:10	05/08/15 10:45
40114429005	MW-2	Water	05/07/15 13:10	05/08/15 10:45
40114429006	MW-27	Water	05/07/15 14:20	05/08/15 10:45
40114429007	MW-13	Water	05/07/15 13:50	05/08/15 10:45
40114429008	MW-11S	Water	05/07/15 14:00	05/08/15 10:45
40114429009	RW-3	Water	05/07/15 15:00	05/08/15 10:45
40114429010	MW-14	Water	05/07/15 14:15	05/08/15 10:45
40114429011	MW-15	Water	05/07/15 13:05	05/08/15 10:45
40114429012	MW-16	Water	05/07/15 13:15	05/08/15 10:45
40114429013	MW-17	Water	05/07/15 12:20	05/08/15 10:45
40114429014	MW-18	Water	05/07/15 14:20	05/08/15 10:45
40114429015	MW-19	Water	05/07/15 12:30	05/08/15 10:45

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SAMPLE ANALYTE COUNT

Project: 100018 FORMER CLARK 646
Pace Project No.: 40114429

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40114429001	INFLUENT	EPA 8021	PMS	6	PASI-G
40114429002	INFLUENT	EPA 6010	MMZ	2	PASI-G
40114429003	EFFLUENT	EPA 8021	PMS	6	PASI-G
40114429004	MW-32	EPA 8021	PMS	6	PASI-G
40114429005	MW-2	EPA 8021	PMS	6	PASI-G
40114429006	MW-27	EPA 8021	PMS	6	PASI-G
40114429007	MW-13	EPA 8021	LCF	6	PASI-G
40114429008	MW-11S	EPA 8021	LCF	6	PASI-G
40114429009	RW-3	EPA 8021	LCF	6	PASI-G
40114429010	MW-14	EPA 8021	PMS	6	PASI-G
40114429011	MW-15	EPA 8021	LCF	6	PASI-G
40114429012	MW-16	EPA 8021	LCF	6	PASI-G
40114429013	MW-17	EPA 8021	LCF	6	PASI-G
40114429014	MW-18	EPA 8021	LCF	6	PASI-G
40114429015	MW-19	EPA 8021	LCF	6	PASI-G

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ANALYTICAL RESULTS

Project: 100018 FORMER CLARK 646
 Pace Project No.: 40114429

Sample: INFLUENT Lab ID: 40114429001 Collected: 05/07/15 11:45 Received: 05/08/15 10:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List	Analytical Method: EPA 8021								
Benzene	40.4	ug/L	2.0	0.79	2		05/14/15 22:56	71-43-2	
Ethylbenzene	17.0	ug/L	2.0	0.79	2		05/14/15 22:56	100-41-4	
Methyl-tert-butyl ether	<0.97	ug/L	2.0	0.97	2		05/14/15 22:56	1634-04-4	
Toluene	52.3	ug/L	2.0	0.78	2		05/14/15 22:56	108-88-3	
Xylene (Total)	379	ug/L	6.0	2.5	2		05/14/15 22:56	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	106	%	80-120		2		05/14/15 22:56	98-08-8	

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ANALYTICAL RESULTS

Project: 100018 FORMER CLARK 646
Pace Project No.: 40114429

Sample: INFLUENT Lab ID: 40114429002 Collected: 05/07/15 13:05 Received: 05/08/15 10:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Iron	4260	ug/L	100	15.9	1	05/11/15 09:57	05/11/15 17:19	7439-89-6	
Total Hardness by 2340B	488000	ug/L	2000	150	1	05/11/15 09:57	05/11/15 17:19		

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ANALYTICAL RESULTS

Project: 100018 FORMER CLARK 646
 Pace Project No.: 40114429

Sample: EFFLUENT Lab ID: 40114429003 Collected: 05/07/15 11:50 Received: 05/08/15 10:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	0.72J	ug/L	1.0	0.40	1		05/14/15 19:56	71-43-2	
Ethylbenzene	<0.39	ug/L	1.0	0.39	1		05/14/15 19:56	100-41-4	
Methyl-tert-butyl ether	<0.48	ug/L	1.0	0.48	1		05/14/15 19:56	1634-04-4	
Toluene	<0.39	ug/L	1.0	0.39	1		05/14/15 19:56	108-88-3	
Xylene (Total)	<1.2	ug/L	3.0	1.2	1		05/14/15 19:56	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	106	%	80-120		1		05/14/15 19:56	98-08-8	

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ANALYTICAL RESULTS

Project: 100018 FORMER CLARK 646
 Pace Project No.: 40114429

Sample: MW-32 Lab ID: 40114429004 Collected: 05/07/15 14:10 Received: 05/08/15 10:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List	Analytical Method: EPA 8021								
Benzene	8.6J	ug/L	20.0	7.9	20		05/14/15 20:22	71-43-2	
Ethylbenzene	114	ug/L	20.0	7.9	20		05/14/15 20:22	100-41-4	
Methyl-tert-butyl ether	<9.7	ug/L	20.0	9.7	20		05/14/15 20:22	1634-04-4	
Toluene	9.6J	ug/L	20.0	7.8	20		05/14/15 20:22	108-88-3	
Xylene (Total)	1150	ug/L	60.0	24.9	20		05/14/15 20:22	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	111	%	80-120		20		05/14/15 20:22	98-08-8	D3

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ANALYTICAL RESULTS

Project: 100018 FORMER CLARK 646
 Pace Project No.: 40114429

Sample: MW-2 Lab ID: 40114429005 Collected: 05/07/15 13:10 Received: 05/08/15 10:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List	Analytical Method: EPA 8021								
Benzene	2.9	ug/L	2.5	0.99	2.5		05/14/15 21:39	71-43-2	
Ethylbenzene	85.5	ug/L	2.5	0.98	2.5		05/14/15 21:39	100-41-4	
Methyl-tert-butyl ether	<1.2	ug/L	2.5	1.2	2.5		05/14/15 21:39	1634-04-4	
Toluene	3.5	ug/L	2.5	0.97	2.5		05/14/15 21:39	108-88-3	
Xylene (Total)	795	ug/L	7.5	3.1	2.5		05/14/15 21:39	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	108	%	80-120		2.5		05/14/15 21:39	98-08-8	

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ANALYTICAL RESULTS

Project: 100018 FORMER CLARK 646
 Pace Project No.: 40114429

Sample: MW-27 Lab ID: 40114429006 Collected: 05/07/15 14:20 Received: 05/08/15 10:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List	Analytical Method: EPA 8021								
Benzene	875	ug/L	5.0	2.0	5		05/14/15 22:04	71-43-2	
Ethylbenzene	139	ug/L	5.0	2.0	5		05/14/15 22:04	100-41-4	
Methyl-tert-butyl ether	<2.4	ug/L	5.0	2.4	5		05/14/15 22:04	1634-04-4	
Toluene	15.3	ug/L	5.0	1.9	5		05/14/15 22:04	108-88-3	
Xylene (Total)	367	ug/L	15.0	6.2	5		05/14/15 22:04	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	101	%	80-120		5		05/14/15 22:04	98-08-8	

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ANALYTICAL RESULTS

Project: 100018 FORMER CLARK 646
 Pace Project No.: 40114429

Sample: MW-13 Lab ID: 40114429007 Collected: 05/07/15 13:50 Received: 05/08/15 10:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	0.72J	ug/L	1.0	0.40	1		05/14/15 12:00	71-43-2	
Ethylbenzene	<0.39	ug/L	1.0	0.39	1		05/14/15 12:00	100-41-4	
Methyl-tert-butyl ether	<0.48	ug/L	1.0	0.48	1		05/14/15 12:00	1634-04-4	
Toluene	1.9	ug/L	1.0	0.39	1		05/14/15 12:00	108-88-3	
Xylene (Total)	<1.2	ug/L	3.0	1.2	1		05/14/15 12:00	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	102	%	80-120		1		05/14/15 12:00	98-08-8	

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ANALYTICAL RESULTS

Project: 100018 FORMER CLARK 646
 Pace Project No.: 40114429

Sample: MW-11S Lab ID: 40114429008 Collected: 05/07/15 14:00 Received: 05/08/15 10:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List	Analytical Method: EPA 8021								
Benzene	2.7	ug/L	1.0	0.40	1		05/14/15 10:18	71-43-2	
Ethylbenzene	<0.39	ug/L	1.0	0.39	1		05/14/15 10:18	100-41-4	
Methyl-tert-butyl ether	<0.48	ug/L	1.0	0.48	1		05/14/15 10:18	1634-04-4	
Toluene	<0.39	ug/L	1.0	0.39	1		05/14/15 10:18	108-88-3	
Xylene (Total)	<1.2	ug/L	3.0	1.2	1		05/14/15 10:18	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	102	%	80-120		1		05/14/15 10:18	98-08-8	

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ANALYTICAL RESULTS

Project: 100018 FORMER CLARK 646
 Pace Project No.: 40114429

Sample: RW-3 Lab ID: 40114429009 Collected: 05/07/15 15:00 Received: 05/08/15 10:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.40	ug/L	1.0	0.40	1		05/14/15 10:44	71-43-2	
Ethylbenzene	<0.39	ug/L	1.0	0.39	1		05/14/15 10:44	100-41-4	
Methyl-tert-butyl ether	<0.48	ug/L	1.0	0.48	1		05/14/15 10:44	1634-04-4	
Toluene	<0.39	ug/L	1.0	0.39	1		05/14/15 10:44	108-88-3	
Xylene (Total)	<1.2	ug/L	3.0	1.2	1		05/14/15 10:44	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	103	%	80-120		1		05/14/15 10:44	98-08-8	

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ANALYTICAL RESULTS

Project: 100018 FORMER CLARK 646
 Pace Project No.: 40114429

Sample: MW-14 Lab ID: 40114429010 Collected: 05/07/15 14:15 Received: 05/08/15 10:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	506	ug/L	10.0	4.0	10		05/14/15 22:30	71-43-2	
Ethylbenzene	367	ug/L	10.0	3.9	10		05/14/15 22:30	100-41-4	
Methyl-tert-butyl ether	<4.8	ug/L	10.0	4.8	10		05/14/15 22:30	1634-04-4	
Toluene	235	ug/L	10.0	3.9	10		05/14/15 22:30	108-88-3	
Xylene (Total)	2220	ug/L	30.0	12.5	10		05/14/15 22:30	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	110	%	80-120		10		05/14/15 22:30	98-08-8	

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ANALYTICAL RESULTS

Project: 100018 FORMER CLARK 646
 Pace Project No.: 40114429

Sample: MW-15 Lab ID: 40114429011 Collected: 05/07/15 13:05 Received: 05/08/15 10:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	1530	ug/L	10.0	4.0	10		05/15/15 09:01	71-43-2	
Ethylbenzene	<3.9	ug/L	10.0	3.9	10		05/15/15 09:01	100-41-4	
Methyl-tert-butyl ether	<4.8	ug/L	10.0	4.8	10		05/15/15 09:01	1634-04-4	
Toluene	12.6	ug/L	10.0	3.9	10		05/15/15 09:01	108-88-3	
Xylene (Total)	27.2J	ug/L	30.0	12.5	10		05/15/15 09:01	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	103	%	80-120		10		05/15/15 09:01	98-08-8	

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ANALYTICAL RESULTS

Project: 100018 FORMER CLARK 646
 Pace Project No.: 40114429

Sample: MW-16 Lab ID: 40114429012 Collected: 05/07/15 13:15 Received: 05/08/15 10:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List	Analytical Method: EPA 8021								
Benzene	3.7	ug/L	1.0	0.40	1		05/14/15 11:35	71-43-2	
Ethylbenzene	<0.39	ug/L	1.0	0.39	1		05/14/15 11:35	100-41-4	
Methyl-tert-butyl ether	1.7	ug/L	1.0	0.48	1		05/14/15 11:35	1634-04-4	
Toluene	<0.39	ug/L	1.0	0.39	1		05/14/15 11:35	108-88-3	
Xylene (Total)	<1.2	ug/L	3.0	1.2	1		05/14/15 11:35	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	102	%	80-120		1		05/14/15 11:35	98-08-8	

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ANALYTICAL RESULTS

Project: 100018 FORMER CLARK 646
Pace Project No.: 40114429

Sample: MW-17 Lab ID: 40114429013 Collected: 05/07/15 12:20 Received: 05/08/15 10:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List	Analytical Method: EPA 8021								
Benzene	1.0	ug/L	1.0	0.40	1		05/14/15 12:26	71-43-2	
Ethylbenzene	<0.39	ug/L	1.0	0.39	1		05/14/15 12:26	100-41-4	
Methyl-tert-butyl ether	7.1	ug/L	1.0	0.48	1		05/14/15 12:26	1634-04-4	
Toluene	<0.39	ug/L	1.0	0.39	1		05/14/15 12:26	108-88-3	
Xylene (Total)	<1.2	ug/L	3.0	1.2	1		05/14/15 12:26	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	101	%	80-120		1		05/14/15 12:26	98-08-8	

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ANALYTICAL RESULTS

Project: 100018 FORMER CLARK 646
 Pace Project No.: 40114429

Sample: MW-18 Lab ID: 40114429014 Collected: 05/07/15 14:20 Received: 05/08/15 10:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List	Analytical Method: EPA 8021								
Benzene	<0.40	ug/L	1.0	0.40	1		05/13/15 11:00	71-43-2	
Ethylbenzene	<0.39	ug/L	1.0	0.39	1		05/13/15 11:00	100-41-4	
Methyl-tert-butyl ether	<0.48	ug/L	1.0	0.48	1		05/13/15 11:00	1634-04-4	
Toluene	<0.39	ug/L	1.0	0.39	1		05/13/15 11:00	108-88-3	
Xylene (Total)	<1.2	ug/L	3.0	1.2	1		05/13/15 11:00	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	102	%	80-120		1		05/13/15 11:00	98-08-8	

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ANALYTICAL RESULTS

Project: 100018 FORMER CLARK 646
 Pace Project No.: 40114429

Sample: MW-19 Lab ID: 40114429015 Collected: 05/07/15 12:30 Received: 05/08/15 10:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List	Analytical Method: EPA 8021								
Benzene	<0.40	ug/L	1.0	0.40	1		05/13/15 11:25	71-43-2	
Ethylbenzene	<0.39	ug/L	1.0	0.39	1		05/13/15 11:25	100-41-4	
Methyl-tert-butyl ether	0.51J	ug/L	1.0	0.48	1		05/13/15 11:25	1634-04-4	
Toluene	<0.39	ug/L	1.0	0.39	1		05/13/15 11:25	108-88-3	
Xylene (Total)	<1.2	ug/L	3.0	1.2	1		05/13/15 11:25	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	102	%	80-120		1		05/13/15 11:25	98-08-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 100018 FORMER CLARK 646
Pace Project No.: 40114429

QC Batch: GCV/14354 Analysis Method: EPA 8021
QC Batch Method: EPA 8021 Analysis Description: 8021 GCV BTEX
Associated Lab Samples: 40114429007, 40114429008, 40114429009, 40114429011, 40114429012, 40114429013, 40114429014, 40114429015

METHOD BLANK: 1155872 Matrix: Water
Associated Lab Samples: 40114429007, 40114429008, 40114429009, 40114429011, 40114429012, 40114429013, 40114429014, 40114429015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	<0.40	1.0	05/13/15 08:52	
Ethylbenzene	ug/L	<0.39	1.0	05/13/15 08:52	
Methyl-tert-butyl ether	ug/L	<0.48	1.0	05/13/15 08:52	
Toluene	ug/L	<0.39	1.0	05/13/15 08:52	
Xylene (Total)	ug/L	<1.2	3.0	05/13/15 08:52	
a,a,a-Trifluorotoluene (S)	%	101	80-120	05/13/15 08:52	

Parameter	Units	1155873		1155874		% Rec Limits	RPD	Max RPD	Qualifiers
		Spike Conc.	LCS Result	LCSD Result	LCS % Rec				
Benzene	ug/L	20	21.5	21.5	108	108	80-120	0	20
Ethylbenzene	ug/L	20	21.5	21.7	108	109	80-120	1	20
Methyl-tert-butyl ether	ug/L	20	21.6	21.5	108	108	80-120	0	20
Toluene	ug/L	20	21.3	21.4	106	107	80-120	1	20
Xylene (Total)	ug/L	60	63.5	64.2	106	107	80-120	1	20
a,a,a-Trifluorotoluene (S)	%				102	103	80-120		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 100018 FORMER CLARK 646
 Pace Project No.: 40114429

QC Batch: GCV/14376 Analysis Method: EPA 8021
 QC Batch Method: EPA 8021 Analysis Description: 8021 GCV BTEX
 Associated Lab Samples: 40114429001, 40114429003, 40114429004, 40114429005, 40114429006, 40114429010

METHOD BLANK: 1158074 Matrix: Water
 Associated Lab Samples: 40114429001, 40114429003, 40114429004, 40114429005, 40114429006, 40114429010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	<0.40	1.0	05/14/15 18:39	
Ethylbenzene	ug/L	<0.39	1.0	05/14/15 18:39	
Methyl-tert-butyl ether	ug/L	<0.48	1.0	05/14/15 18:39	
Toluene	ug/L	<0.39	1.0	05/14/15 18:39	
Xylene (Total)	ug/L	<1.2	3.0	05/14/15 18:39	
a,a,a-Trifluorotoluene (S)	%	106	80-120	05/14/15 18:39	

Parameter	Units	1158075		1158076		% Rec Limits	RPD	Max RPD	Qualifiers	
		Spike Conc.	LCS Result	LCSD Result	% Rec					% Rec
Benzene	ug/L	20	21.1	19.9	105	100	80-120	6	20	
Ethylbenzene	ug/L	20	21.2	20.0	106	100	80-120	6	20	
Methyl-tert-butyl ether	ug/L	20	21.2	20.3	106	101	80-120	4	20	
Toluene	ug/L	20	20.9	19.8	105	99	80-120	6	20	
Xylene (Total)	ug/L	60	63.8	60.2	106	100	80-120	6	20	
a,a,a-Trifluorotoluene (S)	%				106	105	80-120			

Parameter	Units	1156300		1156301		% Rec Limits	RPD	Max RPD	Qual		
		40114429004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result					MSD Result	% Rec
Benzene	ug/L	8.6J	400	400	480	481	118	118	69-150	0	20
Ethylbenzene	ug/L	114	400	400	591	588	119	119	80-146	1	20
Methyl-tert-butyl ether	ug/L	<9.7	400	400	447	442	112	110	80-120	1	20
Toluene	ug/L	9.6J	400	400	473	474	116	116	67-156	0	20
Xylene (Total)	ug/L	1150	1200	1200	2550	2520	117	114	71-162	1	20
a,a,a-Trifluorotoluene (S)	%						110	110	80-120		

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QUALITY CONTROL DATA

Project: 100018 FORMER CLARK 646
 Pace Project No.: 40114429

QC Batch: MPRP/11865 Analysis Method: EPA 6010
 QC Batch Method: EPA 3010 Analysis Description: 6010 MET
 Associated Lab Samples: 40114429002

METHOD BLANK: 1155358 Matrix: Water
 Associated Lab Samples: 40114429002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Iron	ug/L	<15.9	100	05/12/15 14:33	
Total Hardness by 2340B	ug/L	<150	2000	05/11/15 16:23	

LABORATORY CONTROL SAMPLE: 1155359

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	5000	4810	96	80-120	
Total Hardness by 2340B	ug/L		31700			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1155360 1155361

Parameter	Units	1155360		1155361		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Max RPD	Qual
		40114192001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Iron	ug/L	54.8J	5000	5000	4910	4930	97	97	75-125	0	20
Total Hardness by 2340B	ug/L	123000			153000	154000				1	20

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 100018 FORMER CLARK 646
Pace Project No.: 40114429

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above adjusted reporting limit.
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
PQL - Practical Quantitation Limit.
RL - Reporting Limit.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The NELAC Institute.

LABORATORIES

PASI-G Pace Analytical Services - Green Bay

BATCH QUALIFIERS

Batch: GCV/14354

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 100018 FORMER CLARK 646
 Pace Project No.: 40114429

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40114429001	INFLUENT	EPA 8021	GCV/14376		
40114429003	EFFLUENT	EPA 8021	GCV/14376		
40114429004	MW-32	EPA 8021	GCV/14376		
40114429005	MW-2	EPA 8021	GCV/14376		
40114429006	MW-27	EPA 8021	GCV/14376		
40114429007	MW-13	EPA 8021	GCV/14354		
40114429008	MW-11S	EPA 8021	GCV/14354		
40114429009	RW-3	EPA 8021	GCV/14354		
40114429010	MW-14	EPA 8021	GCV/14376		
40114429011	MW-15	EPA 8021	GCV/14354		
40114429012	MW-16	EPA 8021	GCV/14354		
40114429013	MW-17	EPA 8021	GCV/14354		
40114429014	MW-18	EPA 8021	GCV/14354		
40114429015	MW-19	EPA 8021	GCV/14354		
40114429002	INFLUENT	EPA 3010	MPRP/11865	EPA 6010	ICP/10545

REPORT OF LABORATORY ANALYSIS

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(Please Print Clearly)

Company Name: **TriCore Environmental**
 Branch/Location: **Naperville**
 Project Contact: **MARCO C ZAKO**
 Phone: **630 520-9973**
 Project Number: **100 018**
 Project Name: **Former Clark Gyle**
 Project State: **IL**
 Sampled By (Print): **Randy Wilson**
 Sampled By (Sign): *Randy Wilson*
 PO #: **100018** Regulatory Program: **LUST**

CHAIN OF CUSTODY

Matrix Codes:
 A = Air, B = Bids, C = Charcoal, O = Oil, S = Soil, SI = Sludge, W = Water, DW = Drinking Water, GW = Ground Water, SW = Surface Water, WW = Waste Water, WP = Wipe

Matrix Codes:
 W = Water, DW = Drinking Water, GW = Ground Water, SW = Surface Water, WW = Waste Water, WP = Wipe

Filtered? (YES/NO) _____
 Preservation (CODE) _____

Preservation Codes:
 A=None, B=HCL, C=H2SO4, D=HNO3, E=DI Water, F=Methanol, G=NACH, H=Sodium Bisulfate Solution, I=Sodium Thiosulfate, J=Other



UPPER MIDWEST REGION
 MN: 612-607-1700 WI: 920-469-2436

Page 1 of 2
 40114429
 Page 25 of 27

PAGE LAB #	CLIENT FIELD ID	DATE	COLLECTION TIME	MATRIX	Analyses Requested		VOLUME	PICK LABEL	DATE/TIME	RECEIVED BY	DATE/TIME	RECEIVED BY	DATE/TIME	PAGE PROJECT NO.
					BTEX / MTBE	Total Iron thickness								
001	Influent	5/7/15	11:45	W	3									
002	Effluent	5/7/15	13:05	W		2								
003	Effluent	5/7/15	11:50	W	3									
004	MW-32	5/7/15	14:10	GW	3									
005	MW-2	5/7/15	13:10	GW	3									
006	MW-27	5/7/15	14:20	GW	3									
007	MW-13	5/7/15	13:50	GW	3									
008	MW-115	5/7/15	14:00	GW	3									
009	RW-3	5/7/15	15:00	GW	3									
010	MW-14	5/7/15	14:15	GW	3									
011	MW-15	5/7/15	13:05	GW	3									
012	MW-16	5/7/15	13:15	GW	3									
013	MW-17	5/7/15	13:20	GW	3									

Rush Turnaround Time Requested - Prelims
 (Rush TAT subject to approval/surcharge)
 Date Needed: _____

Transmit Prelim Rush Results by (complete what you want):
 Email #1: _____
 Email #2: _____
 Telephone: _____
 Fax: _____

Relinquished By: _____ Date/Time: _____
 Relinquished By: _____ Date/Time: _____
 Relinquished By: _____ Date/Time: _____

Received By: _____ Date/Time: _____
 Received By: _____ Date/Time: _____
 Received By: _____ Date/Time: _____

Receipt Temp = _____
 Sample Receipt pH _____
 Cooler Custody Seal Present / Not Present
 Intact / Not Intact

(Please Print Clearly)

Company Name: **TrCore Environmental**
 Branch/Location: **Naperville, IL**
 Project Contact: **MARCO SZAKO**
 Phone: **630-520-9973**
 Project Number: **1DD018**
 Project Name: **Former Clark 6YL**
 Project State: **IL**
 Sampled By (Print): **Randy Wilson**
 Sampled By (Sign): *Randy Wilson*
 PO #: **1DD018**
 Regulatory Program: **LUST**



CHAIN OF CUSTODY

As-None B-HCL C-H2SO4 D-HNO3 E-DI Water F-Methanol G-NaOH
 H-Sodium Sulfate Solution I-Sodium Thiosulfate J-Other

DATE	TIME	MATRIX	ANALYSES REQUESTED	
			Y/N	PKT LABEL
5/7/15	1430	GW	N	
5/7/15	1430	GW	N	
5/7/15	1430	GW	3	BTEX/MTBE

Upper Midwest Region
 MN: 612-607-1700 WI: 920-469-2436

Quote #: **STAWN RDDECK**
 Mail To Contact: **TrCore Environmental**
 Mail To Company: **2360 Corporate Drive Naperville, IL 60563**
 Mail To Address: **630 520-9973**

Invoice To Contact: **STAWN RDDECK**
 Invoice To Company: **TrCore Environmental**
 Invoice To Address: **2360 Corporate Drive Naperville, IL 60563**

Client Comments: **LAB COMMENTS (Lab Use Only) 3-40ml vials**

Profile #: **40114429**

Rush Turnaround Time Requested - Prelims
 (Rush TAT subject to approval/surcharge)
 Date Needed: _____

Transmit Prelim Rush Results By (complete what you want):
 Email #1: _____
 Email #2: _____
 Telephone: _____
 Fax: _____

Samples on HOLD are subject to special pricing and release of liability

Relinquished By: *[Signature]* Date/Time: **5/7/15 1435**
 Relinquished By: *[Signature]* Date/Time: **5/7/15 1435**
 Relinquished By: *[Signature]* Date/Time: **5/8/15 1045**

Received By: *[Signature]* Date/Time: **5/7/15 1635**
 Received By: *[Signature]* Date/Time: **5/7/15 1700**
 Received By: *[Signature]* Date/Time: **5/8/15 1045**

Receipt Temp = **POI** °C
 Sample Receipt pH **03** Adjusted
 Cooler Custody Seal Present / Not Present
 Intact / Not Intact

Sample Condition Upon Receipt

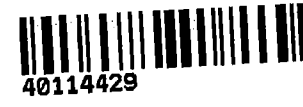
Pace Analytical Services, Inc.
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

Pace Analytical

Project #:

Client Name: TriCore

WO#: **40114429**



Courier: Fed Ex UPS Client Pace Other: CS Logistics

Tracking #:

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No

Custody Seal on Samples Present: Yes No Seals intact: Yes No

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used: SR44 Type of Ice: Water Blue Dry None Samples on ice, cooling process has begun

Cooler Temperature Uncorr: 2 / Corr: 2 Biological Tissue is Frozen: Yes No

Temp Blank Present: Yes No

Person examining contents:
Date: 5-8-15
Initials: SKW

Temp should be above freezing to 6°C for all sample except Biota.

Frozen Biota Samples should be received ≤ 0°C.

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time:
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix:	<u>W</u>	
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
(HNO3, H2SO4, NaOH + ZnAct ≥ 9, NaOH ≥ 12)	<input checked="" type="checkbox"/> HNO3 <input type="checkbox"/> H2SO4 <input type="checkbox"/> NaOH <input type="checkbox"/> NaOH + ZnAct	
exceptions: VOA, Coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed: <u>SKW</u> Lab Std #ID of preservative: Date/Time:
Headspace in VOA Vials (>6mm):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14. <u>001-1vial; 003-1vial</u> <u>5-8-15</u>
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

If checked, see attached form for additional comments

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: UW

Date: 5/8/15

This page can be completed online.

40114429

The Agency is authorized to require this information under Section 4 and Title XVI of the Environmental Protection Act (415 ILCS 5/4, 5/57 - 57.17). Failure to disclose this information may result in a civil penalty of not to exceed \$50,000.00 for the violation and an additional civil penalty of not to exceed \$10,000.00 for each day during which the violation continues (415 ILCS 5/42). Any person who knowingly makes a false material statement or representation in any label, manifest, record, report, permit, or license, or other document filed, maintained or used for the purpose of compliance with Title XVI commits a Class 4 felony. Any second or subsequent offense after conviction hereunder is a Class 3 felony (415 ILCS 5/57.17). This form has been approved by the Forms Management Center.

**Illinois Environmental Protection Agency
Leaking Underground Storage Tank Program
Laboratory Certification for Chemical Analysis**

A. Site Identification

IEMA Incident #: 892744, 903199 IEPA LPC# (10-digit): 0971855024
Site Name: Former Clark Retail Station #646
Site Address (Not a P.O. Box): 399 West Liberty Street
City: Wauconda County: Lake ZIP Code: 60084

B. Sample Collector

I certify that:

1. Appropriate sampling equipment/methods were utilized to obtain representative samples.
2. Chain-of-custody procedures were followed in the field.
3. Sample integrity was maintained by proper preservation.
4. All samples were properly labeled.

RW
(initial)
RW
(initial)
RW
(initial)
RW
(initial)

C. Laboratory Representative

I certify that:

1. Proper chain-of-custody procedures were followed as documented on the chain-of-custody forms
2. Sample integrity was maintained by proper preservation.
3. All samples were properly labeled.

UW
(initial)
UW
(initial)
UW
(initial)

40114429

This page can be completed online.

4. Quality assurance/quality control procedures were established and carried out.

UW
(initial)

5. Sample holding times were not exceeded.

UW
(initial)

6. SW-846 Analytical Laboratory Procedure (USEPA) methods were used for the analyses.

UW
(initial)

7. An accredited lab performed quantitative analysis using test methods identified in 35 IAC 186.180 (for samples collected on or after January 1, 2003).

UW
(initial)

D. Signatures

I hereby affirm that all information contained in this form is true and accurate to the best of my knowledge and belief. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sample Collector Sandy Wilson

Name: Randy Wilson

Title: Senior Technician

Company: TriCore Environmental, LLC

Address: 1800 West Hawthorne Lane, Suite P

City, State, ZIP: West Chicago, Illinois 60185

Phone: (630) 520-9973

Signature: Randy Wilson

Date: 5-7-15

Laboratory Representative

Name: Lucie Ueckel

Title: Project Manager

Company: Pace Analytical Services, Inc.

Address: 1241 Bellevue Street - Suite 9

City, State, ZIP: Green Bay, WI 54302

Phone: (920) 469-2436

Signature: Lucie Ueckel

Date: 5/15/15



June 15, 2015

Marcos Czako
TriCore Environmental, LLC.
2368 Corporate Lane
Suite 116
Naperville, IL 60563

RE: Project: 100018 FORMER CLARK 646
Pace Project No.: 40116285

Dear Marcos Czako:

Enclosed are the analytical results for sample(s) received by the laboratory on June 10, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Laurie Woelfel
laurie.woelfel@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

CERTIFICATIONS

Project: 100018 FORMER CLARK 646
Pace Project No.: 40116285

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334

North Dakota Certification #: R-150
South Carolina Certification #: 83006001
Texas Certification #: T104704529-14-1
US Dept of Agriculture #: S-76505
Wisconsin Certification #: 405132750

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 100018 FORMER CLARK 646
Pace Project No.: 40116285

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40116285001	INFLUENT	Water	06/09/15 12:15	06/10/15 10:15

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 100018 FORMER CLARK 646
Pace Project No.: 40116285

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40116285001	INFLUENT	SM 2320B	DDY	1	PASI-G
		SM 4500-H+B	DEY	1	PASI-G

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 100018 FORMER CLARK 646
 Pace Project No.: 40116285

Sample: INFLUENT Lab ID: 40116285001 Collected: 06/09/15 12:15 Received: 06/10/15 10:15 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2320B Alkalinity									
Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	357	mg/L	10.0	5.0	1		06/11/15 19:38		
4500H+ pH, Electrometric									
Analytical Method: SM 4500-H+B									
pH	7.8	Std. Units	0.10	0.010	1		06/10/15 19:25		H6

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 100018 FORMER CLARK 646
 Pace Project No.: 40116285

QC Batch: WET/22327 Analysis Method: SM 2320B
 QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
 Associated Lab Samples: 40116285001

METHOD BLANK: 1173810 Matrix: Water
 Associated Lab Samples: 40116285001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<5.0	10.0	06/11/15 13:03	

LABORATORY CONTROL SAMPLE: 1173811

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	200	196	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1173812 1173813

Parameter	Units	1173812		1173813		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		40116188001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result					
Alkalinity, Total as CaCO3	mg/L	360	200	200	530	526	85	83	80-120	1 20

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 100018 FORMER CLARK 646
 Pace Project No.: 40116285

QC Batch:	WET/22324	Analysis Method:	SM 4500-H+B
QC Batch Method:	SM 4500-H+B	Analysis Description:	4500H+B pH
Associated Lab Samples:	40116285001		

SAMPLE DUPLICATE: 1173804

Parameter	Units	40116178001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	7.6	7.6	0	5	H6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 100018 FORMER CLARK 646
Pace Project No.: 40116285

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above adjusted reporting limit.
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
PQL - Practical Quantitation Limit.
RL - Reporting Limit.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The NELAC Institute.

LABORATORIES

PASI-G Pace Analytical Services - Green Bay

ANALYTE QUALIFIERS

H6 Analysis initiated outside of the 15 minute EPA recommended holding time.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 100018 FORMER CLARK 646
Pace Project No.: 40116285

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40116285001	INFLUENT	SM 2320B	WET/22327		
40116285001	INFLUENT	SM 4500-H+B	WET/22324		

REPORT OF LABORATORY ANALYSIS

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(Please Print Clearly)

Company Name: **TriCore Environmental LLC**
 Branch/Location: **Naperville, IL**
 Project Contact: **Marcos Czako**
 Phone: **630 520-9973**
 Project Number: **100018**
 Project Name: **Former Clark 646**
 Project State: **ILLINOIS**
 Sampled By (Print): **Randy Wilson**
 Sampled By (Sign): *Randy Wilson*
 PO #: **100018** Regulatory Program: **UST**



CHAIN OF CUSTODY

Transmittal Codes: A=None B=HCL C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH
 H= Sodium Bisulfate Solution I= Sodium Thiosulfate J=Other

UPPER MIDWEST REGION
 MN: 612-607-1700 WI: 920-469-2436

Y/N	Filtered?	Preservation (YES/NO)
N		
A		
N		
A		

Analyses Requested

PHS Label	Requested
Dh	X
Alkalinity	X

PAGE LAB #	CLIENT FIELD ID	COLLECTION DATE	TIME	MATRIX
001	Influent	6-9-15	12:15	W

Quote #: **40110285**

Mail To Contact: **SHAWN RODECK**

Mail To Company: **TriCore Environmental LLC**

Mail To Address: **2368 Corporate Lane Suite 116 Naperville, IL 60563**

Invoice To Contact: **SHAWN RODECK**

Invoice To Company: **TriCore Environmental LLC**

Invoice To Address: **2368 Corporate Lane Suite 116 Naperville, IL 60563**

Invoice To Phone: **630 520-9973**

CLIENT COMMENTS: **2-250mlp AA**

LAB COMMENTS (Lab Use Only): **Profile #**

Relinquished By:	Date/Time:	Received By:	Date/Time:
<i>Randy Wilson</i>	6/9/15 15:15	<i>[Signature]</i>	6/9/15 13:15
<i>[Signature]</i>	6/9/15 17:00	<i>[Signature]</i>	6/9/15
<i>[Signature]</i>	6-10-15 10:15	<i>[Signature]</i>	6-10-15 10:15

Rush Turnaround Time Requested - Prelims (Rush TAT subject to approval/surcharge)
 Date Needed: _____

Transmit Prelim Rush Results by (complete what you want): _____

Email #1: _____

Email #2: _____

Telephone: _____

Fac: _____

Pager: _____

Special pricing and release of liability

Receipt Temp = **3.5** °C

Sample Receipt pH **OK / Adjusted**

Cooler Custody Seal **Present / Not Present**

Pract? **Not In tact**

Sample Condition Upon Receipt

Pace Analytical Services, Inc.
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

Pace Analytical

Project #:

WO#: 40116285

Client Name: TriCore

Courier: Fed Ex UPS Client Pace Other: CS Logistic

Tracking #:



40116285

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Custody Seal on Samples Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other

Ziploc bag 6-10-15 mm

Thermometer Used: ST-65 Type of Ice: Wet Blue Dry None

Samples on ice, cooling process has begun

Cooler Temperature: Uncorr: 3 / Corr: 3.5 Biological Tissue is Frozen: yes no

Temp Blank Present: yes no

Person examining contents:

Date: 6-10-15

Initials: mm

Temp should be above freezing to 6°C for all sample except Biota.

Frozen Biota Samples should be received ≤ 0°C.

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time:
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix:	<u>W</u>	
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO3, H2SO4 ≤2; NaOH+ZnAct ≥9, NaOH ≥12)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed
		Lab Std #/ID of preservative
		Date/Time:
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

HNO3 H2SO4 NaOH NaOH +ZnAct

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____

If checked, see attached form for additional comments

Comments/ Resolution: _____

Project Manager Review:

mm

Date:

6/10/15

This page can be completed online.

40116285

The Agency is authorized to require this information under Section 4 and Title XVI of the Environmental Protection Act (415 ILCS 5/4, 5/57 - 57.17). Failure to disclose this information may result in a civil penalty of not to exceed \$50,000.00 for the violation and an additional civil penalty of not to exceed \$10,000.00 for each day during which the violation continues (415 ILCS 5/42). Any person who knowingly makes a false material statement or representation in any label, manifest, record, report, permit, or license, or other document filed, maintained or used for the purpose of compliance with Title XVI commits a Class 4 felony. Any second or subsequent offense after conviction hereunder is a Class 3 felony (415 ILCS 5/57.17). This form has been approved by the Forms Management Center.

**Illinois Environmental Protection Agency
Leaking Underground Storage Tank Program
Laboratory Certification for Chemical Analysis**

A. Site Identification

IEMA Incident #: 892744, 903199 IEPA LPC# (10-digit): 0971855024

Site Name: Former Clark Retail Station #646

Site Address (Not a P.O. Box): 399 West Liberty Street

City: Wauconda County: Lake ZIP Code: 60084

B. Sample Collector

I certify that:

1. Appropriate sampling equipment/methods were utilized to obtain representative samples.
2. Chain-of-custody procedures were followed in the field.
3. Sample integrity was maintained by proper preservation.
4. All samples were properly labeled.

PA
(initial)

PA
(initial)

PA
(initial)

PA
(initial)

C. Laboratory Representative

I certify that:

1. Proper chain-of-custody procedures were followed as documented on the chain-of-custody forms
2. Sample integrity was maintained by proper preservation.
3. All samples were properly labeled.

CLW
(initial)

CLW
(initial)

CLW
(initial)

This page can be completed online.

40116285

4. Quality assurance/quality control procedures were established and carried out.

LW
(initial)

5. Sample holding times were not exceeded.

LW
(initial)

6. SW-846 Analytical Laboratory Procedure (USEPA) methods were used for the analyses.

LW
(initial)

7. An accredited lab performed quantitative analysis using test methods identified in 35 IAC 186.180 (for samples collected on or after January 1, 2003).

LW
(initial)

D. Signatures

I hereby affirm that all information contained in this form is true and accurate to the best of my knowledge and belief. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sample Collector

Name: Randy Wilson

Title: Senior Technician

Company: TriCore Environmental, LLC

Address: 2368 Corporate Lane, Suite 116

City, State, ZIP: Naperville, IL 60563

Phone: 630-520-9973

Signature: Randy Wilson

Date: 6-9-15

Laboratory Representative

Name: Laurie Weibel

Title: Project Manager

Company: Pace Analytical Services, Inc.

