
TRICORE ENVIRONMENTAL, LLC

June 16, 2009

**VIA USPS PRIORITY MAIL
WITH DELIVERY CONFIRMATION**

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

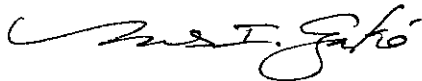
RE: LPC No. 0971855024 – Lake County
Wauconda/Shivam Energy, Inc.
399 West Liberty Street
IEMA Incident Nos. 892744 and 903199
LUST TECHNICAL FILE

Dear Mr. Bauer:

TriCore Environmental, LLC, on behalf of Shivam Energy, Inc., is providing an original and one copy of an Illinois Environmental Protection Agency Leaking Underground Storage Tank Program Amended Corrective Action Plan and Budget for the above referenced Illinois Emergency Management Agency incident numbers.

If you should have any questions concerning this submittal or require additional information, please contact either of the undersigned at (630) 520-9973.

Sincerely,



Marcos I. Czakó, P.G.
Project Manager



Shawn Rodeck, P.E.
President

cc: Mr. Rajani Patel, Shivam Energy, Inc., 399 W. Liberty St., Wauconda, IL 60084
Ms. Jackie D. Soccorso, Village of Wauconda, 109 W. Bangs St., Wauconda, IL 60084
Ms. Gwen Carey, 363 W. Bangs St., Wauconda, IL 60084

Attachment

TRICORE ENVIRONMENTAL, LLC

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

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

Prepared for:

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

Prepared by:

TriCore Environmental, LLC
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June 10, 2009

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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 and 903199 IEPA LPC # (10-digit): 0971855024

Site Name: Shivam Energy, Inc.

Site Address (Not a P.O. Box): 399 West 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. 35III. Adm. Code 731.166

The material released was:

-petroleum

-hazardous substance (see Environmental Protection Act Section 3.215)

b. 35 III. Adm. Code 732.404

c. 35 III. Adm. Code 734.335

C. Proposed Methods of Remediation

1. **Soil:** A dual phase extraction (DPE) system will be utilized to address the concentrations of the constituents of concern (COCs) above the Tier 2 soil remediation objectives (SROs).

2. **Groundwater:** A DPE system will be utilized to address the concentrations of the COCs above the Tier 1 groundwater remediation objectives (GROs).

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)**

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 III. 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;**

In-Situ Chemical Oxidation Investigation Activities

On January 18, 2007 and August 7, 2008, TriCore Environmental, LLC (TriCore) oversaw the installation of five on-site soil borings (SB-33 through SB-37) and two off-site soil borings (SB-39 and SB-40) to a maximum depth of 22 feet below land surface (bls). The soil borings were installed to evaluate in-situ chemical oxidation as a remediation method for the site. The locations of the soil borings are illustrated on Figure 1. Prior to performing SB-39 and SB-40, a permit was obtained from the Wauconda Park District for authorization to perform the soil borings in Osage Park. The soil borings were completed using the following drilling and sampling procedures.

Each boring was drilled and sampled to a maximum depth of 6 feet bls using a stainless steel hand auger to collect soil samples in 1.0-foot depth intervals. A hand auger was utilized to minimize the risk of damage to subsurface structures and utilities. The reduced risk of striking utility lines increases the safety factor for drillers and other on-site personnel.

The borings were then completed with a truck-mounted Geoprobe[®] using direct-push technology to advance the borings. Continuous soil samples were collected at 2.0-foot intervals to the termination depth of each soil boring. The soil samples were collected within a disposable macro-core liner which was placed within a 2.125-inch inside diameter by 4.0-foot long macro-core sampler. 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.

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 compounds (VOCs) using a photoionization detector (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, labeled accordingly, and packed in a cooler containing ice. The soil sample from each boring collected at the static water table or at the interval directly below the static water table was submitted for total petroleum hydrocarbon gasoline range organics (TPH), chemical oxygen demand (COD), and the Resource Conservation and Recovery Act (RCRA) metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver). The soil samples were shipped under standard chain-of-custody protocol to Pace Analytical Services, Inc. (Pace) in Green Bay, Wisconsin for laboratory analysis using United States Environmental Protection Agency (USEPA) methods. Additionally, one soil sample was collected for total plate count and shipped under standard chain-of-custody protocol to Suburban Laboratories, Inc. in Hillside, Illinois for laboratory analysis.

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

Analytical laboratory results are summarized in Tables 1 and 2. Copies of the analytical laboratory reports and certifications are provided in Appendix A. Soil boring logs are provided in Appendix B.

On January 19, 2007 and June 23, 2008, TriCore sampled MW-2, MW-11S, MW-15, MW-18, MW-26, and MP-1 to evaluate in-situ chemical oxidation as a remediation method for the site. The locations of the wells are illustrated on Figure 1. Prior to sampling the wells, the depth to groundwater was measured in each well using an electronic oil/water interface meter equipped with an audible signal. The meter was washed using a distilled water and Simple Green[®] solution wash between each use. Each well was then developed by removing approximately three well volumes using a dedicated, disposable high-density polyethylene (HDPE) bailer. The purge water generated during the sampling activities were contained on site in 55-gallon drums for future disposal. After the wells were allowed to recharge, groundwater samples were collected from each well using the dedicated, disposable HDPE bailer. The samples were collected without headspace in laboratory-provided containers, labeled accordingly, packed in a cooler containing ice, and shipped under standard chain-of-custody protocol to Pace for laboratory analysis. The groundwater samples were submitted for TPH, COD, RCRA metals, total nitrogen, and total phosphorus analyses using USEPA methods.

Analytical laboratory results are summarized in Tables 3 and 4. Copies of the analytical laboratory reports and certifications are provided in Appendix C. Costs associated with the in-situ chemical oxidation evaluation activities performed on June 23 and August 7, 2008 have been included in an Amended Corrective Action Budget provided in Appendix D. These costs have not been included in the budgets previously approved by the Illinois Environmental Protection Agency (IEPA). An Owner/Operator and Licensed Professional Engineer/Geologist Budget Certification Form is provided in Appendix E. A copy of the Office of the State Fire Marshal Eligibility and Deductible Determination is provided in Appendix F.

In-Situ Chemical Oxidation Evaluation

Based on the analytical results from the investigation activities described above, TriCore evaluated the use of in-situ chemical oxidation to address the concentrations of the COCs in the groundwater above the Tier 1 GROs. Since the site is located within the wellhead protection area of the Village of Wauconda community water supply well located in Osage Park, the Tier 1, Class I GROs were utilized as the remediation objectives for the groundwater component of the groundwater ingestion exposure route. Based on these objectives, groundwater treatment areas were determined.

By modifying the total mass of contaminant equation provided in the IEPA Chemical Oxidation Guidance dated September 2008, the mass of contaminants in the saturated soil and the mass of contaminants in the groundwater were calculated independently. For the mass of contaminants in the saturated soil, the dry bulk density of the soil was utilized in the equation instead of the wet bulk density. Similarly, for the mass of contaminants in the groundwater, the total soil porosity and the density of water were utilized in the equation instead of the wet bulk density.

The saturated soil treatment area encompassed the estimated area above the Tier 1 SROs. Utilizing the PID measurements and the depth of the field-interpreted groundwater table during drilling activities, a treatment depth of 8 to 12 feet was estimated. To determine the mass of contamination in the soil, the average COD concentration was used since it was the higher of the average TPH and COD concentrations in the soil. An average COD concentration of 3,400.00 parts per million (ppm) and a surface area of 5,400.91 square feet (ft²) was utilized to determine the mass of contamination in the soil. By using the treatment depth, a total of 800.13 cubic yards (yds³) of soil is estimated to be treated by the oxidation process. Using the modified equation described above, the mass of contaminants in the saturated soil was calculated to be 7,977 pounds (lbs).

The proposed groundwater treatment area encompasses the estimated area above the Tier 1 GROs. Utilizing the maximum seasonal fluctuations in groundwater from all of the wells located within the treatment area, a treatment thickness of 2 feet was estimated. To determine the mass of contaminants in the groundwater, the average groundwater COD concentration was used since it was the higher of the average TPH and COD concentrations in the groundwater. An average COD concentration of 42.53 ppm and a surface area of 94,882.59 ft² was utilized to determine the mass of contamination in the groundwater. By using the treatment depth, a total of 7,028.34 yds³ is estimated to be treated by the oxidation process. Using the modified equation described above, the mass of contaminants in the groundwater treatment area was calculated to be 173 lbs. Therefore, the total mass of contaminants to be treated during the oxidation process is 8,150 lbs.

By estimating that 3 lbs of oxygen are required to remediate one lb of contaminant, it is estimated that approximately 24,451 lbs of oxygen are required to remediate the total mass of contaminants in the saturated soil and groundwater. Based on the chemical specific parameters provided by the manufacturer, Solvay Chemicals, Inc., the volume of chemical to be injected was determined. It is estimated that 176,667 lbs of chemical is required to treat the 8,150 lbs of contaminants within the proposed treatment areas. Based on these calculations, the volume of product required to be applied to the saturated

soil and groundwater within the treatment areas is not feasible. Calculations estimating the volume of product required to be applied to the treatment areas are provided in Appendix G.