Address: 1241 Bellevue Street, Suite 9

City, State, ZIP: Green Bay, WI 54302

Phone: (920) 469-2436

Signature: Laurie Weibel

Date: 6/9/15

July 08, 2015

Marcos Czako
TriCore Environmental, LLC.
2368 Corporate Lane
Suite 116
Naperville, IL 60563

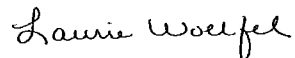
RE: Project: 100018 FORMER CLARK 646
Pace Project No.: 40117611

Dear Marcos Czako:

Enclosed are the analytical results for sample(s) received by the laboratory on July 03, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Laurie Woelfel
laurie.woelfel@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 100018 FORMER CLARK 646
Pace Project No.: 40117611

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334

North Dakota Certification #: R-150
South Carolina Certification #: 83006001
Texas Certification #: T104704529-14-1
US Dept of Agriculture #: S-76505
Wisconsin Certification #: 405132750

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 100018 FORMER CLARK 646
Pace Project No.: 40117611

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40117611001	INFLUENT	Water	07/01/15 13:15	07/03/15 10:00
40117611002	EFFLUENT	Water	07/01/15 13:20	07/03/15 10:00

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 100018 FORMER CLARK 646
Pace Project No.: 40117611

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40117611001	INFLUENT	EPA 8260	LAP	8	PASI-G
40117611002	EFFLUENT	EPA 8260	LAP	8	PASI-G

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 100018 FORMER CLARK 646
Pace Project No.: 40117611

Sample: **INFLUENT** Lab ID: **40117611001** Collected: 07/01/15 13:15 Received: 07/03/15 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	35.0	ug/L	2.0	1.0	2		07/07/15 12:59	71-43-2	
Ethylbenzene	24.0	ug/L	2.0	1.0	2		07/07/15 12:59	100-41-4	
Methyl-tert-butyl ether	<0.35	ug/L	2.0	0.35	2		07/07/15 12:59	1634-04-4	
Toluene	44.5	ug/L	2.0	1.0	2		07/07/15 12:59	108-88-3	
Xylene (Total)	441	ug/L	6.0	3.0	2		07/07/15 12:59	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	98	%	70-130		2		07/07/15 12:59	1868-53-7	
Toluene-d8 (S)	98	%	70-130		2		07/07/15 12:59	2037-26-5	
4-Bromofluorobenzene (S)	98	%	70-130		2		07/07/15 12:59	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 100018 FORMER CLARK 646

Pace Project No.: 40117611

Sample: EFFLUENT Lab ID: 40117611002 Collected: 07/01/15 13:20 Received: 07/03/15 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	<0.50	ug/L	1.0	0.50	1		07/07/15 15:15	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		07/07/15 15:15	100-41-4	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		07/07/15 15:15	1634-04-4	
Toluene	<0.50	ug/L	1.0	0.50	1		07/07/15 15:15	108-88-3	
Xylene (Total)	<1.5	ug/L	3.0	1.5	1		07/07/15 15:15	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	98	%	70-130		1		07/07/15 15:15	1868-53-7	
Toluene-d8 (S)	99	%	70-130		1		07/07/15 15:15	2037-26-5	
4-Bromofluorobenzene (S)	97	%	70-130		1		07/07/15 15:15	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 100018 FORMER CLARK 646
Pace Project No.: 40117611

QC Batch: MSV/29264 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 40117611001, 40117611002

METHOD BLANK: 1188073 Matrix: Water
Associated Lab Samples: 40117611001, 40117611002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	<0.50	1.0	07/07/15 10:43	
Ethylbenzene	ug/L	<0.50	1.0	07/07/15 10:43	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	07/07/15 10:43	
Toluene	ug/L	<0.50	1.0	07/07/15 10:43	
Xylene (Total)	ug/L	<1.5	3.0	07/07/15 10:43	
4-Bromofluorobenzene (S)	%	94	70-130	07/07/15 10:43	
Dibromofluoromethane (S)	%	97	70-130	07/07/15 10:43	
Toluene-d8 (S)	%	99	70-130	07/07/15 10:43	

LABORATORY CONTROL SAMPLE & LCSD: 1188074 1188075

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Benzene	ug/L	50	50.0	52.4	100	105	70-130	5	20	
Ethylbenzene	ug/L	50	51.1	54.6	102	109	70-132	7	20	
Methyl-tert-butyl ether	ug/L	50	47.0	51.2	94	102	48-141	9	20	
Toluene	ug/L	50	51.4	54.3	103	109	70-130	5	20	
Xylene (Total)	ug/L	150	156	164	104	109	70-132	5	20	
4-Bromofluorobenzene (S)	%				98	100	70-130			
Dibromofluoromethane (S)	%				98	99	70-130			
Toluene-d8 (S)	%				99	98	70-130			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1188449 1188450

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		40117620004 Result	Spike Conc.	Spike Conc.	MS Result					
Benzene	ug/L	8.9	50	50	62.6	61.5	107	105	70-130	2 20
Ethylbenzene	ug/L	<0.50	50	50	56.4	54.7	113	109	70-132	3 20
Methyl-tert-butyl ether	ug/L	254	50	50	306	302	105	96	48-143	2 20 E
Toluene	ug/L	<0.50	50	50	55.9	55.3	112	111	70-130	1 20
Xylene (Total)	ug/L	<1.5	150	150	171	168	114	112	70-132	2 20
4-Bromofluorobenzene (S)	%						98	99	70-130	
Dibromofluoromethane (S)	%						99	100	70-130	
Toluene-d8 (S)	%						98	99	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 100018 FORMER CLARK 646
Pace Project No.: 40117611

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above adjusted reporting limit.
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
PQL - Practical Quantitation Limit.
RL - Reporting Limit.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The NELAC Institute.

LABORATORIES

PASI-G Pace Analytical Services - Green Bay

ANALYTE QUALIFIERS

E Analyte concentration exceeded the calibration range. The reported result is estimated.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 100018 FORMER CLARK 646

Pace Project No.: 40117611

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40117611001	INFLUENT	EPA 8260	MSV/29264		
40117611002	EFFLUENT	EPA 8260	MSV/29264		

REPORT OF LABORATORY ANALYSIS

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(Please Print Clearly)

Company Name: TriCore Environmental
 Branch/Location: Naperville, IL
 Project Contact: Marcos Czako
 Phone: 630 520-9973
 Project Number: 100018
 Project Name: Former Clark 646
 Project State: IL
 Sampled By (Print): Randy Wilson
 Sampled By (Sign): Randy Wilson
 PO #: 100018
 Regulatory Program: UST

Data Package Options (billable)
 EPA Level III
 EPA Level IV
 On your sample (billable)
 NOT needed on your sample

Matrix Codes
 A = Air B = Biot
 C = Charcoal O = Oil S = Soil SI = Sludge
 W = Water DW = Drinking Water
 GW = Ground Water SW = Surface Water
 WW = Waste Water WP = Wipe

PAGE LAB # CLIENT FIELD ID
 001 Influent 7/1/15 13:15 W
 002 Effluent 7/1/15 13:20 W



CHAIN OF CUSTODY

RESERVATION (CODE)*
 FILTERED? (YES/NO)
 A=None B=HCl C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH
 H= Sodium Bisulfate Solution I= Sodium Thiosulfate J=Other

DATE	TIME	MATRIX	ANALYSES REQUESTED	
			PKT	LAB
7/1/15	13:15	W	X	BTEX/MTBE 8260
7/1/15	13:20	W	X	BTEX/MTBE 8260

Relinquished By: Randy Wilson Date/Time: 7/2/15 10:15
 Relinquished By: Shawn Rodeck Date/Time: 7/15/15 10:15
 Relinquished By: Logistics Date/Time: 7/31/15 10:00

Quote #: 4017611

Mail To Contact: SHAWN RODECK
 Mail To Company: TriCore Environmental
 Mail To Address: 2368 Corporate Lane Suite 116 Naperville, IL

Invoice To Contact: 630 520-9973
 Invoice To Company: 3-40m/l
 Invoice To Address: 3-40m/l

CLIENT COMMENTS: 3-40m/l
 LAB COMMENTS (Lab Use Only): 3-40m/l

Receipt Temp = 40.17°C
 Sample Receipt pH: OK / Adjusted
 Cooler Custody Seal: Present / Not Present
 Intact / Not Intact: Intact / Not Intact

Version 03-0501/005



Sample Condition Upon Receipt

Pace Analytical Services, Inc.
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

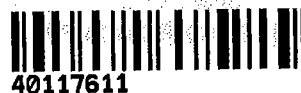
Project #

WO#: 40117611

Client Name: TriCore

Courier: Fed Ex UPS Client Pace Other: CS Logistics

Tracking #:



Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Custody Seal on Samples Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used SR-64 Type of Ice: Wet Blue Dry None Samples on ice, cooling process has begun

Cooler Temperature Uncorr: /Corr: Biological Tissue is Frozen: yes no

Temp Blank Present: yes no

Person examining contents:
Date: 7/13/15
Initials: [Signature]

Temp should be above freezing to 6°C for all sample except Biota.
Frozen Biota Samples should be received ≤ 0°C.

Comments:

Table with 15 rows of checklist items and checkboxes. Items include Chain of Custody Present, Samples Arrived within Hold Time, Short Hold Time Analysis, Rush Turn Around Time Requested, Sufficient Volume, Containers Intact, Sample Labels match COC, Headspace in VOA Vials, Trip Blank Present, etc.

Client Notification/ Resolution: Person Contacted: Date/Time: Comments/ Resolution: If checked, see attached form for additional comments

Project Manager Review: [Signature] Date: 7/14/15

40117611

This page can be completed online.

The Agency is authorized to require this information under Section 4 and Title XVI of the Environmental Protection Act (415 ILCS 5/4, 5/57 - 57.17). Failure to disclose this information may result in a civil penalty of not to exceed \$50,000.00 for the violation and an additional civil penalty of not to exceed \$10,000.00 for each day during which the violation continues (415 ILCS 5/42). Any person who knowingly makes a false material statement or representation in any label, manifest, record, report, permit, or license, or other document filed, maintained or used for the purpose of compliance with Title XVI commits a Class 4 felony. Any second or subsequent offense after conviction hereunder is a Class 3 felony (415 ILCS 5/57.17). This form has been approved by the Forms Management Center.

**Illinois Environmental Protection Agency
Leaking Underground Storage Tank Program
Laboratory Certification for Chemical Analysis**

A. Site Identification

IEMA Incident #: 892744, 903199 IEPA LPC# (10-digit): 0971855024
Site Name: Former Clark Retail Station #646
Site Address (Not a P.O. Box): 399 West Liberty Street
City: Wauconda County: Lake ZIP Code: 60084

B. Sample Collector

I certify that:

1. Appropriate sampling equipment/methods were utilized to obtain representative samples.
2. Chain-of-custody procedures were followed in the field.
3. Sample integrity was maintained by proper preservation.
4. All samples were properly labeled.

Pu
(initial)

Pu
(initial)

Pu
(initial)

Pu
(initial)

C. Laboratory Representative

I certify that:

1. Proper chain-of-custody procedures were followed as documented on the chain-of-custody forms
2. Sample integrity was maintained by proper preservation.
3. All samples were properly labeled.

Lkw
(initial)

Lkw
(initial)

Lkw
(initial)

This page can be completed online.

4011766

4. Quality assurance/quality control procedures were established and carried out.
5. Sample holding times were not exceeded.
6. SW-846 Analytical Laboratory Procedure (USEPA) methods were used for the analyses.
7. An accredited lab performed quantitative analysis using test methods identified in 35 IAC 186.180 (for samples collected on or after January 1, 2003).

UW
(initial)

UW
(initial)

UW
(initial)

UW
(initial)

D. Signatures

I hereby affirm that all information contained in this form is true and accurate to the best of my knowledge and belief. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sample Collector

Name: Randy Wilson

Title: Senior Technician

Company: TriCore Environmental, LLC

Address: 2368 Corporate Lane, Suite 116

City, State, ZIP: Naperville, Illinois 60563

Phone: (630) 520-9973

Signature: Randy Wilson

Date: 7/14/15

Laboratory Representative

Name: Laurie Woelfel

Title: Project Manager

Company: Pace Analytical Services, Inc.

Address: 1241 Bellevue Street - Suite 9

City, State, ZIP: Green Bay, WI 54302

Phone: (920) 469-2436

Signature: Laurie Woelfel

Date: 7/21/15

October 28, 2016

Marcos Czako
TriCore Environmental, LLC.
2368 Corporate Lane
Suite 116
Naperville, IL 60563

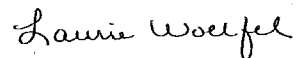
RE: Project: 100018 CLARK 646
Pace Project No.: 40140750

Dear Marcos Czako:

Enclosed are the analytical results for sample(s) received by the laboratory on October 25, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Laurie Woelfel
laurie.woelfel@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 100018 CLARK 646
Pace Project No.: 40140750

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334
Virginia VELAP ID: 460263
North Dakota Certification #: R-150

South Carolina Certification #: 83006001
Texas Certification #: T104704529-14-1
US Dept of Agriculture #: S-76505
Virginia VELAP Certification ID: 460263
Virginia VELAP ID: 460263
Wisconsin Certification #: 405132750
Wisconsin DATCP Certification #: 105-444

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 100018 CLARK 646

Pace Project No.: 40140750

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40140750001	MW-30	Water	10/20/16 14:05	10/25/16 10:00
40140750002	MW-18	Water	10/20/16 14:50	10/25/16 10:00
40140750003	MW-19	Water	10/20/16 14:40	10/25/16 10:00
40140750004	MW-17	Water	10/21/16 10:50	10/25/16 10:00
40140750005	MW-2	Water	10/20/16 13:50	10/25/16 10:00
40140750006	MW-4	Water	10/20/16 14:00	10/25/16 10:00
40140750007	MW-11S	Water	10/20/16 13:33	10/25/16 10:00
40140750008	MW-13	Water	10/20/16 13:37	10/25/16 10:00
40140750009	MW-15	Water	10/21/16 11:30	10/25/16 10:00
40140750010	MW-14	Water	10/21/16 11:40	10/25/16 10:00
40140750011	RW-10	Water	10/21/16 13:20	10/25/16 10:00
40140750012	RW-1	Water	10/21/16 13:45	10/25/16 10:00
40140750013	RW-7	Water	10/21/16 14:15	10/25/16 10:00
40140750014	RW-9	Water	10/21/16 14:38	10/25/16 10:00

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SAMPLE ANALYTE COUNT

Project: 100018 CLARK 646
Pace Project No.: 40140750

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40140750001	MW-30	EPA 8260	LAP	8	PASI-G
40140750002	MW-18	EPA 8260	LAP	8	PASI-G
40140750003	MW-19	EPA 8260	LAP	8	PASI-G
40140750004	MW-17	EPA 8260	LAP	8	PASI-G
40140750005	MW-2	EPA 8260	LAP	8	PASI-G
40140750006	MW-4	EPA 8260	LAP	8	PASI-G
40140750007	MW-11S	EPA 8260	LAP	8	PASI-G
40140750008	MW-13	EPA 8260	LAP	8	PASI-G
40140750009	MW-15	EPA 8260	LAP	8	PASI-G
40140750010	MW-14	EPA 8260	LAP	8	PASI-G
40140750011	RW-10	EPA 8260	LAP	8	PASI-G
40140750012	RW-1	EPA 8260	LAP	8	PASI-G
40140750013	RW-7	EPA 8260	LAP	8	PASI-G
40140750014	RW-9	EPA 8260	LAP	8	PASI-G

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 100018 CLARK 646
Pace Project No.: 40140750

Sample: MW-30 Lab ID: 40140750001 Collected: 10/20/16 14:05 Received: 10/25/16 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	213	ug/L	2.5	1.2	2.5		10/27/16 23:54	71-43-2	
Ethylbenzene	25.5	ug/L	2.5	1.2	2.5		10/27/16 23:54	100-41-4	
Methyl-tert-butyl ether	<0.44	ug/L	2.5	0.44	2.5		10/27/16 23:54	1634-04-4	
Toluene	6.1	ug/L	2.5	1.2	2.5		10/27/16 23:54	108-88-3	
Xylene (Total)	315	ug/L	7.5	3.8	2.5		10/27/16 23:54	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	97	%	70-130		2.5		10/27/16 23:54	1868-53-7	
Toluene-d8 (S)	98	%	70-130		2.5		10/27/16 23:54	2037-26-5	
4-Bromofluorobenzene (S)	95	%	70-130		2.5		10/27/16 23:54	460-00-4	

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ANALYTICAL RESULTS

Project: 100018 CLARK 646
Pace Project No.: 40140750

Sample: MW-18 Lab ID: 40140750002 Collected: 10/20/16 14:50 Received: 10/25/16 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	<0.50	ug/L	1.0	0.50	1		10/27/16 22:05	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		10/27/16 22:05	100-41-4	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		10/27/16 22:05	1634-04-4	
Toluene	<0.50	ug/L	1.0	0.50	1		10/27/16 22:05	108-88-3	
Xylene (Total)	<1.5	ug/L	3.0	1.5	1		10/27/16 22:05	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	101	%	70-130		1		10/27/16 22:05	1868-53-7	
Toluene-d8 (S)	100	%	70-130		1		10/27/16 22:05	2037-26-5	
4-Bromofluorobenzene (S)	87	%	70-130		1		10/27/16 22:05	460-00-4	

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ANALYTICAL RESULTS

Project: 100018 CLARK 646
Pace Project No.: 40140750

Sample: MW-19 Lab ID: 40140750003 Collected: 10/20/16 14:40 Received: 10/25/16 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	<0.50	ug/L	1.0	0.50	1		10/27/16 22:26	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		10/27/16 22:26	100-41-4	
Methyl-tert-butyl ether	0.85J	ug/L	1.0	0.17	1		10/27/16 22:26	1634-04-4	
Toluene	<0.50	ug/L	1.0	0.50	1		10/27/16 22:26	108-88-3	
Xylene (Total)	<1.5	ug/L	3.0	1.5	1		10/27/16 22:26	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	100	%	70-130		1		10/27/16 22:26	1868-53-7	
Toluene-d8 (S)	98	%	70-130		1		10/27/16 22:26	2037-26-5	
4-Bromofluorobenzene (S)	83	%	70-130		1		10/27/16 22:26	460-00-4	

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ANALYTICAL RESULTS

Project: 100018 CLARK 646
Pace Project No.: 40140750

Sample: MW-17 Lab ID: 40140750004 Collected: 10/21/16 10:50 Received: 10/25/16 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	<0.50	ug/L	1.0	0.50	1		10/27/16 22:48	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		10/27/16 22:48	100-41-4	
Methyl-tert-butyl ether	4.1	ug/L	1.0	0.17	1		10/27/16 22:48	1634-04-4	
Toluene	<0.50	ug/L	1.0	0.50	1		10/27/16 22:48	108-88-3	
Xylene (Total)	<1.5	ug/L	3.0	1.5	1		10/27/16 22:48	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	103	%	70-130		1		10/27/16 22:48	1868-53-7	
Toluene-d8 (S)	95	%	70-130		1		10/27/16 22:48	2037-26-5	
4-Bromofluorobenzene (S)	84	%	70-130		1		10/27/16 22:48	460-00-4	

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ANALYTICAL RESULTS

Project: 100018 CLARK 646
Pace Project No.: 40140750

Sample: MW-2 **Lab ID: 40140750005** Collected: 10/20/16 13:50 Received: 10/25/16 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	214	ug/L	1.0	0.50	1		10/27/16 21:21	71-43-2	
Ethylbenzene	13.2	ug/L	1.0	0.50	1		10/27/16 21:21	100-41-4	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		10/27/16 21:21	1634-04-4	
Toluene	9.4	ug/L	1.0	0.50	1		10/27/16 21:21	108-88-3	
Xylene (Total)	8.4	ug/L	3.0	1.5	1		10/27/16 21:21	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	97	%	70-130		1		10/27/16 21:21	1868-53-7	
Toluene-d8 (S)	98	%	70-130		1		10/27/16 21:21	2037-26-5	
4-Bromofluorobenzene (S)	92	%	70-130		1		10/27/16 21:21	460-00-4	

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ANALYTICAL RESULTS

Project: 100018 CLARK 646
Pace Project No.: 40140750

Sample: MW-4 Lab ID: 40140750006 Collected: 10/20/16 14:00 Received: 10/25/16 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	<0.50	ug/L	1.0	0.50	1		10/28/16 10:27	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		10/28/16 10:27	100-41-4	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		10/28/16 10:27	1634-04-4	
Toluene	<0.50	ug/L	1.0	0.50	1		10/28/16 10:27	108-88-3	
Xylene (Total)	<1.5	ug/L	3.0	1.5	1		10/28/16 10:27	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	98	%	70-130		1		10/28/16 10:27	1868-53-7	
Toluene-d8 (S)	100	%	70-130		1		10/28/16 10:27	2037-26-5	
4-Bromofluorobenzene (S)	89	%	70-130		1		10/28/16 10:27	460-00-4	

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ANALYTICAL RESULTS

Project: 100018 CLARK 646

Pace Project No.: 40140750

Sample: MW-11S Lab ID: 40140750007 Collected: 10/20/16 13:33 Received: 10/25/16 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	193	ug/L	4.0	2.0	4		10/28/16 00:16	71-43-2	
Ethylbenzene	34.8	ug/L	4.0	2.0	4		10/28/16 00:16	100-41-4	
Methyl-tert-butyl ether	<0.70	ug/L	4.0	0.70	4		10/28/16 00:16	1634-04-4	
Toluene	3.0J	ug/L	4.0	2.0	4		10/28/16 00:16	108-88-3	
Xylene (Total)	65.1	ug/L	12.0	6.0	4		10/28/16 00:16	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	99	%	70-130		4		10/28/16 00:16	1868-53-7	
Toluene-d8 (S)	99	%	70-130		4		10/28/16 00:16	2037-26-5	
4-Bromofluorobenzene (S)	92	%	70-130		4		10/28/16 00:16	460-00-4	

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ANALYTICAL RESULTS

Project: 100018 CLARK 646
Pace Project No.: 40140750

Sample: MW-13 Lab ID: 40140750008 Collected: 10/20/16 13:37 Received: 10/25/16 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	2270	ug/L	10.0	5.0	10		10/28/16 09:00	71-43-2	
Ethylbenzene	<5.0	ug/L	10.0	5.0	10		10/28/16 09:00	100-41-4	
Methyl-tert-butyl ether	<1.7	ug/L	10.0	1.7	10		10/28/16 09:00	1634-04-4	
Toluene	38.5	ug/L	10.0	5.0	10		10/28/16 09:00	108-88-3	
Xylene (Total)	<15.0	ug/L	30.0	15.0	10		10/28/16 09:00	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	97	%	70-130		10		10/28/16 09:00	1868-53-7	
Toluene-d8 (S)	94	%	70-130		10		10/28/16 09:00	2037-26-5	
4-Bromofluorobenzene (S)	90	%	70-130		10		10/28/16 09:00	460-00-4	

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ANALYTICAL RESULTS

Project: 100018 CLARK 646
Pace Project No.: 40140750

Sample: MW-15 Lab ID: 40140750009 Collected: 10/21/16 11:30 Received: 10/25/16 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	2500	ug/L	10.0	5.0	10		10/28/16 00:37	71-43-2	
Ethylbenzene	<5.0	ug/L	10.0	5.0	10		10/28/16 00:37	100-41-4	
Methyl-tert-butyl ether	<1.7	ug/L	10.0	1.7	10		10/28/16 00:37	1634-04-4	
Toluene	7.1J	ug/L	10.0	5.0	10		10/28/16 00:37	108-88-3	
Xylene (Total)	<15.0	ug/L	30.0	15.0	10		10/28/16 00:37	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	98	%	70-130		10		10/28/16 00:37	1868-53-7	
Toluene-d8 (S)	95	%	70-130		10		10/28/16 00:37	2037-26-5	
4-Bromofluorobenzene (S)	85	%	70-130		10		10/28/16 00:37	460-00-4	

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ANALYTICAL RESULTS

Project: 100018 CLARK 646
Pace Project No.: 40140750

Sample: MW-14 Lab ID: 40140750010 Collected: 10/21/16 11:40 Received: 10/25/16 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	<0.50	ug/L	1.0	0.50	1		10/28/16 08:05	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		10/28/16 08:05	100-41-4	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		10/28/16 08:05	1634-04-4	
Toluene	<0.50	ug/L	1.0	0.50	1		10/28/16 08:05	108-88-3	
Xylene (Total)	<1.5	ug/L	3.0	1.5	1		10/28/16 08:05	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	97	%	70-130		1		10/28/16 08:05	1868-53-7	
Toluene-d8 (S)	98	%	70-130		1		10/28/16 08:05	2037-26-5	
4-Bromofluorobenzene (S)	89	%	70-130		1		10/28/16 08:05	460-00-4	

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ANALYTICAL RESULTS

Project: 100018 CLARK 646
Pace Project No.: 40140750

Sample: RW-10 Lab ID: 40140750011 Collected: 10/21/16 13:20 Received: 10/25/16 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	2.8	ug/L	1.0	0.50	1		10/27/16 23:32	71-43-2	
Ethylbenzene	5.0	ug/L	1.0	0.50	1		10/27/16 23:32	100-41-4	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		10/27/16 23:32	1634-04-4	
Toluene	<0.50	ug/L	1.0	0.50	1		10/27/16 23:32	108-88-3	
Xylene (Total)	2.8J	ug/L	3.0	1.5	1		10/27/16 23:32	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	99	%	70-130		1		10/27/16 23:32	1868-53-7	
Toluene-d8 (S)	99	%	70-130		1		10/27/16 23:32	2037-26-5	
4-Bromofluorobenzene (S)	90	%	70-130		1		10/27/16 23:32	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 100018 CLARK 646
Pace Project No.: 40140750

Sample: RW-1 Lab ID: 40140750012 Collected: 10/21/16 13:45 Received: 10/25/16 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	153	ug/L	2.0	1.0	2		10/28/16 08:27	71-43-2	
Ethylbenzene	21.3	ug/L	2.0	1.0	2		10/28/16 08:27	100-41-4	
Methyl-tert-butyl ether	<0.35	ug/L	2.0	0.35	2		10/28/16 08:27	1634-04-4	
Toluene	2.7	ug/L	2.0	1.0	2		10/28/16 08:27	108-88-3	
Xylene (Total)	94.1	ug/L	6.0	3.0	2		10/28/16 08:27	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	98	%	70-130		2		10/28/16 08:27	1868-53-7	
Toluene-d8 (S)	97	%	70-130		2		10/28/16 08:27	2037-26-5	
4-Bromofluorobenzene (S)	92	%	70-130		2		10/28/16 08:27	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 100018 CLARK 646
Pace Project No.: 40140750

Sample: RW-7 Lab ID: 40140750013 Collected: 10/21/16 14:15 Received: 10/25/16 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	63.2	ug/L	2.0	1.0	2		10/28/16 00:59	71-43-2	
Ethylbenzene	29.2	ug/L	2.0	1.0	2		10/28/16 00:59	100-41-4	
Methyl-tert-butyl ether	<0.35	ug/L	2.0	0.35	2		10/28/16 00:59	1634-04-4	
Toluene	19.9	ug/L	2.0	1.0	2		10/28/16 00:59	108-88-3	
Xylene (Total)	229	ug/L	6.0	3.0	2		10/28/16 00:59	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	97	%	70-130		2		10/28/16 00:59	1868-53-7	
Toluene-d8 (S)	98	%	70-130		2		10/28/16 00:59	2037-26-5	
4-Bromofluorobenzene (S)	92	%	70-130		2		10/28/16 00:59	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 100018 CLARK 646
Pace Project No.: 40140750

Sample: RW-9 Lab ID: 40140750014 Collected: 10/21/16 14:38 Received: 10/25/16 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	212	ug/L	2.5	1.2	2.5		10/28/16 01:21	71-43-2	
Ethylbenzene	4.2	ug/L	2.5	1.2	2.5		10/28/16 01:21	100-41-4	
Methyl-tert-butyl ether	<0.44	ug/L	2.5	0.44	2.5		10/28/16 01:21	1634-04-4	
Toluene	3.7	ug/L	2.5	1.2	2.5		10/28/16 01:21	108-88-3	
Xylene (Total)	5.9J	ug/L	7.5	3.8	2.5		10/28/16 01:21	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	96	%	70-130		2.5		10/28/16 01:21	1868-53-7	
Toluene-d8 (S)	100	%	70-130		2.5		10/28/16 01:21	2037-26-5	
4-Bromofluorobenzene (S)	91	%	70-130		2.5		10/28/16 01:21	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 100018 CLARK 646
Pace Project No.: 40140750

QC Batch: 239317 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 40140750001, 40140750002, 40140750003, 40140750004, 40140750005, 40140750006, 40140750007,
40140750008, 40140750009, 40140750010, 40140750011, 40140750012, 40140750013, 40140750014

METHOD BLANK: 1417743 Matrix: Water
Associated Lab Samples: 40140750001, 40140750002, 40140750003, 40140750004, 40140750005, 40140750006, 40140750007,
40140750008, 40140750009, 40140750010, 40140750011, 40140750012, 40140750013, 40140750014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Benzene	ug/L	<0.50	1.0	0.50	10/27/16 15:32	
Ethylbenzene	ug/L	<0.50	1.0	0.50	10/27/16 15:32	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	0.17	10/27/16 15:32	
Toluene	ug/L	<0.50	1.0	0.50	10/27/16 15:32	
Xylene (Total)	ug/L	<1.5	3.0	1.5	10/27/16 15:32	
4-Bromofluorobenzene (S)	%	86	70-130		10/27/16 15:32	
Dibromofluoromethane (S)	%	100	70-130		10/27/16 15:32	
Toluene-d8 (S)	%	96	70-130		10/27/16 15:32	

LABORATORY CONTROL SAMPLE: 1417744

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	51.2	102	60-135	
Ethylbenzene	ug/L	50	54.0	108	70-136	
Methyl-tert-butyl ether	ug/L	50	48.9	98	66-138	
Toluene	ug/L	50	53.1	106	70-130	
Xylene (Total)	ug/L	150	163	108	70-135	
4-Bromofluorobenzene (S)	%			101	70-130	
Dibromofluoromethane (S)	%			102	70-130	
Toluene-d8 (S)	%			99	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1417745 1417746

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40140684001 Result	Spike Conc.	Spike Conc.	Result						
Benzene	ug/L	<0.50	50	50	51.9	51.9	104	104	57-138	0	20
Ethylbenzene	ug/L	<0.50	50	50	52.9	52.8	105	105	70-138	0	20
Methyl-tert-butyl ether	ug/L	<0.17	50	50	51.2	50.9	102	102	66-139	0	20
Toluene	ug/L	<0.50	50	50	52.4	52.5	104	105	70-130	0	20
Xylene (Total)	ug/L	<1.5	150	150	160	161	106	107	70-135	1	20
4-Bromofluorobenzene (S)	%						98	97	70-130		
Dibromofluoromethane (S)	%						103	101	70-130		
Toluene-d8 (S)	%						98	98	70-130		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 100018 CLARK 646
Pace Project No.: 40140750

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above adjusted reporting limit.
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
PQL - Practical Quantitation Limit.
RL - Reporting Limit.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The NELAC Institute.

LABORATORIES

PASI-G Pace Analytical Services - Green Bay

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 100018 CLARK 646
Pace Project No.: 40140750

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40140750001	MW-30	EPA 8260	239317		
40140750002	MW-18	EPA 8260	239317		
40140750003	MW-19	EPA 8260	239317		
40140750004	MW-17	EPA 8260	239317		
40140750005	MW-2	EPA 8260	239317		
40140750006	MW-4	EPA 8260	239317		
40140750007	MW-11S	EPA 8260	239317		
40140750008	MW-13	EPA 8260	239317		
40140750009	MW-15	EPA 8260	239317		
40140750010	MW-14	EPA 8260	239317		
40140750011	RW-10	EPA 8260	239317		
40140750012	RW-1	EPA 8260	239317		
40140750013	RW-7	EPA 8260	239317		
40140750014	RW-9	EPA 8260	239317		

REPORT OF LABORATORY ANALYSIS

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(Please Print Clearly)



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MMN.

UPPER MIDWEST REGION
MN: 612-607-1700 WI: 920-469-2436

CHAIN OF CUSTODY

Preservation Codes
 A=None B=HCl C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH
 H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

Company Name: **TriCore Environmental**
 Branch/Location: **Naperville, IL**
 Project Contact: **MARCO C.**
 Phone: **630 520-9973**
 Project Number: **100018**
 Project Name: **CLARK GYG**
 Project State: **IL**
 Sampled By (Print): **R. Wilson**
 Sampled By (Sign): *Randy Wilson*
 PO #: **100018** Regulatory Program: **UST**

Matrix Codes
 A = Air B = Bids C = Chemical D = Oil E = Soil F = Sludge
 G = Water H = Drinking Water I = Ground Water J = Surface Water K = Waste Water L = Vapor

Data Package Options (billable)
 EPA Level III
 EPA Level IV
 On your sample (billable)
 NOT needed on your sample

PAGE LAB #	CLIENT FIELD ID	DATE	TIME	MATRIX	ANALYSES REQUESTED
001	MW-30	10-20-16	14:05	GW	BTEX MTBE 8260
002	MW-18	10-20-16	14:50	GW	
003	MW-19	10-20-16	14:40	GW	
004	MW-17	10-21-16	10:50	GW	
005	MW-2	10-20-16	13:50	GW	
006	MW-4	10-20-16	14:00	GW	
007	MW-115	10-20-16	13:33	GW	
008	MW-13	10-20-16	13:37	GW	
009	MW-15	10-21-16	11:30	GW	
010	MW-14	10-21-16	11:40	GW	
011	RW-10	10-21-16	13:20	GW	
012	RW-1	10-21-16	13:45	GW	
013	RW-7	10-21-16	14:15	GW	
014	RW-8	10-21-16	14:38	GW	

Relinquished By: *Randy Wilson* Date/Time: *10/24/16 10:00*
 Relinquished By: *Randy Wilson* Date/Time: *10/24/16 17:00*
 Relinquished By: *CIS/LOG SITE* Date/Time: *10/24/16 10:00*
 Relinquished By: *CIS/LOG SITE* Date/Time: *10/24/16 10:00*

Received By: *KATHY WENDT* Date/Time: *10/24/16 10:00*
 Received By: *KATHY WENDT* Date/Time: *10/24/16 17:00*
 Received By: *Randy Wilson* Date/Time: *10/24/16 10:00*
 Received By: *Randy Wilson* Date/Time: *10/24/16 10:00*

Quote #: **40140750**
 Mail To Contact: **SHAWN RODECK**
 Mail To Company: **TriCore Environmental LLC**
 Mail To Address: **2368 Corporate Lane Naperville, IL 60563**
 Invoice To Contact: **630-520-9973**
 Invoice To Company: **3-40 ml**
 Invoice To Address: **3-40 ml**
 Invoice To Phone: **3-40 ml**
 CLIENT COMMENTS: **3-40 ml**
 LAB COMMENTS (Lab Use Only): **3-40 ml**

PAGE Project No. **40140750**
 Receipt Temp = **8** °C
 Sample Receipt pH **OK / Adjusted**
 Cooler Custody Seal **Present / Not Present**
 Intact / Not Intact **Intact / Not Intact**

Sample Condition Upon Receipt

Pace Analytical Services, Inc.
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

Pace Analytical

Project #:

WO# : 40140750



40140750

Client Name: Trilore

Courier: Fed Ex UPS Client Pace Other: CS Logistics

Tracking #: _____

Custody Seal on Cooler/Box Present: Yes no Seals intact: Yes no

Custody Seal on Samples Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used SR47

Type of Ice: Wet Blue Dry None

Samples on ice, cooling process has begun

Cooler Temperature Uncorr: 2 /Corr: 2

Biological Tissue is Frozen: yes

Temp Blank Present: yes no

no

Person examining contents:

Date: 10/25/14
Initials: tl

Temp should be above freezing to 6°C for all sample except Biota.
Frozen Biota Samples should be received ≤ 0°C.

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time:
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix:	<u>W</u>	<u>012 1 vial collect time partially ripped away, time 13:4</u>
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO ₃ , H ₂ SO ₄ ≥ 2, NaOH+ZnAct ≥ 9, NaOH ≥ 12)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions: <u>VOA</u> , cellform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed
		Lab Std #ID of preservative
		Date/Time:
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____

If checked, see attached form for additional comments

Comments/ Resolution: _____

Project Manager Review:

tl

Date: 10/25/14



Illinois Environmental Protection Agency

40140750

Bureau of Land • 1021 N. Grand Avenue E. • P.O. Box 19276 • Springfield • Illinois • 62794-9276

The Agency is authorized to require this information under Section 4 and Title XVI of the Environmental Protection Act (415 ILCS 5/4, 5/57 – 57.17). Failure to disclose this information may result in a civil penalty of not to exceed \$50,000.00 for the violation and an additional civil penalty of not to exceed \$10,000.00 for each day during which the violation continues (415 ILCS 5/42). Any person who knowingly makes a false material statement or representation, orally or in writing, in any label, manifest, record, report, permit, or license, or other document filed, maintained or used for the purpose of compliance with Title XVI commits a Class 4 felony. Any second or subsequent offense after conviction hereunder is a Class 3 felony (415 ILCS 5/44 and 57.17). This form has been approved by the Forms Management Center.

Leaking Underground Storage Tank Program Laboratory Certification for Chemical Analysis

A. Site Identification

IEMA Incident # (6- or 8-digit): 892744, 903199 IEPA LPC# (10-digit): 0971855024
 Site Name: CLARK OIL & REFINING
 Site Address (Not a P.O. Box): 399 Liberty Street
 City: Wauconda County: _____ ZIP Code: 60084
 Leaking UST Technical File _____

B. Sample Collector

I certify that:

1. Appropriate sampling equipment/methods were utilized to obtain representative samples.
2. Chain-of-custody procedures were followed in the field.
3. Sample integrity was maintained by proper preservation.
4. All samples were properly labeled.

RM
 (Initial)
RM
 (Initial)
RM
 (Initial)
RM
 (Initial)

C. Laboratory Representative

I certify that:

1. Proper chain-of-custody procedures were followed as documented on the chain-of-custody forms
2. Sample integrity was maintained by proper preservation.
3. All samples were properly labeled.
4. Quality assurance/quality control procedures were established and carried out.
5. Sample holding times were not exceeded.

Chw
 (Initial)
Chw
 (Initial)
Chw
 (Initial)
Chw
 (Initial)
Chw
 (Initial)

40140750

6. SW-846 Analytical Laboratory Procedure (USEPA) methods were used for the analyses.

UW
(Initial)

7. An accredited lab performed quantitative analysis using test methods identified in 35 IAC 186.180 (for samples collected on or after January 1, 2003).

UW
(Initial)

D. Signatures

I hereby affirm that all information contained in this form is true and accurate to the best of my knowledge and belief. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sample Collector

Name Randy Wilson
Title Senior Technician
Company TriCore Environmental, LLC
Address 2368 Corporate Lane, Suite 116
City Naperville
State Illinois
Zip Code 60563
Phone (630) 520-9973
Signature Randy Wilson
Date 10-20-16

Laboratory Representative

Name Laurie Woelfel
Title Project Manager
Company Pace Analytical Services, Inc.
Address 1241 Bellevue Street, Suite 9
City Green Bay
State Wisconsin
Zip Code 64302
Phone (920) 469-2436
Signature Laurie Woelfel
Date 10/28/16

November 01, 2016

Marcos Czako
TriCore Environmental, LLC.
2368 Corporate Lane
Suite 116
Naperville, IL 60563

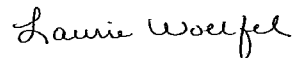
RE: Project: 100018 CLARK 646
Pace Project No.: 40140914

Dear Marcos Czako:

Enclosed are the analytical results for sample(s) received by the laboratory on October 27, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Laurie Woelfel
laurie.woelfel@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 100018 CLARK 646
Pace Project No.: 40140914

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334
Virginia VELAP ID: 460263
North Dakota Certification #: R-150

South Carolina Certification #: 83006001
Texas Certification #: T104704529-14-1
US Dept of Agriculture #: S-76505
Virginia VELAP Certification ID: 460263
Virginia VELAP ID: 460263
Wisconsin Certification #: 405132750
Wisconsin DATCP Certification #: 105-444

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 100018 CLARK 646
Pace Project No.: 40140914

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40140914001	RW-8	Water	10/24/16 10:45	10/27/16 10:30
40140914002	RW-3	Water	10/24/16 11:10	10/27/16 10:30
40140914003	MW-29	Water	10/24/16 14:25	10/27/16 10:30
40140914004	RW-1 (04)	Water	10/24/16 11:50	10/27/16 10:30
40140914005	RW-4	Water	10/24/16 12:37	10/27/16 10:30
40140914006	RW-6	Water	10/24/16 13:00	10/27/16 10:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 100018 CLARK 646
Pace Project No.: 40140914

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40140914001	RW-8	EPA 8260	HNW	8	PASI-G
40140914002	RW-3	EPA 8260	HNW	8	PASI-G
40140914003	MW-29	EPA 8260	HNW	8	PASI-G
40140914004	RW-1 (04)	EPA 8260	HNW	8	PASI-G
40140914005	RW-4	EPA 8260	HNW	8	PASI-G
40140914006	RW-6	EPA 8260	HNW	8	PASI-G

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 100018 CLARK 646

Pace Project No.: 40140914

Sample: RW-8 Lab ID: 40140914001 Collected: 10/24/16 10:45 Received: 10/27/16 10:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	39.5	ug/L	5.0	2.5	5		10/31/16 09:51	71-43-2	
Ethylbenzene	51.7	ug/L	5.0	2.5	5		10/31/16 09:51	100-41-4	
Methyl-tert-butyl ether	<0.87	ug/L	5.0	0.87	5		10/31/16 09:51	1634-04-4	
Toluene	44.2	ug/L	5.0	2.5	5		10/31/16 09:51	108-88-3	
Xylene (Total)	603	ug/L	15.0	7.5	5		10/31/16 09:51	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	99	%	70-130		5		10/31/16 09:51	1868-53-7	
Toluene-d8 (S)	96	%	70-130		5		10/31/16 09:51	2037-26-5	
4-Bromofluorobenzene (S)	100	%	70-130		5		10/31/16 09:51	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 100018 CLARK 646

Pace Project No.: 40140914

Sample: RW-3 Lab ID: 40140914002 Collected: 10/24/16 11:10 Received: 10/27/16 10:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	243	ug/L	5.0	2.5	5		10/31/16 10:13	71-43-2	
Ethylbenzene	65.1	ug/L	5.0	2.5	5		10/31/16 10:13	100-41-4	
Methyl-tert-butyl ether	<0.87	ug/L	5.0	0.87	5		10/31/16 10:13	1634-04-4	
Toluene	7.2	ug/L	5.0	2.5	5		10/31/16 10:13	108-88-3	
Xylene (Total)	637	ug/L	15.0	7.5	5		10/31/16 10:13	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	99	%	70-130		5		10/31/16 10:13	1868-53-7	
Toluene-d8 (S)	93	%	70-130		5		10/31/16 10:13	2037-26-5	
4-Bromofluorobenzene (S)	98	%	70-130		5		10/31/16 10:13	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 100018 CLARK 646

Pace Project No.: 40140914

Sample: MW-29 Lab ID: 40140914003 Collected: 10/24/16 14:25 Received: 10/27/16 10:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	889	ug/L	20.0	10.0	20		10/31/16 10:34	71-43-2	
Ethylbenzene	893	ug/L	20.0	10.0	20		10/31/16 10:34	100-41-4	
Methyl-tert-butyl ether	<3.5	ug/L	20.0	3.5	20		10/31/16 10:34	1634-04-4	
Toluene	227	ug/L	20.0	10.0	20		10/31/16 10:34	108-88-3	
Xylene (Total)	5170	ug/L	60.0	30.0	20		10/31/16 10:34	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	100	%	70-130		20		10/31/16 10:34	1868-53-7	
Toluene-d8 (S)	95	%	70-130		20		10/31/16 10:34	2037-26-5	
4-Bromofluorobenzene (S)	100	%	70-130		20		10/31/16 10:34	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 100018 CLARK 646
Pace Project No.: 40140914

Sample: RW-1 (04) Lab ID: 40140914004 Collected: 10/24/16 11:50 Received: 10/27/16 10:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	84.2	ug/L	10.0	5.0	10		10/31/16 10:56	71-43-2	
Ethylbenzene	10.5	ug/L	10.0	5.0	10		10/31/16 10:56	100-41-4	
Methyl-tert-butyl ether	<1.7	ug/L	10.0	1.7	10		10/31/16 10:56	1634-04-4	
Toluene	10.2	ug/L	10.0	5.0	10		10/31/16 10:56	108-88-3	
Xylene (Total)	<15.0	ug/L	30.0	15.0	10		10/31/16 10:56	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	100	%	70-130		10		10/31/16 10:56	1868-53-7	D3
Toluene-d8 (S)	96	%	70-130		10		10/31/16 10:56	2037-26-5	
4-Bromofluorobenzene (S)	100	%	70-130		10		10/31/16 10:56	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 100018 CLARK 646
Pace Project No.: 40140914

Sample: RW-4 Lab ID: 40140914005 Collected: 10/24/16 12:37 Received: 10/27/16 10:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	16.2	ug/L	5.0	2.5	5		10/31/16 11:18	71-43-2	
Ethylbenzene	4.0J	ug/L	5.0	2.5	5		10/31/16 11:18	100-41-4	
Methyl-tert-butyl ether	<0.87	ug/L	5.0	0.87	5		10/31/16 11:18	1634-04-4	
Toluene	3.3J	ug/L	5.0	2.5	5		10/31/16 11:18	108-88-3	
Xylene (Total)	119	ug/L	15.0	7.5	5		10/31/16 11:18	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	104	%	70-130		5		10/31/16 11:18	1868-53-7	D3
Toluene-d8 (S)	95	%	70-130		5		10/31/16 11:18	2037-26-5	
4-Bromofluorobenzene (S)	97	%	70-130		5		10/31/16 11:18	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 100018 CLARK 646
Pace Project No.: 40140914

Sample: RW-6 Lab ID: 40140914006 Collected: 10/24/16 13:00 Received: 10/27/16 10:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	<5.0	ug/L	10.0	5.0	10		10/31/16 11:39	71-43-2	
Ethylbenzene	161	ug/L	10.0	5.0	10		10/31/16 11:39	100-41-4	
Methyl-tert-butyl ether	<1.7	ug/L	10.0	1.7	10		10/31/16 11:39	1634-04-4	
Toluene	56.7	ug/L	10.0	5.0	10		10/31/16 11:39	108-88-3	
Xylene (Total)	2320	ug/L	30.0	15.0	10		10/31/16 11:39	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	101	%	70-130		10		10/31/16 11:39	1868-53-7	
Toluene-d8 (S)	94	%	70-130		10		10/31/16 11:39	2037-26-5	
4-Bromofluorobenzene (S)	98	%	70-130		10		10/31/16 11:39	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 100018 CLARK 646
Pace Project No.: 40140914

QC Batch: 239716 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 40140914001, 40140914002, 40140914003, 40140914004, 40140914005, 40140914006

METHOD BLANK: 1420335 Matrix: Water
Associated Lab Samples: 40140914001, 40140914002, 40140914003, 40140914004, 40140914005, 40140914006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Benzene	ug/L	<0.50	1.0	0.50	10/31/16 07:20	
Ethylbenzene	ug/L	<0.50	1.0	0.50	10/31/16 07:20	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	0.17	10/31/16 07:20	
Toluene	ug/L	<0.50	1.0	0.50	10/31/16 07:20	
Xylene (Total)	ug/L	<1.5	3.0	1.5	10/31/16 07:20	
4-Bromofluorobenzene (S)	%	96	70-130		10/31/16 07:20	
Dibromofluoromethane (S)	%	100	70-130		10/31/16 07:20	
Toluene-d8 (S)	%	94	70-130		10/31/16 07:20	

LABORATORY CONTROL SAMPLE: 1420336

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	45.9	92	60-135	
Ethylbenzene	ug/L	50	49.2	98	70-136	
Methyl-tert-butyl ether	ug/L	50	52.3	105	66-138	
Toluene	ug/L	50	48.6	97	70-130	
Xylene (Total)	ug/L	150	154	103	70-135	
4-Bromofluorobenzene (S)	%			104	70-130	
Dibromofluoromethane (S)	%			98	70-130	
Toluene-d8 (S)	%			95	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1420380 1420381

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		40140904002 Result	Spike Conc.	Spike Conc.	MS Result							
Benzene	ug/L	793	250	250	943	967	60	70	57-138	2	20	
Ethylbenzene	ug/L	<2.5	250	250	232	242	93	97	70-138	4	20	
Methyl-tert-butyl ether	ug/L	71.8	250	250	285	280	85	83	66-139	2	20	
Toluene	ug/L	<2.5	250	250	236	239	94	96	70-130	1	20	
Xylene (Total)	ug/L	<7.5	750	750	735	753	98	100	70-135	2	20	
4-Bromofluorobenzene (S)	%						101	99	70-130			
Dibromofluoromethane (S)	%						105	100	70-130			
Toluene-d8 (S)	%						94	94	70-130			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 100018 CLARK 646
Pace Project No.: 40140914

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above adjusted reporting limit.
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
PQL - Practical Quantitation Limit.
RL - Reporting Limit.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The NELAC Institute.

LABORATORIES

PASI-G Pace Analytical Services - Green Bay

ANALYTE QUALIFIERS

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 100018 CLARK 646
Pace Project No.: 40140914

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40140914001	RW-8	EPA 8260	239716		
40140914002	RW-3	EPA 8260	239716		
40140914003	MW-29	EPA 8260	239716		
40140914004	RW-1 (04)	EPA 8260	239716		
40140914005	RW-4	EPA 8260	239716		
40140914006	RW-6	EPA 8260	239716		

REPORT OF LABORATORY ANALYSIS

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(Please Print Clearly)

Company Name: **TRICORE ENVIRONMENTAL LLC**

Branch/Location: **Naperville, IL**

Project Contact: **MARCO S ZAKO**

Phone: **630 520-9973**

Project Number: **100018**

Project Name: **CLARK 646**

Project State: **IL**

Sampled By (Print): **R. WILSON**

Sampled By (Sign): *Randy Wilson*

PO #: **100018**

Regulatory Program: **UST**

Matrix Codes: **W = Water
DW = Drinking Water
GW = Ground Water
SW = Surface Water
WP = Waste Water
SI = Sludge**

Data Package Options (billable):
 EPA Level III
 EPA Level IV

MS/MSD (billable):
 On your sample (billable)
 NOT needed on your sample

CLIENT FIELD ID

DATE

TIME

MATRIX

ANALYSES REQUESTED

DATE/TIME

DATE/TIME

DATE/TIME

DATE/TIME

DATE/TIME

DATE/TIME

DATE/TIME

DATE/TIME

DATE/TIME

DATE/TIME

DATE/TIME

DATE/TIME

Pace Analytical
www.paceab.com

CHAIN OF CUSTODY

UPPER MIDWEST REGION
MN: 612-607-1700 WI: 920-469-2436

Preservation Codes:
A=None B=HCL C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH
H= Sodium Bisulfate Solution I= Sodium Thiosulfate J=Other

81X

Y/N	Filtered?	Preservation (RESNO)
N		
B		

Analyses Requested
BTEX
MTBE
8260

PAGE LAB #	CLIENT FIELD ID	DATE	TIME	MATRIX	ANALYSES REQUESTED	DATE/TIME	DATE/TIME	DATE/TIME	DATE/TIME	DATE/TIME	RECEIVED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RECEIVED BY	DATE/TIME	
001	RW-8	10-24-16	10:45	GW	X														
002	RW-3	10-24-16	11:10	GW	X														
003	MW-29	10-24-16	14:25	GW	X														
004	RW-1 (04)	10-24-16	11:50	GW	X														
005	RW-4	10-24-16	12:37	GW	X														
000	RW-6	10-24-16	13:00	GW	X														

Rush Turnaround Time Requested - Prelims
(Rush TAT subject to approval/surcharge)
Date Needed:

Relinquished By: *Randy Wilson* Date/Time: 10-26-16 11:30
Relinquished By: *KATHY DENNELL* Date/Time: 10/26/16 1700
Relinquished By: *Logistics* Date/Time: 10/30 1030
Relinquished By: *Logistics* Date/Time: 10/26/16 1700

Received By: *KATHY DENNELL* Date/Time: 10/26/16 1350
Received By: *Logistics* Date/Time: 10/26/16
Received By: *Logistics* Date/Time: 10/30 1030
Received By: *Logistics* Date/Time: 10/26/16

Quote #: **40140914**

Mail To Contact: **SHAWN RODECK**

Mail To Company: **TRICORE ENVIRONMENTAL**

Mail To Address: **2368 Corporate Lane Suite 116 Naperville, IL 630520-9973**

Invoice To Contact: **SHAWN RODECK**

Invoice To Company: **TRICORE ENVIRONMENTAL**

Invoice To Address: **2368 Corporate Lane Suite 116 Naperville, IL 630520-9973**

Invoice To Phone: **630 520-9973**

CLIENT COMMENTS: **3-40 ml**

LAB COMMENTS (Lab Use Only): **3-40 ml B**

Profile #

Receipt Temp = **N** °C

Sample Receipt pH **OK / Adjusted**

Geotek Custody Seal Present / Not Present **Intact / Not Intact**

Sample Condition Upon Receipt

Pace Analytical Services, Inc.
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

Pace Analytical™

Client Name: TRICORE ENV.

Project #:

WO#: **40140914**

Courier: Fed Ex UPS Client Pace Other: C.S. Logistics



Tracking #: _____
Custody Seal on Cooler/Box Present: yes - no. Seals intact: yes no

Custody Seal on Samples Present: yes no. Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used: SR-1610 Type of Ice: Wet Blue Dry None

Cooler Temperature: Uncorr: 3 / Corr: 4 Samples on ice, cooling process has begun

Temp Blank Present: yes no Biological Tissue is Frozen: yes no

Temp should be above freezing to 6°C for all sample except Biota.
Frozen Biota Samples should be received ≤ 0°C.

Person examining contents:
Date: 10-27-16
Initials: MM

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time:
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>W</u>		
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO3, H2SO4 ≤2; NaOH+ZnAct ≥9, NaOH ≥12)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions: <u>VOA, Coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics,</u> OTHER:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed
		Lab Std #/ID of preservative
		Date/Time:
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ If checked, see attached form for additional comments

Comments/ Resolution: _____

Project Manager Review: UW Date: 10/27/16



Illinois Environmental Protection Agency

40140914

Bureau of Land • 1021 N. Grand Avenue E. • P.O. Box 19276 • Springfield • Illinois • 62794-9276

The Agency is authorized to require this information under Section 4 and Title XVI of the Environmental Protection Act (415 ILCS 5/4, 5/57 – 57.17). Failure to disclose this information may result in a civil penalty of not to exceed \$50,000.00 for the violation and an additional civil penalty of not to exceed \$10,000.00 for each day during which the violation continues (415 ILCS 5/42). Any person who knowingly makes a false material statement or representation, orally or in writing, in any label, manifest, record, report, permit, or license, or other document filed, maintained or used for the purpose of compliance with Title XVI commits a Class 4 felony. Any second or subsequent offense after conviction hereunder is a Class 3 felony (415 ILCS 5/44 and 57.17). This form has been approved by the Forms Management Center.

Leaking Underground Storage Tank Program Laboratory Certification for Chemical Analysis

A. Site Identification

IEMA Incident # (6- or 8-digit): 892744, 903199 IEPA LPC# (10-digit): 0971855024
Site Name: CLARK OIL & REFINING
Site Address (Not a P.O. Box): 399 Liberty Street
City: Wauconda County: Lake ZIP Code: 60084

Leaking UST Technical File

B. Sample Collector

I certify that:

1. Appropriate sampling equipment/methods were utilized to obtain representative samples.
2. Chain-of-custody procedures were followed in the field.
3. Sample integrity was maintained by proper preservation.
4. All samples were properly labeled.

RM
(Initial)
RM
(Initial)
RM
(Initial)
RM
(Initial)

C. Laboratory Representative

I certify that:

1. Proper chain-of-custody procedures were followed as documented on the chain-of-custody forms
2. Sample integrity was maintained by proper preservation.
3. All samples were properly labeled.
4. Quality assurance/quality control procedures were established and carried out.
5. Sample holding times were not exceeded.

UW
(Initial)
UW
(Initial)
UW
(Initial)
UW
(Initial)
UW
(Initial)

40140914
chw
(Initial)

6. SW-846 Analytical Laboratory Procedure (USEPA) methods were used for the analyses.

(Initial)

7. An accredited lab performed quantitative analysis using test methods identified in 35 IAC 186.180 (for samples collected on or after January 1, 2003).

chw
(Initial)

D. Signatures

I hereby affirm that all information contained in this form is true and accurate to the best of my knowledge and belief. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sample Collector

Name Randy Wilson
Title Senior Technician
Company TriCore Environmental, LLC
Address 2368 Corporate Lane, Suite 116
City Naperville
State Illinois
Zip Code 60563
Phone (630) 520-9973
Signature Randy Wilson
Date 10-24-16

Laboratory Representative

Name Laurie Woelfel
Title Project Manager
Company Pace Analytical Services, Inc.
Address 1241 Bellevue Street, Suite 9
City Green Bay
State Wisconsin
Zip Code 64302
Phone (920) 469-2436
Signature Laurie Woelfel
Date 11/1/16

November 16, 2016

Marcos Czako
TriCore Environmental, LLC.
2368 Corporate Lane
Suite 116
Naperville, IL 60563

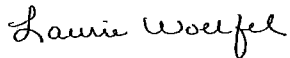
RE: Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

Dear Marcos Czako:

Enclosed are the analytical results for sample(s) received by the laboratory on November 04, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Laurie Woelfel
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Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky UST Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334
New York Certification #: 12064
North Dakota Certification #: R-150

Virginia VELAP ID: 460263
South Carolina Certification #: 83006001
Texas Certification #: T104704529-14-1
Wisconsin Certification #: 405132750
Wisconsin DATCP Certification #: 105-444
USDA Soil Permit #: P330-16-00157
Federal Fish & Wildlife Permit #: LE51774A-0

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40141386001	SB-76 @ 6-8	Solid	11/03/16 08:20	11/04/16 10:55
40141386002	SB-77 @ 5-7.5	Solid	11/03/16 08:40	11/04/16 10:55
40141386003	SB-78 @ 4-5	Solid	11/03/16 09:02	11/04/16 10:55
40141386004	SB-78 @ 5-7.5	Solid	11/03/16 09:03	11/04/16 10:55
40141386005	SB-79 @ 7-7.75	Solid	11/03/16 09:42	11/04/16 10:55
40141386006	SB-81 @ 6-8	Solid	11/03/16 10:14	11/04/16 10:55
40141386007	SB-82 @ 3-4	Solid	11/03/16 10:38	11/04/16 10:55
40141386008	SB-82 @ 6-8	Solid	11/03/16 10:40	11/04/16 10:55
40141386009	SB-83 @ 6-7	Solid	11/03/16 11:00	11/04/16 10:55
40141386010	SB-83 @ 7-8	Solid	11/03/16 11:01	11/04/16 10:55
40141386011	SB-84 @ 4-5	Solid	11/03/16 11:44	11/04/16 10:55
40141386012	SB-85 @ 6-7	Solid	11/03/16 12:08	11/04/16 10:55
40141386013	SB-86 @ 7.5-8.5	Solid	11/03/16 12:45	11/04/16 10:55
40141386014	SB-87 @ 4-5	Solid	11/03/16 13:07	11/04/16 10:55
40141386015	SB-87 @ 5-8	Solid	11/03/16 13:10	11/04/16 10:55
40141386016	SB-88 @ 7-8	Solid	11/03/16 13:27	11/04/16 10:55
40141386017	MW32	Water	11/03/16 08:50	11/04/16 10:55
40141386018	RW5	Water	11/03/16 09:40	11/04/16 10:55

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 100018 SHIVAM ENERGY, INC.

Pace Project No.: 40141386

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40141386001	SB-76 @ 6-8	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386002	SB-77 @ 5-7.5	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386003	SB-78 @ 4-5	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386004	SB-78 @ 5-7.5	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386005	SB-79 @ 7-7.75	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386006	SB-81 @ 6-8	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386007	SB-82 @ 3-4	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386008	SB-82 @ 6-8	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386009	SB-83 @ 6-7	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386010	SB-83 @ 7-8	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386011	SB-84 @ 4-5	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386012	SB-85 @ 6-7	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386013	SB-86 @ 7.5-8.5	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386014	SB-87 @ 4-5	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386015	SB-87 @ 5-8	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386016	SB-88 @ 7-8	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386017	MW32	EPA 8260	LAP	8	PASI-G
40141386018	RW5	EPA 8260	LAP	8	PASI-G

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

Sample: MW32 Lab ID: 40141386017 Collected: 11/03/16 08:50 Received: 11/04/16 10:55 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	223	ug/L	4.0	2.0	4		11/08/16 01:07	71-43-2	
Ethylbenzene	53.9	ug/L	4.0	2.0	4		11/08/16 01:07	100-41-4	
Methyl-tert-butyl ether	<0.70	ug/L	4.0	0.70	4		11/08/16 01:07	1634-04-4	
Toluene	3.8J	ug/L	4.0	2.0	4		11/08/16 01:07	108-88-3	
Xylene (Total)	26.1	ug/L	12.0	6.0	4		11/08/16 01:07	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	93	%	70-130		4		11/08/16 01:07	1868-53-7	
Toluene-d8 (S)	101	%	70-130		4		11/08/16 01:07	2037-26-5	
4-Bromofluorobenzene (S)	96	%	70-130		4		11/08/16 01:07	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 100018 SHIVAM ENERGY, INC.

Pace Project No.: 40141386

Sample: RW5 Lab ID: 40141386018 Collected: 11/03/16 09:40 Received: 11/04/16 10:55 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	1600	ug/L	10.0	5.0	10		11/08/16 01:29	71-43-2	
Ethylbenzene	1020	ug/L	10.0	5.0	10		11/08/16 01:29	100-41-4	
Methyl-tert-butyl ether	<1.7	ug/L	10.0	1.7	10		11/08/16 01:29	1634-04-4	
Toluene	192	ug/L	10.0	5.0	10		11/08/16 01:29	108-88-3	
Xylene (Total)	1520	ug/L	30.0	15.0	10		11/08/16 01:29	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	92	%	70-130		10		11/08/16 01:29	1868-53-7	
Toluene-d8 (S)	100	%	70-130		10		11/08/16 01:29	2037-26-5	
4-Bromofluorobenzene (S)	96	%	70-130		10		11/08/16 01:29	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

QC Batch: 240575 Analysis Method: EPA 8260
QC Batch Method: EPA 5035/5030B Analysis Description: 8260 MSV Med Level Short List
Associated Lab Samples: 40141386001, 40141386002, 40141386003, 40141386004, 40141386005, 40141386006, 40141386007, 40141386008

METHOD BLANK: 1425569 Matrix: Solid
Associated Lab Samples: 40141386001, 40141386002, 40141386003, 40141386004, 40141386005, 40141386006, 40141386007, 40141386008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Benzene	ug/kg	<9.2	20.0	9.2	11/09/16 09:05	
Ethylbenzene	ug/kg	<12.4	50.0	12.4	11/09/16 09:05	
Methyl-tert-butyl ether	ug/kg	<12.7	50.0	12.7	11/09/16 09:05	
Toluene	ug/kg	<11.2	50.0	11.2	11/09/16 09:05	
Xylene (Total)	ug/kg	<48.4	150	48.4	11/09/16 09:05	
4-Bromofluorobenzene (S)	%	87	48-138		11/09/16 09:05	
Dibromofluoromethane (S)	%	93	53-165		11/09/16 09:05	
Toluene-d8 (S)	%	101	54-163		11/09/16 09:05	

LABORATORY CONTROL SAMPLE: 1425570

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/kg	2500	2070	83	70-130	
Ethylbenzene	ug/kg	2500	1970	79	70-130	
Methyl-tert-butyl ether	ug/kg	2500	2040	82	70-130	
Toluene	ug/kg	2500	2040	81	70-130	
Xylene (Total)	ug/kg	7500	6040	81	70-130	
4-Bromofluorobenzene (S)	%			78	48-138	
Dibromofluoromethane (S)	%			84	53-165	
Toluene-d8 (S)	%			86	54-163	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1425571 1425572

Parameter	Units	40141381028 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
			Spike Conc.	MS Result	Spike Conc.	MSD Result					
Benzene	ug/kg	<0.010 mg/kg	1410	1340	1410	1390	95	98	70-130	3	20
Ethylbenzene	ug/kg	<0.014 mg/kg	1410	1290	1410	1300	91	92	70-130	1	20
Methyl-tert-butyl ether	ug/kg	<0.014 mg/kg	1410	1430	1410	1440	101	102	70-130	1	20
Toluene	ug/kg	<0.013 mg/kg	1410	1360	1410	1400	96	99	70-130	3	20
Xylene (Total)	ug/kg	<0.055 mg/kg	4240	3880	4240	4150	92	98	70-130	7	20
4-Bromofluorobenzene (S)	%						94	83	48-138		
Dibromofluoromethane (S)	%						99	88	53-165		
Toluene-d8 (S)	%						106	93	54-163		

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QUALITY CONTROL DATA

Project: 100018 SHIVAM ENERGY, INC.

Pace Project No.: 40141386

QC Batch: 240656 Analysis Method: EPA 8260
QC Batch Method: EPA 5035/5030B Analysis Description: 8260 MSV Med Level Short List
Associated Lab Samples: 40141386009, 40141386010, 40141386011, 40141386012, 40141386013, 40141386014, 40141386015, 40141386016

METHOD BLANK: 1425804 Matrix: Solid
Associated Lab Samples: 40141386009, 40141386010, 40141386011, 40141386012, 40141386013, 40141386014, 40141386015, 40141386016

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Benzene	ug/kg	<9.2	20.0	9.2	11/08/16 08:51	
Ethylbenzene	ug/kg	<12.4	50.0	12.4	11/08/16 08:51	
Methyl-tert-butyl ether	ug/kg	<12.7	50.0	12.7	11/08/16 08:51	
Toluene	ug/kg	<11.2	50.0	11.2	11/08/16 08:51	
Xylene (Total)	ug/kg	<48.4	150	48.4	11/08/16 08:51	
4-Bromofluorobenzene (S)	%	87	48-138		11/08/16 08:51	
Dibromofluoromethane (S)	%	100	53-165		11/08/16 08:51	
Toluene-d8 (S)	%	98	54-163		11/08/16 08:51	

LABORATORY CONTROL SAMPLE: 1425805

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/kg	2500	2420	97	70-130	
Ethylbenzene	ug/kg	2500	2370	95	70-130	
Methyl-tert-butyl ether	ug/kg	2500	2320	93	70-130	
Toluene	ug/kg	2500	2460	98	70-130	
Xylene (Total)	ug/kg	7500	7440	99	70-130	
4-Bromofluorobenzene (S)	%			90	48-138	
Dibromofluoromethane (S)	%			93	53-165	
Toluene-d8 (S)	%			93	54-163	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1425806 1425807

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result						
Benzene	ug/kg	<11.5	1560	1560	1390	1400	89	90	70-130	1	20
Ethylbenzene	ug/kg	<15.5	1560	1560	1340	1430	86	91	70-130	6	20
Methyl-tert-butyl ether	ug/kg	<15.8	1560	1560	1270	1400	81	90	70-130	9	20
Toluene	ug/kg	<14.0	1560	1560	1370	1510	87	96	70-130	10	20
Xylene (Total)	ug/kg	<60.6	4690	4690	4270	4550	91	97	70-130	6	20
4-Bromofluorobenzene (S)	%						85	94	48-138		
Dibromofluoromethane (S)	%						88	96	53-165		1q
Toluene-d8 (S)	%						90	100	54-163		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

QC Batch: 240458 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 40141386017, 40141386018

METHOD BLANK: 1425021 Matrix: Water
Associated Lab Samples: 40141386017, 40141386018

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Benzene	ug/L	<0.50	1.0	0.50	11/07/16 16:01	
Ethylbenzene	ug/L	<0.50	1.0	0.50	11/07/16 16:01	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	0.17	11/07/16 16:01	
Toluene	ug/L	<0.50	1.0	0.50	11/07/16 16:01	
Xylene (Total)	ug/L	<1.5	3.0	1.5	11/07/16 16:01	
4-Bromofluorobenzene (S)	%	89	70-130		11/07/16 16:01	
Dibromofluoromethane (S)	%	99	70-130		11/07/16 16:01	
Toluene-d8 (S)	%	99	70-130		11/07/16 16:01	

LABORATORY CONTROL SAMPLE: 1425022

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	52.0	104	60-135	
Ethylbenzene	ug/L	50	55.3	111	70-136	
Methyl-tert-butyl ether	ug/L	50	47.2	94	66-138	
Toluene	ug/L	50	54.4	109	70-130	
Xylene (Total)	ug/L	150	166	111	70-135	
4-Bromofluorobenzene (S)	%			98	70-130	
Dibromofluoromethane (S)	%			100	70-130	
Toluene-d8 (S)	%			98	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1425124 1425125

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40141415003 Result	Spike Conc.	Spike Conc.	Result						
Benzene	ug/L	4.8	50	50	51.1	55.7	92	102	57-138	9	20
Ethylbenzene	ug/L	9.0	50	50	63.1	64.0	108	110	70-138	1	20
Methyl-tert-butyl ether	ug/L	13.0	50	50	47.1	55.9	68	86	66-139	17	20
Toluene	ug/L	<1.0	50	50	52.3	52.6	104	105	70-130	1	20
Xylene (Total)	ug/L	<3.0	150	150	159	159	105	106	70-135	0	20
4-Bromofluorobenzene (S)	%						99	98	70-130		
Dibromofluoromethane (S)	%						91	100	70-130		
Toluene-d8 (S)	%						97	98	70-130		

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QUALITY CONTROL DATA

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

QC Batch: 240554 Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 40141386001, 40141386002, 40141386003

SAMPLE DUPLICATE: 1425543

Parameter	Units	40141199002 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	16.4	16.3	1	10	

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QUALITY CONTROL DATA

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

QC Batch: 240570 Analysis Method: ASTM D2974-87
 QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
 Associated Lab Samples: 40141386004, 40141386005, 40141386006, 40141386007, 40141386008, 40141386009, 40141386010,
 40141386011, 40141386012, 40141386013, 40141386014, 40141386015, 40141386016

SAMPLE DUPLICATE: 1425557

Parameter	Units	40141386004 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	12.0	13.1	9	10	

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QUALIFIERS

Project: 100018 SHIVAM ENERGY, INC.

Pace Project No.: 40141386

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-G Pace Analytical Services - Green Bay

ANALYTE QUALIFIERS

1q Sample aliquot was taken from a glass jar with head space and MeOH preserved in the laboratory.

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

S4 Surrogate recovery not evaluated against control limits due to sample dilution.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40141386001	SB-76 @ 6-8	EPA 5035/5030B	240575	EPA 8260	240576
40141386002	SB-77 @ 5-7.5	EPA 5035/5030B	240575	EPA 8260	240576
40141386003	SB-78 @ 4-5	EPA 5035/5030B	240575	EPA 8260	240576
40141386004	SB-78 @ 5-7.5	EPA 5035/5030B	240575	EPA 8260	240576
40141386005	SB-79 @ 7-7.75	EPA 5035/5030B	240575	EPA 8260	240576
40141386006	SB-81 @ 6-8	EPA 5035/5030B	240575	EPA 8260	240576
40141386007	SB-82 @ 3-4	EPA 5035/5030B	240575	EPA 8260	240576
40141386008	SB-82 @ 6-8	EPA 5035/5030B	240575	EPA 8260	240576
40141386009	SB-83 @ 6-7	EPA 5035/5030B	240656	EPA 8260	240659
40141386010	SB-83 @ 7-8	EPA 5035/5030B	240656	EPA 8260	240659
40141386011	SB-84 @ 4-5	EPA 5035/5030B	240656	EPA 8260	240659
40141386012	SB-85 @ 6-7	EPA 5035/5030B	240656	EPA 8260	240659
40141386013	SB-86 @ 7.5-8.5	EPA 5035/5030B	240656	EPA 8260	240659
40141386014	SB-87 @ 4-5	EPA 5035/5030B	240656	EPA 8260	240659
40141386015	SB-87 @ 5-8	EPA 5035/5030B	240656	EPA 8260	240659
40141386016	SB-88 @ 7-8	EPA 5035/5030B	240656	EPA 8260	240659
40141386017	MW32	EPA 8260	240458		
40141386018	RW5	EPA 8260	240458		
40141386001	SB-76 @ 6-8	ASTM D2974-87	240554		
40141386002	SB-77 @ 5-7.5	ASTM D2974-87	240554		
40141386003	SB-78 @ 4-5	ASTM D2974-87	240554		
40141386004	SB-78 @ 5-7.5	ASTM D2974-87	240570		
40141386005	SB-79 @ 7-7.75	ASTM D2974-87	240570		
40141386006	SB-81 @ 6-8	ASTM D2974-87	240570		
40141386007	SB-82 @ 3-4	ASTM D2974-87	240570		
40141386008	SB-82 @ 6-8	ASTM D2974-87	240570		
40141386009	SB-83 @ 6-7	ASTM D2974-87	240570		
40141386010	SB-83 @ 7-8	ASTM D2974-87	240570		
40141386011	SB-84 @ 4-5	ASTM D2974-87	240570		
40141386012	SB-85 @ 6-7	ASTM D2974-87	240570		
40141386013	SB-86 @ 7.5-8.5	ASTM D2974-87	240570		
40141386014	SB-87 @ 4-5	ASTM D2974-87	240570		
40141386015	SB-87 @ 5-8	ASTM D2974-87	240570		
40141386016	SB-88 @ 7-8	ASTM D2974-87	240570		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:
 Company: TriCore Environmental, LLC
 Address: 2368 Corporate Lane, Suite 116
 Naperville, Illinois 60563
 Email To: marcos.czako@tricoreweb.com
 Phone: 630-520-9973 Fax: 630-520-9976

Section B Required Project Information:
 Report To: Marcos I. Czako
 Copy To:
 Purchase Order No.: 100018
 Project Name: Shivam Energy, Inc.
 Project Number: 100018

Section C Invoice Information:
 Attention: Shawn Rodeck
 Company Name: TriCore Environmental, LLC
 Address: 2368 Corporate Lane, Suite 116, Naperville, IL 60563
 Pace Quote Reference:
 Pace Project Manager:
 Pace Profile #:

REGULATORY AGENCY
 NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER
 GA IL IN MI NC
 OH SC WI OTHER

ITEM #	Section D Required Client Information SAMPLE ID One Character Per Box. (A-Z, 0-9 / -)	Valid Matrix Codes MATRIX DRINKING WATER WASTE WATER PRODUCT CULICID WATER OR TREAT	CODE DW WW P SL WP AS TS	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives						Filtered (Y/N)	Requested	BTEX and MTBE 8260	Moisture	Residual Chlorine (Y/N)	Pace Project No. (Lab ID)
						COMPOSITE START DATE	COMPOSITE END/GRAB DATE			Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₅						
1	SB-876			SL G	G	11/3/16	1245		3												
2	SB-877			SL G	G	11/3/16	1307		3												
3	SB-87			SL G	G	11/3/16	1310		3												
4	SB-88			SL G	G	11/3/16	1327		3												
5	MW3a					11/3/16	0850 W														
6	RW5					11/3/16	0940 W														
7																					
8																					
9																					
10																					
11																					
12																					

Additional Comments:
 1 In shipment job added to COC 11-4-16
 See

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
marcos/pace	11/3/16	1545	RATHN DENEWILL	11/3/16	1545	Y/N
RATHN DENEWILL	11/3/16	1800	OS LOUISIANA	11/3/16	1800	Y/N
RATHN DENEWILL	11/3/16	1855	OS LOUISIANA	11/3/16	1855	Y/N

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Marcos I. Czako
 SIGNATURE of SAMPLER: [Signature]
 DATE Signed (MM/DD/YY): 11/03/16

Temp in °C
 Received on Ice
 Custody Sealed Cooler
 Samples Intact

Sample Condition Upon Receipt

Pace Analytical Services, Inc.
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

Pace Analytical

Client Name: TriCore

Project #: **WO# : 40141386**

Courier: Fed Ex UPS Client Pace Other: ES Logistics



Tracking #: _____
Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Custody Seal on Samples Present: yes no Seals intact: yes no
Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used SR68 Type of Ice: Wet Blue Dry None Samples on ice, cooling process has begun

Cooler Temperature Uncorr: 3 / Corr: 3 Biological Tissue is Frozen: yes no

Temp Blank Present: yes no

Person examining contents:
Date: 11-4-16
Initials: SM

Temp should be above freezing to 6°C for all sample except Biota.
Frozen Biota Samples should be received ≤ 0°C.

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	2. <u>017 + 018 not listed on COC. Feb 11/9/16</u>
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3. <u>added to COC.</u>
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4. <u>11-4-16</u>
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time:
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11.
Sample Labels match COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12. <u>003 - ID on sample SB78 @ 7-7.5</u>
-Includes date/time/ID/Analysis Matrix: <u>W+S</u>		<u>Collect 11/3/16 @ 0903 - placed by</u>
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <u>elimination - 004 - ID on sample SB78</u>
All containers needing preservation are found to be in compliance with EPA recommendation: (HNO3, H2SO4 ≤2; NaOH+ZnAct ≥9, NaOH ≥12)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> HNO3 <input type="checkbox"/> H2SO4 <input type="checkbox"/> NaOH <input type="checkbox"/> NaOH + ZnAct <u>11-4-16</u>
exceptions: (VOA, coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER: _____)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Lab Std #ID of preservative
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Date/Time:
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ If checked, see attached form for additional comments

Comments/ Resolution: 005 402ag no collect time
2) Xerox per MC law office 11/4/16 TL

Project Manager Review: TLW Date: 11/4/16



Illinois Environmental Protection Agency

40141386

Bureau of Land • 1021 N. Grand Avenue E. • P.O. Box 19276 • Springfield • Illinois • 62794-9276

The Agency is authorized to require this information under Section 4 and Title XVI of the Environmental Protection Act (415 ILCS 5/4, 5/57 – 57.17). Failure to disclose this information may result in a civil penalty of not to exceed \$50,000.00 for the violation and an additional civil penalty of not to exceed \$10,000.00 for each day during which the violation continues (415 ILCS 5/42). Any person who knowingly makes a false material statement or representation, orally or in writing, in any label, manifest, record, report, permit, or license, or other document filed, maintained or used for the purpose of compliance with Title XVI commits a Class 4 felony. Any second or subsequent offense after conviction hereunder is a Class 3 felony (415 ILCS 5/44 and 57.17). This form has been approved by the Forms Management Center.

Leaking Underground Storage Tank Program Laboratory Certification for Chemical Analysis

A. Site Identification

IEMA Incident # (6- or 8-digit): 892744 IEPA LPC# (10-digit): 0971855024

Site Name: Shivam Energy, Inc.

Site Address (Not a P.O. Box): 399 W. Liberty Street

City: Wauconda County: Lake ZIP Code: 60084

Leaking UST Technical File

B. Sample Collector

I certify that:

1. Appropriate sampling equipment/methods were utilized to obtain representative samples.
2. Chain-of-custody procedures were followed in the field.
3. Sample integrity was maintained by proper preservation.
4. All samples were properly labeled.

MR
(Initial)
MR
(Initial)
MR
(Initial)
MR
(Initial)

C. Laboratory Representative

I certify that:

1. Proper chain-of-custody procedures were followed as documented on the chain-of-custody forms
2. Sample integrity was maintained by proper preservation.
3. All samples were properly labeled.
4. Quality assurance/quality control procedures were established and carried out.
5. Sample holding times were not exceeded.

UW
(Initial)
UW
(Initial)
UW
(Initial)
UW
(Initial)
UW
(Initial)

40141386

6. SW-846 Analytical Laboratory Procedure (USEPA) methods were used for the analyses.

(Initial)

7. An accredited lab performed quantitative analysis using test methods identified in 35 IAC 186.180 (for samples collected on or after January 1, 2003).

(Initial)

D. Signatures

I hereby affirm that all information contained in this form is true and accurate to the best of my knowledge and belief. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sample Collector

Name Marcos I. Czako
Title Geologist III
Company TriCore Environmental, LLC
Address 2368 Corporate Lane, Suite 116
City Naperville
State Illinois
Zip Code 60563
Phone (630) 520-9973
Signature *Marcos Czako*
Date 11/03/16

Laboratory Representative

Name Laurie Woelfel
Title Project Manager
Company Pace Analytical Services, Inc.
Address 1241 Bellevue Street, Suite 9
City Green Bay
State Wisconsin
Zip Code 54302
Phone (920) 469-2436
Signature *Laurie Woelfel*
Date 11/10/16

APPENDIX F

SOIL ANALYTICAL LABORATORY REPORT AND CERTIFICATION

November 16, 2016

Marcos Czako
TriCore Environmental, LLC.
2368 Corporate Lane
Suite 116
Naperville, IL 60563

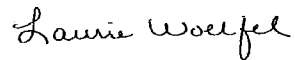
RE: Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

Dear Marcos Czako:

Enclosed are the analytical results for sample(s) received by the laboratory on November 04, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Laurie Woelfel
laurie.woelfel@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 100018 SHIVAM ENERGY, INC.

Pace Project No.: 40141386

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky UST Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

New York Certification #: 12064

North Dakota Certification #: R-150

Virginia VELAP ID: 460263

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

USDA Soil Permit #: P330-16-00157

Federal Fish & Wildlife Permit #: LE51774A-0

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40141386001	SB-76 @ 6-8	Solid	11/03/16 08:20	11/04/16 10:55
40141386002	SB-77 @ 5-7.5	Solid	11/03/16 08:40	11/04/16 10:55
40141386003	SB-78 @ 4-5	Solid	11/03/16 09:02	11/04/16 10:55
40141386004	SB-78 @ 5-7.5	Solid	11/03/16 09:03	11/04/16 10:55
40141386005	SB-79 @ 7-7.75	Solid	11/03/16 09:42	11/04/16 10:55
40141386006	SB-81 @ 6-8	Solid	11/03/16 10:14	11/04/16 10:55
40141386007	SB-82 @ 3-4	Solid	11/03/16 10:38	11/04/16 10:55
40141386008	SB-82 @ 6-8	Solid	11/03/16 10:40	11/04/16 10:55
40141386009	SB-83 @ 6-7	Solid	11/03/16 11:00	11/04/16 10:55
40141386010	SB-83 @ 7-8	Solid	11/03/16 11:01	11/04/16 10:55
40141386011	SB-84 @ 4-5	Solid	11/03/16 11:44	11/04/16 10:55
40141386012	SB-85 @ 6-7	Solid	11/03/16 12:08	11/04/16 10:55
40141386013	SB-86 @ 7.5-8.5	Solid	11/03/16 12:45	11/04/16 10:55
40141386014	SB-87 @ 4-5	Solid	11/03/16 13:07	11/04/16 10:55
40141386015	SB-87 @ 5-8	Solid	11/03/16 13:10	11/04/16 10:55
40141386016	SB-88 @ 7-8	Solid	11/03/16 13:27	11/04/16 10:55
40141386017	MW32	Water	11/03/16 08:50	11/04/16 10:55
40141386018	RW5	Water	11/03/16 09:40	11/04/16 10:55

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40141386001	SB-76 @ 6-8	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386002	SB-77 @ 5-7.5	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386003	SB-78 @ 4-5	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386004	SB-78 @ 5-7.5	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386005	SB-79 @ 7-7.75	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386006	SB-81 @ 6-8	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386007	SB-82 @ 3-4	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386008	SB-82 @ 6-8	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386009	SB-83 @ 6-7	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386010	SB-83 @ 7-8	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386011	SB-84 @ 4-5	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386012	SB-85 @ 6-7	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386013	SB-86 @ 7.5-8.5	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386014	SB-87 @ 4-5	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386015	SB-87 @ 5-8	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386016	SB-88 @ 7-8	EPA 8260	SMT	8	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40141386017	MW32	EPA 8260	LAP	8	PASI-G
40141386018	RW5	EPA 8260	LAP	8	PASI-G

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 100018 SHIVAM ENERGY, INC.