Although the analytical laboratory results from SB-41 through SB-44 and SB-47 through SB-49, completed on February 2, 2009, revealed concentrations of the COCs above the Tier 1 SROs, these areas were not included in the calculations provided above. However, based on the concentrations of the COCs within the evaluated area as compared to the concentrations of the COCs from SB-41 through SB-44 and SB-47 through SB-49, the amount of oxygen and chemical required to treat the mass of contaminants within these areas would be greater than calculated above.

Soil Investigation Activities

On December 11, 2007, TriCore completed one on-site soil boring (SB-38) to collect site-specific geochemical parameters for the development of the Tier 2 SROs. The location of the soil boring is illustrated on Figure 1. The soil boring was completed to 4 feet bls with a stainless steel hand auger and soil samples were collected and screened using the methods and materials described above.

Two soil samples were selected for laboratory analysis: one from a depth interval of 2 to 3 feet bls and another from a depth interval of 3 to 4 feet bls. The soil samples were submitted under standard chain-of-custody protocol to Pace for fraction of organic carbon content using American Society for Testing and Materials Method D2974.

After soil samples were collected, the boring was backfilled with the soil cuttings. The surrounding ground surface was then capped with the existing topsoil and grass.

Analytical laboratory results are summarized in Table 1. Copies of the analytical laboratory reports and certification are provided in Appendix A. A soil boring log is provided in Appendix B. Costs associated with the soil investigation activities described above have been included in an Amended Corrective Action Budget provided in Appendix D. These costs have not been included in the budgets previously approved by the IEPA.

Vapor Migration Activities

On December 27, 2008, TriCore received a call from Ms. Gwen Carey, owner of the residential property located directly north of the site along Bangs Street. Ms. Carey indicated that her son, Mr. Scott Carey, who owns the home directly north of her, and Mr. Joe Munson, who owns the home located directly north of Mr. Carey, had gasoline vapors present in their basements.

On December 29, 2008, TriCore met Ms. Carey at her home. Ms. Carey indicated that she did not have any gasoline vapors present in her home. This was due to an operating vacuum blower located on site that is directly connected by subsurface piping to the backfill material surrounding the cleanout for the sanitary sewer line that services her home. The sanitary sewer line cleanout is located east of her home, in her front yard. The vacuum blower contains a dilution valve that was partially open to the ambient air. The vacuum blower was installed in 1991 as part of the corrective action activities associated with Illinois Emergency Management Agency (IEMA) incident numbers 892744 and 903199. The blower has operated periodically from 1991 through March 9,

2006 and continuously since March 9, 2006. TriCore and Ms. Carey then proceeded to Mr. Carey's home. Prior to entering Mr. Carey's home, a hydrocarbon odor was observed emanating up from the grass areas between the two homes. Upon arrival to Mr. Carey's house, the basement was inspected. No gasoline vapors were observed within Mr. Carey's basement; however, the basement was damp and humid. Water staining was also present on the concrete floor of the basement, indicating that the basement was not sealed to the outside. At the time, Mr. Munson's home was not accessible and therefore, his basement was not inspected. Please note that Mr. Carey's and Mr. Munson's homes are not connected to the vacuum blower.

After meeting Ms. Carey and inspecting the homes, TriCore inspected the sump wells (S-1 through S-3) associated with the underground storage tank (UST) system and several of the monitoring wells near the UST system (RW-1 (04'), MP-3, MW-2, MW-6, MW-12S, MW-13, MW-26, and MW-27) by lowering a bailer into each of the wells. The locations of the wells are illustrated on Figure 1. A sheen of weathered free product was present in MW-27. No free product was present in any of the other wells that were inspected.

The sanitary sewer line servicing Ms. Carey's house runs through the backfill material surrounding her basement. The sanitary sewer line runs southeast from Ms. Carey's home and connects to the main that runs along Bangs Street. The sanitary sewer line servicing Mr. Carey's and Mr. Munson's homes were constructed similarly to Ms. Carey's. It is assumed that the vapors associated with the on-site free product migrated into the backfill material surrounding the sanitary sewer line that runs southeast from the remediation building to the sanitary sewer main that runs along Bangs Street. The vapors then migrated north along the main and towards the residential homes through the backfill material surrounding the sanitary sewer lines servicing their homes. Since the dilution valve on the vacuum blower was partially open, the vacuum delivered from the blower was enough to remove the vapors within the backfill material surrounding the sanitary sewer line servicing Ms. Carey's house; however, it did not deliver enough vacuum to remove the vapors surrounding the sanitary sewer lines servicing Mr. Carey's or Mr. Munson's homes. Therefore, on December 30, 2008, TriCore returned to the site and closed the dilution valve on the vacuum blower so that a greater vacuum would be applied to the backfill material surrounding the sanitary sewer lines and main.

On December 31, 2008, TriCore returned to the site to regauge the wells and meet with Mr. Brian Bauer, Project Manager with the IEPA Leaking Underground Storage Tank Section, and Ms. Jackie D. Soccorso, Director of Environmental Quality with the Village of Wauconda. Upon arrival at the site, TriCore gauged S-1 through S-3, MW-2, MW-26, and MW-27 with an electronic oil/water interface meter equipped with an audible signal. The meter was washed using a distilled water and Simple Green[®] solution wash between each use. A combination of new and weathered free product was present in S-1 through S-3 and MW-27. No free product was present in MW-2 or MW-26.

TriCore, Mr. Bauer, and Ms. Soccorso then met with Ms. Carey and inspected her basement. A PID equipped with a 10.6 electron volt lamp was used to screen a floor drain in her basement. A concentration of 0.0 ppm was measured. Mr. Carey's basement was then inspected. The PID was also used to screen a floor drain in his basement and a concentration of 0.0 ppm was measured. No gasoline vapors were present in either home.

On March 9, 2009, Ms. Carey contacted TriCore and indicated that Mr. Carey and Mr. Munson had gasoline vapors present in their homes over the weekend. That morning, TriCore met Ms. Carey at her home and then proceeded to her son's home. Upon arrival to Mr. Carey's home, the basement was inspected. A PID equipped with a 10.6 electron volt lamp was used to screen the basement. A concentration of 2.7 ppm was measured. In addition, the basement was damp and humid. Water was present on the floor of the basement in several locations. At the time, Mr. Munson's home was not accessible and therefore, the basement was not inspected. TriCore then screened the storm sewer manholes and inlets located along Bangs Street with the PID. A concentration of 0.0 ppm was measured in all of the manholes and inlets that were screened.

On March 12, 2009, Mr. Munson contacted TriCore and indicated that gasoline vapors were present in his home.

On March 13, 2009, TriCore exposed the sanitary sewer line that runs southeast from the remediation building to the sanitary sewer main that runs along Bangs Street to determine if the line was a migratory pathway for the gasoline vapors. The location of the sanitary sewer line is illustrated on Figure 1.

R.W. Collins of Chicago, Illinois was contracted to trench perpendicular to the sanitary sewer line and expose the line. Prior to trenching, a private utility locator, Lucky Locators, Inc. of Algonquin, Illinois, was contracted to locate the sanitary sewer line. Once the line was located, TriCore then proceeded with the trenching activities. All of the soil that was removed during the trenching was stockpiled on visqueen until the trench needed to be backfilled. After the grass and topsoil were removed, clay was encountered to a depth of approximately 5 feet bls. Underlying the clay was sand. The sanitary sewer line was located approximately 4.5 feet bls just above the top of the sand layer. The backfill material surrounding the 6-inch line was typical to the native sand layer below it; therefore, it was determined not to be a migratory pathway for the gasoline vapors. After the line was exposed, the trench on the south side of the sewer line was excavated deeper and a recovery well, RW-2, was installed south of the sewer line within the trench. The recovery well was installed at a depth of 8 feet bls and was constructed out of 4-inch inside diameter, Schedule 40 polyvinyl chloride (PVC) casing, 4-inch diameter, 0.010-inch slot Schedule 40 PVC screen, a 4-inch PVC end cap, and a 4-inch well plug. The well was constructed so that the screened portion of the well was located within the sand layer. The area surrounding the well was then backfilled with bentonite while the remaining portion of the trench was backfilled with the clay that was excavated.

On March 30, 2009, Ms. Carey contacted TriCore indicating that Mr. Carey had gasoline vapors present in his home.

On April 1, 2009, TriCore and Concept Plumbing, Inc. (Concept Plumbing) of Palatine, Illinois inspected Mr. Carey's basement. The basement was screened with a PID equipped with a 10.6 electron volt lamp. A PID concentration of 0.0 ppm was measured. Upon further inspection of the basement, a dry toilet was found. Concept Plumbing verified that the basement floor drain had a u-trap. If vapors migrate through the sanitary sewer line along Bangs Street and towards Mr. Carey's home, the dry toilet would be a point of entry for the vapors to enter the home. Mr. Carey was advised to keep water in the toilet so that vapors do not migrate into his home through this point of entry.