Pace Project No.: 40141386

Sample: SB-76 @ 6-8 Lab ID: 40141386001 Collected: 11/03/16 08:20 Received: 11/04/16 10:55 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Short List		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Benzene	2640	ug/kg	1090	504	50	11/07/16 09:30	11/09/16 16:59	71-43-2	
Ethylbenzene	37100	ug/kg	2730	680	50	11/07/16 09:30	11/09/16 16:59	100-41-4	
Methyl-tert-butyl ether	<692	ug/kg	2730	692	50	11/07/16 09:30	11/09/16 16:59	1634-04-4	
Toluene	72400	ug/kg	2730	614	50	11/07/16 09:30	11/09/16 16:59	108-88-3	
Xylene (Total)	558000	ug/kg	8200	2650	50	11/07/16 09:30	11/09/16 16:59	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	0	%	53-165		50	11/07/16 09:30	11/09/16 16:59	1868-53-7	S4
4-Bromofluorobenzene (S)	0	%	48-138		50	11/07/16 09:30	11/09/16 16:59	460-00-4	S4
Toluene-d8 (S)	0	%	54-163		50	11/07/16 09:30	11/09/16 16:59	2037-26-5	S4
Percent Moisture		Analytical Method: ASTM D2974-87							
Percent Moisture	8.6	%	0.10	0.10	1		11/07/16 14:13		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

Sample: SB-77 @ 5-7.5 Lab ID: 40141386002 Collected: 11/03/16 08:40 Received: 11/04/16 10:55 Matrix: Solid
Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Short List		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Benzene	<10.2	ug/kg	22.1	10.2	1	11/07/16 09:30	11/09/16 21:09	71-43-2	
Ethylbenzene	<13.7	ug/kg	55.3	13.7	1	11/07/16 09:30	11/09/16 21:09	100-41-4	
Methyl-tert-butyl ether	<14.0	ug/kg	55.3	14.0	1	11/07/16 09:30	11/09/16 21:09	1634-04-4	
Toluene	<12.4	ug/kg	55.3	12.4	1	11/07/16 09:30	11/09/16 21:09	108-88-3	
Xylene (Total)	55.0J	ug/kg	166	53.6	1	11/07/16 09:30	11/09/16 21:09	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	99	%	53-165		1	11/07/16 09:30	11/09/16 21:09	1868-53-7	
4-Bromofluorobenzene (S)	90	%	48-138		1	11/07/16 09:30	11/09/16 21:09	460-00-4	
Toluene-d8 (S)	102	%	54-163		1	11/07/16 09:30	11/09/16 21:09	2037-26-5	
Percent Moisture		Analytical Method: ASTM D2974-87							
Percent Moisture	9.6	%	0.10	0.10	1		11/07/16 14:13		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

Sample: SB-78 @ 4-5 Lab ID: 40141386003 Collected: 11/03/16 09:02 Received: 11/04/16 10:55 Matrix: Solid
Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Short List		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Benzene	<104	ug/kg	225	104	10	11/07/16 09:30	11/09/16 16:14	71-43-2	
Ethylbenzene	722	ug/kg	563	140	10	11/07/16 09:30	11/09/16 16:14	100-41-4	
Methyl-tert-butyl ether	<143	ug/kg	563	143	10	11/07/16 09:30	11/09/16 16:14	1634-04-4	
Toluene	<126	ug/kg	563	126	10	11/07/16 09:30	11/09/16 16:14	108-88-3	
Xylene (Total)	5550	ug/kg	1690	546	10	11/07/16 09:30	11/09/16 16:14	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	90	%	53-165		10	11/07/16 09:30	11/09/16 16:14	1868-53-7	D3
4-Bromofluorobenzene (S)	89	%	48-138		10	11/07/16 09:30	11/09/16 16:14	460-00-4	
Toluene-d8 (S)	91	%	54-163		10	11/07/16 09:30	11/09/16 16:14	2037-26-5	
Percent Moisture		Analytical Method: ASTM D2974-87							
Percent Moisture	11.2	%	0.10	0.10	1		11/07/16 14:13		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

Sample: SB-78 @ 5-7.5 Lab ID: 40141386004 Collected: 11/03/16 09:03 Received: 11/04/16 10:55 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Short List		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Benzene	<10.5	ug/kg	22.7	10.5	1	11/07/16 09:30	11/09/16 21:31	71-43-2	
Ethylbenzene	17.7J	ug/kg	56.8	14.1	1	11/07/16 09:30	11/09/16 21:31	100-41-4	
Methyl-tert-butyl ether	<14.4	ug/kg	56.8	14.4	1	11/07/16 09:30	11/09/16 21:31	1634-04-4	
Toluene	<12.7	ug/kg	56.8	12.7	1	11/07/16 09:30	11/09/16 21:31	108-88-3	
Xylene (Total)	<55.0	ug/kg	170	55.0	1	11/07/16 09:30	11/09/16 21:31	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	85	%	53-165		1	11/07/16 09:30	11/09/16 21:31	1868-53-7	
4-Bromofluorobenzene (S)	76	%	48-138		1	11/07/16 09:30	11/09/16 21:31	460-00-4	
Toluene-d8 (S)	89	%	54-163		1	11/07/16 09:30	11/09/16 21:31	2037-26-5	
Percent Moisture		Analytical Method: ASTM D2974-87							
Percent Moisture	12.0	%	0.10	0.10	1		11/07/16 14:37		

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ANALYTICAL RESULTS

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

Sample: SB-79 @ 7-7.75 Lab ID: 40141386005 Collected: 11/03/16 09:42 Received: 11/04/16 10:55 Matrix: Solid
Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Short List		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Benzene	<19.9	ug/kg	43.1	19.9	2	11/07/16 09:30	11/09/16 16:37	71-43-2	
Ethylbenzene	<26.8	ug/kg	108	26.8	2	11/07/16 09:30	11/09/16 16:37	100-41-4	
Methyl-tert-butyl ether	<27.3	ug/kg	108	27.3	2	11/07/16 09:30	11/09/16 16:37	1634-04-4	
Toluene	<24.2	ug/kg	108	24.2	2	11/07/16 09:30	11/09/16 16:37	108-88-3	
Xylene (Total)	753	ug/kg	323	104	2	11/07/16 09:30	11/09/16 16:37	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	97	%	53-165		2	11/07/16 09:30	11/09/16 16:37	1868-53-7	D3
4-Bromofluorobenzene (S)	91	%	48-138		2	11/07/16 09:30	11/09/16 16:37	460-00-4	
Toluene-d8 (S)	94	%	54-163		2	11/07/16 09:30	11/09/16 16:37	2037-26-5	
Percent Moisture		Analytical Method: ASTM D2974-87							
Percent Moisture	7.1	%	0.10	0.10	1		11/07/16 14:37		

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ANALYTICAL RESULTS

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

Sample: SB-81 @ 6-8 Lab ID: 40141386006 Collected: 11/03/16 10:14 Received: 11/04/16 10:55 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Short List		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Benzene	<10.4	ug/kg	22.5	10.4	1	11/07/16 09:30	11/09/16 21:54	71-43-2	
Ethylbenzene	<14.0	ug/kg	56.2	14.0	1	11/07/16 09:30	11/09/16 21:54	100-41-4	
Methyl-tert-butyl ether	<14.2	ug/kg	56.2	14.2	1	11/07/16 09:30	11/09/16 21:54	1634-04-4	
Toluene	<12.6	ug/kg	56.2	12.6	1	11/07/16 09:30	11/09/16 21:54	108-88-3	
Xylene (Total)	<54.4	ug/kg	168	54.4	1	11/07/16 09:30	11/09/16 21:54	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	86	%	53-165		1	11/07/16 09:30	11/09/16 21:54	1868-53-7	
4-Bromofluorobenzene (S)	81	%	48-138		1	11/07/16 09:30	11/09/16 21:54	460-00-4	
Toluene-d8 (S)	93	%	54-163		1	11/07/16 09:30	11/09/16 21:54	2037-26-5	
Percent Moisture		Analytical Method: ASTM D2974-87							
Percent Moisture	11.0	%	0.10	0.10	1		11/07/16 14:37		

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ANALYTICAL RESULTS

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

Sample: SB-82 @ 3-4 Lab ID: 40141386007 Collected: 11/03/16 10:38 Received: 11/04/16 10:55 Matrix: Solid
Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Short List		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Benzene	<10.4	ug/kg	22.6	10.4	1	11/07/16 09:30	11/09/16 22:16	71-43-2	
Ethylbenzene	<14.1	ug/kg	56.6	14.1	1	11/07/16 09:30	11/09/16 22:16	100-41-4	
Methyl-tert-butyl ether	<14.3	ug/kg	56.6	14.3	1	11/07/16 09:30	11/09/16 22:16	1634-04-4	
Toluene	<12.7	ug/kg	56.6	12.7	1	11/07/16 09:30	11/09/16 22:16	108-88-3	
Xylene (Total)	<54.8	ug/kg	170	54.8	1	11/07/16 09:30	11/09/16 22:16	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	80	%	53-165		1	11/07/16 09:30	11/09/16 22:16	1868-53-7	
4-Bromofluorobenzene (S)	77	%	48-138		1	11/07/16 09:30	11/09/16 22:16	460-00-4	
Toluene-d8 (S)	87	%	54-163		1	11/07/16 09:30	11/09/16 22:16	2037-26-5	
Percent Moisture		Analytical Method: ASTM D2974-87							
Percent Moisture	11.6	%	0.10	0.10	1		11/07/16 14:37		

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ANALYTICAL RESULTS

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

Sample: SB-82 @ 6-8 Lab ID: 40141386008 Collected: 11/03/16 10:40 Received: 11/04/16 10:55 Matrix: Solid
Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Short List		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Benzene	<9.9	ug/kg	21.5	9.9	1	11/07/16 09:30	11/09/16 22:39	71-43-2	
Ethylbenzene	<13.4	ug/kg	53.7	13.4	1	11/07/16 09:30	11/09/16 22:39	100-41-4	
Methyl-tert-butyl ether	<13.6	ug/kg	53.7	13.6	1	11/07/16 09:30	11/09/16 22:39	1634-04-4	
Toluene	<12.1	ug/kg	53.7	12.1	1	11/07/16 09:30	11/09/16 22:39	108-88-3	
Xylene (Total)	58.4J	ug/kg	161	52.1	1	11/07/16 09:30	11/09/16 22:39	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	89	%	53-165		1	11/07/16 09:30	11/09/16 22:39	1868-53-7	
4-Bromofluorobenzene (S)	82	%	48-138		1	11/07/16 09:30	11/09/16 22:39	460-00-4	
Toluene-d8 (S)	92	%	54-163		1	11/07/16 09:30	11/09/16 22:39	2037-26-5	
Percent Moisture		Analytical Method: ASTM D2974-87							
Percent Moisture	7.0	%	0.10	0.10	1		11/07/16 14:37		

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ANALYTICAL RESULTS

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

Sample: SB-83 @ 6-7 **Lab ID: 40141386009** Collected: 11/03/16 11:00 Received: 11/04/16 10:55 Matrix: Solid
Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Short List		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Benzene	44.6	ug/kg	23.1	10.6	1	11/08/16 07:30	11/08/16 15:38	71-43-2	
Ethylbenzene	530	ug/kg	57.6	14.3	1	11/08/16 07:30	11/08/16 15:38	100-41-4	
Methyl-tert-butyl ether	<14.6	ug/kg	57.6	14.6	1	11/08/16 07:30	11/08/16 15:38	1634-04-4	
Toluene	35.7J	ug/kg	57.6	12.9	1	11/08/16 07:30	11/08/16 15:38	108-88-3	
Xylene (Total)	12000	ug/kg	173	55.8	1	11/08/16 07:30	11/08/16 15:38	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	85	%	53-165		1	11/08/16 07:30	11/08/16 15:38	1868-53-7	
4-Bromofluorobenzene (S)	84	%	48-138		1	11/08/16 07:30	11/08/16 15:38	460-00-4	
Toluene-d8 (S)	94	%	54-163		1	11/08/16 07:30	11/08/16 15:38	2037-26-5	
Percent Moisture		Analytical Method: ASTM D2974-87							
Percent Moisture	13.2	%	0.10	0.10	1		11/07/16 14:38		

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ANALYTICAL RESULTS

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

Sample: SB-83 @ 7-8 **Lab ID: 40141386010** Collected: 11/03/16 11:01 Received: 11/04/16 10:55 Matrix: Solid
Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Short List		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Benzene	275	ug/kg	194	89.3	8	11/08/16 07:30	11/08/16 16:23	71-43-2	
Ethylbenzene	11100	ug/kg	484	120	8	11/08/16 07:30	11/08/16 16:23	100-41-4	
Methyl-tert-butyl ether	<122	ug/kg	484	122	8	11/08/16 07:30	11/08/16 16:23	1634-04-4	
Toluene	315J	ug/kg	484	109	8	11/08/16 07:30	11/08/16 16:23	108-88-3	
Xylene (Total)	106000	ug/kg	1450	469	8	11/08/16 07:30	11/08/16 16:23	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	82	%	53-165		8	11/08/16 07:30	11/08/16 16:23	1868-53-7	
4-Bromofluorobenzene (S)	83	%	48-138		8	11/08/16 07:30	11/08/16 16:23	460-00-4	
Toluene-d8 (S)	88	%	54-163		8	11/08/16 07:30	11/08/16 16:23	2037-26-5	
Percent Moisture		Analytical Method: ASTM D2974-87							
Percent Moisture	17.4	%	0.10	0.10	1		11/07/16 14:38		

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ANALYTICAL RESULTS

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

Sample: **SB-84 @ 4-5** Lab ID: **40141386011** Collected: 11/03/16 11:44 Received: 11/04/16 10:55 Matrix: Solid
Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Short List		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Benzene	<11.6	ug/kg	25.2	11.6	1	11/08/16 07:30	11/08/16 20:30	71-43-2	
Ethylbenzene	<15.6	ug/kg	62.9	15.6	1	11/08/16 07:30	11/08/16 20:30	100-41-4	
Methyl-tert-butyl ether	<15.9	ug/kg	62.9	15.9	1	11/08/16 07:30	11/08/16 20:30	1634-04-4	
Toluene	<14.1	ug/kg	62.9	14.1	1	11/08/16 07:30	11/08/16 20:30	108-88-3	
Xylene (Total)	<60.9	ug/kg	189	60.9	1	11/08/16 07:30	11/08/16 20:30	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	89	%	53-165		1	11/08/16 07:30	11/08/16 20:30	1868-53-7	
4-Bromofluorobenzene (S)	82	%	48-138		1	11/08/16 07:30	11/08/16 20:30	460-00-4	
Toluene-d8 (S)	93	%	54-163		1	11/08/16 07:30	11/08/16 20:30	2037-26-5	
Percent Moisture		Analytical Method: ASTM D2974-87							
Percent Moisture	20.5	%	0.10	0.10	1		11/07/16 14:38		

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ANALYTICAL RESULTS

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

Sample: **SB-85 @ 6-7** Lab ID: **40141386012** Collected: 11/03/16 12:08 Received: 11/04/16 10:55 Matrix: Solid
Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Short List		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Benzene	<11.0	ug/kg	23.9	11.0	1	11/08/16 07:30	11/08/16 20:53	71-43-2	
Ethylbenzene	<14.9	ug/kg	59.8	14.9	1	11/08/16 07:30	11/08/16 20:53	100-41-4	
Methyl-tert-butyl ether	<15.1	ug/kg	59.8	15.1	1	11/08/16 07:30	11/08/16 20:53	1634-04-4	
Toluene	<13.4	ug/kg	59.8	13.4	1	11/08/16 07:30	11/08/16 20:53	108-88-3	
Xylene (Total)	<57.9	ug/kg	179	57.9	1	11/08/16 07:30	11/08/16 20:53	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	84	%	53-165		1	11/08/16 07:30	11/08/16 20:53	1868-53-7	
4-Bromofluorobenzene (S)	80	%	48-138		1	11/08/16 07:30	11/08/16 20:53	460-00-4	
Toluene-d8 (S)	92	%	54-163		1	11/08/16 07:30	11/08/16 20:53	2037-26-5	
Percent Moisture		Analytical Method: ASTM D2974-87							
Percent Moisture	16.4	%	0.10	0.10	1		11/07/16 14:38		

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ANALYTICAL RESULTS

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

Sample: SB-86 @ 7.5-8.5 Lab ID: 40141386013 Collected: 11/03/16 12:45 Received: 11/04/16 10:55 Matrix: Solid
Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Short List		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Benzene	<10.0	ug/kg	21.7	10.0	1	11/08/16 07:30	11/08/16 21:15	71-43-2	
Ethylbenzene	<13.5	ug/kg	54.3	13.5	1	11/08/16 07:30	11/08/16 21:15	100-41-4	
Methyl-tert-butyl ether	<13.7	ug/kg	54.3	13.7	1	11/08/16 07:30	11/08/16 21:15	1634-04-4	
Toluene	<12.2	ug/kg	54.3	12.2	1	11/08/16 07:30	11/08/16 21:15	108-88-3	
Xylene (Total)	<52.6	ug/kg	163	52.6	1	11/08/16 07:30	11/08/16 21:15	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	88	%	53-165		1	11/08/16 07:30	11/08/16 21:15	1868-53-7	
4-Bromofluorobenzene (S)	83	%	48-138		1	11/08/16 07:30	11/08/16 21:15	460-00-4	
Toluene-d8 (S)	95	%	54-163		1	11/08/16 07:30	11/08/16 21:15	2037-26-5	
Percent Moisture		Analytical Method: ASTM D2974-87							
Percent Moisture	7.9	%	0.10	0.10	1		11/07/16 14:38		

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ANALYTICAL RESULTS

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

Sample: SB-87 @ 4-5 Lab ID: 40141386014 Collected: 11/03/16 13:07 Received: 11/04/16 10:55 Matrix: Solid
Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Short List		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Benzene	<10.6	ug/kg	23.0	10.6	1	11/08/16 07:30	11/08/16 21:38	71-43-2	
Ethylbenzene	<14.3	ug/kg	57.4	14.3	1	11/08/16 07:30	11/08/16 21:38	100-41-4	
Methyl-tert-butyl ether	<14.5	ug/kg	57.4	14.5	1	11/08/16 07:30	11/08/16 21:38	1634-04-4	
Toluene	<12.9	ug/kg	57.4	12.9	1	11/08/16 07:30	11/08/16 21:38	108-88-3	
Xylene (Total)	<55.6	ug/kg	172	55.6	1	11/08/16 07:30	11/08/16 21:38	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	81	%	53-165		1	11/08/16 07:30	11/08/16 21:38	1868-53-7	
4-Bromofluorobenzene (S)	75	%	48-138		1	11/08/16 07:30	11/08/16 21:38	460-00-4	
Toluene-d8 (S)	85	%	54-163		1	11/08/16 07:30	11/08/16 21:38	2037-26-5	
Percent Moisture		Analytical Method: ASTM D2974-87							
Percent Moisture	12.9	%	0.10	0.10	1		11/07/16 14:38		

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ANALYTICAL RESULTS

Project: 100018 SHIVAM ENERGY, INC.

Pace Project No.: 40141386

Sample: SB-87 @ 5-8 Lab ID: 40141386015 Collected: 11/03/16 13:10 Received: 11/04/16 10:55 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Short List		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Benzene	<108	ug/kg	235	108	10	11/08/16 07:30	11/08/16 23:54	71-43-2	
Ethylbenzene	317J	ug/kg	587	146	10	11/08/16 07:30	11/08/16 23:54	100-41-4	
Methyl-tert-butyl ether	<149	ug/kg	587	149	10	11/08/16 07:30	11/08/16 23:54	1634-04-4	
Toluene	<132	ug/kg	587	132	10	11/08/16 07:30	11/08/16 23:54	108-88-3	
Xylene (Total)	20400	ug/kg	1760	568	10	11/08/16 07:30	11/08/16 23:54	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	82	%	53-165		10	11/08/16 07:30	11/08/16 23:54	1868-53-7	D3
4-Bromofluorobenzene (S)	95	%	48-138		10	11/08/16 07:30	11/08/16 23:54	460-00-4	
Toluene-d8 (S)	89	%	54-163		10	11/08/16 07:30	11/08/16 23:54	2037-26-5	
Percent Moisture		Analytical Method: ASTM D2974-87							
Percent Moisture	14.8	%	0.10	0.10	1		11/07/16 14:38		

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ANALYTICAL RESULTS

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

Sample: SB-88 @ 7-8 Lab ID: 40141386016 Collected: 11/03/16 13:27 Received: 11/04/16 10:55 Matrix: Solid
Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Short List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Benzene	79.8J	ug/kg	169	78.0	8	11/08/16 07:30	11/08/16 16:46	71-43-2	
Ethylbenzene	4360	ug/kg	423	105	8	11/08/16 07:30	11/08/16 16:46	100-41-4	
Methyl-tert-butyl ether	<107	ug/kg	423	107	8	11/08/16 07:30	11/08/16 16:46	1634-04-4	
Toluene	1750	ug/kg	423	94.9	8	11/08/16 07:30	11/08/16 16:46	108-88-3	
Xylene (Total)	56300	ug/kg	1270	410	8	11/08/16 07:30	11/08/16 16:46	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	81	%	53-165		8	11/08/16 07:30	11/08/16 16:46	1868-53-7	
4-Bromofluorobenzene (S)	82	%	48-138		8	11/08/16 07:30	11/08/16 16:46	460-00-4	
Toluene-d8 (S)	87	%	54-163		8	11/08/16 07:30	11/08/16 16:46	2037-26-5	
Percent Moisture									
Analytical Method: ASTM D2974-87									
Percent Moisture	5.5	%	0.10	0.10	1		11/07/16 14:38		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

Sample: MW32 Lab ID: 40141386017 Collected: 11/03/16 08:50 Received: 11/04/16 10:55 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	223	ug/L	4.0	2.0	4		11/08/16 01:07	71-43-2	
Ethylbenzene	53.9	ug/L	4.0	2.0	4		11/08/16 01:07	100-41-4	
Methyl-tert-butyl ether	<0.70	ug/L	4.0	0.70	4		11/08/16 01:07	1634-04-4	
Toluene	3.8J	ug/L	4.0	2.0	4		11/08/16 01:07	108-88-3	
Xylene (Total)	26.1	ug/L	12.0	6.0	4		11/08/16 01:07	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	93	%	70-130		4		11/08/16 01:07	1868-53-7	
Toluene-d8 (S)	101	%	70-130		4		11/08/16 01:07	2037-26-5	
4-Bromofluorobenzene (S)	96	%	70-130		4		11/08/16 01:07	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

Sample: **RW5** Lab ID: **40141386018** Collected: 11/03/16 09:40 Received: 11/04/16 10:55 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	1600	ug/L	10.0	5.0	10		11/08/16 01:29	71-43-2	
Ethylbenzene	1020	ug/L	10.0	5.0	10		11/08/16 01:29	100-41-4	
Methyl-tert-butyl ether	<1.7	ug/L	10.0	1.7	10		11/08/16 01:29	1634-04-4	
Toluene	192	ug/L	10.0	5.0	10		11/08/16 01:29	108-88-3	
Xylene (Total)	1520	ug/L	30.0	15.0	10		11/08/16 01:29	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	92	%	70-130		10		11/08/16 01:29	1868-53-7	
Toluene-d8 (S)	100	%	70-130		10		11/08/16 01:29	2037-26-5	
4-Bromofluorobenzene (S)	96	%	70-130		10		11/08/16 01:29	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

QC Batch: 240575 Analysis Method: EPA 8260
QC Batch Method: EPA 5035/5030B Analysis Description: 8260 MSV Med Level Short List
Associated Lab Samples: 40141386001, 40141386002, 40141386003, 40141386004, 40141386005, 40141386006, 40141386007, 40141386008

METHOD BLANK: 1425569 Matrix: Solid
Associated Lab Samples: 40141386001, 40141386002, 40141386003, 40141386004, 40141386005, 40141386006, 40141386007, 40141386008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Benzene	ug/kg	<9.2	20.0	9.2	11/09/16 09:05	
Ethylbenzene	ug/kg	<12.4	50.0	12.4	11/09/16 09:05	
Methyl-tert-butyl ether	ug/kg	<12.7	50.0	12.7	11/09/16 09:05	
Toluene	ug/kg	<11.2	50.0	11.2	11/09/16 09:05	
Xylene (Total)	ug/kg	<48.4	150	48.4	11/09/16 09:05	
4-Bromofluorobenzene (S)	%	87	48-138		11/09/16 09:05	
Dibromofluoromethane (S)	%	93	53-165		11/09/16 09:05	
Toluene-d8 (S)	%	101	54-163		11/09/16 09:05	

LABORATORY CONTROL SAMPLE: 1425570

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/kg	2500	2070	83	70-130	
Ethylbenzene	ug/kg	2500	1970	79	70-130	
Methyl-tert-butyl ether	ug/kg	2500	2040	82	70-130	
Toluene	ug/kg	2500	2040	81	70-130	
Xylene (Total)	ug/kg	7500	6040	81	70-130	
4-Bromofluorobenzene (S)	%			78	48-138	
Dibromofluoromethane (S)	%			84	53-165	
Toluene-d8 (S)	%			86	54-163	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1425571 1425572

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40141381028 Result	Spike Conc.	Spike Conc.	Result						
Benzene	ug/kg	<0.010 mg/kg	1410	1410	1340	1390	95	98	70-130	3	20
Ethylbenzene	ug/kg	<0.014 mg/kg	1410	1410	1290	1300	91	92	70-130	1	20
Methyl-tert-butyl ether	ug/kg	<0.014 mg/kg	1410	1410	1430	1440	101	102	70-130	1	20
Toluene	ug/kg	<0.013 mg/kg	1410	1410	1360	1400	96	99	70-130	3	20
Xylene (Total)	ug/kg	<0.055 mg/kg	4240	4240	3880	4150	92	98	70-130	7	20
4-Bromofluorobenzene (S)	%						94	83	48-138		
Dibromofluoromethane (S)	%						99	88	53-165		
Toluene-d8 (S)	%						106	93	54-163		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

QC Batch: 240656 Analysis Method: EPA 8260
QC Batch Method: EPA 5035/5030B Analysis Description: 8260 MSV Med Level Short List
Associated Lab Samples: 40141386009, 40141386010, 40141386011, 40141386012, 40141386013, 40141386014, 40141386015, 40141386016

METHOD BLANK: 1425804 Matrix: Solid
Associated Lab Samples: 40141386009, 40141386010, 40141386011, 40141386012, 40141386013, 40141386014, 40141386015, 40141386016

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Benzene	ug/kg	<9.2	20.0	9.2	11/08/16 08:51	
Ethylbenzene	ug/kg	<12.4	50.0	12.4	11/08/16 08:51	
Methyl-tert-butyl ether	ug/kg	<12.7	50.0	12.7	11/08/16 08:51	
Toluene	ug/kg	<11.2	50.0	11.2	11/08/16 08:51	
Xylene (Total)	ug/kg	<48.4	150	48.4	11/08/16 08:51	
4-Bromofluorobenzene (S)	%	87	48-138		11/08/16 08:51	
Dibromofluoromethane (S)	%	100	53-165		11/08/16 08:51	
Toluene-d8 (S)	%	98	54-163		11/08/16 08:51	

LABORATORY CONTROL SAMPLE: 1425805

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/kg	2500	2420	97	70-130	
Ethylbenzene	ug/kg	2500	2370	95	70-130	
Methyl-tert-butyl ether	ug/kg	2500	2320	93	70-130	
Toluene	ug/kg	2500	2460	98	70-130	
Xylene (Total)	ug/kg	7500	7440	99	70-130	
4-Bromofluorobenzene (S)	%			90	48-138	
Dibromofluoromethane (S)	%			93	53-165	
Toluene-d8 (S)	%			93	54-163	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1425806 1425807

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40141408010 Result	Spike Conc.	Spike Conc.	Result						
Benzene	ug/kg	<11.5	1560	1560	1390	1400	89	90	70-130	1	20
Ethylbenzene	ug/kg	<15.5	1560	1560	1340	1430	86	91	70-130	6	20
Methyl-tert-butyl ether	ug/kg	<15.8	1560	1560	1270	1400	81	90	70-130	9	20
Toluene	ug/kg	<14.0	1560	1560	1370	1510	87	96	70-130	10	20
Xylene (Total)	ug/kg	<60.6	4690	4690	4270	4550	91	97	70-130	6	20
4-Bromofluorobenzene (S)	%						85	94	48-138		
Dibromofluoromethane (S)	%						88	96	53-165		1q
Toluene-d8 (S)	%						90	100	54-163		

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QUALITY CONTROL DATA

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

QC Batch: 240458 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 40141386017, 40141386018

METHOD BLANK: 1425021 Matrix: Water
Associated Lab Samples: 40141386017, 40141386018

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Benzene	ug/L	<0.50	1.0	0.50	11/07/16 16:01	
Ethylbenzene	ug/L	<0.50	1.0	0.50	11/07/16 16:01	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	0.17	11/07/16 16:01	
Toluene	ug/L	<0.50	1.0	0.50	11/07/16 16:01	
Xylene (Total)	ug/L	<1.5	3.0	1.5	11/07/16 16:01	
4-Bromofluorobenzene (S)	%	89	70-130		11/07/16 16:01	
Dibromofluoromethane (S)	%	99	70-130		11/07/16 16:01	
Toluene-d8 (S)	%	99	70-130		11/07/16 16:01	

LABORATORY CONTROL SAMPLE: 1425022

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	52.0	104	60-135	
Ethylbenzene	ug/L	50	55.3	111	70-136	
Methyl-tert-butyl ether	ug/L	50	47.2	94	66-138	
Toluene	ug/L	50	54.4	109	70-130	
Xylene (Total)	ug/L	150	166	111	70-135	
4-Bromofluorobenzene (S)	%			98	70-130	
Dibromofluoromethane (S)	%			100	70-130	
Toluene-d8 (S)	%			98	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1425124 1425125

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual	
		40141415003 Result	Spike Conc.	Spike Conc.	MS Result						MSD Result
Benzene	ug/L	4.8	50	50	51.1	55.7	92	102	57-138	9	20
Ethylbenzene	ug/L	9.0	50	50	63.1	64.0	108	110	70-138	1	20
Methyl-tert-butyl ether	ug/L	13.0	50	50	47.1	55.9	68	86	66-139	17	20
Toluene	ug/L	<1.0	50	50	52.3	52.6	104	105	70-130	1	20
Xylene (Total)	ug/L	<3.0	150	150	159	159	105	106	70-135	0	20
4-Bromofluorobenzene (S)	%						99	98	70-130		
Dibromofluoromethane (S)	%						91	100	70-130		
Toluene-d8 (S)	%						97	98	70-130		

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QUALITY CONTROL DATA

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

QC Batch: 240570 Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 40141386004, 40141386005, 40141386006, 40141386007, 40141386008, 40141386009, 40141386010,
40141386011, 40141386012, 40141386013, 40141386014, 40141386015, 40141386016

SAMPLE DUPLICATE: 1425557

Parameter	Units	40141386004 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	12.0	13.1	9	10	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above adjusted reporting limit.
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
PQL - Practical Quantitation Limit.
RL - Reporting Limit.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The NELAC Institute.

LABORATORIES

PASI-G Pace Analytical Services - Green Bay

ANALYTE QUALIFIERS

1q Sample aliquot was taken from a glass jar with head space and MeOH preserved in the laboratory.
D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
S4 Surrogate recovery not evaluated against control limits due to sample dilution.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 100018 SHIVAM ENERGY, INC.
Pace Project No.: 40141386

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40141386001	SB-76 @ 6-8	EPA 5035/5030B	240575	EPA 8260	240576
40141386002	SB-77 @ 5-7.5	EPA 5035/5030B	240575	EPA 8260	240576
40141386003	SB-78 @ 4-5	EPA 5035/5030B	240575	EPA 8260	240576
40141386004	SB-78 @ 5-7.5	EPA 5035/5030B	240575	EPA 8260	240576
40141386005	SB-79 @ 7-7.75	EPA 5035/5030B	240575	EPA 8260	240576
40141386006	SB-81 @ 6-8	EPA 5035/5030B	240575	EPA 8260	240576
40141386007	SB-82 @ 3-4	EPA 5035/5030B	240575	EPA 8260	240576
40141386008	SB-82 @ 6-8	EPA 5035/5030B	240575	EPA 8260	240576
40141386009	SB-83 @ 6-7	EPA 5035/5030B	240656	EPA 8260	240659
40141386010	SB-83 @ 7-8	EPA 5035/5030B	240656	EPA 8260	240659
40141386011	SB-84 @ 4-5	EPA 5035/5030B	240656	EPA 8260	240659
40141386012	SB-85 @ 6-7	EPA 5035/5030B	240656	EPA 8260	240659
40141386013	SB-86 @ 7.5-8.5	EPA 5035/5030B	240656	EPA 8260	240659
40141386014	SB-87 @ 4-5	EPA 5035/5030B	240656	EPA 8260	240659
40141386015	SB-87 @ 5-8	EPA 5035/5030B	240656	EPA 8260	240659
40141386016	SB-88 @ 7-8	EPA 5035/5030B	240656	EPA 8260	240659
40141386017	MW32	EPA 8260	240458		
40141386018	RW5	EPA 8260	240458		
40141386001	SB-76 @ 6-8	ASTM D2974-87	240554		
40141386002	SB-77 @ 5-7.5	ASTM D2974-87	240554		
40141386003	SB-78 @ 4-5	ASTM D2974-87	240554		
40141386004	SB-78 @ 5-7.5	ASTM D2974-87	240570		
40141386005	SB-79 @ 7-7.75	ASTM D2974-87	240570		
40141386006	SB-81 @ 6-8	ASTM D2974-87	240570		
40141386007	SB-82 @ 3-4	ASTM D2974-87	240570		
40141386008	SB-82 @ 6-8	ASTM D2974-87	240570		
40141386009	SB-83 @ 6-7	ASTM D2974-87	240570		
40141386010	SB-83 @ 7-8	ASTM D2974-87	240570		
40141386011	SB-84 @ 4-5	ASTM D2974-87	240570		
40141386012	SB-85 @ 6-7	ASTM D2974-87	240570		
40141386013	SB-86 @ 7.5-8.5	ASTM D2974-87	240570		
40141386014	SB-87 @ 4-5	ASTM D2974-87	240570		
40141386015	SB-87 @ 5-8	ASTM D2974-87	240570		
40141386016	SB-88 @ 7-8	ASTM D2974-87	240570		

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 2 of 2
 401413889

Section A Required Client Information: **Section B** Required Project Information: **Section C** Invoice Information:

Company: TriCore Environmental, LLC
 Address: 2368 Corporate Lane, Suite 116
 Naperville, Illinois 60563
 Copy To: Shawn Rodeck
 Attention: TriCore Environmental, LLC
 Company Name: TriCore Environmental, LLC
 Address: 2368 Corporate Lane, Suite 116, Naperville, IL 60563
 Email To: marcos.czako@tricoreweb.com
 Purchase Order No.: 100018
 Pace Quote Reference:
 Project Name: Shivam Energy, Inc.
 Pace Project Manager:
 Project Number: 100018
 Pace Profile #:
 Requested Due Date/TAT: standard
 Project Number: 100018
 Valid Matrix Codes: DW, WT, SW, SL, OL, MS, AT, OT, TS

ITEM #	Section D SAMPLE ID One Character per box. (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES						Regulatory Agency	Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact
				DATE	TIME			Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃					
1	SB-86	SL G	G	11/3/16	1245		3											
2	SB-87	SL G	G	11/3/16	1307		3											
3	SB-88	SL G	G	11/3/16	1310		3											
4	SB-88	SL G	G	11/3/16	1327		3											
5	MW/3a			11/3/16	0850 W													
6	RW/5			11/3/16	0940 W													

Additional Comments:
 ① In shipment tab added to COC 11-4-16
 RELINQUISHED BY / AFFILIATION: *marcos / pace* DATE: 11/3/16 TIME: 1545
 ACCEPTED BY / AFFILIATION: *Rothman/Reynolds* DATE: 11/3/16 TIME: 1545
 Relinquished by: *Rothman/Reynolds* DATE: 11/3/16 TIME: 1800
 Accepted by: *OS 10015785* DATE: 11/3/16 TIME: 1055
 Relinquished by: *Rothman/Reynolds* DATE: 11/16/16 TIME: 1055
 Accepted by: *OS 10015785* DATE: 11/16/16 TIME: 1055

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Marcos I. Czako
 SIGNATURE of SAMPLER: *marcos* DATE Signed (MM/DD/YY): 11/03/16

Sample Condition Upon Receipt

Pace Analytical Services, Inc.
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

Pace Analytical
Client Name: TrilCore

Project #: **WO#: 40141386**



Courier: Fed Ex UPS Client Pace Other: ES Logistics
Tracking #: _____

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No

Custody Seal on Samples Present: Yes No Seals intact: Yes No

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used: SR68 Type of Ice: Wet Blue Dry None Samples on ice, cooling process has begun

Cooler Temperature: Uncorr: 3 / Corr: 3 Biological Tissue is Frozen: Yes No

Temp Blank Present: Yes No

Person examining contents:
Date: 11/4/16
Initials: SM

Temp should be above freezing to 6°C for all sample except Biota.
Frozen Biota Samples should be received ≤ 0°C.

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2. <u>017 & 018 not listed on COC. Feb</u>
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3. <u>added to COC.</u>
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4. <u>11-4-16</u>
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time:
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11.
Sample Labels match COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12. <u>003- ID on sample SB78 @ 7-7.5</u>
-Includes date/time/ID/Analysis Matrix: <u>W+S</u>		<u>Collect 11/3/16 @ 0903- placed by</u>
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <u>elimination. 004- ID on sample SB78</u>
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO3, H2SO4 ≤2; NaOH+ZnAct ≥9, NaOH ≥12)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> HNO3 <input type="checkbox"/> H2SO4 <input type="checkbox"/> NaOH <input type="checkbox"/> NaOH + ZnAct
exceptions: (VOA) coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed
		Lab Std #/ID of preservative
		Date/Time:
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: _____ If checked, see attached form for additional comments

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: 005 402ag no collect time
2) item per m/c low volume 11/4/16 JL

Project Manager Review: UW Date: 11/4/16



Illinois Environmental Protection Agency

40141386

Bureau of Land • 1021 N. Grand Avenue E. • P.O. Box 19276 • Springfield • Illinois • 62794-9276

The Agency is authorized to require this information under Section 4 and Title XVI of the Environmental Protection Act (415 ILCS 5/4, 5/57 – 57.17): Failure to disclose this information may result in a civil penalty of not to exceed \$50,000.00 for the violation and an additional civil penalty of not to exceed \$10,000.00 for each day during which the violation continues (415 ILCS 5/42). Any person who knowingly makes a false material statement or representation, orally or in writing, in any label, manifest, record, report, permit, or license, or other document filed, maintained or used for the purpose of compliance with Title XVI commits a Class 4 felony. Any second or subsequent offense after conviction hereunder is a Class 3 felony (415 ILCS 5/44 and 57.17). This form has been approved by the Forms Management Center.

Leaking Underground Storage Tank Program Laboratory Certification for Chemical Analysis

A. Site Identification

IEMA Incident # (6- or 8-digit): 892744 IEPA LPC# (10-digit): 0971855024

Site Name: Shivam Energy, Inc.

Site Address (Not a P.O. Box): 399 W. Liberty Street

City: Wauconda County: Lake ZIP Code: 60084

Leaking UST Technical File

B. Sample Collector

I certify that:

1. Appropriate sampling equipment/methods were utilized to obtain representative samples.
2. Chain-of-custody procedures were followed in the field.
3. Sample integrity was maintained by proper preservation.
4. All samples were properly labeled.

MTD
(Initial)
MTD
(Initial)
MTD
(Initial)
MTD
(Initial)

C. Laboratory Representative

I certify that:

1. Proper chain-of-custody procedures were followed as documented on the chain-of-custody forms
2. Sample integrity was maintained by proper preservation.
3. All samples were properly labeled.
4. Quality assurance/quality control procedures were established and carried out.
5. Sample holding times were not exceeded.

UW
(Initial)
UW
(Initial)
UW
(Initial)
UW
(Initial)
UW
(Initial)

40141386

- 6. SW-846 Analytical Laboratory Procedure (USEPA) methods were used for the analyses.
- 7. An accredited lab performed quantitative analysis using test methods identified in 35 IAC 186.180 (for samples collected on or after January 1, 2003).

 CW
(Initial)

 CW
(Initial)

D. Signatures

I hereby affirm that all information contained in this form is true and accurate to the best of my knowledge and belief. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sample Collector

Name Marcos I. Czako
Title Geologist III
Company TriCore Environmental, LLC
Address 2368 Corporate Lane, Suite 116
City Naperville
State Illinois
Zip Code 60563
Phone (630) 520-9973
Signature *Marcos I. Czako*
Date 11/03/16

Laboratory Representative

Name Laurie Woelfel
Title Project Manager
Company Pace Analytical Services, Inc.
Address 1241 Bellevue Street, Suite 9
City Green Bay
State Wisconsin
Zip Code 54302
Phone (920) 469-2436
Signature *Laurie Woelfel*
Date 11/10/16

APPENDIX G
SOIL BORING LOGS



2368 Corporate Ln., Ste. 116
Naperville, IL 60563

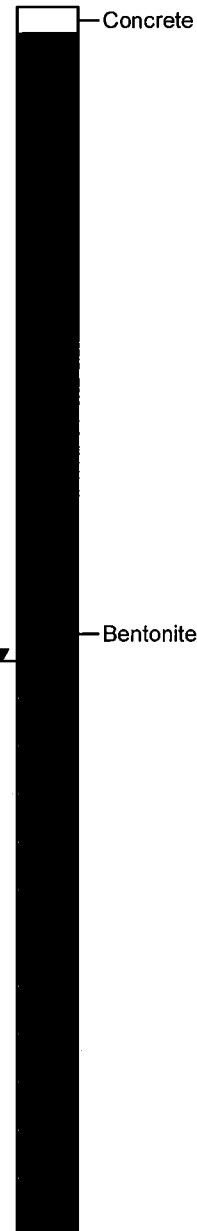
Shivam Energy, Inc.
399 W. Liberty Street
Wauconda, IL 60084

SB-76

Date Started: 11/03/16
Date Completed: 11/03/16
Boring Diameter: 2.25
Drilling Method: Direct-push
Sampling Method: Dual Tube

Surface Elevation: Not Surveyed
Total Depth: 15 ft.
DTW While Drilling: 8 ft.
Logged By: Marcos Czako
Project No.: 100018

Depth in Feet	Surf. Elev.	USCS	GRAPHIC	Sample Condition	Water Levels	Sample No.	PID (ppm)
				<input checked="" type="checkbox"/> Field Screened Only <input type="checkbox"/> Not Field Screened <input checked="" type="checkbox"/> Analyzed by Lab	<input checked="" type="checkbox"/> During Drilling <input type="checkbox"/> After Completion		
DESCRIPTION							
0		CG		Concrete			NA
0		GW		Gravel Fill Material			NA
1		CL		CLAY, brown, traces of silt, sand, and gravel, no odor, slightly moist			3.4
2	3.8						
3	2.5						
4	3.6						
5	24.6						
6		SP		SAND, Poorly Graded, brown, fine grained, strong odor, moist			1,178
7		SP		turning gray, saturated			1,254
8	92.2						
9		SP		turning dark gray			15.6
10							
11							
12		End of Boring.					
13							
14							
15							
16							





2368 Corporate Ln., Ste. 116
Naperville, IL 60563

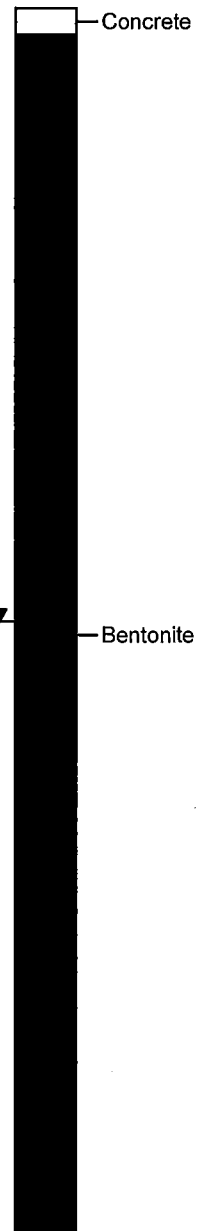
Shivam Energy, Inc.
399 W. Liberty Street
Wauconda, IL 60084

SB-77

Date Started: 11/03/16
Date Completed: 11/03/16
Boring Diameter: 2.25
Drilling Method: Direct-push
Sampling Method: Dual Tube

Surface Elevation: Not Surveyed
Total Depth: 15 ft.
DTW While Drilling: 7.5 ft.
Logged By: Marcos Czako
Project No.: 100018

Depth in Feet	Surf. Elev.	USCS	GRAPHIC	Sample Condition	Water Levels	Sample No.	PID (ppm)
				<input checked="" type="checkbox"/> Field Screened Only <input type="checkbox"/> Not Field Screened <input checked="" type="checkbox"/> Analyzed by Lab	<input checked="" type="checkbox"/> During Drilling <input type="checkbox"/> After Completion		
DESCRIPTION							
0		CG		Concrete			NA
0		GW		Gravel Fill Material			NA
1		CL		CLAY, brown, traces of silt, sand, and gravel, medium stiff, no odor, slightly moist			4.6
2	5.6						
3	5.9						
4	5.0						
5		SP		SAND, Poorly Graded, brown, fine grained, no odor, slightly moist strong odor			580.7
6							
7		SP		turning dark gray, strong odor, saturated			1,250
8							
9							
10		SP		turning lighter gray			41.3
11							
12		SP		End of Boring.			
13							
14							
15							
16							



11-15-2016 C:\Users\Marcos\Dropbox (TriCore)\Boring Logs\100018 - Shivam Energy, Inc\SB-77.bor



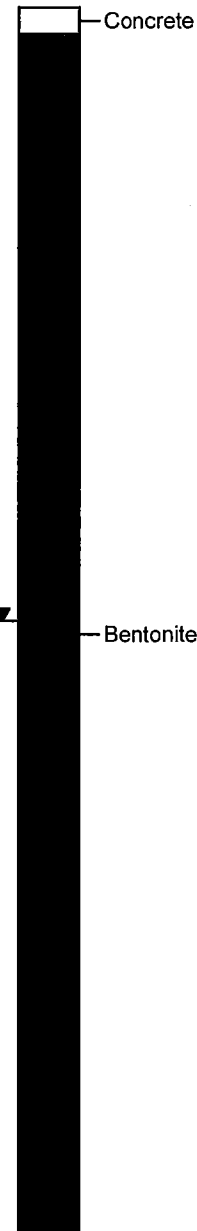
2368 Corporate Ln., Ste. 116
Naperville, IL 60563

Shivam Energy, Inc.
399 W. Liberty Street
Wauconda, IL 60084

SB-78

Date Started:	11/03/16	Surface Elevation:	Not Surveyed
Date Completed:	11/03/16	Total Depth:	15 ft.
Boring Diameter:	2.25	DTW While Drilling:	7.5 ft.
Drilling Method:	Direct-push	Logged By:	Marcos Czako
Sampling Method:	Dual Tube	Project No.:	100018

Depth in Feet	Surf. Elev.	USCS	GRAPHIC	Sample Condition	Water Levels	Sample No.	PID (ppm)	
				<input checked="" type="checkbox"/> Field Screened Only <input type="checkbox"/> Not Field Screened <input checked="" type="checkbox"/> Analyzed by Lab	<input checked="" type="checkbox"/> During Drilling <input type="checkbox"/> After Completion			
DESCRIPTION								
0		CG		Concrete			NA	
		GW		Gravel Fill Material			NA	
1		CL		CLAY, brown, traces of silt, sand, and gravel, brittle, no odor, slightly moist			6.6	
2								3.8
3		CL-ML		SILTY CLAY, brown, traces of silt, sand, and gravel, no odor, slightly moist			6.3	
4				odor from 4 to 5 ft.				4.7
5								582.7
6		SP		SAND, Poorly Graded, brown, fine grained, strong odor, slightly moist				
7				turning dark gray, strong odor, saturated turning lighter gray				1,188
8		SP						
9								718.2
10								57.2
11								
12								
13								
14								
15				End of Boring.				
16								





2368 Corporate Ln., Ste. 116
Naperville, IL 60563

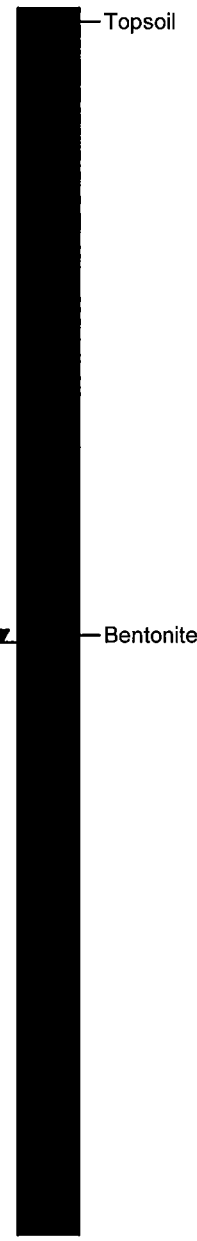
Shivam Energy, Inc.
399 W. Liberty Street
Wauconda, IL 60084

SB-79

Date Started: 11/03/16
Date Completed: 11/03/16
Boring Diameter: 2.25
Drilling Method: Direct-push
Sampling Method: Dual Tube

Surface Elevation: Not Surveyed
Total Depth: 15 ft.
DTW While Drilling: 7.75 ft.
Logged By: Marcos Czako
Project No.: 100018

Depth in Feet	Surf. Elev.	USCS	GRAPHIC	Sample Condition	Water Levels	Sample No.	PID (ppm)
				<input checked="" type="checkbox"/> Field Screened Only <input type="checkbox"/> Not Field Screened <input checked="" type="checkbox"/> Analyzed by Lab	<input checked="" type="checkbox"/> During Drilling <input type="checkbox"/> After Completion		
DESCRIPTION							
0				Grass, topsoil, and clay, no odor, slightly moist			5.4
1				SILTY CLAY, brown, traces of silt, sand, and gravel, no odor, slightly moist			6.2
2		CL--ML			5.9		
3					8.4		
4				SAND, Poorly Graded, orangish brown, fine grained, no odor, slightly moist			6.7
5		SP			4.3		
6				turning grayish brown, strong odor, moist			512.0
7		SP					
8				turning dark gray, saturated turning lighter gray			739.0
9							
10				End of Boring.			50.7
11		SP					
12							
13					11.1		
14							
15							
16							





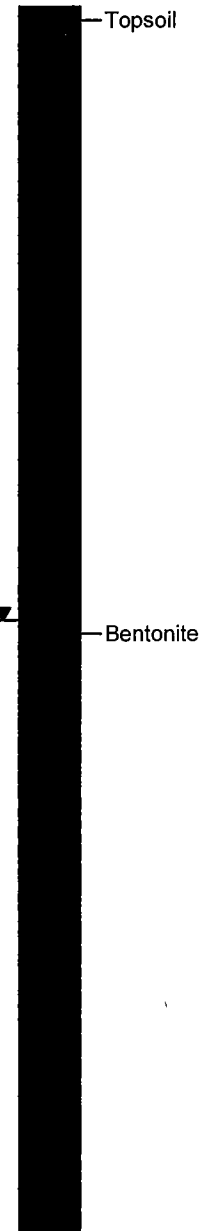
2368 Corporate Ln., Ste. 116
Naperville, IL 60563

Shivam Energy, Inc.
399 W. Liberty Street
Wauconda, IL 60084

SB-80

Date Started:	11/03/16	Surface Elevation:	Not Surveyed
Date Completed:	11/03/16	Total Depth:	15 ft.
Boring Diameter:	2.25	DTW While Drilling:	7.5 ft.
Drilling Method:	Direct-push	Logged By:	Marcos Czako
Sampling Method:	Dual Tube	Project No.:	100018

Depth in Feet	Surf. Elev.	USCS	GRAPHIC	Sample Condition	Water Levels	Sample No.	PID (ppm)
				<input checked="" type="checkbox"/> Field Screened Only <input type="checkbox"/> Not Field Screened <input checked="" type="checkbox"/> Analyzed by Lab	<input checked="" type="checkbox"/> During Drilling <input type="checkbox"/> After Completion		
DESCRIPTION							
0				Grass, topsoil, and clay, no odor, slightly moist			50.4
1		CL		CLAY, brown, traces of silt, sand, and gravel, no odor, moist			22.2
2							10.0
3		CL-ML		SILTY CLAY, brown and gray, traces of silt, sand, and gravel, brittle, no odor, slightly moist			7.8
4							9.7
5		SP		SAND, Poorly Graded, orangish brown, fine grained, no odor, slightly moist			37.4
6							
7							
8		SP		turning dark gray, odor, saturated turning brownish gray			54.7
9							
10							
11		SP					19.5
12							
13							
14							22.7
15				End of Boring.			
16							





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Naperville, IL 60563

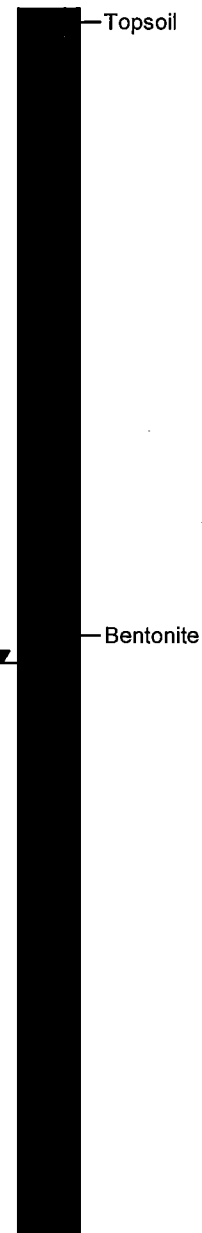
Shivam Energy, Inc.
399 W. Liberty Street
Wauconda, IL 60084

SB-81

Date Started: 11/03/16
Date Completed: 11/03/16
Boring Diameter: 2.25
Drilling Method: Direct-push
Sampling Method: Dual Tube

Surface Elevation: Not Surveyed
Total Depth: 15 ft.
DTW While Drilling: 8 ft.
Logged By: Marcos Czako
Project No.: 100018

Depth in Feet	Surf. Elev.	USCS	GRAPHIC	Sample Condition	Water Levels	Sample No.	PID (ppm)
				<input checked="" type="checkbox"/> Field Screened Only <input type="checkbox"/> Not Field Screened <input type="checkbox"/> Analyzed by Lab	<input checked="" type="checkbox"/> During Drilling <input type="checkbox"/> After Completion		
DESCRIPTION							
0				Grass, topsoil, and clay, no odor, slightly moist			
1		CL		CLAY, dark brown, traces of silt, sand, and gravel, no odor, slightly moist			19.3
2							11.1
3		CL-ML		SILTY CLAY, brown, traces of sand and gravel, brittle, no odor, dry to moist			9.1
4							3.8
5		SP		SAND, Poorly Graded, organish brown, no odor, slightly moist			9.1
6							9.0
7				odor, slightly moist			165.1
8		SP		turning dark gray, saturated			
9				turning lighter gray			653.1
10				slight odor			
11		SP					32.3
12							
13							26.4
14							
15				End of Boring.			
16							





2368 Corporate Ln., Ste. 116
Naperville, IL 60563

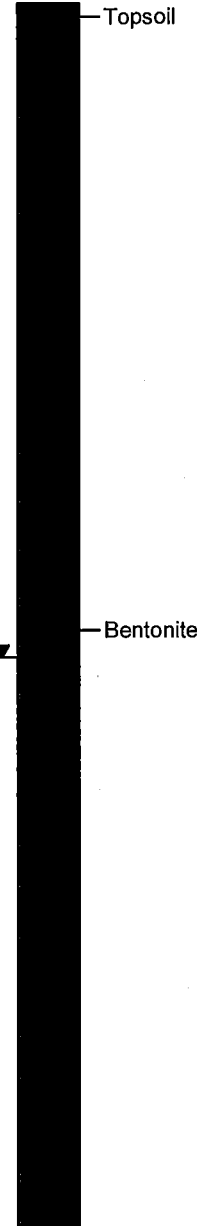
Shivam Energy, Inc.
399 W. Liberty Street
Wauconda, IL 60084

SB-82

Date Started: 11/03/16
Date Completed: 11/03/16
Boring Diameter: 2.25
Drilling Method: Direct-push
Sampling Method: Dual Tube

Surface Elevation: Not Surveyed
Total Depth: 15 ft.
DTW While Drilling: 8 ft.
Logged By: Marcos Czako
Project No.: 100018

Depth in Feet	Surf. Elev.	USCS	GRAPHIC	Sample Condition	Water Levels	Sample No.	PID (ppm)
				<input checked="" type="checkbox"/> Field Screened Only <input type="checkbox"/> Not Field Screened <input type="checkbox"/> Analyzed by Lab	<input checked="" type="checkbox"/> During Drilling <input checked="" type="checkbox"/> After Completion		
DESCRIPTION							
0				Grass, topsoil, and clay, no odor, slightly moist			
1		CL		CLAY, dark brown, traces of silt, sand, and gravel, no odor, moist			8.4
2		CL-ML		SILTY CLAY, brown, traces of silt, sand, and gravel, brittle, no odor, dry			12.3
3					17.0		
4							19.7
5		SC		SANDY CLAY, brown, traces of silt and gravel traces of sand and gravel, no odor, slightly moist			10.6
6		SP		SAND, Poorly Graded, orangish brown, no odor, slightly moist			9.2
7							378.2
8		SP		turning grayish brown, strong odor			
9		SP		saturated			
10				turning dark gray			1,021
11				turning lighter gray, slight odor			
12		SP		turning very fine grained			51.2
13							
14							18.3
15				End of Boring.			
16							





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Naperville, IL 60563

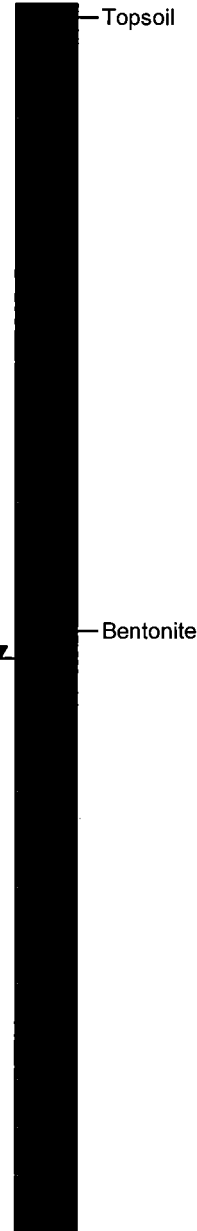
Shivam Energy, Inc.
399 W. Liberty Street
Wauconda, IL 60084

SB-83

Date Started: 11/03/16
Date Completed: 11/03/16
Boring Diameter: 2.25
Drilling Method: Direct-push
Sampling Method: Dual Tube

Surface Elevation: Not Surveyed
Total Depth: 15 ft.
DTW While Drilling: 8 ft.
Logged By: Marcos Czako
Project No.: 100018

Depth in Feet	Surf. Elev.	USCS	GRAPHIC	Sample Condition	Water Levels	Sample No.	PID (ppm)
				Field Screened Only Not Field Screened Analyzed by Lab	During Drilling After Completion		
DESCRIPTION							
0				Grass, topsoil, and clay, no odor, slightly moist			
1		CL		CLAY, dark brown, traces of silt, sand, and gravel, no odor, moist			10.1
2							11.0
3				SILTY CLAY, brown and gray, traces of silt, sand, and gravel, brittle, no odor, slightly moist			13.3
4							10.6
5		CL-ML		turning moist			15.3
6							14.2
7		SP		SAND, Poorly Graded, brown and gray, fine grained, odor, moist			1,011
8				turnign dark gray, very moist			
9				saturated			238.6
10				slight odor			
11		SP					141.4
12							
13				no odor			11.2
14							
15				End of Boring.			
16							





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Naperville, IL 60563

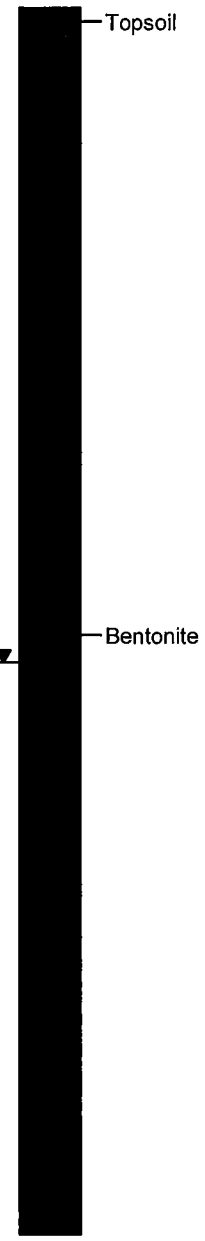
Sivam Energy, Inc.
399 W. Liberty Street
Wauconda, IL 60084

SB-84

Date Started: 11/03/16
Date Completed: 11/03/16
Boring Diameter: 2.25
Drilling Method: Direct-push
Sampling Method: Dual Tube

Surface Elevation: Not Surveyed
Total Depth: 15 ft.
DTW While Drilling: 6 ft.
Logged By: Marcos Czako
Project No.: 100018

Depth in Feet	Surf. Elev.	USCS	GRAPHIC	Sample Condition	Water Levels	Sample No.	PID (ppm)
				<input checked="" type="checkbox"/> Field Screened Only <input type="checkbox"/> Not Field Screened <input type="checkbox"/> Analyzed by Lab	<input checked="" type="checkbox"/> During Drilling <input type="checkbox"/> After Completion		
DESCRIPTION							
0				Grass, topsoil, and clay, no odor, slightly moist			
1		CL		CLAY, dark brown, traces of silt, sand, and gravel, no odor, moist			10.1
2		CL-ML		SILTY CLAY, brown, traces of silt, sand, and gravel, brittle, no odor, slightly moist			11.0
3				turning oragnish brown			13.3
4		CL-ML					10.6
5		ML		SILT, gray, no odor, slightly moist			15.3
6		SC		SANDY CLAY, light gray, fine grained sand, no odor, slightly moist			14.2
7				SAND, Poorly Graded, dark gray, strong odor, saturated			1,011
8				slight odor			
9							238.6
10		SP					
11							141.4
12							
13							11.2
14							
15				End of Boring.			
16							





2368 Corporate Ln., Ste. 116
Naperville, IL 60563

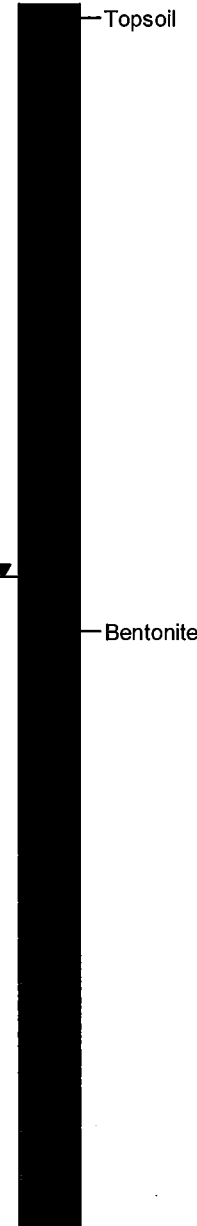
Sivam Energy, Inc.
399 W. Liberty Street
Wauconda, IL 60084

SB-85

Date Started: 11/03/16
Date Completed: 11/03/16
Boring Diameter: 2.25
Drilling Method: Direct-push
Sampling Method: Dual Tube

Surface Elevation: Not Surveyed
Total Depth: 15 ft.
DTW While Drilling: 7 ft.
Logged By: Marcos Czako
Project No.: 100018

Depth in Feet	Surf. Elev.	USCS	GRAPHIC	Sample Condition	Water Levels	Sample No.	PID (ppm)
				<input checked="" type="checkbox"/> Field Screened Only <input type="checkbox"/> Not Field Screened <input type="checkbox"/> Analyzed by Lab	<input type="checkbox"/> During Drilling <input checked="" type="checkbox"/> After Completion		
DESCRIPTION							
0				Grass, topsoil, and clay, no odor, slightly moist			
1		CL		CLAY, brown, traces of silt, sand, and gravel, no odor, moist			9.1
2				turning orangish brown, traces of silt, brittle, stiff, slightly moist			18.3
3		CL					17.8
4							13.5
5		MI		SILT, gray, no odor, slightly moist			15.5
6		CL-ML		SILTY CLAY, brownish gray, traces of sand, plastic, no odor, moist			10.1
7							20.4
8				SAND, Poorly Graded, gray, very fine grained, strong odor, saturated			
9							27.3
10				slightly moist			
11		SP					13.8
12							
13				no odor			9.4
14							
15				End of Boring.			
16							





2368 Corporate Ln., Ste. 116
Naperville, IL 60563

Sivam Energy, Inc.
399 W. Liberty Street
Wauconda, IL 60084

SB-86

Date Started: 11/03/16
Date Completed: 11/03/16
Boring Diameter: 2.25
Drilling Method: Direct-push
Sampling Method: Dual Tube

Surface Elevation: Not Surveyed
Total Depth: 15 ft.
DTW While Drilling: 8.5 ft.
Logged By: Marcos Czako
Project No.: 100018

Depth in Feet	Surf. Elev.	USCS	GRAPHIC	Sample Condition	Water Levels	Sample No.	PID (ppm)
				<input checked="" type="checkbox"/> Field Screened Only <input type="checkbox"/> Not Field Screened <input checked="" type="checkbox"/> Analyzed by Lab	<input checked="" type="checkbox"/> During Drilling <input type="checkbox"/> After Completion		
DESCRIPTION							
0				Grass, topsoil, and clay, no odor, slightly moist			
1		CL		CLAY, dark brown, some sand and gravel, traces of silt, no odor, moist			13.2
2		CL		turning brown, stiff, no odor, slightly moist			11.7
3		CL-ML		SILTY CLAY, brown, some fine grained sand, trace gravel, no odor, moist			12.4
4		SC		SANDY, SILTY CLAY, light brown and gray, traces of gravel, no odor, moist			11.6
5				SAND, Poorly Graded, light brown, fine grained, no odor, moist			11.1
6		SP					11.9
8		SP		turning tan			15.1
9				turning gray, strong odor, saturated			726.4
10				slight odor			26.3
12		SP		very slight odor			19.0
15				End of Boring.			





2368 Corporate Ln., Ste. 116
Naperville, IL 60563

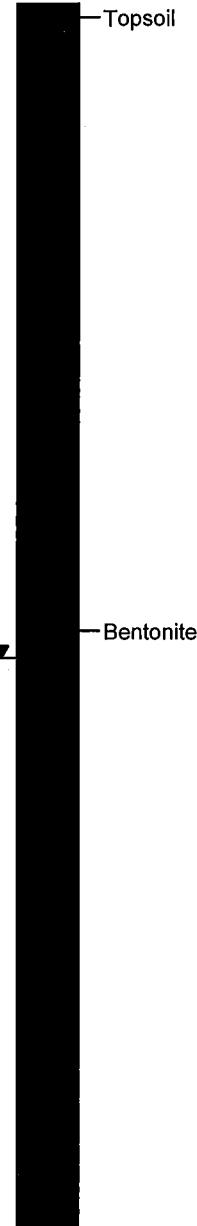
Sivam Energy, Inc.
399 W. Liberty Street
Wauconda, IL 60084

SB-87

Date Started: 11/03/16
Date Completed: 11/03/16
Boring Diameter: 2.25
Drilling Method: Direct-push
Sampling Method: Dual Tube

Surface Elevation: Not Surveyed
Total Depth: 15 ft.
DTW While Drilling: 8 ft.
Logged By: Marcos Czako
Project No.: 100018

Depth in Feet	Surf. Elev.	USCS	GRAPHIC	Sample Condition	Water Levels	Sample No.	PID (ppm)
				<input checked="" type="checkbox"/> Field Screened Only <input type="checkbox"/> Not Field Screened <input type="checkbox"/> Analyzed by Lab	<input type="checkbox"/> During Drilling <input checked="" type="checkbox"/> After Completion		
DESCRIPTION							
0				Grass, topsoil, and clay, no odor, slightly moist			
1		CL		CLAY, brown, traces of silt, sand, and gravel, no odor, moist			4.6
2							5.2
3		CL-ML		SILTY CLAY, brown, traces of sand and gravel, no odor, moist			3.1
4							4.6
5							5.2
6		SP		SAND, Poorly Graded, brown, fine grained, slight odor, moist			351.9
7							
8		SP		turning dark gray, saturated			
9				turning lighter gray			1,089
10							
11		SP					75.8
12							
13							13.3
14							
15				End of Boring.			
16							





2368 Corporate Ln., Ste. 116
Naperville, IL 60563

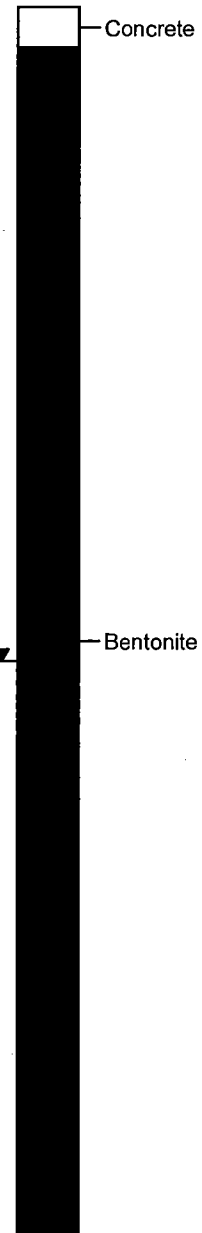
Shivam Energy, Inc.
399 W. Liberty Street
Wauconda, IL 60084

SB-88

Date Started: 11/03/16
Date Completed: 11/03/16
Boring Diameter: 2.25
Drilling Method: Direct-push
Sampling Method: Dual Tube

Surface Elevation: Not Surveyed
Total Depth: 15 ft.
DTW While Drilling: 8 ft.
Logged By: Marcos Czako
Project No.: 100018

Depth in Feet	Surf. Elev.	USCS	GRAPHIC	Sample Condition	Water Levels	Sample No.	PID (ppm)
				<input checked="" type="checkbox"/> Field Screened Only <input type="checkbox"/> Not Field Screened <input checked="" type="checkbox"/> Analyzed by Lab	<input type="checkbox"/> During Drilling <input checked="" type="checkbox"/> After Completion		
DESCRIPTION							
0		CG		Concrete			NA
0		GW		Gravel Fill Material			NA
1				CLAY, brown and gray, traces of silt, sand, and gravel, stiff, no odor, slightly moist			18.2
2							18.0
3							16.6
4		CL					12.5
5							23.2
6							
7							
8		SP		SAND, Poorly Graded, brown, fine to medium grained, strong odor, moist			975.1
8				turning gray, saturated			
9							778.1
10							
11							
12		SP					45.0
13				slight odor			
14							
15				End of Boring.			
16							



APPENDIX H

TIER 2 OUTDOOR INHALATION EXPOSURE ROUTE CALCULATIONS

Input Variables for the Outdoor Inhalation Exposure Route

Project Number: 100018
Site Name: Clark Oil & Refining
Site Address: 399 W. Liberty Street
Site City: Wauconda
Site County: Lake
Site State: IL
Site ZIP: 60084
Leaking UST Incident No.: 892744, 903199
LPC No.: 0971855024
Land Use: Industrial/Commercial
Soil Type: Sand
Groundwater Classification: Class I
Mass Limit: Yes
Source Area: 0.5

Person Performing Calcs: Marcos I. Czakó, P.G.
Title: Senior Project Manager

ρ_b = Dry soil bulk density = 1.740 g/cm³
 d_s = Depth of source = 2.667 m

Constituent	Land Use		
	Residential (mg/kg)	Industrial/ Commercial (mg/kg)	Construction Workers (mg/kg)
Benzene	6.21	10.44	217.41
Toluene	103,825.59	145,355.82	13,929.93
Ethylbenzene	20,765.12	29,071.16	25,073.88
Total Xylenes	2,076.51	2,907.12	1,114.39

Inhalation Exposure Route for Industrial/Commercial Land Use

Equation S4

$$\frac{THQ \cdot AT \cdot 365 \frac{d}{yr}}{EF \cdot ED \cdot \left(\frac{1}{RfC} \cdot \frac{1}{VF_{M-L}} \right)}$$

Where:

Inhalation RO	=	Remediation objective	=	unknown	mg/kg
THQ	=	Target hazard quotient (default)	=	1	unitless
AT	=	Average time for noncarcinogens (default)	=	25	yr
EF	=	Exposure frequency (default)	=	250	d/yr
ED	=	Exposure duration for inhalation of noncarcinogens (default)	=	25	yr
RfC	=	Inhalation reference concentrations (default - chemical specific)			
			Total Xylenes	=	0.1 mg/m ³
VF _{M-L}	=	Mass-limit volatilization factor (Equation S26)		=	19,911.76 m ³ /kg

Solving for the Inhalation RO for Total Xylenes = 2,907.12 mg/kg

Inhalation Exposure Route for Construction Workers

Equation S5

$$\frac{THQ \cdot AT \cdot 365 \frac{d}{yr}}{EF \cdot ED \cdot \left(\frac{1}{RfC_s} \cdot \frac{1}{VF'_{M-L}} \right)}$$

Where:

Inhalation RO	=	Remediation objective	=	unknown	mg/kg
THQ	=	Target hazard quotient (default)	=	1	unitless
AT	=	Average time for noncarcinogens (default)	=	0.115	yr
EF	=	Exposure frequency (default)	=	30	d/yr
ED	=	Exposure duration for inhalation of noncarcinogens (default)	=	1	yr
RfC _s	=	Inhalation subchronic reference concentration (chemical specific)			
			Toluene	=	5 mg/m ³
			Ethylbenzene	=	9 mg/m ³
			Total Xylenes	=	0.4 mg/m ³
VF' _{M-L}	=	Mass-limit volatilization factor (Equation S27)	=	1,991.18	m ³ /kg

Solving for the Inhalation RO for Toluene	=	13,929.93	mg/kg
Solving for the Inhalation RO for Ethylbenzene	=	25,073.88	mg/kg
Solving for the Inhalation RO for Total Xylenes	=	1,114.39	mg/kg

Inhalation Exposure Route for Industrial/Commercial Land Use

Equation S6

$$URF = \frac{TR \cdot AT_c \cdot 365 \frac{d}{yr}}{1,000 \frac{ug}{mg} \cdot EF \cdot ED \cdot VF_{M-L}}$$

Where:

Inhalation RO	=	Remediation objective	=	unknown	mg/kg
TR	=	Target cancer risk (default)	=	1.E-06	unitless
AT _c	=	Average time for carcinogens (default)	=	70	yr
URF	=	Inhalation unit risk factor (default - chemical specific)			
			Benzene	=	7.8E-06 (ug/m ³) ⁻¹
EF	=	Exposure frequency (default)		=	250 d/yr
ED	=	Exposure duration for inhalation of carcinogens (default)		=	25 yr
VF _{M-L}	=	Mass-limit volatilization factor (Equation S26)		=	19,911.76 m ³ /kg

Solving for the Inhalation RO for Benzene = 10.44 mg/kg

Inhalation Exposure Route for Construction Workers

Equation S7

$$\frac{TR \cdot AT_c \cdot 365 \frac{d}{yr}}{URF \cdot 1,000 \frac{ug}{mg} \cdot EF \cdot ED \cdot \frac{1}{VF'_{M-L}}}$$

Where:

Inhalation RO	= Remediation objective	= unknown	mg/kg
TR	= Target cancer risk (default)	= 1.E-06	unitless
AT _c	= Average time for carcinogens (default)	= 70	yr
URF	= Inhalation unit risk factor (default - chemical specific)		
		Benzene = 7.8E-06	(ug/m ³) ⁻¹
EF	= Exposure frequency (default)	= 30	d/yr
ED	= Exposure duration for inhalation of carcinogens (default)	= 1	yr
VF' _{M-L}	= Mass-limit volatilization factor (Equation S27)	= 1,991.18	m ³ /kg

Solving for the Inhalation RO for Benzene = 217.41 mg/kg

Mass-Limit Volatilization Factors

Equation S26

$$VF_{M-L} = \frac{Q}{C} \cdot \frac{\left[T_{M-L} \left(3.15 \cdot 10^7 \frac{s}{yr} \right) \right]}{\rho_b \cdot d_s \cdot 10^6 \frac{cm^3}{m^3}}$$

Where:

VF_{M-L}	= Mass limit volatilization factor	=	unknown	m^3/kg
Q/C	= Inverse of the mean concentration at the center of a square	=	97.78	$(g/m^2 \cdot s)/(kg/m^3)$
T_{M-L}	= Exposure interval (default)	=	30	yr
ρ_b	= Dry soil bulk density	=	1.74	g/cm^3
d_s	= Depth of source	=	2.667	m

Solving for $VF_{M-L} = 19,911.76 \text{ m}^3/kg$

Equation S27

$$VF'_{M-L} = \frac{VF_{M-L}}{10}$$

Where:

VF'_{M-L}	= Mass limit volatilization factor for construction workers	=	unknown	m^3/kg
VF_{M-L}	= Mass limit volatilization factor (Equation S26)	=	19,911.76	m^3/kg

Solving for $VF'_{M-L} = 1,991.18 \text{ m}^3/kg$

Illinois Environmental Protection Agency Leaking Underground Storage Tank Program SSL Input Parameters for Use with Tier 2 Calculations

A. Site Identification

IEMA Incident # (6- or 8-digit): 892744, 903199 IEPA LPC # (10-digit): 0971855024

Site Name: Clark Oil & Refining

Site Address (not a P.O. Box): 399 W. Liberty Street

City: Wauconda County: Lake Zip Code: 60084

Leaking UST Technical File

B. Tier 2 Calculation Information

Equation(s) Used (ex: S12, S17, R28): S6, S7, S26, S27

Contact Information for Individual Who Performed Calculations: Marcos I. Czako, P.G., Senior Project Manager
TriCore Environmental, LLC, 2368 Corporate Lane, Suite 116, Naperville, IL, (630) 520-9973

Land Use: Industrial/Commercial Soil Type: Sand

Groundwater: Class I Class II

Mass Limit: Yes No If Yes, then Specify Acreage: 0.5 1 2 5 10 30

-Mass Limit Acreage other than defaults must always be rounded up.

-Failure to use site-specific parameters where allowed could affect payment from the Underground Storage Tank Fund.

-Maps depicting source width, plume dimensions, distance, etc. must also be submitted.

-Inputs must be submitted in the designated unit.

Symbol		Unit
AT (ingestion)	=	yr
AT (inhalation)	=	yr
AT _c	= 70	yr
BW	=	kg
C _{sat}	=	mg/kg
C _w	=	mg/L
d	=	m

Symbol		Unit
d _a	=	m
d _s	= 2.667	m
D _A	=	cm ² /s
D _i	=	cm ² /s
D _w	=	cm ² /s
DF	=	unitless
ED (ingestion of carcinogens)	=	yr

Symbol		Unit	Symbol		Unit	
ED (inhalation of carcinogens)	=	30, 25, 1	yr	Benzene	=	cm ³ /g or L/kg
ED (ingestion of noncarcinogens)	=		yr	K _s	=	m/yr
ED (inhalation of noncarcinogens)	=		yr	L	=	m
ED (ingestion of groundwater)	=		yr	PEF	=	m ³ /kg
ED _{M-L}	=		yr	PEF'	=	m ³ /kg
EF	=	350, 250, 30	d/yr	Q/C (VF equations)	=	97.78 (g/m ² -s)/(kg/m ³)
F(x)	=		unitless	Q/C (PEF equations)	=	(g/m ² -s)/(kg/m ³)
f _{oc}	=		g/g	RfC	=	mg/m ³
GW _{obj}	=		mg/L	RfD _o	=	mg/(kg-d)
H'	=		unitless	S	=	mg/L
i	=		m/m	SF _o	=	(mg/kg-d) ⁻¹
l	=		m/yr	T	=	s
l _{M-L}	=		m/yr	T _{M-L}	=	30 yr
IF _{soil-adj}	=		(mg-yr)/(kg-d)	THQ	=	unitless
IR _{soil}	=		mg/d	TR	=	0.000001 unitless
IR _w	=		L/d	U _m	=	m/s
K	=		m/yr	URF	=	0.0000078 (µg/m ³) ⁻¹
K _d (non-ionizing organics)	=		cm ³ /g or L/kg	U _t	=	m/s
K _d (ionizing organics)	=		cm ³ /g or L/kg	V	=	unitless
K _d (inorganics)	=		cm ³ /g or L/kg	VF	=	m ³ /kg

Incident #: 892744, 903199 Chemical: Benzene Land Use: Industrial/Commercial

Symbol			Unit
VF'	=		m ³ /kg
VF _{M-L}	=	19,911.76	m ³ /kg
VF' _{M-L}	=	1,991.18	m ³ /kg
η	=		L _{pore} /L _{soil}
θ _a	=		L _{air} /L _{soil}

Symbol			Unit
θ _w	=		L _{water} /L _{soil}
ρ _b	=	1.74	kg/L or g/cm ³
ρ _s	=		g/cm ³
ρ _w	=		g/cm ³
1/(2b+3)	=		unitless

Equation			Unit(s)
S1	=		mg/kg
S2	=		mg/kg
S3	=		mg/kg
S4	=		mg/kg
S5	=		mg/kg
S6 (Res)	=		mg/kg
S6 (I/C)	=	10.44	mg/kg
S7	=	217.41	mg/kg
S17	=		mg/kg
S28	=		mg/kg
S29	=		mg/kg

**Illinois Environmental Protection Agency
Leaking Underground Storage Tank Program
SSL Input Parameters for Use with Tier 2 Calculations**

A. Site Identification

IEMA Incident # (6- or 8-digit): 892744, 903199 IEPA LPC # (10-digit): 0971855024

Site Name: Clark Oil & Refining

Site Address (not a P.O. Box): 399 W. Liberty Street

City: Wauconda County: Lake Zip Code: 60084

Leaking UST Technical File

B. Tier 2 Calculation Information

Equation(s) Used (ex: S12, S17, R28): S5, S26, S27

Contact Information for Individual Who Performed Calculations: Marcos I. Czakó, P.G., Senior Project Manager
TriCore Environmental, LLC, 2368 Corporate Lane, Suite 116, Naperville, IL, (630) 520-9973

Land Use: Industrial/Commercial Soil Type: Sand

Groundwater: Class I Class II

Mass Limit: Yes No If Yes, then Specify Acreage: 0.5 1 2 5 10 30

-Mass Limit Acreage other than defaults must always be rounded up.

-Failure to use site-specific parameters where allowed could affect payment from the Underground Storage Tank Fund.

-Maps depicting source width, plume dimensions, distance, etc. must also be submitted.

-Inputs must be submitted in the designated unit.

Symbol	Unit
AT (ingestion) =	yr
AT (inhalation) = 30, 25, 0.115	yr
AT _c =	yr
BW =	kg
C _{sat} =	mg/kg
C _w =	mg/L
d =	m

Symbol	Unit
d _a =	m
d _s = 2.667	m
D _A =	cm ² /s
D _i =	cm ² /s
D _w =	cm ² /s
DF =	unitless
ED (ingestion of carcinogens) =	yr

Symbol		Unit	Symbol		Unit
ED (inhalation of carcinogens)	=	yr	K_{oc}	=	cm ³ /g or L/kg
ED (ingestion of noncarcinogens)	=	yr	K_s	=	m/yr
ED (inhalation of noncarcinogens)	= 30, 25, 1	yr	L	=	m
ED (ingestion of groundwater)	=	yr	PEF	=	m ³ /kg
ED_{M-L}	=	yr	PEF'	=	m ³ /kg
EF	= 350, 250, 30	d/yr	Q/C (VF equations)	= 97.78	(g/m ² -s)/(kg/m ³)
F(x)	=	unitless	Q/C (PEF equations)	=	(g/m ² -s)/(kg/m ³)
f_{oc}	=	g/g	RfC	= 5, 5	mg/m ³
GW_{obj}	=	mg/L	RfD _o	=	mg/(kg-d)
H'	=	unitless	S	=	mg/L
i	=	m/m	SF _o	=	(mg/kg-d) ⁻¹
I	=	m/yr	T	=	s
I_{M-L}	=	m/yr	T_{M-L}	= 30	yr
$IF_{soil-adj}$	=	(mg-yr)/(kg-d)	THQ	= 1	unitless
IR_{soil}	=	mg/d	TR	=	unitless
IR_w	=	L/d	U_m	=	m/s
K	=	m/yr	URF	=	(µg/m ³) ⁻¹
K_d (non-ionizing organics)	=	cm ³ /g or L/kg	U_t	=	m/s
K_d (ionizing organics)	=	cm ³ /g or L/kg	V	=	unitless
K_d (inorganics)	=	cm ³ /g or L/kg	VF	=	m ³ /kg

Incident #: 892744, 903199 Chemical: Toluene Land Use: Industrial/Commercial

Symbol		Unit
VF'	=	m ³ /kg
VF _{M-L}	= 19,911.76	m ³ /kg
VF' _{M-L}	= 1,991.18	m ³ /kg
η	=	L _{pore} /L _{soil}
θ _a	=	L _{air} /L _{soil}

Symbol		Unit
θ _w	=	L _{water} /L _{soil}
ρ _b	= 1.74	kg/L or g/cm ³
ρ _s	=	g/cm ³
ρ _w	= 1	g/cm ³
1/(2b+3)	=	unitless

Equation		Unit(s)
S1	=	mg/kg
S2	=	mg/kg
S3	=	mg/kg
S4 (Res)	=	mg/kg
S4 (I/C)	=	mg/kg
S5	= 13,929.93	mg/kg
S6	=	mg/kg
S7	=	mg/kg
S17	=	mg/kg
S28	=	mg/kg
S29	=	mg/kg

Illinois Environmental Protection Agency Leaking Underground Storage Tank Program SSL Input Parameters for Use with Tier 2 Calculations

A. Site Identification

IEMA Incident # (6- or 8-digit): 892744, 903199 IEPA LPC # (10-digit): 0971855024

Site Name: Clark Oil & Refining

Site Address (not a P.O. Box): 399 W. Liberty Street

City: Wauconda County: Lake Zip Code: 60084

Leaking UST Technical File

B. Tier 2 Calculation Information

Equation(s) Used (ex: S12, S17, R28): S5, S26, S27

Contact Information for Individual Who Performed Calculations: Marcos I. Czakó, P.G., Senior Project Manager
TriCore Environmental, LLC, 2368 Corporate Lane, Suite 116, Naperville, IL, (630) 520-9973

Land Use: Industrial/Commercial Soil Type: Sand

Groundwater: Class I Class II

Mass Limit: Yes No If Yes, then Specify Acreage: 0.5 1 2 5 10 30

- Mass Limit Acreage other than defaults must always be rounded up.
- Failure to use site-specific parameters where allowed could affect payment from the Underground Storage Tank Fund.
- Maps depicting source width, plume dimensions, distance, etc. must also be submitted.
- Inputs must be submitted in the designated unit.