After inspecting Mr. Carey's basement, TriCore and Concept Plumbing met with Mr. Munson and inspected his home. In Mr. Munson's basement, there is a floor opening in which a vertical drop pipe from the 1st floor connects to the horizontal sewer line exiting to the Bangs Street sewer main from beneath the basement floor. There is no seal around the drop pipe and the floor opening. Like Mr. Carey's home, if vapors migrate through the sanitary sewer line along Bangs Street and towards Mr. Munson's home, the open sanitary sewer line and floor opening would be a point of entry for the vapors to enter the home. Mr. Munson was advised to seal the floor opening around the drop pipe with concrete so that vapors do not migrate into his home through this point of entry.

Copies of the waste manifests for the free product and groundwater that were recovered on December 31, 2008 through April 1, 2009 were provided in Appendix A of the Free Product Removal Plan (FPRP) dated April 6, 2009. Costs associated with the vapor migration activities described above have been included in the Amended Corrective Action Budget provided in Appendix D. Please note that the costs for the free product and groundwater recovery events described above are not included in the budget since these costs were included in the aforementioned FPRP.

Free Product Removal Activities

On December 31, 2008, TriCore contracted North Branch Environmental (North Branch) of Roselle, Illinois to remove the free product present in S-1 through S-3 and MW-27. North Branch removed a total of 15 gallons of free product and 2,485 gallons of groundwater from the wells utilizing a vacuum truck. The free product and groundwater that were removed were transported off-site by North Branch for treatment and disposal at their facility.

On January 9 and 27, March 9 and 13, and April 1, 2009, TriCore contracted North Branch to perform free product recovery events at the site. During these events, North Branch recovered a total of 59 gallons of free product and 11,841 gallons of groundwater from S-1 through S-3 and MW-27. On February 26, 2009, TriCore recovered approximately 0.01 gallons of free product and 3.99 gallons of groundwater from S-1 through S-3 and MW-27 using disposable, dedicated HDPE bailers. The free product and groundwater recovered on this date were contained on site in a 55-gallon drum. Please note that the volume of free product and groundwater recovered on January 9 and April 1, 2009 included approximately 150 gallons of purged free product and groundwater that were contained on site in 55-gallon drums that were generated during the groundwater sampling activities performed on January 5 and 6, 2009 and the free product recovery activities performed on February 26, 2009. Further details regarding the groundwater sampling activities are provided below. Free product recovery volumes are summarized in Table 5.

On May 15, 2009, in accordance with the aforementioned FPRP, TriCore installed SB-51/MW-29 through SB-57/MW-35 and RW-3. As described in the aforementioned FPRP, a 4-inch diameter well was installed within SB-55/MW-33 through SB-57/MW-35 since the wells will be utilized as recovery wells for the proposed DPE system. These wells will be referred to as RW-4 through RW-6 throughout the remainder of this report. The locations of the wells are illustrated on Figure 1. Further details regarding the well installation activities will be provided in a FPRP. Costs associated with the free product

removal activities described above have not been included in the Amended Corrective Action Budget provided in Appendix D since these costs were included in the aforementioned FPRP.

Groundwater Sampling Activities

On January 5 and 6, 2009, TriCore sampled all of the existing wells, except for MW-2, MW-4, MW-9S, MW-24, MW-25, MW-27, RW-1 ('04), and MP-2 through MP-4, to assess the concentrations of the COCs in the groundwater. Monitoring wells MW-2, MW-4, and MW-9S could not be sampled due to obstructions within the wells. Monitoring wells MW-24 and MW-25 were not accessible due to piles of snow and ice that were covering the wells. Monitoring well MW-27 was not sampled due to the presence of free product in the well. Wells RW-1 ('04) and MP-2 through MP-4 were not sampled since they are located adjacent to MP-1. The locations of the wells are illustrated on Figure 1.

Prior to sampling the wells, the depth to free product and/or groundwater was measured in each well using an electronic oil/water interface meter equipped with an audible signal. The meter was washed using a distilled water and Simple Green[®] solution wash between each use. If free product was present in the well, it was removed using a dedicated disposable HDPE bailer. If no free product was present in the well, it was developed by removing approximately three well volumes using a dedicated, disposable HDPE bailer. The free product and purge water generated during the sampling activities were contained on site in 55-gallon drums. After the wells were allowed to recharge, groundwater samples were collected from each well using the dedicated, disposable HDPE bailer. If free product was present in a well, it was not sampled during this event. The samples were collected without headspace in laboratory-provided 40-milliliter glass vials containing hydrochloric acid as a preservative, labeled accordingly, packed in a cooler containing ice, and shipped under standard chain-of-custody protocol to Pace for laboratory analysis. The groundwater samples were submitted for benzene, toluene, ethylbenzene, total xylenes (BTEX), and methyl tertiary butyl ether (MTBE) analysis using USEPA Method 8021.

Analytical laboratory results revealed benzene concentrations above the Tier 1 GROs in MW-15, MW-16, MW-26, MP-1, and RW-1. Analytical laboratory results are summarized in Table 6 and illustrated on Figure 2. The groundwater flow direction is illustrated on Figure 3. Copies of the analytical laboratory reports and certification were provided in Appendix B of the Stage 2 Site Investigation Plan (SIP) dated April 14, 2009, prepared for IEMA incident number 903199. Costs associated with the groundwater sampling activities described above have been included in the Amended Corrective Action Budget provided in Appendix D. These costs have not been included in the budgets previously submitted to the IEPA.

a. The major components (e.g., treatment, containment, removal) of the corrective action plan;

DPE System

To recover the free product present at the site, to prevent further migration of vapors, and to remediate the concentrations of the COCs in the soil and groundwater to the

applicable remediation objectives, a DPE system is being proposed.

Groundwater Evaluation

As stated in the IEPA letter dated May 16, 2008, since the benzene concentrations above the Tier 1 SROs observed in B-4c and B-5b are below the shallow groundwater table that exists in Osage Park, these concentrations should be addressed through the installation of monitoring wells and treated as a groundwater issue. Therefore, one groundwater monitoring well (SB-67/MW-33) will be installed at the location of B-4c and one groundwater monitoring well (SB-68/MW-34) will be installed at the location of B-5b. The locations of the proposed wells are illustrated on Figure 1. Prior to performing these wells, a permit from the Wauconda Park District will need to be obtained for authorization to install the wells in Osage Park.

The borings will be completed and sampled using the methods, materials, and equipment described above. The soil sample collected above the field interpreted water table exhibiting the highest PID measurement will be shipped under standard chain-of-custody protocol to an Illinois Environmental Laboratory Accreditation Program (IL ELAP) approved laboratory for BTEX and MTBE analysis using USEPA methods.

After soil samples are collected, a groundwater monitoring well will be installed within each boring. The groundwater monitoring wells will be installed with a track-mounted Geoprobe[®] using hollow-stem augers. To prevent cross contamination during the installation of the wells, all drilling equipment will be decontaminated prior to each use. Each well will be constructed out of 2-inch inside diameter Schedule 40 PVC casing, 2-inch inside diameter, 0.010 slot Schedule 40 PVC screen, a 2-inch PVC end cap, a 2-inch well plug, and a stick-up well cover. The stick-up well covers are being used so that proper well seals can be obtained due to the shallow groundwater table in this area of Osage Park. The annulus of each well will be filled with washed silica sand to approximately 1 foot above the top of the well screen. Bentonite pellets will be added followed by bentonite chips to approximately 6 inches below the top of each well casing. The bentonite pellets and 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 vault with a bolt-down cover will be installed to protect each well.

Approximately one week after their installation, TriCore will gauge, develop, and sample all of the existing wells using the methods and materials described above. The groundwater samples will be shipped under standard chain-of-custody protocol to an IL ELAP approved laboratory for BTEX and MTBE analysis using USEPA methods. In addition, the top-of-casing elevation of MW-33 and MW-34 will be surveyed in reference to another well so that the groundwater elevations and flow direction can be determined. The analytical laboratory results from this sampling event will also be used as the baseline sampling event for the DPE system to evaluate the COC concentration changes with time due to natural and system induced reductions. If analytical laboratory results reveal concentrations of the COCs above the Tier 1 GROs, then remediation of these COCs in this area will be addressed in an Amended Corrective Action Plan (CAP).

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

DPE System

According to the IEPA Source Water Assessment Protection (SWAP) online database, the Village of Wauconda community water supply well located north of the site in Osage Park has a wellhead protection area of 1,000 feet; therefore, the site is located within the wellhead protection area of the community water supply well. Since the site is located within a wellhead protection area, concentrations of the COCs in the groundwater must be remediated to the Tier 1, Class I GROs. Additionally, concentrations of the COCs in the soil must be remediated to the Tier 2 SROs. Further details regarding the Tier 2 SROs are provided below in Section E. 2. Based on the zones where the concentrations of the COCs above the Tier 2 SROs are located, the depth to groundwater, and the lithologies beneath the site, DPE is a viable remediation method that will address the concentrations of the COCs above the applicable remediation objectives. Additionally, the DPE system will recover the free product present at the site and prevent further vapor migration.