Symbol		Unit
AT (ingestion)	=	yr
AT (inhalation)	= 30, 25, 0.115	yr
AT _c	=	yr
BW	=	kg
C _{sat}	=	mg/kg
C _w	=	mg/L
d	=	m

Symbol		Unit
d _a	=	m
d _s	= 2.667	m
D _A	=	cm ² /s
D _i	=	cm ² /s
D _w	=	cm ² /s
DF	=	unitless
ED (ingestion of carcinogens)	=	yr

Symbol		Unit	Symbol		Unit
ED (inhalation of carcinogens)	=	yr	K_{oc}	=	cm ³ /g or L/kg
ED (ingestion of noncarcinogens)	=	yr	K_s	=	m/yr
ED (inhalation of noncarcinogens)	=	30, 25, 1 yr	L	=	m
ED (ingestion of groundwater)	=	yr	PEF	=	m ³ /kg
ED_{M-L}	=	yr	PEF'	=	m ³ /kg
EF	=	350, 250, 30 d/yr	Q/C (VF equations)	=	97.78 (g/m ² -s)/(kg/m ³)
F(x)	=	unitless	Q/C (PEF equations)	=	(g/m ² -s)/(kg/m ³)
f_{oc}	=	g/g	RfC	=	1, 9 mg/m ³
GW_{obj}	=	mg/L	RfD _o	=	mg/(kg-d)
H'	=	unitless	S	=	mg/L
i	=	m/m	SF _o	=	(mg/kg-d) ⁻¹
l	=	m/yr	T	=	s
l_{M-L}	=	m/yr	T_{M-L}	=	30 yr
$IF_{soil-adj}$	=	(mg-yr)/(kg-d)	THQ	=	1 unitless
IR_{soil}	=	mg/d	TR	=	unitless
IR_w	=	L/d	U_m	=	m/s
K	=	m/yr	URF	=	(µg/m ³) ⁻¹
K_d (non-ionizing organics)	=	cm ³ /g or L/kg	U_t	=	m/s
K_d (ionizing organics)	=	cm ³ /g or L/kg	V	=	unitless
K_d (inorganics)	=	cm ³ /g or L/kg	VF	=	m ³ /kg

Symbol		Unit
VF'	=	m ³ /kg
VF _{M-L}	= 19,911.76	m ³ /kg
VF' _{M-L}	= 1,991.18	m ³ /kg
η	=	L _{pore} /L _{soil}
θ _a	=	L _{air} /L _{soil}

Symbol		Unit
θ _w	=	L _{water} /L _{soil}
ρ _b	= 1.74	kg/L or g/cm ³
ρ _s	=	g/cm ³
ρ _w	= 1	g/cm ³
1/(2b+3)	=	unitless

Equation		Unit(s)
S1	=	mg/kg
S2	=	mg/kg
S3	=	mg/kg
S4 (Res)	=	mg/kg
S4 (I/C)	=	mg/kg
S5	= 25,073.88	mg/kg
S6	=	mg/kg
S7	=	mg/kg
S17	=	mg/kg
S28	=	mg/kg
S29	=	mg/kg

Illinois Environmental Protection Agency Leaking Underground Storage Tank Program SSL Input Parameters for Use with Tier 2 Calculations

A. Site Identification

IEMA Incident # (6- or 8-digit): 892744, 903199 IEPA LPC # (10-digit): 0971855024

Site Name: Clark Oil & Refining

Site Address (not a P.O. Box): 399 W. Liberty Street

City: Wauconda County: Lake Zip Code: 60084

Leaking UST Technical File

B. Tier 2 Calculation Information

Equation(s) Used (ex: S12, S17, R28): S4, S5, S26, S27

Contact Information for Individual Who Performed Calculations: Marcos I. Czakó, P.G., Senior Project Manager
TriCore Environmental, LLC, 2368 Corporate Lane, Suite 116, Naperville, IL, (630) 520-9973

Land Use: Industrial/Commercial Soil Type: Sand

Groundwater: Class I Class II

Mass Limit: Yes No If Yes, then Specify Acreage: 0.5 1 2 5 10 30

-Mass Limit Acreage other than defaults must always be rounded up.

-Failure to use site-specific parameters where allowed could affect payment from the Underground Storage Tank Fund.

-Maps depicting source width, plume dimensions, distance, etc. must also be submitted.

-Inputs must be submitted in the designated unit.

Symbol		Unit
AT (ingestion)	=	yr
AT (inhalation)	= 30, 25, 0.115	yr
AT _c	=	yr
BW	=	kg
C _{sat}	=	mg/kg
C _w	=	mg/L
d	=	m

Symbol		Unit
d _a	=	m
d _s	= 2.667	m
D _A	=	cm ² /s
D _i	=	cm ² /s
D _w	=	cm ² /s
DF	=	unitless
ED (ingestion of carcinogens)	=	yr

Symbol		Unit	Symbol		Unit
ED (inhalation of carcinogens)	=	yr	K_{oc}	=	cm ³ /g or L/kg
ED (ingestion of noncarcinogens)	=	yr	K_s	=	m/yr
ED (inhalation of noncarcinogens)	=	30, 25, 1 yr	L	=	m
ED (ingestion of groundwater)	=	yr	PEF	=	m ³ /kg
ED_{M-L}	=	yr	PEF'	=	m ³ /kg
EF	=	350, 250, 30 d/yr	Q/C (VF equations)	=	97.78 (g/m ² -s)/(kg/m ³)
F(x)	=	unitless	Q/C (PEF equations)	=	(g/m ² -s)/(kg/m ³)
f_{oc}	=	g/g	RfC	=	0.1, 0.4 mg/m ³
GW_{obj}	=	mg/L	RfD _o	=	mg/(kg-d)
H'	=	unitless	S	=	mg/L
i	=	m/m	SF _o	=	(mg/kg-d) ⁻¹
l	=	m/yr	T	=	s
l_{M-L}	=	m/yr	T_{M-L}	=	30 yr
$IF_{soil-adj}$	=	(mg-yr)/(kg-d)	THQ	=	1 unitless
IR_{soil}	=	mg/d	TR	=	unitless
IR_w	=	L/d	U_m	=	m/s
K	=	m/yr	URF	=	(µg/m ³) ⁻¹
K_d (non-ionizing organics)	=	cm ³ /g or L/kg	U_t	=	m/s
K_d (ionizing organics)	=	cm ³ /g or L/kg	V	=	unitless
K_d (inorganics)	=	cm ³ /g or L/kg	VF	=	m ³ /kg

Incident #: 892744, 903199 Chemical: Total Xylenes Land Use: Industrial/Commercial

Symbol		Unit
VF'	=	m ³ /kg
VF _{M-L}	= 19,911.76	m ³ /kg
VF' _{M-L}	= 1,991.18	m ³ /kg
η	=	L _{pore} /L _{soil}
θ _a	=	L _{air} /L _{soil}

Symbol		Unit
θ _w	=	L _{water} /L _{soil}
ρ _b	= 1.74	kg/L or g/cm ³
ρ _s	=	g/cm ³
ρ _w	= 1	g/cm ³
1/(2b+3)	=	unitless

Equation		Unit(s)
S1	=	mg/kg
S2	=	mg/kg
S3	=	mg/kg
S4 (Res)	=	mg/kg
S4 (I/C)	= 2,907.12	mg/kg
S5	= 1,114.39	mg/kg
S6	=	mg/kg
S7	=	mg/kg
S17	=	mg/kg
S28	=	mg/kg
S29	=	mg/kg

APPENDIX I

HYDRAULIC CONDUCTIVITY EVALUATIONS

Logarithmic Average of Hydraulic Conductivity

MW-4:	1.08×10^{-3} cm/sec	=	2.13×10^{-3} ft/min
MW-6:	6.61×10^{-3} cm/sec	=	1.30×10^{-2} ft/min
MW-14:	8.37×10^{-5} cm/sec	=	1.65×10^{-4} ft/min
MW-16:	2.25×10^{-5} cm/sec	=	4.42×10^{-5} ft/min

$$\log_{\text{(average value)}} = \frac{[\log (2.13 \times 10^{-3} \text{ ft/min}) + \log (1.30 \times 10^{-2} \text{ ft/min}) + \log (1.65 \times 10^{-4} \text{ ft/min}) + \log (4.42 \times 10^{-5} \text{ ft/min})]}{4}$$

$$\log_{\text{(average value)}} = -3.173$$

$$\text{Average Value} = \text{inv. Log} (-3.173) = 10^{-3.268} = 6.72 \times 10^{-4} \text{ ft/min}$$

$$\log_{\text{(average value)}} = \frac{[\log (2.13 \times 10^{-3} \text{ ft/min}) + \log (1.30 \times 10^{-2} \text{ ft/min})]}{4}$$

$$\log_{\text{(average value)}} = -3.173$$

$$\text{Average Value (Service Station Area)} = \text{inv. Log} (-3.173) = 10^{-3.268} = 5.37 \times 10^{-3} \text{ ft/min}$$

$$\log_{\text{(average value)}} = \frac{[\log (1.65 \times 10^{-4} \text{ ft/min}) + \log (4.42 \times 10^{-5} \text{ ft/min})]}{4}$$

$$\log_{\text{(average value)}} = -3.173$$

$$\text{Average Value (Osage Park)} = \text{inv. Log} (-3.173) = 10^{-3.268} = 8.60 \times 10^{-5} \text{ ft/min}$$

Average Linear Ground-Water Flow Velocity

Darcy's Law: $v = Q / \eta a = v / \eta = -K \Delta H / \eta \Delta L = Ki / \eta$

ΔH = difference in hydraulic head

ΔL = distance between well openings

K = hydraulic conductivity

η = effective porosity (assume 0.20)

i = $(\Delta H / \Delta L)$; from 8/27/97 potentiometric surface figure (MW-4 and MW-16)

$$v = [6.72 \times 10^{-4} \text{ ft/min (average of all four wells)}] \times (5 \text{ ft}/280 \text{ ft}) / 0.2$$

$$\bar{v} = 5.21 \times 10^{-5} \text{ ft/min} = \mathbf{31.74 \text{ ft/year (average for entire site)}}$$

$$v = [5.37 \times 10^{-3} \text{ ft/min (average of wells MW-4 and MW-6)}] \times (5 \text{ ft}/280 \text{ ft}) / 0.2$$

$$\bar{v} = 4.16 \times 10^{-4} \text{ ft/min} = \mathbf{254.02 \text{ ft/year (adjusted average for flow in Service Station Area)}}$$

$$v = [8.60 \times 10^{-5} \text{ ft/min (average of wells MW-14 and MW-16)}] \times (5 \text{ ft}/280 \text{ ft}) / 0.2$$

$$\bar{v} = 6.69 \times 10^{-6} \text{ ft/min} = \mathbf{4.07 \text{ ft/year (adjusted average for Osage Park)}}$$

APPENDIX J

HYDRALIC GRADIENT CALCULATIONS

AVERAGE HYDRAULIC GRADIENT CALCULATION

Shivam Energy, Inc.
399 W. Liberty Street
Wauconda, Lake County, Illinois 60084

Gauging Date: May 7, 2015

Calc 1	Well IDs	DTW	Distance
h_1	MW-28	104.46	122
h_2	MW-6	103.33	158
h_3	MW-12S	102.79	246

Calc 2	Well IDs	DTW	Distance
h_1	MW-28	104.46	154
h_2	RW-10	103.29	160
h_3	MW-24	101.72	252

Calc 3	Well IDs	DTW	Distance
h_1	MW-26	103.73	187
h_2	MW-24	101.72	214
h_3	MW-15	99.67	321

AVERAGE HYDRAULIC GRADIENT CALCULATION

Shivam Energy, Inc.
399 W. Liberty Street
Wauconda, Lake County, Illinois 60084

Gauging Date: May 7, 2015

<u>Wells Used</u>	<u>Hydraulic Gradient</u>
MW-28, MW-6, MW-12S	0.0094
MW-28, RW-10, MW-24	0.0110
MW-26, MW-24, MW-15	0.0128

Using the hydraulic gradient values listed above, the average hydraulic gradient is: 0.0111

HYDRAULIC GRADIENT CALCULATION #1

Shivam Energy, Inc.
 399 W. Liberty Street
 Wauconda, Lake County, Illinois 60084

Gauging Date: May 7, 2015
 Wells Used: MW-28, MW-6, MW-12S

The value for the hydraulic gradient was solved using site-specific groundwater elevation data and the distances between the wells selected.

Equation #1:
$$\left[\frac{(h_1 - h_2)}{(h_1 - h_3)} \right] = \left[\frac{x}{b} \right]$$

Where:

h_1	=	highest head selected (MW-28)	104.46 feet
h_2	=	intermediate head selected (MW-6)	103.33 feet
h_3	=	lowest head selected (MW-12S)	102.79 feet
b	=	distance from h_3 to h_1	246.00 feet
x	=	distance from h_1 , along b , at which the total head is h_2 (solved by Equation #1)	166.46 feet

Equation #2:
$$d = b - x$$

Where:

b	=	distance from h_3 to h_1	246.00 feet
x	=	distance from h_1 , along b , at which the total head is h_2 (solved by Equation #1)	166.46 feet
d	=	distance from h_3 , along b , at which the total head is h_2 (solved by Equation #2)	79.54 feet

The hydraulic gradient is then calculated using the following equation. Please see the attached sheets for the additional calculations required to calculate l .

Equation #3:
$$i = \left[\frac{(h_2 - h_3)}{l} \right]$$

Where:

l	=	distance from h_3 that is perpendicular to the equipotential line that is equal to h_2 (solved by Equation #7)	57.19 feet
i	=	hydraulic gradient (solved by Equation #3)	0.0094 feet/feet

HYDRAULIC GRADIENT CALCULATION #1

Shivam Energy, Inc.
399 W. Liberty Street
Wauconda, Lake County, Illinois 60084

Gauging Date: May 7, 2015
Wells Used: MW-28, MW-6, MW-12S

By utilizing the Law of Cosines and the Law of Sines, l , the distance from h_3 that is perpendicular to the equipotential line that is equal to h_2 , can be calculated.

Equation #4 (Law of Cosines):
$$c^2 = a^2 + b^2 - 2ab (\cos C)$$

Equation #4 (Law of Cosines Revised):
$$\cos C = \frac{a^2 + b^2 - c^2}{2ab}$$

Where:

a	=	distance from h_2 to h_3	158.00 feet
b	=	distance from h_3 to h_1	246.00 feet
c	=	distance from h_1 to h_2	122.00 feet
C	=	angle between h_2, h_3 , and h_1 (solved by Equation #4)	24.75 degrees

By substituting d for b , the distance between h_2 and d can be calculated.

Equation #5 (Law of Cosines):
$$c_2^2 = a^2 + d^2 - 2ad (\cos C)$$

Where:

a	=	distance from h_2 to h_3	158.00 feet
d	=	distance from h_3 , along b , at which the total head is equal to h_2 (solved by Equation #2)	79.54 feet
C	=	angle between h_2, h_3 , and h_1 (solved by Equation #4)	24.75 degrees
c_2	=	distance from h_2 to d (solved by Equation #5), this is also the equipotential line equal to h_2	92.00 feet

HYDRAULIC GRADIENT CALCULATION #1

Shivam Energy, Inc.
 399 W. Liberty Street
 Wauconda, Lake County, Illinois 60084

Gauging Date: May 7, 2015
 Wells Used: MW-28, MW-6, MW-12S

By using Equation #5 above, the angle between h_2 , d , and h_3 can be calculated.

Equation #6 (Law of Cosines):
$$\cos A_2 = \frac{d^2 + c_2^2 - a^2}{2dc_2}$$

Where:

a	=	distance from h_2 to h_3	158.00 feet
d	=	distance from h_3 , along b , at which the total head is equal to h_2 (solved by Equation #2)	79.54 feet
c_2	=	distance from h_2 to d (solved by Equation #5), this is also the equipotential line equal to h_2	92.00 feet
A_2	=	angle between h_2 , d , and h_3 (solved by Equation #6)	134.03 degrees

By utilizing the Law of Sines, l can be calculated and utilized in Equation #3 to calculate the hydraulic gradient.

Equation #7 (Law of Sines):
$$\sin A_2 = l / d$$

Equation #7 (Law of Sines Revised):
$$l = \sin A_2 \cdot d$$

Where:

d	=	distance from h_3 , along b , at which the total head is equal to h_2 (solved by Equation #2)	79.54 feet
A_2	=	angle between h_2 , d , and h_3 (solved by Equation #6)	134.03 degrees
l	=	distance from h_3 that is perpendicular to the equipotential line c_2 (solved by Equation #7)	57.19 feet

HYDRAULIC GRADIENT CALCULATION #2

Shivam Energy, Inc.
 399 W. Liberty Street
 Wauconda, Lake County, Illinois 60084

Gauging Date: May 7, 2015
 Wells Used: MW-28, RW-10, MW-24

The value for the hydraulic gradient was solved using site-specific groundwater elevation data and the distances between the wells selected.

Equation #1:
$$\left[\frac{(h_1 - h_2)}{(h_1 - h_3)} \right] = \left[\frac{x}{b} \right]$$

Where:

h_1	=	highest head selected (MW-28)	104.46 feet
h_2	=	intermediate head selected (RW-10)	103.29 feet
h_3	=	lowest head selected (MW-24)	101.72 feet
b	=	distance from h_3 to h_1	252.00 feet
x	=	distance from h_1 , along b , at which the total head is h_2 (solved by Equation #1)	107.61 feet

Equation #2:
$$d = b - x$$

Where:

b	=	distance from h_3 to h_1	252.00 feet
x	=	distance from h_1 , along b , at which the total head is h_2 (solved by Equation #1)	107.61 feet
d	=	distance from h_3 , along b , at which the total head is h_2 (solved by Equation #2)	144.39 feet

The hydraulic gradient is then calculated using the following equation. Please see the attached sheets for the additional calculations required to calculate l .

Equation #3:
$$i = \left[\frac{(h_2 - h_3)}{l} \right]$$

Where:

l	=	distance from h_3 that is perpendicular to the equipotential line that is equal to h_2 (solved by Equation #7)	142.66 feet
i	=	hydraulic gradient (solved by Equation #3)	0.0110 feet/feet

HYDRAULIC GRADIENT CALCULATION #2

Shivam Energy, Inc.
 399 W. Liberty Street
 Wauconda, Lake County, Illinois 60084

Gauging Date: May 7, 2015
 Wells Used: MW-28, RW-10, MW-24

By utilizing the Law of Cosines and the Law of Sines, l , the distance from h_3 that is perpendicular to the equipotential line that is equal to h_2 , can be calculated.

Equation #4 (Law of Cosines):
$$c^2 = a^2 + b^2 - 2ab (\cos C)$$

Equation #4 (Law of Cosines Revised):
$$\cos C = \frac{a^2 + b^2 - c^2}{2ab}$$

Where:

a	=	distance from h_2 to h_3	160.00 feet
b	=	distance from h_3 to h_1	252.00 feet
c	=	distance from h_1 to h_2	154.00 feet
C	=	angle between h_2, h_3 , and h_1 (solved by Equation #4)	35.82 degrees

By substituting d for b , the distance between h_2 and d can be calculated.

Equation #5 (Law of Cosines):
$$c_2^2 = a^2 + d^2 - 2ad (\cos C)$$

Where:

a	=	distance from h_2 to h_3	160.00 feet
d	=	distance from h_3 , along b , at which the total head is equal to h_2 (solved by Equation #2)	144.39 feet
C	=	angle between h_2, h_3 , and h_1 (solved by Equation #4)	35.82 degrees
c_2	=	distance from h_2 to d (solved by Equation #5), this is also the equipotential line equal to h_2	94.78 feet

HYDRAULIC GRADIENT CALCULATION #2

Shivam Energy, Inc.
399 W. Liberty Street
Wauconda, Lake County, Illinois 60084

Gauging Date: May 7, 2015
Wells Used: MW-28, RW-10, MW-24

By using Equation #5 above, the angle between h_2 , d , and h_3 can be calculated.

Equation #6 (Law of Cosines):
$$\cos A_2 = \frac{d^2 + c_2^2 - a^2}{2dc_2}$$

Where:

a	=	distance from h_2 to h_3	160.00 feet
d	=	distance from h_3 , along b , at which the total head is equal to h_2 (solved by Equation #2)	144.39 feet
c_2	=	distance from h_2 to d (solved by Equation #5), this is also the equipotential line equal to h_2	94.78 feet
A_2	=	angle between h_2 , d , and h_3 (solved by Equation #6)	81.10 degrees

By utilizing the Law of Sines, l can be calculated and utilized in Equation #3 to calculate the hydraulic gradient.

Equation #7 (Law of Sines):
$$\sin A_2 = l/d$$

Equation #7 (Law of Sines Revised):
$$l = \sin A_2 \cdot d$$

Where:

d	=	distance from h_3 , along b , at which the total head is equal to h_2 (solved by Equation #2)	144.39 feet
A_2	=	angle between h_2 , d , and h_3 (solved by Equation #6)	81.10 degrees
l	=	distance from h_3 that is perpendicular to the equipotential line c_2 (solved by Equation #7)	142.66 feet

HYDRAULIC GRADIENT CALCULATION #3

Shivam Energy, Inc.
 399 W. Liberty Street
 Wauconda, Lake County, Illinois 60084

Gauging Date: May 7, 2015
 Wells Used: MW-26, MW-24, MW-15

The value for the hydraulic gradient was solved using site-specific groundwater elevation data and the distances between the wells selected.

Equation #1:
$$\left[\frac{(h_1 - h_2)}{(h_1 - h_3)} \right] = \left[\frac{x}{b} \right]$$

Where:

h_1	=	highest head selected (MW-26)	103.73 feet
h_2	=	intermediate head selected (MW-24)	101.72 feet
h_3	=	lowest head selected (MW-15)	99.67 feet
b	=	distance from h_3 to h_1	321.00 feet
x	=	distance from h_1 , along b , at which the total head is h_2 (solved by Equation #1)	158.92 feet

Equation #2:
$$d = b - x$$

Where:

b	=	distance from h_3 to h_1	321.00 feet
x	=	distance from h_1 , along b , at which the total head is h_2 (solved by Equation #1)	158.92 feet
d	=	distance from h_3 , along b , at which the total head is h_2 (solved by Equation #2)	162.08 feet

The hydraulic gradient is then calculated using the following equation. Please see the attached sheets for the additional calculations required to calculate l .

Equation #3:
$$i = \left[\frac{(h_2 - h_3)}{l} \right]$$

Where:

l	=	distance from h_3 that is perpendicular to the equipotential line that is equal to h_2 (solved by Equation #7)	160.78 feet
i	=	hydraulic gradient (solved by Equation #3)	0.0128 feet/feet

HYDRAULIC GRADIENT CALCULATION #3

Shivam Energy, Inc.
399 W. Liberty Street
Wauconda, Lake County, Illinois 60084

Gauging Date: May 7, 2015
Wells Used: MW-26, MW-24, MW-15

By utilizing the Law of Cosines and the Law of Sines, l , the distance from h_3 that is perpendicular to the equipotential line that is equal to h_2 , can be calculated.

Equation #4 (Law of Cosines):
$$c^2 = a^2 + b^2 - 2ab (\cos C)$$

Equation #4 (Law of Cosines Revised):
$$\cos C = \frac{a^2 + b^2 - c^2}{2ab}$$

Where:

a	=	distance from h_2 to h_3	214.00 feet
b	=	distance from h_3 to h_1	321.00 feet
c	=	distance from h_1 to h_2	187.00 feet
C	=	angle between h_2, h_3 , and h_1 (solved by Equation #4)	34.02 degrees

By substituting d for b , the distance between h_2 and d can be calculated.

Equation #5 (Law of Cosines):
$$c_2^2 = a^2 + d^2 - 2ad (\cos C)$$

Where:

a	=	distance from h_2 to h_3	214.00 feet
d	=	distance from h_3 , along b , at which the total head is equal to h_2 (solved by Equation #2)	162.08 feet
C	=	angle between h_2, h_3 , and h_1 (solved by Equation #4)	34.02 degrees
c_2	=	distance from h_2 to d (solved by Equation #5), this is also the equipotential line equal to h_2	120.71 feet

HYDRAULIC GRADIENT CALCULATION #3

Shivam Energy, Inc.
 399 W. Liberty Street
 Wauconda, Lake County, Illinois 60084

Gauging Date: May 7, 2015
 Wells Used: MW-26, MW-24, MW-15

By using Equation #5 above, the angle between h_2 , d , and h_3 can be calculated.

Equation #6 (Law of Cosines):
$$\cos A_2 = \frac{d^2 + c_2^2 - a^2}{2dc_2}$$

Where:

a	=	distance from h_2 to h_3	214.00 feet
d	=	distance from h_3 , along b , at which the total head is equal to h_2 (solved by Equation #2)	162.08 feet
c_2	=	distance from h_2 to d (solved by Equation #5), this is also the equipotential line equal to h_2	120.71 feet
A_2	=	angle between h_2 , d , and h_3 (solved by Equation #6)	97.27 degrees

By utilizing the Law of Sines, l can be calculated and utilized in Equation #3 to calculate the hydraulic gradient.

Equation #7 (Law of Sines):
$$\sin A_2 = l/d$$

Equation #7 (Law of Sines Revised):
$$l = \sin A_2 \cdot d$$

Where:

d	=	distance from h_3 , along b , at which the total head is equal to h_2 (solved by Equation #2)	162.08 feet
A_2	=	angle between h_2 , d , and h_3 (solved by Equation #6)	97.27 degrees
l	=	distance from h_3 that is perpendicular to the equipotential line c_2 (solved by Equation #7)	160.78 feet

APPENDIX K

TIER 2 SCGIER CALCULATIONS

SSL Calculations used for the SCGIER

Input Variables for the SCGIER

Project Number: 100018
Site Name: Clark Oil & Refining
Site Address: 399 W. Liberty Street
Site City: Wauconda
Site County: Lake
Site State: IL
Site ZIP: 60084
Leaking UST Incident No.: 892744, 903199
LPC No.: 0971855024
Land Use: Industrial/Commercial
Soil Type: Sand
Groundwater Classification: Class I
Mass Limit: Yes
Source Area: 5

Person Performing Calcs: Marcos I. Czako, P.G.
Title: Senior Project Manager

ρ_b	= Dry soil bulk density	=	1.740	g/cm ³
d_s	= Depth of source	=	2.667	m
L	= Source length parallel to groundwater flow	=	186.84	m
K	= Aquifer hydraulic conductivity	=	2,084.53	m/yr
d_a	= Aquifer thickness	=	9.930	m
i	= Hydraulic gradient	=	0.0111	m/m
GW _{obj}	= Groundwater remediation objective (chemical specific)			
		Benzene =	0.005	mg/L
		Toluene =	1	mg/L
		Ethylbenzene =	0.7	mg/L
		Total Xylenes =	10	mg/L
		MTBE =	0.07	mg/L
		Solving for the SCGIER RO for Benzene =	0.272	mg/kg
		Solving for the SCGIER RO for Toluene =	54.304	mg/kg
		solving for the SCGIER RO for Ethylbenzene =	38.012	mg/kg
		Solving for the SCGIER RO for Total Xylenes =	543.036	mg/kg
		Solving for the SCGIER RO for MTBE =	3.801	mg/kg

Note: Equation S24 was not used since there is a site-specific total porosity value for this site

Target Soil Leachate Concentration

Equation S18

$$C_w = DF \cdot GW_{obj}$$

Where:

C_w	= Target soil leachate concentration (Equation S18)	=	unknown	mg/L
DF	= Dilution factor (20 or Equation S22, whichever is greater)	=	20.00	unitless
GW_{obj}	= Groundwater remediation objective (chemical specific)			
		Benzene =	0.005	mg/L
		Toluene =	1	mg/L
		Ethylbenzene =	0.7	mg/L
		Total Xylenes =	10	mg/L
		MTBE =	0.07	mg/L

Solving for C_w for Benzene =	0.1	mg/L
Solving for C_w for Toluene =	20	mg/L
Solving for C_w for Ethylbenzene =	14	mg/L
Solving for C_w for Total Xylenes =	200	mg/L
Solving for C_w for MTBE =	1.4	mg/L

Dilution Factor

Equation S22

$$DF = 1 + \frac{K \cdot i \cdot d}{I \cdot L}$$

Where:

DF	= Dilution factor	=	unknown	unitless
K	= Aquifer hydraulic conductivity	=	2,084.530	m/yr
i	= Hydraulic gradient	=	0.0111	
d	= Mixing zone depth (Equation S25)	=	21.923	m
I	= Infiltration rate (default)	=	0.3	m/yr
L	= Source length parallel to groundwater flow	=	186.84	m

Therefore, solving for DF = 10.05 unitless

Please note that since the calculated DF is less than 20, a value of 20 is utilized in Equation S18.

Estimation of Mixing Zone Depth

Equation S25

$$d = \left(0.0112 \cdot L^2\right)^{0.5} + d_a \left[1 - \exp\left(\frac{-L \cdot I}{K \cdot i \cdot d_a}\right) \right]$$

Where:

d	=	Mixing zone depth	=	unknown	m
L	=	Source length parallel to groundwater flow	=	186.84	m
d _a	=	Aquifer thickness	=	9.930	m
I	=	Infiltration rate (default)	=	0.3	m/yr
K	=	Aquifer hydraulic conductivity	=	2,084.53	m/yr
i	=	Hydraulic gradient	=	0.0111	m/m

Therefore, solving for d = 21.923 m

Soil Component of the Groundwater Ingestion Exposure Route

Equation S28

$$\frac{(C_w \cdot I_{M-L} \cdot ED_{M-L})}{\rho_b \cdot d_s}$$

Where:

SCGIER RO	= Remediation objective	=	unknown	mg/kg
C_w	= Target soil leachate concentration (Equation S18)			
			Benzene	= 0.1 mg/L
			Toluene	= 20 mg/L
			Ethylbenzene	= 14 mg/L
			Total Xylenes	= 200 mg/L
			MTBE	= 1.4 mg/L
I_{M-L}	= Infiltration rate (default)	=	0.18	m/yr
ED_{M-L}	= Exposure duration (default)	=	70	yr
ρ_b	= Dry soil bulk density	=	1.74	g/cm ³
d_s	= Depth of source	=	2.667	g/cm ³

Solving for the SCGIER RO for Benzene	=	0.272	mg/kg
Solving for the SCGIER RO for Toluene	=	54.304	mg/kg
Solving for the SCGIER RO for Ethylbenzene	=	38.012	mg/kg
Solving for the SCGIER RO for Total Xylenes	=	543.036	mg/kg
Solving for the SCGIER RO for MTBE	=	3.801	mg/kg

Illinois Environmental Protection Agency Leaking Underground Storage Tank Program SSL Input Parameters for Use with Tier 2 Calculations

A. Site Identification

IEMA Incident # (6- or 8-digit): 892744, 903199 IEPA LPC # (10-digit): 0971855024

Site Name: Clark Oil & Refining

Site Address (not a P.O. Box): 399 W. Liberty Street

City: Wauconda County: Lake Zip Code: 60084

Leaking UST Technical File

B. Tier 2 Calculation Information

Equation(s) Used (ex: S12, S17, R28): S18, S22, S25, and S28

Contact Information for Individual Who Performed Calculations: Marcos I. Czakó, P.G., Senior Project Manager
TriCore Environmental, LLC, 2368 Corporate Lane, Suite 116, Naperville, IL 60563, (630) 520-9973

Land Use: Industrial/Commercial Soil Type: Sand

Groundwater: Class I Class II

Mass Limit: Yes No If Yes, then Specify Acreage: 0.5 1 2 5 10 30

- Mass Limit Acreage other than defaults must always be rounded up.
- Failure to use site-specific parameters where allowed could affect payment from the Underground Storage Tank Fund.
- Maps depicting source width, plume dimensions, distance, etc. must also be submitted.
- Inputs must be submitted in the designated unit.

Symbol		Unit
AT (ingestion)	=	yr
AT (inhalation)	=	yr
AT _c	=	yr
BW	=	kg
C _{sat}	=	mg/kg
C _w	= 0.1	mg/L
d	= 21.923	m

Symbol		Unit
d _a	= 9.930	m
d _s	= 2.667	m
D _A	=	cm ² /s
D _i	=	cm ² /s
D _w	=	cm ² /s
DF	= 20.00	unitless
ED (ingestion of carcinogens)	=	yr

Symbol		Unit	Symbol		Unit
ED (inhalation of carcinogens)	=	yr	K_{oc}	=	cm^3/g or L/kg
ED (ingestion of noncarcinogens)	=	yr	K_s	=	m/yr
ED (inhalation of noncarcinogens)	=	yr	L	=	186.84 m
ED (ingestion of groundwater)	=	yr	PEF	=	m^3/kg
ED_{M-L}	=	70 yr	PEF'	=	m^3/kg
EF	=	d/yr	Q/C (VF equations)	=	$(g/m^2-s)/(kg/m^3)$
F(x)	=	unitless	Q/C (PEF equations)	=	$(g/m^2-s)/(kg/m^3)$
f_{oc}	=	g/g	RfC	=	mg/m^3
GW_{obj}	=	0.005 mg/L	RfD _o	=	$mg/(kg-d)$
H'	=	unitless	S	=	mg/L
i	=	0.0111 m/m	SF _o	=	$(mg/kg-d)^{-1}$
l	=	0.3 m/yr	T	=	s
I_{M-L}	=	0.18 m/yr	T_{M-L}	=	yr
$IF_{soil-adj}$	=	$(mg-yr)/(kg-d)$	THQ	=	unitless
IR_{soil}	=	mg/d	TR	=	unitless
IR_w	=	L/d	U_m	=	m/s
K	=	2,084.530 m/yr	URF	=	$(\mu g/m^3)^{-1}$
K_d (non-ionizing organics)	=	cm^3/g or L/kg	U_t	=	m/s
K_d (ionizing organics)	=	cm^3/g or L/kg	V	=	unitless
K_d (inorganics)	=	cm^3/g or L/kg	VF	=	m^3/kg

Symbol		Unit
VF'	=	m ³ /kg
VF _{M-L}	=	m ³ /kg
VF' _{M-L}	=	m ³ /kg
η	=	L _{pore} /L _{soil}
θ _a	=	L _{air} /L _{soil}

Symbol		Unit
θ _w	=	L _{water} /L _{soil}
ρ _b	= 1.74	kg/L or g/cm ³
ρ _s	=	g/cm ³
ρ _w	=	g/cm ³
1/(2b+3)	=	unitless

Equation		Unit(s)
S1	=	mg/kg
S2	=	mg/kg
S3	=	mg/kg
S4	=	mg/kg
S5	=	mg/kg
S6	=	mg/kg
S7	=	mg/kg
S17	=	mg/kg
S28	= 0.272	mg/kg
S29	=	mg/kg

Illinois Environmental Protection Agency Leaking Underground Storage Tank Program SSL Input Parameters for Use with Tier 2 Calculations

A. Site Identification

IEMA Incident # (6- or 8-digit): 892744, 903199 IEPA LPC # (10-digit): 0971855024

Site Name: Clark Oil & Refining

Site Address (not a P.O. Box): 399 W. Liberty Street

City: Wauconda County: Lake Zip Code: 60084

Leaking UST Technical File

B. Tier 2 Calculation Information

Equation(s) Used (ex: S12, S17, R28): S18, S22, S25, and S28

Contact Information for Individual Who Performed Calculations: Marcos I. Czakó, P.G., Senior Project Manager
TriCore Environmental, LLC, 2368 Corporate Lane, Suite 116, Naperville, IL 60563, (630) 520-9973

Land Use: Industrial/Commercial Soil Type: Sand

Groundwater: Class I Class II

Mass Limit: Yes No If Yes, then Specify Acreage: 0.5 1 2 5 10 30

-Mass Limit Acreage other than defaults must always be rounded up.

-Failure to use site-specific parameters where allowed could affect payment from the Underground Storage Tank Fund.

-Maps depicting source width, plume dimensions, distance, etc. must also be submitted.

-Inputs must be submitted in the designated unit.

Symbol		Unit
AT (ingestion)	=	yr
AT (inhalation)	=	yr
AT _c	=	yr
BW	=	kg
C _{sat}	=	mg/kg
C _w	= 20	mg/L
d	= 21.923	m

Symbol		Unit
d _a	= 9.930	m
d _s	= 2.667	m
D _A	=	cm ² /s
D _i	=	cm ² /s
D _w	=	cm ² /s
DF	= 20.00	unitless
ED (ingestion of carcinogens)	=	yr

Symbol		Unit	Symbol		Unit
ED (inhalation of carcinogens)	=	yr	K_{oc}	=	cm^3/g or L/kg
ED (ingestion of noncarcinogens)	=	yr	K_s	=	m/yr
ED (inhalation of noncarcinogens)	=	yr	L	=	186.84 m
ED (ingestion of groundwater)	=	yr	PEF	=	m^3/kg
ED_{M-L}	=	70 yr	PEF'	=	m^3/kg
EF	=	d/yr	Q/C (VF equations)	=	$(g/m^2-s)/(kg/m^3)$
F(x)	=	unitless	Q/C (PEF equations)	=	$(g/m^2-s)/(kg/m^3)$
f_{oc}	=	g/g	RfC	=	mg/m^3
GW_{obj}	=	1 mg/L	RfD _o	=	$mg/(kg-d)$
H'	=	unitless	S	=	mg/L
i	=	0.0111 m/m	SF _o	=	$(mg/kg-d)^{-1}$
I	=	0.3 m/yr	T	=	s
I_{M-L}	=	0.18 m/yr	T_{M-L}	=	yr
$IF_{soil-adj}$	=	$(mg-yr)/(kg-d)$	THQ	=	unitless
IR_{soil}	=	mg/d	TR	=	unitless
IR_w	=	L/d	U_m	=	m/s
K	=	2,084.530 m/yr	URF	=	$(\mu g/m^3)^{-1}$
K_d (non-ionizing organics)	=	cm^3/g or L/kg	U_t	=	m/s
K_d (ionizing organics)	=	cm^3/g or L/kg	V	=	unitless
K_d (inorganics)	=	cm^3/g or L/kg	VF	=	m^3/kg

Symbol		Unit
VF'	=	m ³ /kg
VF _{M-L}	=	m ³ /kg
VF' _{M-L}	=	m ³ /kg
η	=	L _{pore} /L _{soil}
θ _a	=	L _{air} /L _{soil}

Symbol		Unit
θ _w	=	L _{water} /L _{soil}
ρ _b	= 1.74	kg/L or g/cm ³
ρ _s	=	g/cm ³
ρ _w	=	g/cm ³
1/(2b+3)	=	unitless

Equation		Unit(s)
S1	=	mg/kg
S2	=	mg/kg
S3	=	mg/kg
S4	=	mg/kg
S5	=	mg/kg
S6	=	mg/kg
S7	=	mg/kg
S17	=	mg/kg
S28	= 54.304	mg/kg
S29	=	mg/kg

**Illinois Environmental Protection Agency
Leaking Underground Storage Tank Program
SSL Input Parameters for Use with Tier 2 Calculations**

A. Site Identification

IEMA Incident # (6- or 8-digit): 892744, 903199 IEPA LPC # (10-digit): 0971855024

Site Name: Clark Oil & Refining

Site Address (not a P.O. Box): 399 W. Liberty Street

City: Wauconda County: Lake Zip Code: 60084

Leaking UST Technical File

B. Tier 2 Calculation Information

Equation(s) Used (ex: S12, S17, R28): S18, S22, S25, and S28

Contact Information for Individual Who Performed Calculations: Marcos I. Czakó, P.G., Senior Project Manager
TriCore Environmental, LLC, 2368 Corporate Lane, Suite 116, Naperville, IL 60563, (630) 520-9973

Land Use: Industrial/Commercial Soil Type: Sand

Groundwater: Class I Class II

Mass Limit: Yes No If Yes, then Specify Acreage: 0.5 1 2 5 10 30

- Mass Limit Acreage other than defaults must always be rounded up.
- Failure to use site-specific parameters where allowed could affect payment from the Underground Storage Tank Fund.
- Maps depicting source width, plume dimensions, distance, etc. must also be submitted.
- Inputs must be submitted in the designated unit.

Symbol	Unit	Symbol	Unit
AT (ingestion) =	yr	d _a =	9.930 m
AT (inhalation) =	yr	d _s =	2.667 m
AT _c =	yr	D _A =	cm ² /s
BW =	kg	D _i =	cm ² /s
C _{sat} =	mg/kg	D _w =	cm ² /s
C _w =	14 mg/L	DF =	20.00 unitless
d =	21.923 m	ED (ingestion of carcinogens) =	yr

Symbol		Unit
ED (inhalation of carcinogens)	=	yr
ED (ingestion of noncarcinogens)	=	yr
ED (inhalation of noncarcinogens)	=	yr
ED (ingestion of groundwater)	=	yr
ED _{M-L}	= 70	yr
EF	=	d/yr
F(x)	=	unitless
f _{oc}	=	g/g
GW _{obj}	= 0.7	mg/L
H'	=	unitless
i	= 0.0111	m/m
l	= 0.3	m/yr
l _{M-L}	= 0.18	m/yr
IF _{soil-adj}	=	(mg-yr)/(kg-d)
IR _{soil}	=	mg/d
IR _w	=	L/d
K	= 2,084.530	m/yr
K _d (non-ionizing organics)	=	cm ³ /g or L/kg
K _d (ionizing organics)	=	cm ³ /g or L/kg
K _d (inorganics)	=	cm ³ /g or L/kg

Symbol		Unit
K _{oc}	=	cm ³ /g or L/kg
K _s	=	m/yr
L	= 186.84	m
PEF	=	m ³ /kg
PEF'	=	m ³ /kg
Q/C (VF equations)	=	(g/m ² -s)/(kg/m ³)
Q/C (PEF equations)	=	(g/m ² -s)/(kg/m ³)
RfC	=	mg/m ³
RfD _o	=	mg/(kg-d)
S	=	mg/L
SF _o	=	(mg/kg-d) ⁻¹
T	=	s
T _{M-L}	=	yr
THQ	=	unitless
TR	=	unitless
U _m	=	m/s
URF	=	(μg/m ³) ⁻¹
U _t	=	m/s
V	=	unitless
VF	=	m ³ /kg

Symbol		Unit
VF'	=	m ³ /kg
VF _{M-L}	=	m ³ /kg
VF' _{M-L}	=	m ³ /kg
η	=	L _{pore} /L _{soil}
θ _a	=	L _{air} /L _{soil}

Symbol		Unit
θ _w	=	L _{water} /L _{soil}
ρ _b	= 1.74	kg/L or g/cm ³
ρ _s	=	g/cm ³
ρ _w	=	g/cm ³
1/(2b+3)	=	unitless

Equation		Unit(s)
S1	=	mg/kg
S2	=	mg/kg
S3	=	mg/kg
S4	=	mg/kg
S5	=	mg/kg
S6	=	mg/kg
S7	=	mg/kg
S17	=	mg/kg
S28	= 38.012	mg/kg
S29	=	mg/kg

Illinois Environmental Protection Agency Leaking Underground Storage Tank Program SSL Input Parameters for Use with Tier 2 Calculations

A. Site Identification

IEMA Incident # (6- or 8-digit): 892744, 903199 IEPA LPC # (10-digit): 0971855024

Site Name: Clark Oil & Refining

Site Address (not a P.O. Box): 399 W. Liberty Street

City: Wauconda County: Lake Zip Code: 60084

Leaking UST Technical File

B. Tier 2 Calculation Information

Equation(s) Used (ex: S12, S17, R28): S18, S22, S25, and S28

Contact Information for Individual Who Performed Calculations: Marcos I. Czakó, P.G., Senior Project Manager
TriCore Environmental, LLC, 2368 Corporate Lane, Suite 116, Naperville, IL 60563, (630) 520-9973

Land Use: Industrial/Commercial Soil Type: Sand

Groundwater: Class I Class II

Mass Limit: Yes No If Yes, then Specify Acreage: 0.5 1 2 5 10 30

-Mass Limit Acreage other than defaults must always be rounded up.