Groundwater Evaluation

Since the concentrations of the COCs above the Tier 1 SROs in the soil samples collected from B-4c and B-5b are below the groundwater table, by installing groundwater monitoring wells at these locations, it would evaluate the concentrations of the COCs in the groundwater at these locations. Further details regarding the groundwater evaluation activities were provided above in Section E. 1. a.

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

The following is a proposed schedule for the implementation and completion of this plan once it has been approved by the IEPA.

Activity	Projected Completion Time
Obtain an access permit with the Wauconda Park District for Osage Park	Weeks 1 and 2
Obtain groundwater and air discharge permits from the IEPA, and groundwater discharge and building permits from the Village of Wauconda	Weeks 1 through 4
Coordinate and install SB-67/MW-33 and SB-68/MW-34 in Osage Park, and RW-7 through RW-10	Weeks 3 and 4
Trenching, groundwater discharge connection, and piping installation	Weeks 5 and 6
Coordinate and place order with electric company for the power drop	Weeks 5 and 6
Baseline groundwater sampling	Week 6
Place order for the permanent DPE system	Week 6
Temporary DPE system and generator installation	Weeks 7 and 8
Temporary DPE system start up	Week 8
Temporary DPE system operation and maintenance	Weeks 8 through 34
Quarterly groundwater sampling	Weeks 21 through 33
Installation of power drop	Week 32
Permanent DPE system installation	Weeks 33 and 34
Permanent DPE system startup	Week 34

Permanent DPE system operation and maintenance	Weeks 34 through 112
Quarterly groundwater sampling	Weeks 45 through 111
System shutdown (as long as Tier 1, Class I GROs are met)	Week 112
Soil and groundwater attenuation sampling	Week 138

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

Soil Remediation Objectives

Since the site is located within the wellhead protection area of the Village of Wauconda community water supply well located in Osage Park, Tier 2 evaluations were performed for the COCs above the Tier 1 SROs. The Tier 2 evaluations were performed to evaluate the maximum BTEX and MTBE concentrations that could remain on site that would result in groundwater concentrations equal to the Tier 1, Class I GROs at that location. If the concentrations of the COCs are above the Tier 2 SROs, they will be remediated utilizing DPE.

The Tier 2 SROs were calculated using soil screening level Equations S17 through S22, and S25, located in 35 Illinois Administrative Code (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. Since the site meets the criteria of Class I groundwater, 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 (Table 1)	1.74	g/cm ³
Soil Particle Density (Specific Gravity) (Table 1)	2.65	g/cm ³
Total Soil Porosity (Table 1)	0.344	L _{pore} /L _{soil}
Organic Carbon Content (subsurface soils below 1 meter) (Table 1)	0.0078	g/g
Hydraulic Conductivity (k) Estimated from the data collected by Bradburne, Briller, and Johnson, LLC from MW-6 during a slug test conducted on September 24, 1997 (Appendix H).	2,084.53 (6.61x10 ⁻³)	m/yr (cm/sec)
Hydraulic Gradient (i) Derived based on the measured groundwater elevations collected during the monitoring activities conducted on January 5 and 6, 2009 (Appendix H).	0.0157	cm/cm
Source Length/Width Parallel to Groundwater Flow Direction in the Horizontal Plane (Figure 4) Measured from the northern curb of West Liberty Street to B-1	5,090.16	cm

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

COC above the Tier 1 SROs	Maximum Detected Concentration (mg/kg)	Tier 2 SROs for the SCGIER (mg/kg)
Benzene	104 (SB-44 @ 6 to 8 feet bls)	0.064
Toluene	1,000 (SB-44 @ 6 to 8 feet bls)	31.939
Ethylbenzene	294 (SB-44 @ 6 to 8 feet bls)	42.061
Total Xylenes	1,530 (SB-44 @ 6 to 8 feet bls)	440.507
MTBE	30.1 (SB-44 @ 6 to 8 feet bls)	0.374

Based on the calculations above, any BTEX and MTBE concentrations above these Tier 2 SROs would result in concentrations of the COCs in the groundwater above the Tier 1, Class I GROs at that location. Since soil concentrations above these Tier 2 SROs are

within the wellhead protection area of the community water supply well, they would have to be addressed. Printouts for these evaluations are provided in Appendix I. Analytical laboratory results are summarized in Table 7 and illustrated on Figures 5A and 5B.

Groundwater Remediation Objectives

As mentioned above in Section C. 2., since the site is located within the wellhead protection area of the Village of Wauconda community water supply well located in Osage Park, Tier 1, Class I GROs are being proposed for the site.

3. A description of the remedial technologies selected:

a. The feasibility of implementing the remedial technologies;

Based on the proposed locations of the recovery wells, the piping trenches, and the remediation building, there are no site features inhibiting the installation and operation of the DPE system.

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

The DPE technology is a very reliable means to remediate the site since the equipment is easy to access for any necessary repairs. Periodic operation and maintenance (O&M) events will ensure that the DPE system is performing satisfactorily and reliably.

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

It is estimated that a minimum of 24 months will be required to remediate the concentrations of the COCs in the soil and groundwater to the applicable remediation objectives. Although a pilot test was performed on RW-1 ('04) on May 12, 2005, TPH concentrations in the air bag sample collected during the test would not be representative of the TPH concentrations being removed from the recovery wells. Evidence of this is present in the analytical laboratory results from MP-1 through MP-3 and RW-1 ('04), which were installed in 2005, as compared to the analytical laboratory results from SB-41, SB-44, and SB-49, which were installed in 2009. Therefore, estimated rates of removal will be determined once the permanent DPE system has been started. This information will be used to evaluate the time required to remediate the concentrations of the COCs to the applicable remediation objectives. This information will be provided to the IEPA in a semi-annual Remediation Status Report. Analytical laboratory results from the soil samples collected are summarized in Table 7.

As mentioned below in Section E. 4., groundwater samples will be collected from all of the existing monitoring wells quarterly during the operation of the DPE system. Then, all of the existing monitoring wells, RW-1 through RW-6, RW-1 ('04), and proposed recovery wells RW-7 through RW-10 will be sampled for two quarters after the system has been shut down. Additionally, six months after the system has been shut down, soil samples will be collected from the locations which previously exhibited soil concentrations above the Tier 2 SROs. Analytical laboratory results and reports will be provided in semi-annual Remediation Status Reports and/or 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;**

Groundwater Quality Monitoring

Prior to placing the DPE system on-line, groundwater samples will be collected from all of the existing monitoring wells, RW-1 through RW-6, RW-1 ('04), and proposed recovery wells RW-7 through RW-10. During the operation of the DPE system, groundwater samples will be collected from all of the existing monitoring wells on a quarterly basis as described above in Section E. 3. c. Prior to sampling the wells, the depth to free product and/or groundwater will be measured in each well using the methods and materials described above.

The samples will be collected using the methods and materials described above in Section E. 1. The samples will be submitted to an IL ELAP approved laboratory for BTEX and MTBE analysis using USEPA methods. The results will be used as a baseline to evaluate the COC concentration changes with time due to natural and system induced reductions.

Quarterly groundwater monitoring will be conducted until groundwater concentrations remain below the Tier 1, Class I GROs for two quarters after the system has been shut down. TriCore will request permission from the IEPA to shut the system down after groundwater concentrations are below the Tier 1, Class I GROs. The system may be restarted if groundwater concentrations exceed the Tier 1, Class I GROs in any of the wells during future groundwater monitoring events.

Soil Quality Monitoring

Six months after the system has been shut down, soil samples will be collected from the locations which previously exhibited soil concentrations above the Tier 2 SROs (CB-11, CB-12, MP-3, SB-41, SB-43, SB-44, SB-48, and SB-49). The system may be restarted and additional extraction wells added if soil concentrations remain above the Tier 2 SROs.

Costs associated with the groundwater and soil quality monitoring activities described above are provided in the Amended Corrective Action Budget provided in Appendix E.

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

The site is currently an operating gasoline retail station consisting of a single story convenience store building with no basement or crawl space, three dispenser islands with a canopy, two 10,000-gallon steel unleaded gasoline underground storage tanks, and a storage shed. At the time this report was written, the owner plans to continue to operate the site as a gasoline retail station.

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

Since DPE will be utilized to remediate the concentrations of the COCs in the soil and groundwater to levels below the applicable remediation objectives, no engineered barriers

or institutional controls will be relied upon to achieve the remediation objectives.

- 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 the information provided by the IEPA SWAP database and the Illinois State Geological Survey (ISGS) online database, the closest potable water supply well is located approximately 365 feet north of the site in Osage Park. The well is an active community water supply well for the Village of Wauconda and has a minimum setback zone of 200 feet. According to the ISGS driller's log, the well was installed in 1957 and has a depth of 325 feet. Additionally, according to the IEPA SWAP Fact Sheet for the Village of Wauconda, the well is installed within bedrock that is overlain by relatively impermeable silty or clayey till.