-Failure to use site-specific parameters where allowed could affect payment from the Underground Storage Tank Fund.

-Maps depicting source width, plume dimensions, distance, etc. must also be submitted.

-Inputs must be submitted in the designated unit.

Symbol		Unit
AT (ingestion)	=	yr
AT (inhalation)	=	yr
AT _c	=	yr
BW	=	kg
C _{sat}	=	mg/kg
C _w	= 200.000	mg/L
d	= 21.923	m

Symbol		Unit
d _a	= 9.930	m
d _s	= 2.667	m
D _A	=	cm ² /s
D _i	=	cm ² /s
D _w	=	cm ² /s
DF	= 20.00	unitless
ED (ingestion of carcinogens)	=	yr

Symbol		Unit
ED (inhalation of carcinogens)	=	yr
ED (ingestion of noncarcinogens)	=	yr
ED (inhalation of noncarcinogens)	=	yr
ED (ingestion of groundwater)	=	yr
ED _{M-L}	= 70	yr
EF	=	d/yr
F(x)	=	unitless
f _{oc}	=	g/g
GW _{obj}	= 10	mg/L
H'	=	unitless
i	= 0.0111	m/m
l	= 0.3	m/yr
l _{M-L}	= 0.18	m/yr
IF _{soil-adj}	=	(mg-yr)/(kg-d)
IR _{soil}	=	mg/d
IR _w	=	L/d
K	= 2,084.530	m/yr
K _d (non-ionizing organics)	=	cm ³ /g or L/kg
K _d (ionizing organics)	=	cm ³ /g or L/kg
K _d (inorganics)	=	cm ³ /g or L/kg

Symbol		Unit
K _{oc}	=	cm ³ /g or L/kg
K _s	=	m/yr
L	= 186.84	m
PEF	=	m ³ /kg
PEF'	=	m ³ /kg
Q/C (VF equations)	=	(g/m ² -s)/(kg/m ³)
Q/C (PEF equations)	=	(g/m ² -s)/(kg/m ³)
RfC	=	mg/m ³
RfD _o	=	mg/(kg-d)
S	=	mg/L
SF _o	=	(mg/kg-d) ⁻¹
T	=	s
T _{M-L}	=	yr
THQ	=	unitless
TR	=	unitless
U _m	=	m/s
URF	=	(µg/m ³) ⁻¹
U _t	=	m/s
V	=	unitless
VF	=	m ³ /kg

Symbol		Unit
VF'	=	m ³ /kg
VF _{M-L}	=	m ³ /kg
VF' _{M-L}	=	m ³ /kg
η	=	L _{pore} /L _{soil}
θ _a	=	L _{air} /L _{soil}

Symbol		Unit
θ _w	=	L _{water} /L _{soil}
ρ _b	=	1.74 kg/L or g/cm ³
ρ _s	=	g/cm ³
ρ _w	=	g/cm ³
1/(2b+3)	=	unitless

Equation		Unit(s)
S1	=	mg/kg
S2	=	mg/kg
S3	=	mg/kg
S4	=	mg/kg
S5	=	mg/kg
S6	=	mg/kg
S7	=	mg/kg
S17	=	mg/kg
S28	=	543.036 mg/kg
S29	=	mg/kg

**Illinois Environmental Protection Agency
Leaking Underground Storage Tank Program
SSL Input Parameters for Use with Tier 2 Calculations**

A. Site Identification

IEMA Incident # (6- or 8-digit): 892744, 903199 IEPA LPC # (10-digit): 0971855024

Site Name: Clark Oil & Refining

Site Address (not a P.O. Box): 399 W. Liberty Street

City: Wauconda County: Lake Zip Code: 60084

Leaking UST Technical File

B. Tier 2 Calculation Information

Equation(s) Used (ex: S12, S17, R28): S18, S22, S25, and S28

Contact Information for Individual Who Performed Calculations: Marcos I. Czako, P.G., Senior Project Manager
TriCore Environmental, LLC, 2368 Corporate Lane, Suite 116, Naperville, IL 60563, (630) 520-9973

Land Use: Industrial/Commercial Soil Type: Sand

Groundwater: Class I Class II

Mass Limit: Yes No If Yes, then Specify Acreage: 0.5 1 2 5 10 30

- Mass Limit Acreage other than defaults must always be rounded up.
- Failure to use site-specific parameters where allowed could affect payment from the Underground Storage Tank Fund.
- Maps depicting source width, plume dimensions, distance, etc. must also be submitted.
- Inputs must be submitted in the designated unit.

Symbol		Unit
AT (ingestion)	=	yr
AT (inhalation)	=	yr
AT _c	=	yr
BW	=	kg
C _{sat}	=	mg/kg
C _w	= 1.400	mg/L
d	= 21.923	m

Symbol		Unit
d _a	= 9.930	m
d _s	= 2.667	m
D _A	=	cm ² /s
D _i	=	cm ² /s
D _w	=	cm ² /s
DF	= 20.00	unitless
ED (ingestion of carcinogens)	=	yr

Symbol		Unit
ED (inhalation of carcinogens)	=	yr
ED (ingestion of noncarcinogens)	=	yr
ED (inhalation of noncarcinogens)	=	yr
ED (ingestion of groundwater)	=	yr
ED _{M-L}	= 70	yr
EF	=	d/yr
F(x)	=	unitless
f _{oc}	=	g/g
GW _{obj}	= 0.07	mg/L
H'	=	unitless
i	= 0.0111	m/m
l	= 0.3	m/yr
l _{M-L}	= 0.18	m/yr
IF _{soil-adj}	=	(mg-yr)/(kg-d)
IR _{soil}	=	mg/d
IR _w	=	L/d
K	= 2,084.530	m/yr
K _d (non-ionizing organics)	=	cm ³ /g or L/kg
K _d (ionizing organics)	=	cm ³ /g or L/kg
K _d (inorganics)	=	cm ³ /g or L/kg

Symbol		Unit
K _{oc}	=	cm ³ /g or L/kg
K _s	=	m/yr
L	= 186.84	m
PEF	=	m ³ /kg
PEF'	=	m ³ /kg
Q/C (VF equations)	=	(g/m ² -s)/(kg/m ³)
Q/C (PEF equations)	=	(g/m ² -s)/(kg/m ³)
RfC	=	mg/m ³
RfD _o	=	mg/(kg-d)
S	=	mg/L
SF _o	=	(mg/kg-d) ⁻¹
T	=	s
T _{M-L}	=	yr
THQ	=	unitless
TR	=	unitless
U _m	=	m/s
URF	=	(µg/m ³) ⁻¹
U _t	=	m/s
V	=	unitless
VF	=	m ³ /kg

Symbol		Unit
VF'	=	m ³ /kg
VF _{M-L}	=	m ³ /kg
VF' _{M-L}	=	m ³ /kg
η	=	L _{pore} /L _{soil}
θ _a	=	L _{air} /L _{soil}

Symbol		Unit
θ _w	=	L _{water} /L _{soil}
ρ _b	=	1.74 kg/L or g/cm ³
ρ _s	=	g/cm ³
ρ _w	=	g/cm ³
1/(2b+3)	=	unitless

Equation		Unit(s)
S1	=	mg/kg
S2	=	mg/kg
S3	=	mg/kg
S4	=	mg/kg
S5	=	mg/kg
S6	=	mg/kg
S7	=	mg/kg
S17	=	mg/kg
S28	=	3.801 mg/kg
S29	=	mg/kg

APPENDIX L

SITE-SPECIFIC C_{SAT} CALCULATIONS

Input Variables for the Soil Saturation Limit

Project Number: 100018
Site Name: Clark Oil & Refining
Site Address: 399 W. Liberty Street
Site City: Wauconda
Site County: Lake
Site State: IL
Site ZIP: 60084
Leaking UST Incident No.: 892744, 903199
LPC No: 0971855024
Land Use: Industrial/Commercial
Soil Type: Sand
Groundwater Classification: Class I

Person Performing Calcs: Marcos I. Czakó, P.G.
Title: Senior Project Manager

ρ_b	=	Dry soil bulk density	=	1.740	g/cm ³
f_{oc}	=	Organic carbon content of soil	=	0.00777	g/g
ρ_s	=	Soil particle density	=	2.650	g/cm ³
η	=	Total soil porosity	=	0.344	L_{pore}/L_{soil}

		Solving for the C_{sat} for Toluene	=	713.81	- mg/kg
		Solving for the C_{sat} for Total Xylenes	=	353.28	mg/kg

Soil-Water Partition Coefficient

Equation S19

$$K_d = K_{oc} \cdot f_{oc}$$

Where:

K_d	= Soil-water partition coefficient	= unknown	cm^3/g
K_{oc}	= Organic carbon partition coefficient (default - chemical specific)		
		Toluene =	158 L/kg
		Total Xylenes =	398 L/kg
f_{oc}	= Organic carbon content of soil	=	0.00777 g/g
	Solving for K_d for Toluene =	1.228	cm^3/g
	Solving for K_d for Total Xylenes =	3.092	cm^3/g

Water-Filled Soil Porosity

Equation S20

$$\theta_w = \eta \cdot \left(\frac{I}{K_s} \right)^{\frac{1}{(2b+3)^b}}$$

Where:

θ_w	= Water-filled soil porosity	= unknown	$L_{\text{water}}/L_{\text{soil}}$
η	= Total soil porosity (Equation S24)	= 0.343	$L_{\text{pore}}/L_{\text{soil}}$
I	= Infiltration rate (default)	= 0.3	m/yr
K_s	= Saturated hydraulic conductivity (default)	= 1,830	m/yr
$1/(2b+3)^b$	= Exponential (default)	= 0.09	unitless

Solving for $\theta_w = 0.157 \quad L_{\text{water}}/L_{\text{soil}}$

Air-Filled Soil Porosity

Equation S21

$$\theta_a = \eta - \theta_w$$

Where:

θ_a	= Air-filled soil porosity	= unknown	L_{air}/L_{soil}
η	= Total soil porosity	= 0.343	L_{pore}/L_{soil}
θ_w	= Water-filled soil porosity (Equation S20)	= 0.157	L_{water}/L_{soil}

Solving for $\theta_a = 0.1867 L_{air}/L_{soil}$

Soil Saturation Limit

Equation S29

$$C_{sat} = \frac{S}{\rho_b} \cdot [(K_d \cdot \rho_b) + \theta_w + (H' \cdot \theta_a)]$$

Where:

C_{sat}	= Soil saturation limit	=	unknown	mg/kg
S	= Solubility in water (default - chemical specific)			
			Toluene =	530 mg/L
			Total Xylenes =	110 mg/L
ρ_b	= Dry soil bulk density		=	1.74 g/cm ³
K_d	= Soil-water partition coefficient (Equation S19 - chemical specific)		Toluene =	1.228 cm ³ /g
			Total Xylenes =	3.092 cm ³ /g
θ_w	= Water-filled soil porosity (Equation S20)		=	0.157 L _{water} /L _{soil}
H'	= Henry's Law Constant (default - chemical specific)		Toluene =	0.271 unitless
			Total Xylenes =	0.271 unitless
θ_a	= Air-filled soil porosity (Equation S21)		=	0.1867 L _{air} /L _{soil}
	Solving for the C_{sat} for Toluene =	713.81	mg/kg	
	Solving for the C_{sat} for Total Xylenes =	353.28	mg/kg	

**Illinois Environmental Protection Agency
Leaking Underground Storage Tank Program
SSL Input Parameters for Use with Tier 2 Calculations**

A. Site Identification

IEMA Incident # (6- or 8-digit): 892744, 903199 IEPA LPC # (10-digit): 0971855024

Site Name: Clark Oil & Refining

Site Address (not a P.O. Box): 399 W. Liberty Street

City: Wauconda County: Lake Zip Code: 60084

Leaking UST Technical File

B. Tier 2 Calculation Information

Equation(s) Used (ex: S12, S17, R28): S19, S20, S21, S24, and S29

Contact Information for Individual Who Performed Calculations: Marcos I. Czako, P.G., Senior Project Manager
TriCore Environmental, LLC, 2368 Corporate Lane, Suite 116, Naperville, IL, (630) 520-9973

Land Use: Industrial/Commercial Soil Type: Sand

Groundwater: Class I Class II

Mass Limit: Yes No If Yes, then Specify Acreage: 0.5 1 2 5 10 30

- Mass Limit Acreage other than defaults must always be rounded up.
- Failure to use site-specific parameters where allowed could affect payment from the Underground Storage Tank Fund.
- Maps depicting source width, plume dimensions, distance, etc. must also be submitted.
- Inputs must be submitted in the designated unit.

Symbol	Unit	Symbol	Unit
AT (ingestion) =	yr	d_a =	m
AT (inhalation) =	yr	d_s =	m
AT_c =	yr	D_A =	cm ² /s
BW =	kg	D_i =	cm ² /s
C_{sat} =	mg/kg	D_w =	cm ² /s
C_w =	mg/L	DF =	unitless
d =	m	ED (ingestion of carcinogens) =	yr

Symbol		Unit	Symbol		Unit
ED (inhalation of carcinogens)	=	yr	K_{oc}	=	158 cm^3/g or L/kg
ED (ingestion of noncarcinogens)	=	yr	K_s	=	1,830 m/yr
ED (inhalation of noncarcinogens)	=	yr	L	=	m
ED (ingestion of groundwater)	=	yr	PEF	=	m^3/kg
ED_{M-L}	=	yr	PEF'	=	m^3/kg
EF	=	d/yr	Q/C (VF equations)	=	$(g/m^2-s)/(kg/m^3)$
F(x)	=	unitless	Q/C (PEF equations)	=	$(g/m^2-s)/(kg/m^3)$
f_{oc}	=	0.00777 g/g	RfC	=	mg/m^3
GW_{obj}	=	mg/L	RfD _o	=	$mg/(kg-d)$
H'	=	0.271 unitless	S	=	110 mg/L
i	=	m/m	SF _o	=	$(mg/kg-d)^{-1}$
l	=	0.3 m/yr	T	=	s
l_{M-L}	=	m/yr	T_{M-L}	=	yr
$IF_{soil-adj}$	=	$(mg-yr)/(kg-d)$	THQ	=	unitless
IR_{soil}	=	mg/d	TR	=	unitless
IR_w	=	L/d	U_m	=	m/s
K	=	m/yr	URF	=	$(\mu g/m^3)^{-1}$
K_d (non-ionizing organics)	=	1.22766 cm^3/g or L/kg	U_t	=	m/s
K_d (ionizing organics)	=	cm^3/g or L/kg	V	=	unitless
K_d (inorganics)	=	cm^3/g or L/kg	VF	=	m^3/kg

Symbol		Unit
VF'	=	m ³ /kg
VF _{M-L}	=	m ³ /kg
VF' _{M-L}	=	m ³ /kg
η	= 0.344	L _{pore} /L _{soil}
θ _a	= 0.1867	L _{air} /L _{soil}

Symbol		Unit
θ _w	= 0.157	L _{water} /L _{soil}
ρ _b	= 1.74	kg/L or g/cm ³
ρ _s	= 2.65	g/cm ³
ρ _w	=	g/cm ³
1/(2b+3)	= 0.09	unitless

Equation		Unit(s)
S1	=	mg/kg
S2	=	mg/kg
S3	=	mg/kg
S4	=	mg/kg
S5	=	mg/kg
S6	=	mg/kg
S7	=	mg/kg
S17	=	mg/kg
S28	=	mg/kg
S29	= 713.81	mg/kg

Illinois Environmental Protection Agency Leaking Underground Storage Tank Program SSL Input Parameters for Use with Tier 2 Calculations

A. Site Identification

IEMA Incident # (6- or 8-digit): 892744, 903199 IEPA LPC # (10-digit): 0971855024

Site Name: Clark Oil & Refining

Site Address (not a P.O. Box): 399 W. Liberty Street

City: Wauconda County: Lake Zip Code: 60084

Leaking UST Technical File

B. Tier 2 Calculation Information

Equation(s) Used (ex: S12, S17, R28): S19, S20, S21, and S29

Contact Information for Individual Who Performed Calculations: Marcos I. Czakó, P.G., Senior Project Manager
TriCore Environmental, LLC, 2368 Corporate Lane, Suite 116, Naperville, IL, (630) 520-9973

Land Use: Industrial/Commercial Soil Type: Sand

Groundwater: Class I Class II

Mass Limit: Yes No If Yes, then Specify Acreage: 0.5 1 2 5 10 30

- Mass Limit Acreage other than defaults must always be rounded up.
- Failure to use site-specific parameters where allowed could affect payment from the Underground Storage Tank Fund.
- Maps depicting source width, plume dimensions, distance, etc. must also be submitted.
- Inputs must be submitted in the designated unit.

Symbol		Unit
AT (ingestion)	=	yr
AT (inhalation)	=	yr
AT _c	=	yr
BW	=	kg
C _{sat}	=	mg/kg
C _w	=	mg/L
d	=	m

Symbol		Unit
d _a	=	m
d _s	=	m
D _A	=	cm ² /s
D _i	=	cm ² /s
D _w	=	cm ² /s
DF	=	unitless
ED (ingestion of carcinogens)	=	yr

Symbol		Unit	Symbol		Unit
ED (inhalation of carcinogens)	=	yr	K_{oc}	= 398	cm ³ /g or L/kg
ED (ingestion of noncarcinogens)	=	yr	K_s	= 1830	m/yr
ED (inhalation of noncarcinogens)	=	yr	L	=	m
ED (ingestion of groundwater)	=	yr	PEF	=	m ³ /kg
ED_{M-L}	=	yr	PEF'	=	m ³ /kg
EF	=	d/yr	Q/C (VF equations)	=	(g/m ² -s)/(kg/m ³)
F(x)	=	unitless	Q/C (PEF equations)	=	(g/m ² -s)/(kg/m ³)
f_{oc}	= 0.00777	g/g	RfC	=	mg/m ³
GW_{obj}	=	mg/L	RfD _o	=	mg/(kg-d)
H'	= 0.271	unitless	S	= 110	mg/L
i	=	m/m	SF _o	=	(mg/kg-d) ⁻¹
l	= 0.3	m/yr	T	=	s
l_{M-L}	=	m/yr	T_{M-L}	=	yr
$IF_{soil-adj}$	=	(mg-yr)/(kg-d)	THQ	=	unitless
IR_{soil}	=	mg/d	TR	=	unitless
IR_w	=	L/d	U_m	=	m/s
K	=	m/yr	URF	=	(µg/m ³) ⁻¹
K_d (non-ionizing organics)	= 3.09246	cm ³ /g or L/kg	U_t	=	m/s
K_d (ionizing organics)	=	cm ³ /g or L/kg	V	=	unitless
K_d (inorganics)	=	cm ³ /g or L/kg	VF	=	m ³ /kg

Symbol		Unit
VF'	=	m ³ /kg
VF _{M-L}	=	m ³ /kg
VF' _{M-L}	=	m ³ /kg
η	= 0.344	L _{pore} /L _{soil}
θ _a	= 0.1867	L _{air} /L _{soil}

Symbol		Unit
θ _w	= 0.157	L _{water} /L _{soil}
ρ _b	= 1.74	kg/L or g/cm ³
ρ _s	= 2.65	g/cm ³
ρ _w	=	g/cm ³
1/(2b+3)	= 0.09	unitless

Equation		Unit(s)
S1	=	mg/kg
S2	=	mg/kg
S3	=	mg/kg
S4	=	mg/kg
S5	=	mg/kg
S6	=	mg/kg
S7	=	mg/kg
S17	=	mg/kg
S28	=	mg/kg
S29	= 353.28	mg/kg

APPENDIX M

REDUX 390 INFORMATION



Privileged and Confidential

Redux Formulations – General Component Information

Redux Technology is the only company who has developed deposit control agents specifically for the groundwater remediation market. Since 1994, when we were granted the first patent for a blended deposit control agent for remedial systems, we have supplied deposit control programs to some 1500 remedial sites across the US and abroad.

Because of our market focus, all Redux products are formulated to be GRAS (generally recognized as safe) and easy to permit for discharge to surface water and groundwater. Because Redux products are not intended for use in the drinking water market, raw material choice is less constrained (drinking water products must meet National Sanitation Foundation, or NSF, Standard 60 criteria) and therefore product performance is far better than those products used in drinking water applications. However, to making permitting easier, raw materials are chosen, in part, for their environmental fate, transport and toxicity characteristics, with preference given to those materials that are NSF or FDA approved. Various toxicity data, including bioassay data, is generally included on all MSD sheets for Redux products. For most products, no-effect levels (NOAEL's) for aquatic species (daphnia and minnows) is more than an order of magnitude above recommended use levels.

Redux 390 Components

Redux 390 contains two dispersing polymers and a phosphonate sequestering agent.

The phosphonate sequestering agent used in Calsperse 500 is 2-phosphono-1,2,4-butanetricarboxylic acid (PBTC). Phosphonates were developed in mid- to late-1900's to replace inorganic phosphates and polyphosphates, which had been, and continue to be, widely used sequestering agents, primarily in the drinking water market. Phosphates degrade to orthophosphate, which serves to contribute to excessive nutrient loading in surface waters, and can thus create algal blooms and similar undesirable effects. Phosphonates are much more stable than phosphates, and do not degrade in natural environments to contribute to nutrient loading. Toxicity of PBTC is also widely available in the literature.

Two dispersing copolymers are used in Calsperse 500. Both are copolymers widely used in water treatment in many applications, and are considered non-toxic. Dispersant polymers tend to sorb to soils in the environment and degrade by photolysis, hydrolysis and various biodegradation pathways to yield simple organic acids

Both of these dispersants are very effective general use dispersants for calcium and iron, preventing crystal growth and precipitation of the salts of these cations. They are widely used in detergents (including dishwashing detergent), and cooling towers, among many other uses. Both are approved by FDA for use in papermaking (for paper contacting food) and in water used to produce steam which will come in contact with food (production food preparation).

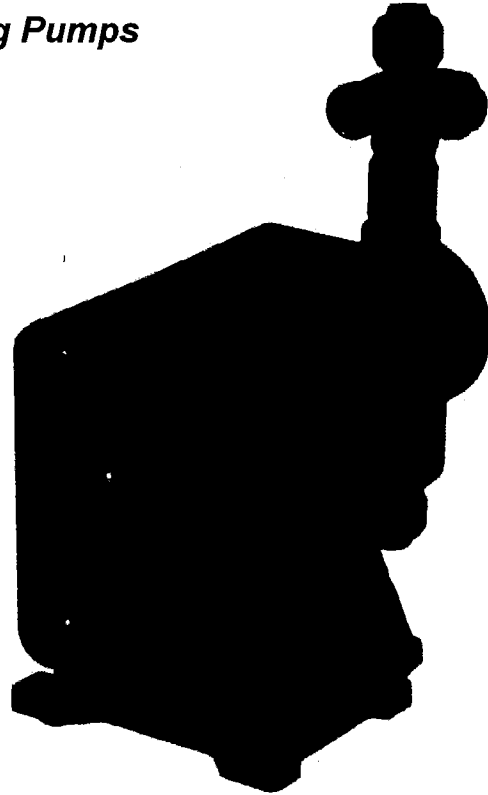
PULSATON®

Electronic Metering Pumps

Series A PLUS

Key Features

- **Manual Control** by on-line adjustable stroke rate and stroke length.
- **Agency approved** for demanding **OUTDOOR** and indoor applications.
- **Highly Reliable** timing circuit.
- **Water Resistant** excellent for **OUTDOOR** and indoor applications.
- **Internally Dampened To Reduce Noise**, very acceptable for household installations.
- **Guided Ball Check Valve Systems**, to reduce back flow and enhance outstanding priming characteristics.
- **Premium Standard Wetted Component Materials**.
- **Few Moving Parts** and **Wall Mountable**.
- **Safe & Easy Priming** with durable leak-free bleed valve assembly (standard).
- **Optional Control:**
 - External pace with auto/manual selection.
 - External stop function
 - 1000:1 turndown control



Pressure and Flow Rate Capacity



MODEL		LBC2	LB02	LBC3	LB03	LB04	LB64	LBC4	LBS2	LBS3	LBS4	
Capacity nominal (max.)	GPH	0.25	0.25	0.42	0.50	1.00	1.25	2.00	0.50	1.38	2.42	
	GPD	6	6	10	12	24	30	48	12	33	58	
	LPH	0.9	0.9	1.6	1.9	3.8	4.7	7.6	1.9	5.2	9.14	
Pressure ¹ (max.)	GFPF, PVDF, 316SS or PVC (W code) w/TFE Seats	PSIG (Bar)	250 (17)	150 (10)	250 (17)	150 (10)	100 (7)	100 (7)	50 (3.3)	250 (17)	150 (10)	100 (7)
	PVC (V code) Viton or CSPE Seats / Degas. Liquid End		150 (10)							150 (10)		
Connections:	Tubing	1/4" ID X 3/8" OD						3/8" ID X 1/2" OD		1/4" ID X 3/8" OD		
	Piping	1/4" FNPT										
Strokes/Minute		125								250		

Note1: Pumps with rated pressure above 150 PSI will be de-rated to 150 PSI Max. when selecting certain valve options.

Engineering Data

Reproducibility:	+/- 3% at maximum capacity
Viscosity Max CPS:	1000 CPS
Stroke Frequency Max SPM:	125 / 250 by Model
Stroke Frequency Turn-Down Ratio:	10:1 / 100:1 by Model
Stroke Length Turn-Down Ratio:	10:1
Power Input:	115 VAC/50-60 HZ/1 ph 230 VAC/50-60 HZ/1 ph

Average Current Draw:

@ 115 VAC; Amps:	0.6 Amps
@ 230 VAC; Amps:	0.3 Amps
Peak Input Power:	130 Watts
Average Input Power @ Max SPM:	50 Watts

Pulsatron Series A Plus Selection Guide

Models

Product Code	Flow Rate			Pressure Rating ¹		Stroke Rate (SPM)	Standard Valve Size	Max. Viscosity (cps)
	GPD	GPH	LPH	PSI	BAR			
S2	12	0.50	1.9	250	17	250	J (Teflon Only)	1,000
S3	33	1.38	5.2	150	10			
S4	58	2.42	9.1	100	7			
C2	6	0.25	0.9	250	17	125	J (Teflon only)	
C3	10	0.42	1.6					
02	6	0.25	0.9	150	10			
03	12	0.50	1.9					
04	24	1.00	3.8	100	7			
64	30	1.25	4.7					
C4	48	2.00	7.6	50	3.3			3

LB ___ - - - - -

___ - - - - -

___ - - - - -

___ - - - - -

___ - - - - -

Controls

S	Manual Control, Analog Adjustment	100:1 Turndown	10:1 Stroke Length 10:1 Frequency
E	External Pace w/ Auto/Manual Switch		
P	Stop Function Option		
X	Manual Control, Analog Adjustment	1000:1 Turndown	10:1 Stroke Length 100:1 Frequency

Electrical

A	115 VAC, 60Hz
B	230 VAC, 50-60Hz, 1 Ph, 6' (2m) cord with 3 prong US plug
1	115 VAC, 60Hz less Agency Approvals
2	230 VAC, 50-60Hz, 1 Ph, 6' (2m) cord, no plug, less Agency

Liquid End Configuration - Head & Valves / Seats & O-Rings / Check Balls

PHC	GFPPL / CSPE / Ceramic (150 PSI Max) ¹
PTC	GFPPL / TFE / Ceramic
VTC	PVC / TFE / Ceramic (150 PSI Max) ¹
WTC	PVC / TFE / Ceramic (models > 150 PSI Max); For use on S2, C2, C3
KTC	PVDF / TFE / Ceramic
VVC	PVC / Viton / Ceramic (Not available with J Valve) (150 PSI Max) ¹
VHC	PVC / CSPE / Ceramic (Not available with J Valve) (150 PSI Max) ¹
Other	See Page 6 for additional materials of construction

Connection Sizes

J	Tubing .25" I.D. x .38" O.D. Standard for pumps from 0 - 33 GPD
1	Tubing .25" I.D. x .38" O.D. Standard for pumps from 20 - 45 GPD
3	Tubing .38" I.D. x .50" O.D. Standard for pumps from 45 - 240 GPD
9	Degas Head: Vent Tubing .25" I.D. x .38" O.D. (0-150 PSI pumps only)
Metric	
R	G 1/2 A Threads, .25" Ball, 0-7.1 LPH
Y	Tubing 6 x 12mm, .25" Ball, 0-7.1 LPH
Other	See Page 7 for additional connection options

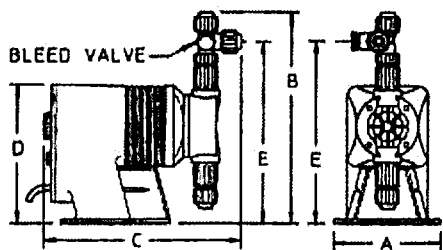
Options

XXX	Standard Pump - No Options
130	PVDF Tubing
500	Five Function Valve
520	Five Function Degassing Valve
ITS	15 gal. ITS Tank System
CZXXX	CE Listed

Note 1: Pumps with rated pressure above 150 PSI will be de-rated to 150 PSI Max. when selecting these valve options.

Note 1: Pumps with rated pressure above 150 PSI will be de-rated to 150 PSI Max. when selecting these valve options.

Dimensions



Series A PLUS Dimensions (Inches)

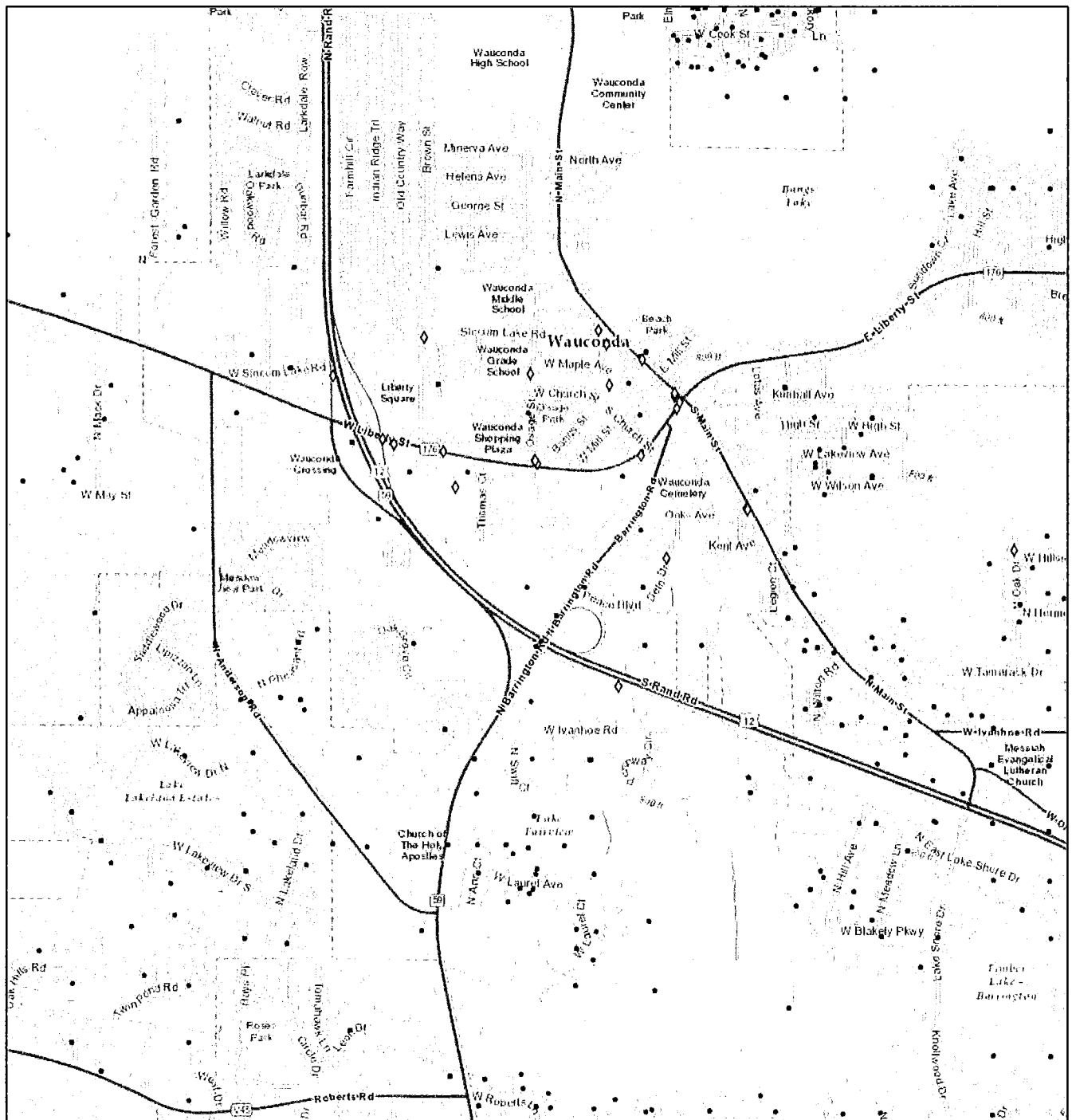
Model No.	A	B	C	D	E	Shipping Weight
LB02 / S2	5.0	9.6	9.5	6.5	8.2	10
LBC2	5.0	9.9	9.5	6.5	8.5	10
LBC3	5.0	9.9	9.5	6.5	8.5	10
LB03 / S3	5.0	9.9	9.5	6.5	8.5	10
LB04 / S4	5.0	9.9	9.5	6.5	8.5	10
LB64	5.0	9.9	9.5	6.5	8.5	10
LBC4	5.0	9.9	9.5	6.5	8.5	10

NOTE: Inches X 2.54 = cm

APPENDIX N

POTABLE WATER SUPPLY WELL INFORMATION

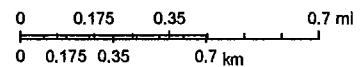
ISGS Database Wells



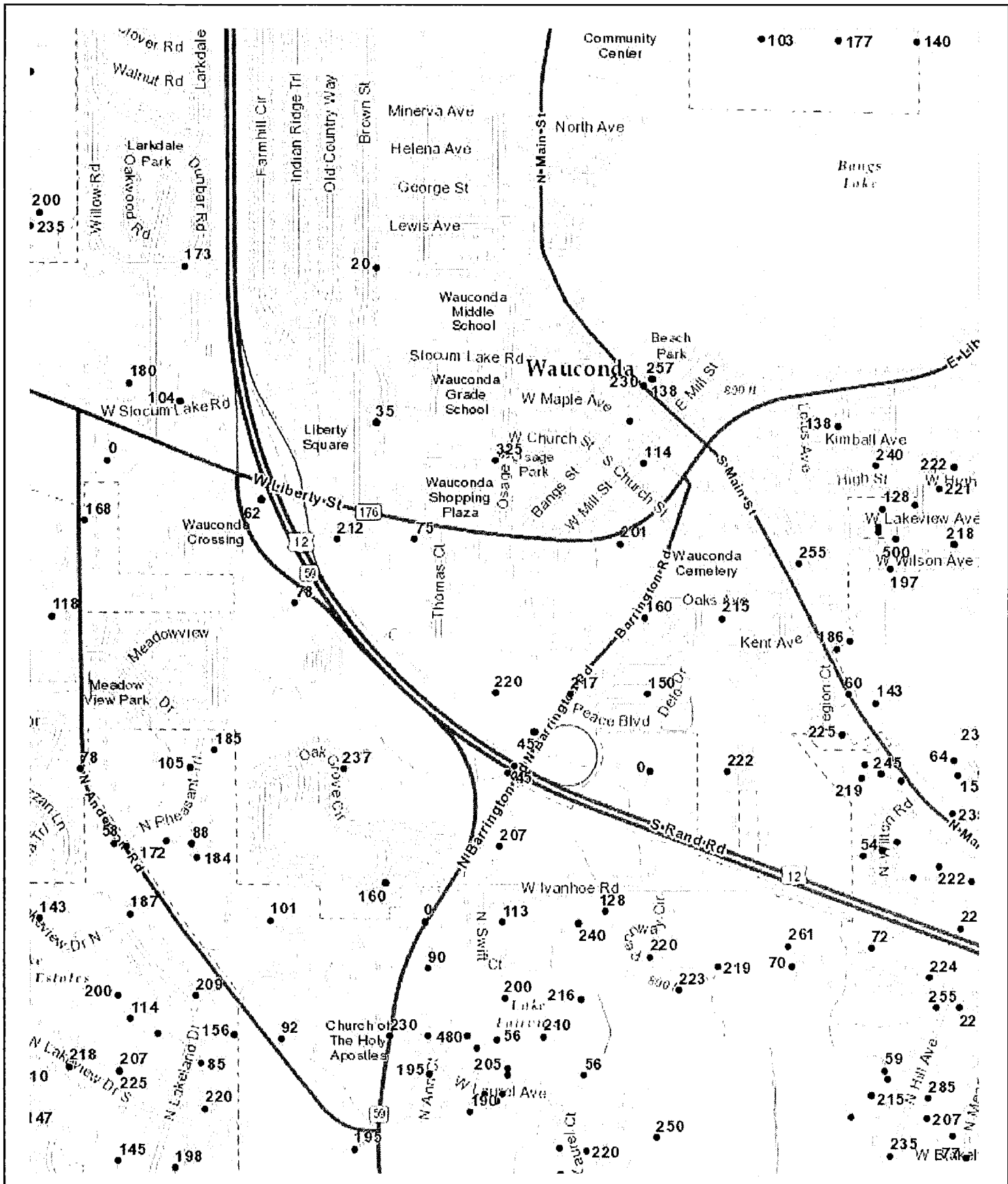
October 26, 2016

- Leaking UST
- ISGS Database Wells
- Counties

1:18,056



Sources: Esri, HERE, DeLorme, Intermap, Increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), Swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community



ILLINOIS STATE GEOLOGICAL SURVEY

Private Water Well	Top	Bottom
top soil	0	2
clay & gravel	2	21
soft clay	21	38
hard clay	38	66
gravel	66	75
Total Depth		75
Casing: 5" 200# PVC from 0' to 71'		
Screen: 4' of 5" diameter 15 slot		
Grout: DRILLING MUD from 0 to 66.		
Size hole below casing: 7.869999885559082"		
Water from gravel at 66' to 75'.		
Static level 28' below casing top which is 1' above GL		
Pumping level 40' when pumping at 0 gpm for 3 hours		
Permanent pump installed at 60'		
on August 16, 1989, with a capacity of 9 gpm		
Owner Address: 27028 W. Highway 176 Wauconda, IL		
Location source: Location from permit		

Permit Date: July 24, 1989

Permit #: 13253

COMPANY Huemann, William F.

FARM Heinson, Paul

DATE DRILLED August 14, 1989

NO.

ELEVATION 0

COUNTY NO. 34187

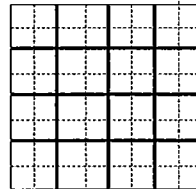
LOCATION SW SW SE

LATITUDE 42.256552

LONGITUDE -88.148714

COUNTY Lake

API 120973418700

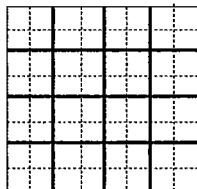


26 - 44N - 9E

Water Well for Commercial Operation	Top	Bottom
black dirt	0	2
brown clay	2	15
clay	15	70
gravel	70	100
clay	100	150
sand & gravel	150	186
limestone	186	212
Total Depth		212
Casing: 5" STEEL 15# from 0' to 186'		
Size hole below casing: 5"		
Water from limestone at 0' to 0'.		
Static level 31' below casing top which is 1' above GL		
Pumping level 100' when pumping at 15 gpm for 3 hours		
Permanent pump installed at 126'		
on October 9, 1981, with a capacity of 25 gpm		
Owner Address: 550 W. Liberty St. Wauconda, IL		
Location source: Location from permit		

Permit Date: September 21, 1981 Permit #: 101437

COMPANY Snelten, Richard Charles
 FARM Atlantic Richfield Co.
 DATE DRILLED October 8, 1981 NO.
 ELEVATION 0 COUNTY NO. 32009
 LOCATION SE SE SW
 LATITUDE 42.256562 LONGITUDE -88.15115
 COUNTY Lake API 120973200900

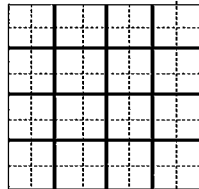


26 - 44N - 9E

Private Water Well	Top	Bottom
top soil	0	3
sandy clay	3	21
clay	21	68
gravel	68	78
Total Depth		78
Casing: 5" PVC 2.87 from 0' to 74'		
Screen: 4' of 4" diameter 20 slot		
Size hole below casing: 4"		
Water from gravel at 68' to 78'.		
Static level 34' below casing top which is 1' above GI		
Pumping level 34' when pumping at 10 gpm for 2 hours		
Permanent pump installed at 60'		
on October 10, 1984, with a capacity of 10 gpm		
Owner Address: 26950 N. Hwy. 12 Wauconda, IL		
Location source: Field verified		

Permit Date: October 2, 1984 Permit #: 115111

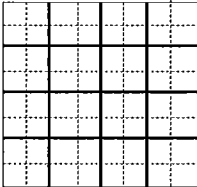
COMPANY Pilgard, Peter
 FARM Lawler, Joe
 DATE DRILLED October 8, 1984 NO.
 ELEVATION 0 COUNTY NO. 32034
 LOCATION 220'N line, 1930'W line of section
 LATITUDE 42.255054 LONGITUDE -88.152493
 COUNTY Lake API 120973203400



35 - 44N - 9E

Private Water Well	Top	Bottom
sandy clay	0	3
gravel	3	21
clay	21	83
gravel	83	104
clay & gravel	104	202
limestone	202	220
Total Depth		220
Casing: 5" GALV 15# from 0' to 202'		
Size hole below casing: 5"		
Water from limestone at 202' to 220'.		
Static level 50' below casing top which is 1' above GL		
Pumping level 50' when pumping at 50 gpm for 1 hour		
Permanent pump installed at 100'		
Owner Address: 435 Barrington Rd. Wauconda, IL		
Location source: Location from permit		

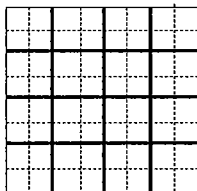
Permit Date: September 30, 1977 Permit #: 67567

COMPANY	Pilgard, Peter	
FARM	Schubert, Klaus	
DATE DRILLED	October 12, 1977	
ELEVATION	0	
LOCATION	SE NW NE	
LATITUDE	42.252953	
COUNTY	Lake	
	COUNTY NO. 25584	
	LONGITUDE -88.146164	
	API 120972558400	35 - 44N - 9E

Private Water Well	Top	Bottom
brown sand & gravel	0	17
gray sand	17	186
hardpan sand & gravel	186	205
limestone	205	217
Total Depth		217
Casing: 5" PVC ASTM D-2241 from 0' to 205' 4.75" ROCK from 205' to 217'		
Grout: BENTONITE from 0 to 205.		
Water from limestone at 55' to 217'.		
Static level 55' below casing top which is 1' above GL		
Pumping level 60' when pumping at 10 gpm for 2 hours		
Permanent pump installed at 100'		
on December 4, 2000, with a capacity of 10 gpm		
Remarks: driller's estimated well yield 35 gpm		
Owner Address: 26864 N. Hwy. 59, Unit B Wauconda, IL		
Address of well: 26864 N. Hwy.59 Unit A Wauconda, IL		
Add'l loc. info: Lot: 1 Subdivision: Cliffside Acres		
Location source: Location from permit		

Permit Date: November 15, 2000 Permit #:

COMPANY Snelten, Jeffrey
 FARM Milbourn, Harry
 DATE DRILLED December 1, 2000 NO. 3
 ELEVATION 0 COUNTY NO. 42957
 LOCATION SW NE NE
 LATITUDE 42.25294 LONGITUDE -88.143728
 COUNTY Lake API 120974295700



35 - 44N - 9E

Private Water Well	Top	Bottom
black dirt	0	5
yellow clay	5	21
blue clay	21	134
fine sand	134	143
coarse sand	143	150
Total Depth		150
Casing: 4" GALV from 0' to 145'		
Screen: 5' of 2.5" diameter 10 slot		
Water from sand at 145' to 150'.		
Static level 52' below casing top which is 2' above GL		
Pumping level 60' when pumping at 10 gpm for 3 hours		
Driller's Log filed		
Owner Address: Madison St. Wauconda, IL		
Location source: Location from permit		

Permit Date: March 18, 1970

Permit #:

COMPANY Madsen, Charles E.