On May 6, 2004, TriCore performed an area reconnaissance to locate the community water supply well. The well is located in the northwest corner of Osage Park. The location of the well is illustrated on Figures 1 through 5. Copies of the water supply well information obtained from the IEPA SWAP database and the ISGS online database were provided in Appendix G of the aforementioned Stage 2 SIP.

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

According to the IEPA SWAP online database, the community water supply well located north of the site in Osage Park has a wellhead protection area of 1,000 feet; therefore, the site is located within a wellhead protection area of a potable water supply well. No regulated recharge areas are located within 2,500 feet of the site. A map showing the location of the site in relation to the wellhead protection area was provided in Appendix G of the aforementioned Stage 2 SIP.

- 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 remediation objectives is illustrated on Figure 2.

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

The modeled extent of groundwater contamination exceeding the most stringent Tier 1 GROs has not been determined at this time. This information will be provided in an Amended CAP.

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

As mentioned above in Section E. 7. a., the Village of Wauconda community water supply well located north of the site has a minimum setback zone of 200 feet.

- 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 personnel or websites were consulted regarding the locations of potable water supply wells within 2,500 feet of the site.

1. IEPA SWAP database
2. Janet Christer, Freedom of Information Act Coordinator, Bureau of Water, IEPA
3. ISGS online database

As mentioned above in Section E. a. 7., on May 6, 2004, TriCore verified the location of the Village of Wauconda community water supply well located 365 feet north of the site in Osage Park.

- 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 in Section G. below.

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. Amended CAP dated July 31, 2004, prepared by TriCore
2. Revised Corrective Action Budget dated September 28, 2004, prepared by TriCore
3. Amended CAP dated July 12, 2006, prepared by TriCore
4. Amended CAP dated January 17, 2008, prepared by TriCore
5. IEPA SWAP database
6. ISGS online database

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

Copies of the analytical laboratory reports for the soil samples collected on January 18, 2007 through August 7, 2008 are provided in Appendix A. Soil boring logs for the borings completed on these dates are provided in Appendix B. Copies of the analytical laboratory reports for the groundwater samples collected on January 19, 2007 and June 23, 2008 are provided in Appendix C. Field logs, well logs, and copies of analytical laboratory reports for the other investigation activities completed at this site were provided in the reports previously submitted to the IEPA.

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

Site maps meeting the requirements of 35 IAC 734.440 are illustrated on Figures 1 through 5.

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

The design and placement of the DPE system focuses on the areas of the site that contain free product and COC concentrations in the soil and/or groundwater above the applicable remediation objectives. In addition, it focuses on the areas of the site where vapor migration has been present. The free product present in MW-27 and S-1 through S-3 have created vapors that have migrated along the sanitary sewer main in Bangs Street and into three residential homes located north of the site. The system will use existing recovery wells RW-1 through RW-6, RW-1 ('04), and proposed recovery wells RW-7 through RW-10 as extraction points. The proposed locations of RW-7 through RW-10 are illustrated on Figure 6.

Proposed recovery wells RW-7 through RW-10 will be installed and soil samples collected using the methods and materials described above in Section D. 1. The soil sample from RW-7, RW-9, and RW-10 collected above the field-interpreted water table exhibiting the highest PID measurement will be shipped under standard chain-of-custody protocol to an IL ELAP approved laboratory for BTEX and MTBE analysis using USEPA methods. No soil samples will be submitted for laboratory analysis from RW-8 since the well will be located adjacent to SB-49, which was completed on February 2, 2009. A 4-inch inside diameter recovery well will then be installed in each boring. The placement of the recovery wells was based on the calculated radius of influence (ROI) of 13 feet that was observed during the pilot test performed on May 12, 2005. Further details regarding the pilot test are provided below in Section E. 11. Proper recovery well placement will ensure recovery of the existing free product, as well as efficient SVE removal rate and zone of influence of the groundwater extraction component in order to address the vapor migration, and the soil and groundwater concentrations above the applicable remediation objectives.

The DPE system will be enclosed within a remediation building equipped with a heater, exhaust fan, thermostats, and interior lighting. The system will extract liquids and vapors from each well through the use of a drop tube inserted into each well. DPE well details are illustrated on Figure 7. The extracted liquids and vapors will be transported from the wells to the building through underground piping by a rotary claw vacuum pump system, which will create a vacuum in the extraction wells. The piping will be installed within a trench which will be completed prior to the system installation. Trench details are illustrated on Figure 8. The extracted materials will then enter a knock-out tank which will be equipped with level sensors. The air will be drawn out of the knock-out tank by the vacuum pump. A portion of the air will be discharged into the atmosphere. The air remaining in the separator will be diverted into a vapor phase carbon unit. The vapor phase carbon unit will remove the VOCs and the treated air will be discharged to the atmosphere. The vapor phase carbon unit will be operated until off-gas concentrations are within the permitted levels, at which time 100 percent of the extracted air will be discharged into the atmosphere.

The liquids collected in the knock-out tank will be transferred to an oil/water separator (OWS) by a transfer pump. The free product will be gravity drained from the OWS to a 55-gallon product recovery drum equipped with float switches. Water will travel by gravity from the OWS to a 60-gallon holding tank. The tank will be equipped with level

sensors that will operate a transfer pump that will transfer water from the holding tank to an air stripper where it will be treated. The treated water will then be discharged from the air stripper into the Village of Wauconda sanitary sewer.

Prior to constructing and operating the DPE system, TriCore will obtain an air discharge and water pollution control permits from the IEPA. In addition, TriCore will obtain building and water discharge permits from the Village of Wauconda.

Monthly compliance samples will be collected from the treated groundwater and analyzed for BTEX and MTBE to ensure that the water discharging into the Village of Wauconda sanitary sewer has been properly treated and meets the objectives outlined in the IEPA Bureau of Water and Village of Wauconda discharge permits. A total of 24 compliance sampling events will be performed during the operation of the system. An air sample will also be collected from the vacuum pump effluent on a quarterly basis so that the mass of VOCs removed can be calculated. Calculating the mass of VOCs removed on a quarterly basis will assist in evaluating when the effluent air concentrations will be within the permitted levels so that operation of the vapor phase carbon unit will no longer be required.

In addition to the compliance-sampling schedule, the following O&M schedule will also be followed after the system has been started: three days during the first week, two days during the second week, one day per week during the third and fourth weeks, and once every two weeks during the remainder of the system operation.

At this time, the system is scheduled to operate for a period of two years. Based on this operating period, a total of 57 O&M days will be required. During a typical O&M day, a technician will perform the following activities: inspect the system and recovery well components, collect vacuum readings from the system, monitor vacuum readings at the recovery wells, gauge monitoring wells, and collect influent and effluent groundwater discharge samples and effluent air samples. System component cleaning will be performed on a periodic or as needed basis. Below is a detailed breakdown of the O&M costs over a two-year period.

Personnel

Senior Technician for O&M: 8 hours/day for 57 days at \$70.88/hour = \$32,321.28

Senior Technician for cleaning and repairs: 100 hours at \$70.88/hour = \$7,088.00

Equipment

Truck: 57 days at \$95.00/day = \$5,415.00

PID: 57 days at \$75.00/day = \$4,275.00

Oil/Water interface meter: 57 days at \$35.00/day = \$1,995.00

Materials

Nitrile gloves for O&M: 8 pairs/day for 57 days at \$0.50/pair = \$228.00

Distilled water: 1 gallon/day for 57 days at \$2.00/gallon = \$114.00

Nitrile gloves for compliance sampling: 2 pairs/event for 24 events at \$0.50/pair = \$24.00

Ice for compliance sampling: 1 bag/event for 24 events at \$2.00/bag = \$48.00

Vacuum pump bearing grease: 1 grease gun at \$20.00/gun = \$20.00

Analytical

Compliance influent groundwater sample for BTEX and MTBE analysis: 1 sample/event for 24 events at \$88.33/sample = \$2,119.92

Compliance effluent groundwater sample for BTEX and MTBE analysis: 1 sample/event for 24 events at \$88.33/sample = \$2,119.92

Effluent air sample for BTEX, MTBE, and TPH: 1 sample/quarter for 2 years at \$75.00/sample = \$600.00

Compliance sample overnight shipment: 16 events at \$54.52/event = \$872.32

(The compliance samples for eight of these events will be shipped with the groundwater samples collected from the quarterly sampling events; therefore, they are not included in these costs.)

Utilities

Electric Power Drop: \$5,000.00

Electric: 24 months at \$800.00/month = \$19,200.00

Phone: 24 months at \$50.00/month = \$1,200.00

Total O&M costs = \$82,640.44

Approximate O&M costs/month = \$3,443.35

Since it will take approximately 6 months after the trenching and piping have been installed before the permanent DPE system procurement is completed and subsequently installed and ready for startup, TriCore is proposing to operate a temporary DPE system during that 6 month period. The temporary DPE system will focus strictly on the areas where free product is present and vapor migration is suspected. The temporary DPE system will utilize RW-2 through RW-6 as extraction points.

A map showing the layout of the remediation building and the recovery wells is illustrated on Figure 6. Recovery well and trench details are illustrated on Figures 7 and 8. Equipment and technical specifications provided by the manufacturer are provided in Appendix J. TriCore will be renting the temporary DPE system and purchasing the permanent DPE system. Quotes for the rental of the temporary system and purchase of the permanent system are also provided in Appendix J.

Once the permanent DPE system reaches the end of the remediation project, the equipment will be salvaged. Based on a conversation with a used remediation equipment vendor, the estimated salvage value of the equipment is approximately five percent of the purchase price; therefore, an average salvage value of the system is approximately \$4,825.00. Costs associated with the installation and operation of the DPE systems are included in the Amended Corrective Action Budget provided in Appendix D.

Unsaturated Zone Design

- Total Area of Contamination = 10,017 ft²
- Radius of Capture at the site = 20 ft per recovery point at 18.50 acfm each

- Required Removal Rate = 169.34 acfm
- Required Points for SVE Recovery = 10 recovery points; however, an additional recovery point has been proposed to address the vapor migration.

The unsaturated zone design calculations are provided in Appendix K.

Mass Loading

Unsaturated Zone Mass of Contamination = 2,704.9 lbs of VOCs

Saturated Zone Mass of Contamination = 1,971.40 lbs of VOCs

The mass loading calculations are provided in Appendix K. The mass of contamination calculated for the saturated zone does not account of the free product present at the site.

Mass Removal Rates

As mentioned above in Section E. 3. c., mass removal rates will be determined once the permanent DPE system has been started. This information will be provided to the IEPA in a semi-annual Remediation Status Report.

11. A description of bench/pilot studies;

The initial step in the remediation process was to perform a DPE pilot test. The pilot test was performed to determine the applicability of DPE as an effective remediation method for the site. Additionally, the pilot test data was used to determine system design requirements such as the effective ROI, vacuum and flow rate requirements for the system components, estimated friction losses, and layout of the trenching and piping.

As mentioned above in Section E. 10., On May 12, 2005, a pilot test was performed utilizing RW-1 ('04) as the extraction well. Prior to the start of the test, the initial background vacuum and depth to water measurements were collected from the wells to be monitored (MW-4, MW-27, and MP-1 through MP-4). Readings collected during the test included well vacuum, air flow rate, and effluent air concentrations using a PID. An air bag sample was collected prior to the end of the pilot test.

The DPE pilot test was conducted for approximately 3.15 hours. Vacuum response levels were measured at the monitoring points that are located at various distances from RW-1 ('04). Monitoring revealed a maximum vacuum response of 3.05 inches of water in monitoring point MP-2, which is located 12 feet from RW-1 ('04). The maximum distance at which a vacuum response was observed was at MW-27 which is located 63 feet from RW-1. A vacuum response of 0.05 inches of water was observed in the well. The vacuum response levels at the specific distances were used to calculate an effective ROI based on 1.0 percent of the vacuum at RW-1. An effective vacuum ROI was estimated at 13 feet. The pilot test results also showed groundwater drawdown at the surrounding monitoring points and wells. The groundwater drawdown indicates that any contaminated soils normally saturated under static groundwater conditions would be exposed to the SVE component of the system during operation.

The maximum air flow was measured at 18.5 cubic feet per minute. The maximum VOC concentration in the air based on the PID measurements was 6.5 parts per million. During the pilot test, groundwater was removed from the extraction well using a vacuum truck to increase the amount of unsaturated soil exposed to the vacuum created by the

blower. The groundwater extraction rate during the pilot test was approximately 1.35 gallons per minute.

The remediation system design utilized readings and data from the pilot test, to select the number of extraction wells, proper well placement, and piping requirements. The presence of free product and vapor migration was also utilized to determine well placement.

Results from the DPE pilot test are summarized in Tables 8 and 9. Analytical laboratory results from the air bag sample are summarized in Table 10. Estimated ROI graphs for the vacuum influence and the groundwater elevation changes are provided in Appendix K. A copy of the analytical laboratory report from the air bag sample was provided in Appendix B of the Amended CAP dated July 12, 2006.

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 concentrations of the COCs in the soil and groundwater, the free product, and the vapor migration. Due to the location of the concentrations of the COCs in the soil above the Tier 2 SROs in relation to the UST system, excavation is not feasible. As demonstrated above in Section E. 1., 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.

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

a. The equations used;

The equations used in the Tier 2 evaluation presented above in Section E. 2. are Equations S17 through S22 and S25.

b. A discussion of how input variables were determined;

Site-specific input variables were based on the data collected during the investigation activities performed at the site; while default variables were obtained from 35 IAC Section 742, Appendix C, Tables B, E, and K.

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

A map depicting the distance used in the Tier 2 evaluation is illustrated on Figure 4.

d. Calculations;

The Tier 2 calculations are provided in Appendix I.

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;

Based on the lithologies beneath the site where concentrations of the COCs, free product, and vapor migration are most prevalent and the data collected during the pilot test, DPE will be an effective remedial technology for the site.

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

As mentioned above in Section E. 10., TriCore will obtain air discharge and water pollution control permits from the IEPA, as well as a water discharge permit from the Village of Wauconda. By meeting the discharge requirements outlined in the permits, DPE 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. 10., permits will be obtained from the IEPA to construct and operate the proposed DPE system. A permit will also be obtained from the Village of Wauconda to discharge the treated groundwater into their sanitary sewer 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. 4., six months after the DPE system has been shut down, soil samples will be collected from the locations which previously exhibited concentrations above the Tier 2 SROs to reevaluate the concentrations in those locations as a result of the operation of the DPE system.

Groundwater

As mentioned above in Section E. 4., quarterly groundwater monitoring will be conducted during the operation of the DPE system until groundwater concentrations remain below the Tier 1 GROs for two quarters after the system has been shut down.

- 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**

Mass removal rates from the DPE system and analytical laboratory results from the quarterly groundwater sampling activities will be provided to the IEPA in the semi-annual Remediation Status Reports and/or an Amended CAP.

- 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., conventional technology, excavation, is not feasible due to the location of the concentrations of the COCs in the soil in relation to the UST system. Additionally, based on the locations of the concentrations of the COCs in the soil and groundwater and the site lithology, other alternative technologies are not feasible.

F. Exposure Pathway Exclusion

Not applicable.

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;**
 - b. **Soil saturation limit will not be exceeded for any of the organic contaminants;**
 - c. **Contaminated soils do not exhibit any of the reactivity characteristics of hazardous waste per 35 III. Adm. Code 721.123;**
 - d. **Contaminated soils do not exhibit a pH < 2.0 or > 12.5; and**
 - 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 III. Adm. Code 721.124.**
2. **A discussion of how any exposure pathways are to be excluded.**

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 West Liberty Street
City: Wauconda
State: IL
ZIP Code: 60084
Phone: (847) 722-6618
Signature: Rajani Patel
Date: 03/29/09

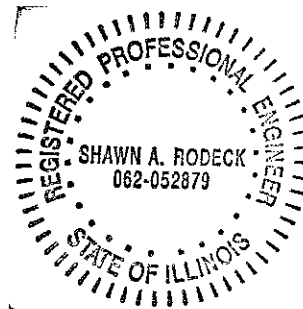
Consultant

Company: TriCore Environmental, LLC
Contact: Marcos Czako
Address: 1800 West Hawthorne Ln., Suite P
City: West Chicago
State: IL
ZIP Code: 60185
Phone: (630) 520-9973
Signature: Marcos Czako
Date: 06/10/09