FARM Angelo, Mike

DATE DRILLED June 25, 1970

NO. 1

ELEVATION 0

COUNTY NO. 01664

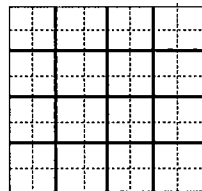
LOCATION SE NE NE

LATITUDE 42.252927

LONGITUDE -88.141288

COUNTY Lake

API 120970166400



35 - 44N - 9E

Private Water Well	Top	Bottom
clay	0	8
sand gravel	8	38
clay blue	38	72
sand gravel	72	78
clay	78	108
sand	108	126
rock	126	160
Total Depth		160
Casing: 5" STEEL A-53 from 0' to 126'		
Size hole below casing: 5"		
Water from rock at 126' to 160'.		
Static level 20' below casing top which is 1' above GL		
Pumping level 100' when pumping at 15 gpm for 2 hours		
Permanent pump installed at 140'		
on , with a capacity of 12 gpm		
Owner Address: 3412 Oakwood Island Lake, IL		
Address of well: 15201 (178) R.R.		
Woodstock, IL		
Location source: Location from permit		

Permit Date: November 18, 1980 Permit #: 97428

COMPANY Efflandt, Herman John
 FARM Slusser, Mike
 DATE DRILLED November 30, 1980 NO.
 ELEVATION 0 COUNTY NO. 32035
 LOCATION NE NE NE
 LATITUDE 42.254716 LONGITUDE -88.141371
 COUNTY Lake API 120973203500

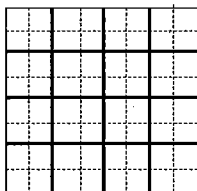
35 - 44N - 9E

	Top	Bottom
yellow clay	0	16
sandy gray clay	16	138
fine brown sand	138	190
shell rock a fine sand	190	198
top bedrock	198	201
Total Depth		201
Casing: 4.5" from 0' to 198'		
Size hole below casing: 4.5"		
Water from rock at 201' to '.		
Static level 30' below casing top which is 0' above GI		
Pumping level 47' when pumping at 15 gpm for 1 hour		
Driller's Log filed		
Owner Address:		
Location source: Location from the driller		

Permit Date:

Permit #:

COMPANY W.R. Boetsch
 FARM Selouke, Frank
 DATE DRILLED January 1, 1942 NO. 1
 ELEVATION 0 COUNTY NO. 00559
 LOCATION 300'S line, 2100'W line of SE
 LATITUDE 42.256441 LONGITUDE -88.142144
 COUNTY Lake API 120970055900



26 - 44N - 9E

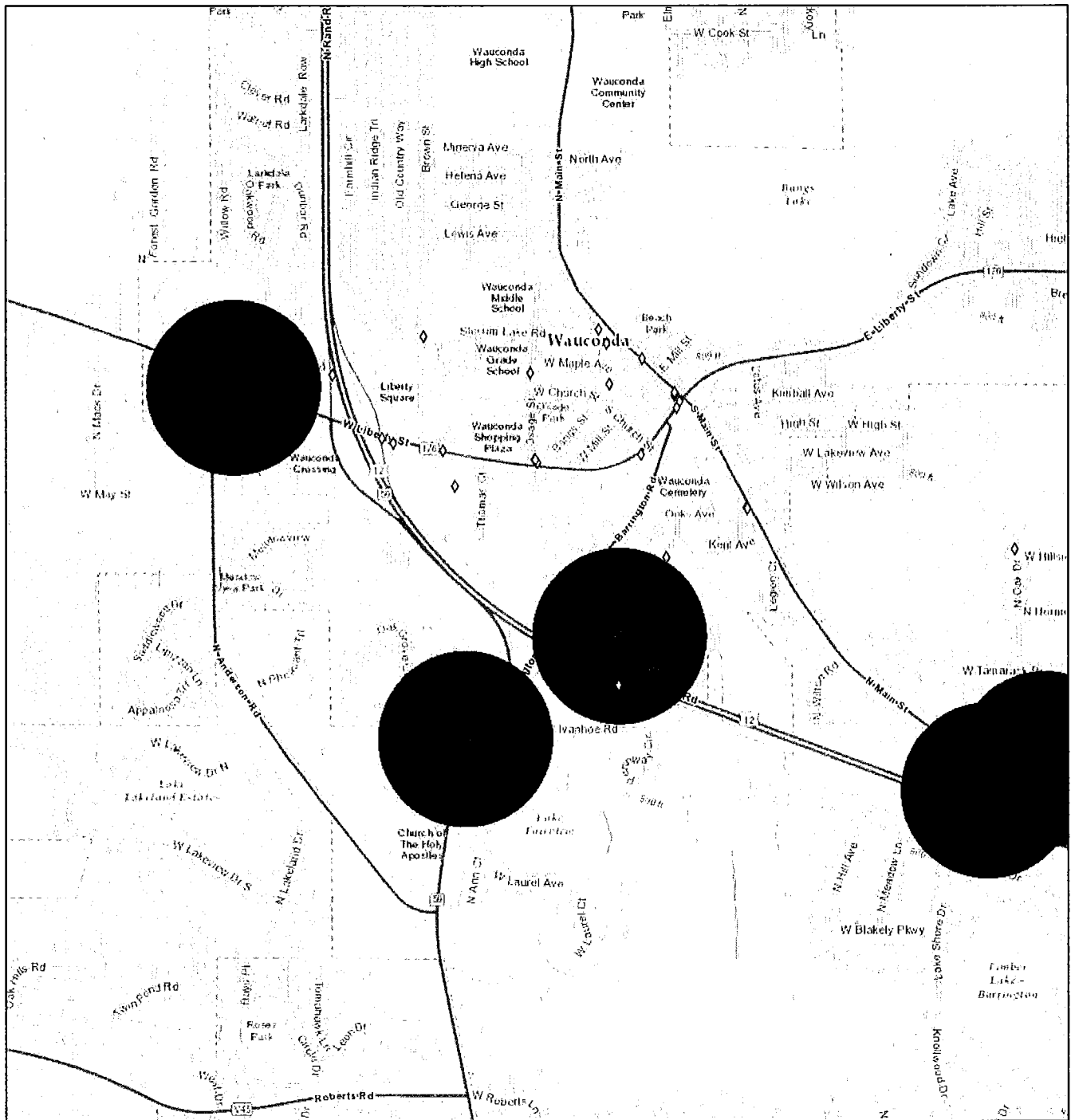
Private Water Well	Top	Bottom
brown clay	0	15
blue clay	15	70
gravel	70	90
blue clay	90	95
gravel	95	114
Total Depth		114
Casing: 5" PVC from 0' to 114'		
Screen: 3' of 5" diameter 15 slot		
Static level 30' below casing top which is 1' above GL		
Pumping level 35' when pumping at 15 gpm for 2 hours		
Permanent pump installed at 80'		
on August 23, 1991, with a capacity of 50 gpm		
Owner Address: 26807 West Highway #176 Wauconda, IL		
Address of well: same as above		
Location source: Location from permit		

Permit Date: August 16, 1991 Permit #:

COMPANY Snelten, Richard Charles
 FARM First Church Christ Scientist
 DATE DRILLED August 20, 1991 NO.
 ELEVATION 0 COUNTY NO. 36122
 LOCATION NE SE SE
 LATITUDE 42.258334 LONGITUDE -88.141413
 COUNTY Lake API 120973612200

26 - 44N - 9E

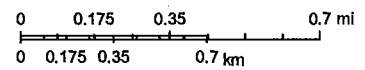
Non-Community Water Supply Wells



October 26, 2016

- ⬮ Leaking UST
- Non-CWS Wells
- ▬▬▬ Non-CWS Wells Minimum Setback Zone
- ▬▬▬ Non-CWS Wells Phase I WHPA
- ⋮ Counties

1:18,056



Sources: Esri, HERE, DeLorme, Intermop, Increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Noncommunity - Public Water Well	Top	Bottom
Total Depth		

Permit Date:

Permit #:

COMPANY

FARM Waconda Motel

DATE DRILLED

NO.

ELEVATION 0

COUNTY NO. 44870

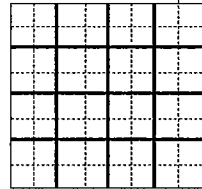
LOCATION NE SE NE

LATITUDE 42.251141

LONGITUDE -88.141201

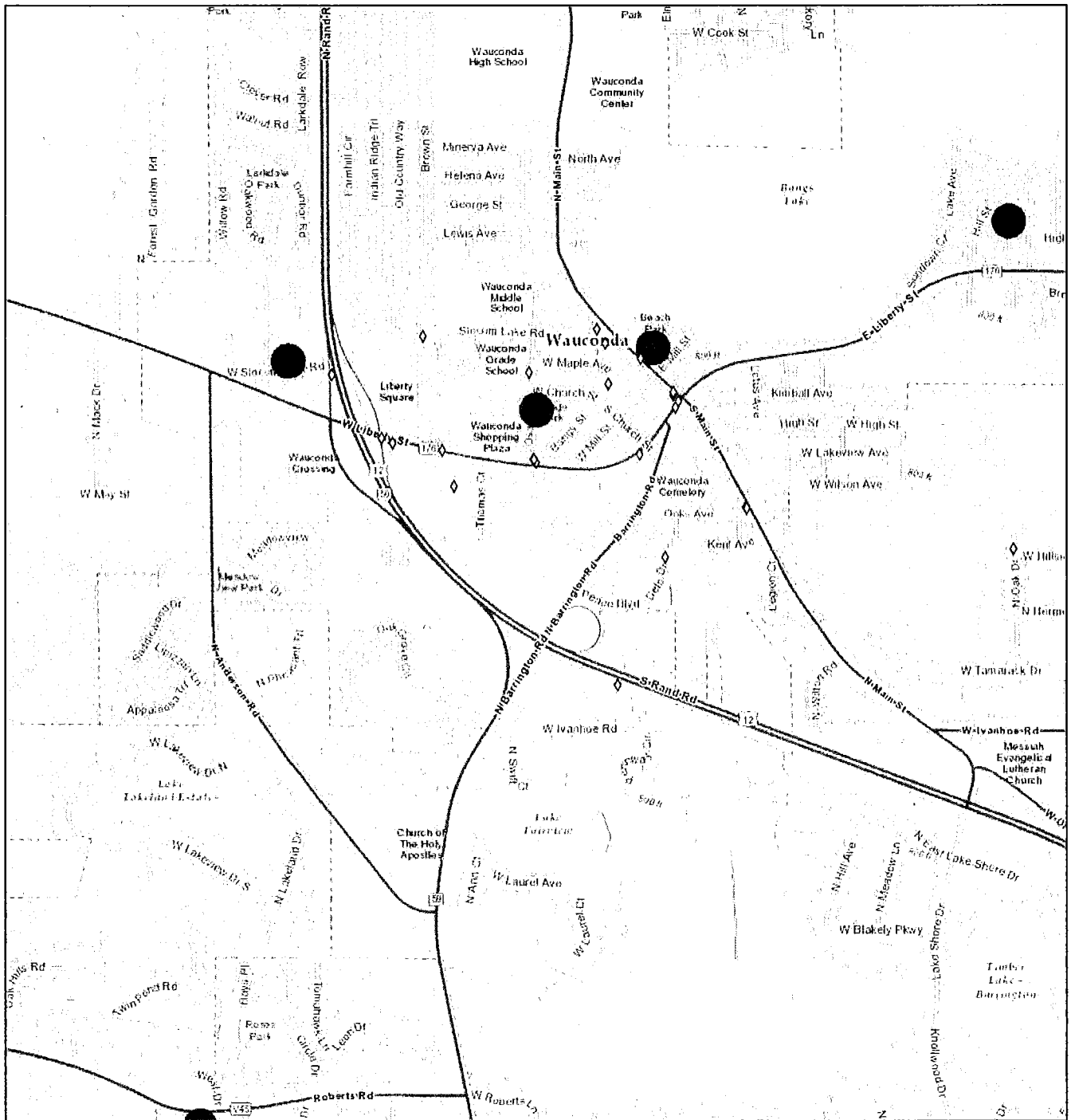
COUNTY Lake

API 120974487000



35 - 44N - 9E

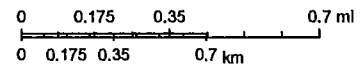
Community Water Supply Wells



October 26, 2016

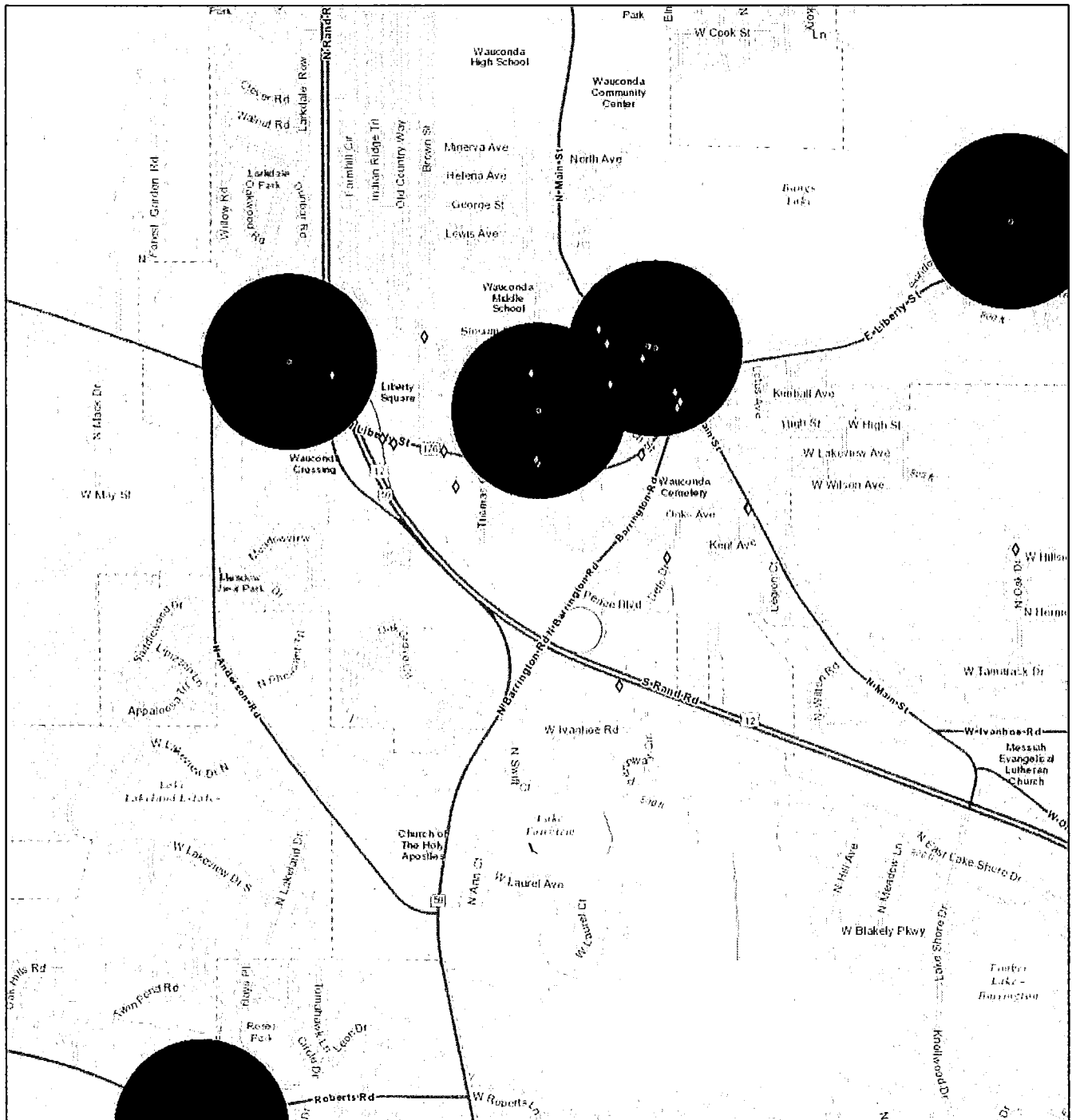
- ◻ Leaking UST
- ◻ CWS Wells
- ▬▬▬ CWS Wells Minimum Setback Zone
- ▬▬▬ Counties

1:18,056



Sources: Esri, HERE, DeLorme, Intermop, Increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

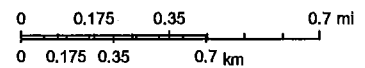
WHPA for Community Water Supply Wells



October 26, 2016

- ⬮ Leaking UST
- ⊕ CWS Wells
- ▭ CWS Wells Phase1 WHPA
- ▭ Counties

1:18,056



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

silt waterlain calc grayish brown 10YR5/2	90	96
sand fine calc light gray 10YR7/2	100	110
sand coarse to very coarse	110	120
sand fine with some gravel	111	117
gravel fine and very coarse sand	117	122
sand very fine to medium	120	130
gravel fine	122	127
sand coarse to very coarse, some fine gvl	127	130
gravel very coarse sand	130	135
sand fine to medium, some coarse clasts	135	140
sand fine to med, some sdy dm clasts	140	143
gravel fine, some crs- v.crs sand	142	154
sand medium to coarse, fine gravel	149	155
gravel w/some dm clasts, sandy loam brown 10YR5/3	155	165
silt & v. fine sand calc white 10YR8/1	160	165
gravel mstly fractured dol w/few ign clasts	165	170
gravel and dolomite	170	175
gravel to coarse sand, dolomite	175	180
Maquoketa	240	
Total Depth		325

Hoover Water Well Servic
 COUNTY Lake

Wauconda, Village c 3
 API 120970236600 26 - 44N - 9E

Driller's Log filed

Sample set # 27628 (0' - 325') Received: March 1, 1957

Owner Address:

Location source: Location from the driller

Hoover Water Well Servic

Wauconda, Village c 3

COUNTY Lake

API 120970236600 26 - 44N - 9E



Source Water Assessment Program Factsheets

Select Water System Type
Community <input type="checkbox"/>
Select County
Adams <input type="checkbox"/>
<input type="text" value="Search County"/>
-- Or --
Enter any part of a Facility Name
Wauconda
<input type="text" value="Search Facility Name"/>
Search Results
WAUCONDA <input type="checkbox"/>
<input type="text" value="Select Water System"/>

To view a summary version of the completed Source Water Assessments, you may search our records by county or public water supply name. This summary information describes pertinent sub-sections of each completed assessment including: Importance of Source Water; Susceptibility to Contamination Determination; and documentation/recommendation of Source Water Protection Efforts. However, summaries of Source Water Protection Efforts have not been documented for non-community water supplies. It should be noted that these Source Water Assessment summaries are presented in strict compliance with Illinois EPA's security policy on the release of sensitive information. Therefore, all locational data and maps pertaining to wells, aquifers and/or surface water intakes have been removed. To obtain a complete version of the Source Water Assessment Report, please contact your local water supply officials.

Water Percentages:

Surface Water %	Surface Water Purchase %	Ground Water %	Ground Water Purchase %	Ground Water UDI %	Ground Water UDI Purchase %
0.00	0.00	100.00	0.00	0.00	0.00

Importance Of Source Water:

The Village of Wauconda (Facility Number 0971850) utilizes five active community water supply wells. Wells #2, #3, #4, #5, and #6 (Illinois EPA #20288, #20289, #20290, #00638, and #00639, respectively) combine to produce 1,105,000 gallons per day to an estimated population of 10,030 at 3,824 service connections.

Well Data For This Facility:

Well ID	Well Description	Status	Depth	Minimum Setback	Pumpage	Aquifer Code	Aquifer Description	Max Zone
WL00638	WELL 5 (00638)	A	175.00	200	112104000	0101	Sand & Gravel	0
WL00639	WELL 6 (00639)	A	104.00	200	152554000	0101	Sand & Gravel	0
WL01518	WELL 7 (01518)	A	1000.00	200				0
WL01519	WELL 8 (01519)	A	1005.00	200				0
WL01520	WELL 9 (01520)	A	970.00	200				0
WL01770	WELL 10 (01770)	A	115.00	200		0101	Sand & Gravel	0
WL20287	WELL 1 (20287) ABANDONED	I	230.00	200	4712500	5050	Shallow Bedrock	0
WL20288	WELL 2 (20288) ABANDONED	I	133.00	200	3312000	5050	Shallow Bedrock	0
WL20289	WELL 3 (20289)	A	325.00	200	50080000	5050	Shallow Bedrock	0
WL20290	WELL 4 (20290)	A	1264.00	200	3046000	6080	Deep Bedrock	0

Intake Details:

No Data

Source Water Quality:

Wauconda's wells were sampled for inorganic chemicals (IOC), synthetic organic compounds (SOC), and volatile organic compounds (VOC) between 1982 and 2000 as part of the Statewide Groundwater Monitoring Network. IOC analysis indicates that concentrations of these compounds are consistent with other wells utilizing similar bedrock aquifers and sand and gravel aquifers in Illinois. It is important to note that the IOC results were below the Groundwater Quality Standards established under 35 Illinois Administrative Code Part 620.410. Review of the IOC, SOC and VOC samples did not detect quantifiable levels of any organic or inorganic compounds.

Finished Water Quality:

The IOC, VOC, and SOC levels sampled in Wauconda's wells were below the Groundwater Quality Standards after treatment. Further information on finished water quality data tables of monitored parameters, contaminants detected, health advisory information, drinking water standards, and maximum contaminant levels is available at <http://www.epa.gov/ogwdw/>. Similar information is also available in the Consumer Confidence Report supplied by the Village of Wauconda to its consumers.

Potential Sources Of Contamination:

The sites labeled on the Wellhead Protection Planning Map and included in the following tables are considered "potential" sources of contamination. (Maps and tables are not available in the Visually Impaired Accessible version. However, the information presented in the maps and tables is summarized within the following text sections of this fact sheet.) The Illinois EPA performed a detailed Well Site Survey of Wauconda's wells in 1993 to identify potential sources of contamination. These sources are identified based on the nature of their activity, the availability of data in electronic databases, and their geographic proximity to the source water protection area. In addition, the Illinois EPA made use of information from its leaking underground storage tank database (<http://epadata.epa.state.il.us/land/ust/search.asp>) and site remediation program database (<http://epadata.epa.state.il.us/land/srp/search.asp>) to further assess potential sources of contamination to the community's source water. These databases include information from the Illinois EPA Division of Land Pollution Control (LPC) and the Illinois Emergency Management Agency (IEMA). The following is a list of facilities contained within these databases. As a result of multiple possible contamination sources, individual sites may be listed in the table more than once in relation to a well.

IEMA #	LPC #	Site Name Address City ZIP Code
20001848	0971855085	Libertyville Bank & Trust; 495 West Liberty St.; Wauconda 60084
20010060	0971855009	Schafer, Jay; 330 South Main St.; Wauconda 60084
20010497	0971855088	Arch Diocese of Chicago; 318 Bangs; Wauconda 60084
20011700		BP Products North America, Inc.; 512 Liberty St.; Wauconda 60084
20012021		Culligan Dealer Corp.; 123-127 Main St.; Wauconda 60084
20030619		Oriental Express Service; 26526 North Hwy. 12; Wauconda 60084
20030774		Lemenager, Spencer; 480 West Liberty St.; Wauconda 60084
881752	0971855019	Amoco Oil Co. #15094; 306 South Main; Wauconda 60084
892744	0971855024	Clark Oil & Refining; 399 West Liberty; Wauconda 60084
900526	0971855025	Wauconda Boat Inc.; 100 North Main St.; Wauconda 60084
900573	0971855028	Lake County Forest Preserve Dist.; Hwy. 176 & Fairmont; Wauconda 60084
901772	0971855029	Wauconda C.U.S.D. #118; Osage St; Wauconda 60084
903199	0971855024	Clark Oil & Refining; 399 West Liberty; Wauconda 60084
903324	0971855033	Industrial Gas Truck Inc.; 1301 Old Rand Rd.; Wauconda 60084
911429	0971855037	Wauconda Hwy. Dept.; 505 Bonner; Wauconda 60084
912017	0971855038	DeBoer Trucking; 398 West Liberty St.; Wauconda 60084

- 923012 0971855047 Frito-Lay Inc.; 481 Bonner Rd.; Wauconda 60084
- 923278 0971855048 Wauconda Volunteer Fire Dept.; 109 West Liberty; Wauconda 60084
- 931089 0971855052 Leicht Automotive Imports; 26474 North Hwy. 59; Wauconda 60084
- 940117 0971855053 Phillips 66; 1200 North Rand Rd.; Wauconda 60084
- 940358 0971855052 Leicht Automotive Imports; 26474 North Hwy. 59; Wauconda 60084
- 941390 0971855055 John's Automotive Repair; 221 South Main; Wauconda 60084
- 942691 0971855030 Ford, Victor; Rt. 12 1/2 mile north of Rt. 176; Wauconda 60084
- 950812 0971850006 Wauconda, Village of; 302 Slocum Lake Rd.; Wauconda 60084
- 960798 0971855062 Petro Chemical Transport; 205 Main St.; Wauconda 60084
- 971403 0971855070 Williams Park Improvement Assoc.; 26730 North Marion; Wauconda 60084
- 980046 0971855072 Steiner Service Station; 308 West Liberty St.; Wauconda 60084
- 981810 0971855074 McGinty Bros., Inc.; 27788 West Case Rd.; Wauconda 60084
- 982286 0971855062 Sweeney Oil Co.; 205 North Main St.; Wauconda 60084
- 990747 0971855077 Berger Excavating Contractors; 1205 Garland; Wauconda 60084
- 991139 0971850006 Wauconda, Village of; 302 Slocum Lake Rd.; Wauconda 60084
- 991494 0971850014 K Construction of Wauconda, Inc.; 29693 North Hwy. 12; Wauconda 60084-9044
- 992418 0971850005 Oriental Express Service; 26526 North Hwy. 12; Wauconda 60084

Site Data For This Facility:

Well ID	Site/GMZ ID	Map Code	Name	Distance	Status
WL00639	000007004	008C	WAUCONDA RADIATOR REPAIR	700	A
WL00639	000007005	008C	IN-A-WINK PRINTING	450	A
WL00639	000007006	008C	WAUCONDA CAR WASH	275	A
WL00639	000007007	008C	LUBE PLUS 10 MINUTE OIL CHANGE	275	A
WL00639	000007008	008C	LUBE PLUS 10 MINUTE OIL CHANGE	275	A
WL00639	000007009	008C	ACE HARDWARE	525	A
WL00639	000007010	008C	MEINKE DISCOUNT MUFFLER	375	A
WL00639	000007011	008C	ACRES ENTERPRISES/KNOLL STEEL INC.	750	A
WL00639	000007012	008C	ACRES ENTERPRISES/KNOLL STEEL INC.	750	A
WL00639	000007013	008C	NEDZA AMOCO SERVICE	1425	A
WL00639	000007014	008C	LIBERTY CLEANERS	1275	A
WL00639	000007015	008C	BAVARO'S CLEANERS	1700	A
WL00639	000007016	008C	LIBERTY POOLS AND MORE	2300	A
WL00639	000007017	008C	WAUCONDA DEPT. OF PUBLIC WORKS STP	1650	A
WL00639	000007018	008C	WAUCONDA DEPT. OF PUBLIC WORKS	1650	A
WL00639	000007019	008C	SEARS PAINT AND HARDWARE	2475	A
WL00639	000007020	008C	ILLINOIS BELL TELEPHONE CO.	2675	A
WL00639	000007021	008C	BOEHMER CHEVROLET SALES	2725	A
WL00639	000007022	008C	BOEHMER CHEVROLET SALES	2725	A
WL00639	000007023	008C	CLARK SERVICE STATION	2875	A
WL00639	000007024	008C	CAROUSEL CLEANERS/DEBOER TRUCKING	3100	A

WL00639	000007025	008C	CAROUSEL CLEANERS/DEBOER TRUCKING	3100	A
WL00639	000007026	008C	WAUCONDA GRADE SCHOOL	2300	A
WL00639	000007027	008C	WAUCONDA JR. HIGH SCHOOL	2175	A
WL00639	000007028	008C	TELEVISION LABORATORIES	3350	A
WL00639	000007029	008C	STEINER SERVICE STATION	4000	A
WL00639	000007030	008C	SWEENEY CITGO	3400	A
WL00639	000007031	008C	WAUCONDA FIRE DEPT.	4200	A
WL00639	000007032	008C	JOHN'S AUTO REPAIR	4275	A
WL00639	000007033	008C	WAUCONDA BOAT SALES	3625	A
WL00639	000007034	008C	WAUCONDA PAINT AND GLASS	3900	A
WL20287	000007004	008C	WAUCONDA RADIATOR REPAIR	3700	A
WL20287	000007005	008C	IN-A-WINK PRINTING	4325	A
WL20287	000007006	008C	WAUCONDA CAR WASH	4050	A
WL20287	000007007	008C	LUBE PLUS 10 MINUTE OIL CHANGE	3900	A
WL20287	000007008	008C	LUBE PLUS 10 MINUTE OIL CHANGE	3900	A
WL20287	000007009	008C	ACE HARDWARE	4150	A
WL20287	000007010	008C	MEINKE DISCOUNT MUFFLER	3750	A
WL20287	000007011	008C	ACRES ENTERPRISES/KNOLL STEEL INC.	3700	A
WL20287	000007012	008C	ACRES ENTERPRISES/KNOLL STEEL INC.	3700	A
WL20287	000007013	008C	NEDZA AMOCO SERVICE	3000	A
WL20287	000007014	008C	LIBERTY CLEANERS	2700	A
WL20287	000007015	008C	BAVARO'S CLEANERS	2500	A
WL20287	000007016	008C	LIBERTY POOLS AND MORE	2600	A
WL20287	000007017	008C	WAUCONDA DEPT. OF PUBLIC WORKS STP	1825	A
WL20287	000007018	008C	WAUCONDA DEPT. OF PUBLIC WORKS	1825	A
WL20287	000007019	008C	SEARS PAINT AND HARDWARE	2250	A
WL20287	000007020	008C	ILLINOIS BELL TELEPHONE CO.	2150	A
WL20287	000007021	008C	BOEHMER CHEVROLET SALES	1975	A
WL20287	000007022	008C	BOEHMER CHEVROLET SALES	1975	A
WL20287	000007023	008C	CLARK SERVICE STATION	1775	A
WL20287	000007024	008C	CAROUSEL CLEANERS/DEBOER TRUCKING	1850	A
WL20287	000007025	008C	CAROUSEL CLEANERS/DEBOER TRUCKING	1850	A
WL20287	000007026	008C	WAUCONDA GRADE SCHOOL	1200	A
WL20287	000007027	008C	WAUCONDA JR. HIGH SCHOOL	1250	A
WL20287	000007028	008C	TELEVISION LABORATORIES	1200	A
WL20287	000007029	008C	STEINER SERVICE STATION	1500	A
WL20287	000007030	008C	SWEENEY CITGO	400	A
WL20287	000007031	008C	WAUCONDA FIRE DEPT.	875	A

WL20287	000007032	008C	JOHN'S AUTO REPAIR	850	A
WL20287	000007033	008C	WAUCONDA BOAT SALES	175	A
WL20287	000007034	008C	WAUCONDA PAINT AND GLASS	175	A
WL20288	000007004	008C	WAUCONDA RADIATOR REPAIR	3750	A
WL20288	000007005	008C	IN-A-WINK PRINTING	4350	A
WL20288	000007006	008C	WAUCONDA CAR WASH	4050	A
WL20288	000007007	008C	LUBE PLUS 10 MINUTE OIL CHANGE	3925	A
WL20288	000007008	008C	LUBE PLUS 10 MINUTE OIL CHANGE	3925	A
WL20288	000007009	008C	ACE HARDWARE	4200	A
WL20288	000007010	008C	MEINKE DISCOUNT MUFFLER	3775	A
WL20288	000007011	008C	ACRES ENTERPRISES/KNOLL STEEL INC.	3725	A
WL20288	000007012	008C	ACRES ENTERPRISES/KNOLL STEEL INC.	3725	A
WL20288	000007013	008C	NEDZA AMOCO SERVICE	3025	A
WL20288	000007014	008C	LIBERTY CLEANERS	2750	A
WL20288	000007015	008C	BAVARO'S CLEANERS	2550	A
WL20288	000007016	008C	LIBERTY POOLS AND MORE	2600	A
WL20288	000007017	008C	WAUCONDA DEPT. OF PUBLIC WORKS STP	1850	A
WL20288	000007018	008C	WAUCONDA DEPT. OF PUBLIC WORKS	1850	A
WL20288	000007019	008C	SEARS PAINT AND HARDWARE	2300	A
WL20288	000007020	008C	ILLINOIS BELL TELEPHONE CO.	2200	A
WL20288	000007021	008C	BOEHMER CHEVROLET SALES	2050	A
WL20288	000007022	008C	BOEHMER CHEVROLET SALES	2050	A
WL20288	000007023	008C	CLARK SERVICE STATION	1825	A
WL20288	000007024	008C	CAROUSEL CLEANERS/DEBOER TRUCKING	1875	A
WL20288	000007025	008C	CAROUSEL CLEANERS/DEBOER TRUCKING	1875	A
WL20288	000007026	008C	WAUCONDA GRADE SCHOOL	1350	A
WL20288	000007027	008C	WAUCONDA JR. HIGH SCHOOL	1250	A
WL20288	000007028	008C	TELEVISION LABORATORIES	1225	A
WL20288	000007029	008C	STEINER SERVICE STATION	1475	A
WL20288	000007030	008C	SWEENEY CITGO	400	A
WL20288	000007031	008C	WAUCONDA FIRE DEPT.	875	A
WL20288	000007032	008C	JOHN'S AUTO REPAIR	850	A
WL20288	000007033	008C	WAUCONDA BOAT SALES	200	A
WL20288	000007034	008C	WAUCONDA PAINT AND GLASS	200	A
WL20289	000007004	008C	WAUCONDA RADIATOR REPAIR	2850	A
WL20289	000007005	008C	IN-A-WINK PRINTING	3200	A
WL20289	000007006	008C	WAUCONDA CAR WASH	2900	A
WL20289	000007007	008C	LUBE PLUS 10 MINUTE OIL CHANGE	2750	A

WL20289	000007008	008C	LUBE PLUS 10 MINUTE OIL CHANGE	2750	A
WL20289	000007009	008C	ACE HARDWARE	2950	A
WL20289	000007010	008C	MEINKE DISCOUNT MUFFLER	2575	A
WL20289	000007011	008C	ACRES ENTERPRISES/KNOLL STEEL INC.	2400	A
WL20289	000007012	008C	ACRES ENTERPRISES/KNOLL STEEL INC.	2400	A
WL20289	000007013	008C	NEDZA AMOCO SERVICE	1600	A
WL20289	000007014	008C	LIBERTY CLEANERS	1475	A
WL20289	000007015	008C	BAVARO'S CLEANERS	1125	A
WL20289	000007016	008C	LIBERTY POOLS AND MORE	1100	A
WL20289	000007017	008C	WAUCONDA DEPT. OF PUBLIC WORKS STP	850	A
WL20289	000007018	008C	WAUCONDA DEPT. OF PUBLIC WORKS	850	A
WL20289	000007019	008C	SEARS PAINT AND HARDWARE	800	A
WL20289	000007020	008C	ILLINOIS BELL TELEPHONE CO.	700	A
WL20289	000007021	008C	BOEHMER CHEVROLET SALES	625	A
WL20289	000007022	008C	BOEHMER CHEVROLET SALES	625	A
WL20289	000007023	008C	CLARK SERVICE STATION	450	A
WL20289	000007024	008C	CAROUSEL CLEANERS/DEBOER TRUCKING	625	A
WL20289	000007025	008C	CAROUSEL CLEANERS/DEBOER TRUCKING	625	A
WL20289	000007026	008C	WAUCONDA GRADE SCHOOL	400	A
WL20289	000007027	008C	WAUCONDA JR. HIGH SCHOOL	1000	A
WL20289	000007028	008C	TELEVISION LABORATORIES	625	A
WL20289	000007029	008C	STEINER SERVICE STATION	1250	A
WL20289	000007030	008C	SWEENEY CITGO	1175	A
WL20289	000007031	008C	WAUCONDA FIRE DEPT.	1450	A
WL20289	000007032	008C	JOHN'S AUTO REPAIR	1550	A
WL20289	000007033	008C	WAUCONDA BOAT SALES	1325	A
WL20289	000007034	008C	WAUCONDA PAINT AND GLASS	1425	A
WL20290	000007035	008C	HERITAGE LANDFIELD	1475	A
WL20290	000007036	008C	BERGER EXCAVATING CONTRACTORS	800	A
WL20290	000007037	008C	WAUCONDA LANDFILL	1000	A

Susceptibility To Contamination:

To determine Wauconda's susceptibility to groundwater contamination, a Well Site Survey, published in 1993 by the Illinois EPA, was reviewed. During the survey of Wauconda's source water protection area, the Illinois EPA staff recorded one potential source, route or problem site within the 200 foot setback of well #2 and an additional four more within the 1,000 foot survey radius. Ten potential sources, routes or problem sites were recorded within the 1,000 foot survey radius of well #3. One potential source, route or problem site was recorded within the 1,000 foot survey radius of well #4. No potential sources, routes or problem sites were recorded within the 1,000 foot survey radius of well #5. Eleven potential sources, routes or problem sites were recorded within the 1,000 foot survey radius of well #6. The Illinois EPA has determined that the

Wauconda Community Water Supply's source water is not susceptible to contamination. This determination is based on a number of criteria including: monitoring conducted at the wells; monitoring conducted at the entry point to the distribution system; and the available hydrogeologic data on the wells.

Source Water Protection Efforts:

The Illinois Environmental Protection Act provides minimum protection zones of 200 feet for Wauconda's wells. Minimum protection zones are regulated by the Illinois EPA. To further reduce the risk to source water, the facility has implemented a wellhead protection program, which includes the proper abandonment of potential routes of groundwater contamination and correction of sanitary defects at the water treatment facility. This effort resulted in the community water supply receiving a special exception permit from the Illinois EPA which allows a reduction in monitoring. The outcome of this monitoring reduction has saved the facility considerable laboratory analysis costs. To further minimize the risk to Wauconda's groundwater supply, the Illinois EPA recommends that four additional activities be assessed. First, the community may wish to enact a "maximum setback zone" ordinance to further protect their water supply. These ordinances are authorized by the Illinois Environmental Protection Act and allow county and municipal officials the opportunity to provide additional protection up to a fixed distance, normally 1,000 feet, from their wells. Second, the water supply staff may wish to revisit their contingency planning documents, if available. Contingency planning documents are a primary means to ensure that, through emergency preparedness, a community will minimize their risk of being without safe and adequate water. Third, the water supply staff is encouraged to review their cross connection control program to ensure that it remains current and viable. Cross connections to either the water treatment plant (for example, at bulk water loading stations) or in the distribution system may negate all source water protection initiatives provided by the community. Finally, the Illinois EPA recommends that the community continue to evaluate additional source water protection management options including the approaches of land use activities within the community wellhead protection areas. Specifically, these management options should include potential effects from non-point sources related to agricultural land uses.



Source Water Assessment Program Factsheets

Select Water System Type
Non-Community <input type="button" value="v"/>
Select County
Adams <input type="button" value="v"/>
<input type="text" value="Search County"/>
-- Or --
Enter any part of a Facility Name
Wauconda <input type="text"/>
<input type="text" value="Search Facility Name"/>
Search Results
Wauconda Motel <input type="button" value="v"/>
<input type="text" value="Select Water System"/>

To view a summary version of the completed Source Water Assessments, you may search our records by county or public water supply name. This summary information describes pertinent sub-sections of each completed assessment including: Importance of Source Water; Susceptibility to Contamination Determination; and documentation/recommendation of Source Water Protection Efforts. However, summaries of Source Water Protection Efforts have not been documented for non-community water supplies. It should be noted that these Source Water Assessment summaries are presented in strict compliance with Illinois EPA's security policy on the release of sensitive information. Therefore, all locational data and maps pertaining to wells, aquifers and/or surface water intakes have been removed. To obtain a complete version of the Source Water Assessment Report, please contact your local water supply officials.

0032524 - Wauconda Motel

Last Updated on 2001-06-08

The Wauconda Motel water supply consists of one well. The well obtains its water supply from the sand formation. The aquifer is overlain with clay. The sand layer from which Wauconda Motel obtains its source water is a confined aquifer. This means that the aquifer is overlain by a significant amount of low permeability till (permeability is a measure of the ability of a soil or sediment to transmit fluids) which affords a certain degree of natural protection to the groundwater in this area.

The Illinois Department of Public Health has determined that the Wauconda Motel water supply has a low susceptibility to contamination. This determination is based on a number of criteria, including: available geological data, land-use practices, and well depth.

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Report a Problem