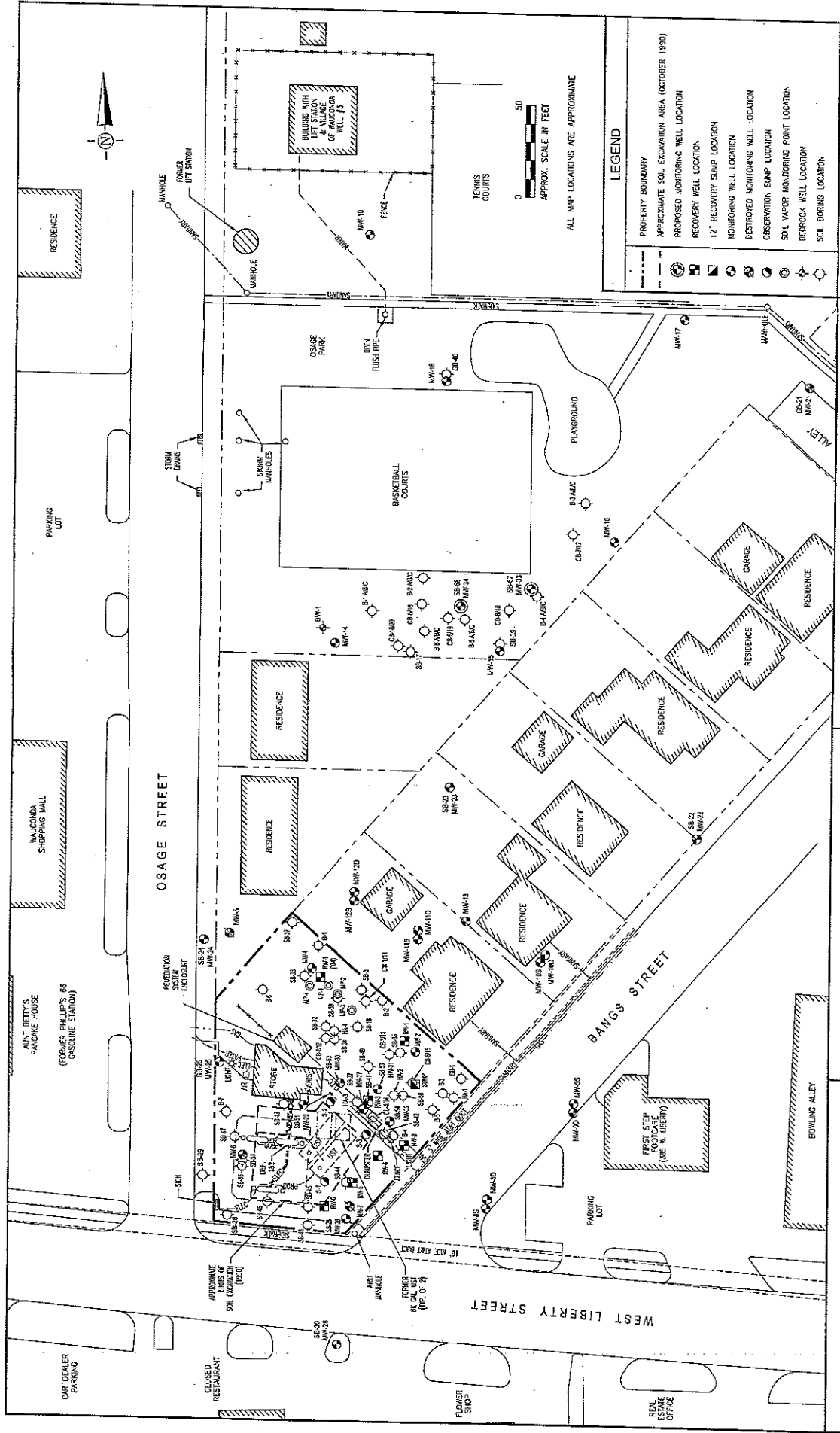
I certify under penalty of law that all activities that are the subject of this plan were conducted under my supervision or were conducted under the supervision of another Licensed Professional Engineer or Licensed Professional Geologist and reviewed by me; that this plan and all attachments were prepared 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 L.P.E. or L.P.G. Seal

Name: Shawn Rodeck
Company: TriCore Environmental, LLC
Address: 1800 West Hawthorne Ln., Suite P
City: West Chicago
State: IL
ZIP Code: 60185
Phone: (630) 520-9973
Ill. Registration No.: 062-052879
License Expiration Date: 11/30/09
Signature: Shawn Rodeck
Date: 06/10/09



FIGURES



LEGEND

- PROPERTY BOUNDARY
- APPROXIMATE SOIL EXCAVATION AREA (OCTOBER 1990)
- PROPOSED MONITORING WELL LOCATION
- RECOVERY WELL LOCATION
- 17" RECOVERY SUMP LOCATION
- MONITORING WELL LOCATION
- DESTROYED MONITORING WELL LOCATION
- OBSERVATION SUMP LOCATION
- SOIL VAPOR MONITORING POINT LOCATION
- BEDROCK WELL LOCATION
- SOIL BORING LOCATION

ALL MAP LOCATIONS ARE APPROXIMATE

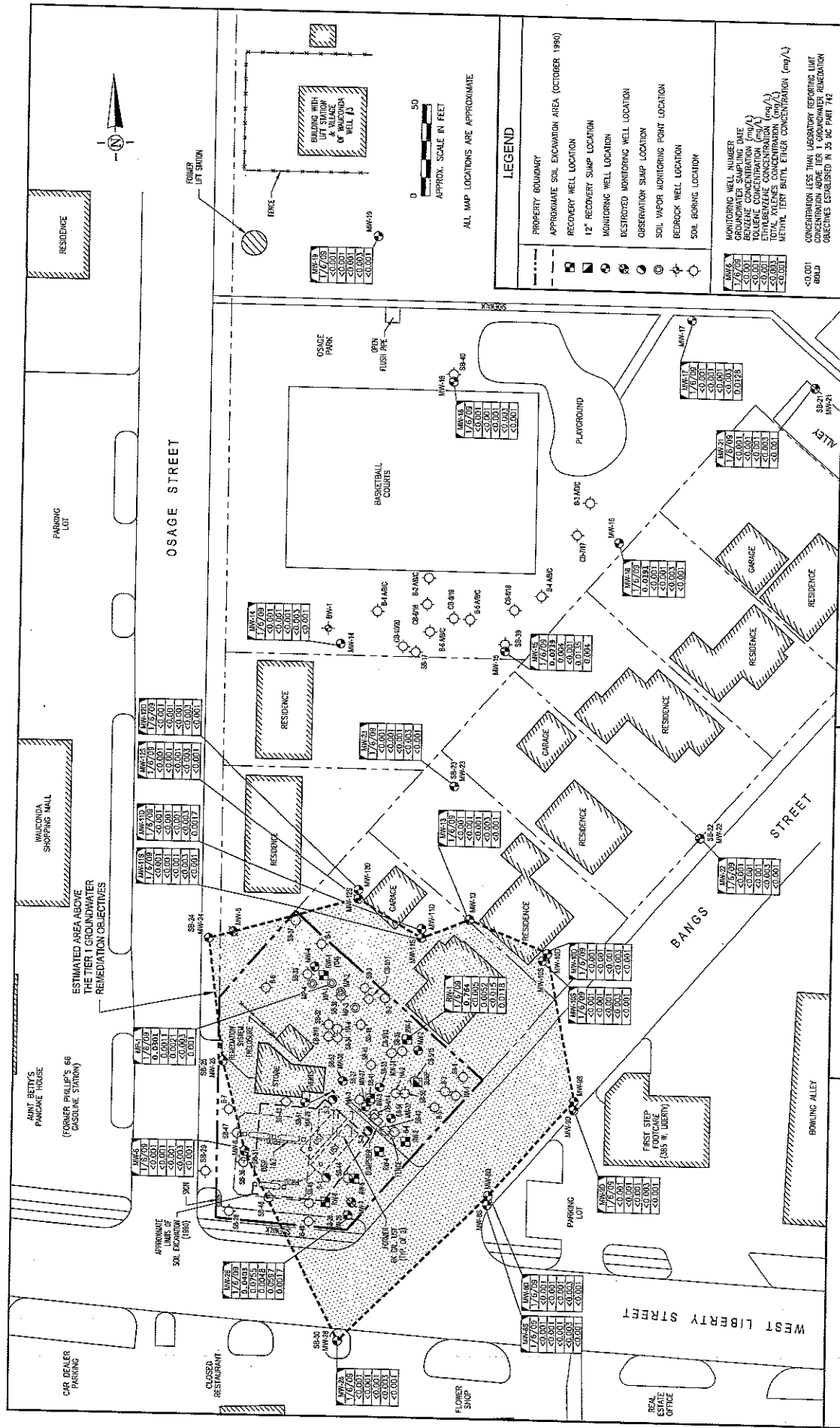
FIGURE 1

DRAWN BY:	MWS
APPROVED BY:	SAR
SCALE:	1" = 50'
DATE:	6/7/09
DRAWING FILE:	0401PMW3

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

TriCore Environmental, LLC
 1800 West Hawthorne Lane, Suite P
 West Chicago, Illinois 60185
 (630) 520-9973

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

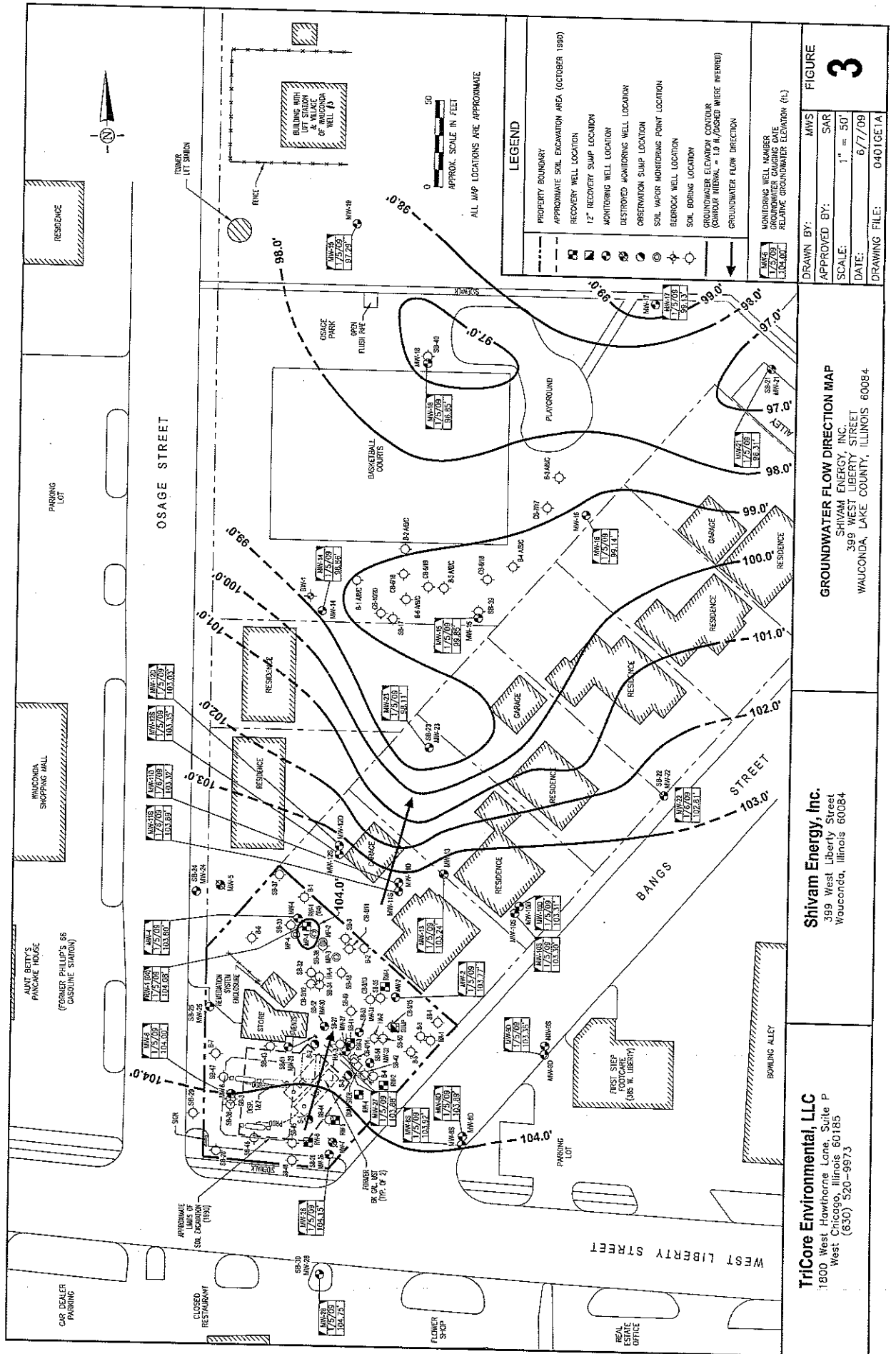


DRAWN BY: MWS
 APPROVED BY: SAR
 SCALE: 1" = 50'
 DATE: 6/7/09
 DRAWING FILE: 0401GA3B

GROUNDWATER ANALYTICAL RESULTS MAP
 SHIVAM ENERGY, INC.
 389 WEST LIBERTY STREET
 WAUCONDA, ILLINOIS 60084

Shivam Energy, Inc.
 389 West Liberty Street
 Wauconda, Illinois 60084

Tricore Environmental, LLC
 1800 West Hawthorne Lane, Suite P
 West Chicago, Illinois 60185
 (630) 520-8973



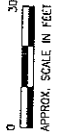
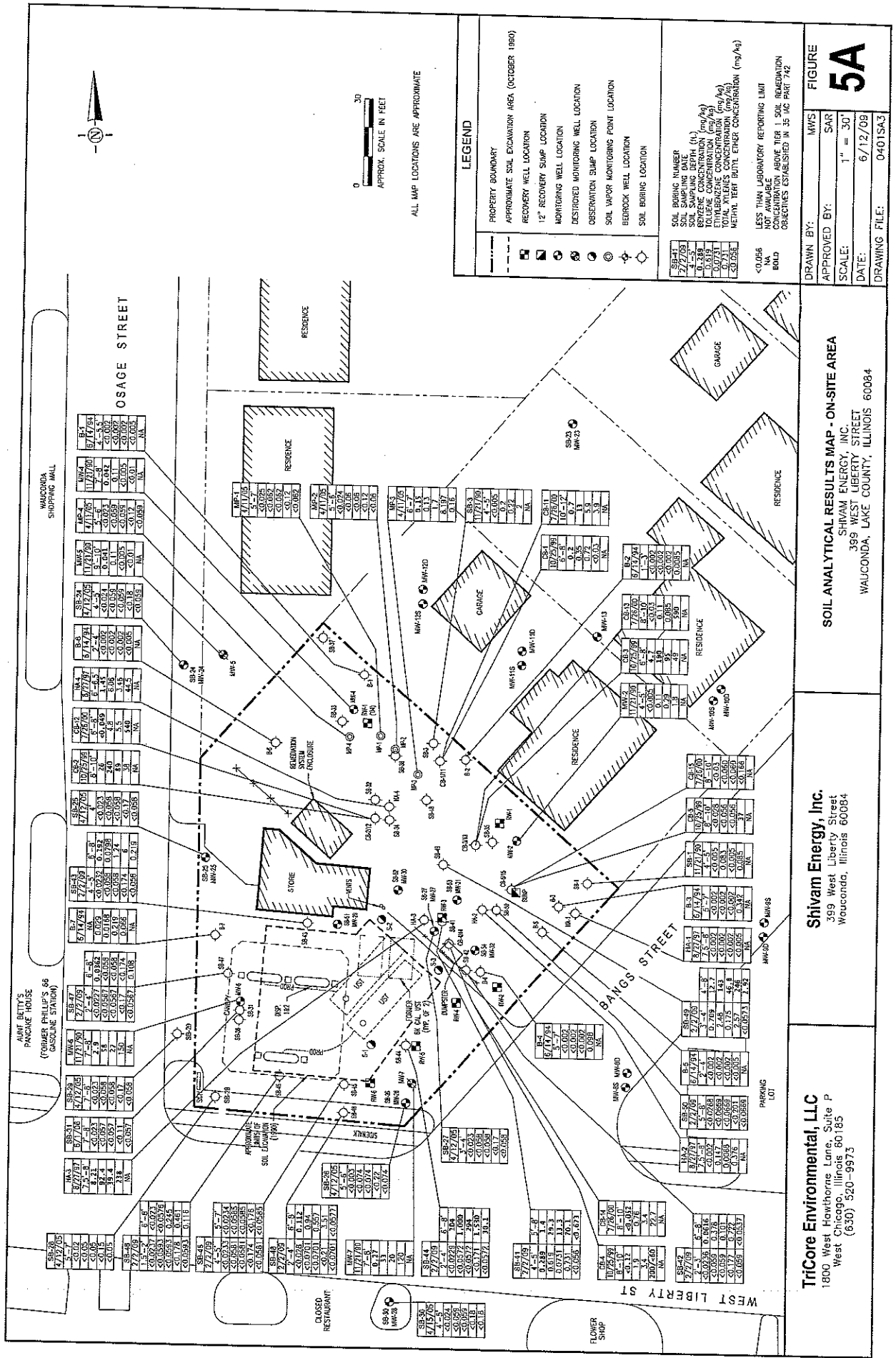
DRAWN BY: MWS
APPROVED BY: SAR
SCALE: 1" = 50'
DATE: 6/7/09
DRAWING FILE: 040106TA

FIGURE 3

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

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

TriCore Environmental, LLC
1800 West Hawthorne Lane, Suite P
West Chicago, Illinois 60185
(630) 520-9973



ALL MAP LOCATIONS ARE APPROXIMATE

LEGEND

- PROPERTY BOUNDARY
- APPROXIMATE SOIL EXCAVATION AREA (OCTOBER 1980)
- RECOVERY WELL LOCATION
- 12" RECOVERY SUMP LOCATION
- MONITORING WELL LOCATION
- DESTROYED MONITORING WELL LOCATION
- OBSERVATION SUMP LOCATION
- SOIL VAPOR MONITORING POINT LOCATION
- BEREAVEL WELL LOCATION
- SOIL BORING LOCATION

SOIL BORING NUMBER	SB-31
SOIL SAMPLING DATE	7/7/95
BENZENE CONCENTRATION (mg/kg)	0.289
TOLUENE CONCENTRATION (mg/kg)	0.919
ETHYLBENZENE CONCENTRATION (mg/kg)	0.731
TOTAL AROMATICS CONCENTRATION (mg/kg)	2.059
METHYL TERT BUTYL ETHER CONCENTRATION (mg/kg)	<0.056

LESS THAN LABORATORY REPORTING LIMIT
 CONCENTRATION ABOVE TIER 1 SOIL REMEDIATION OBJECTIVES ESTABLISHED IN 35 IAC PART 742

FIGURE
5A

DRAWN BY: MWS
 APPROVED BY: SAR
 SCALE: 1" = 30'
 DATE: 6/12/09
 DRAWING FILE: 0401SA3

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

Shivam Energy, Inc.
 389 West Liberty Street
 Wauconda, Illinois 60084

TriCore Environmental, LLC
 1800 West Hawthorne Lane, Suite P
 West Chicago, Illinois 60185
 (630) 520-9973

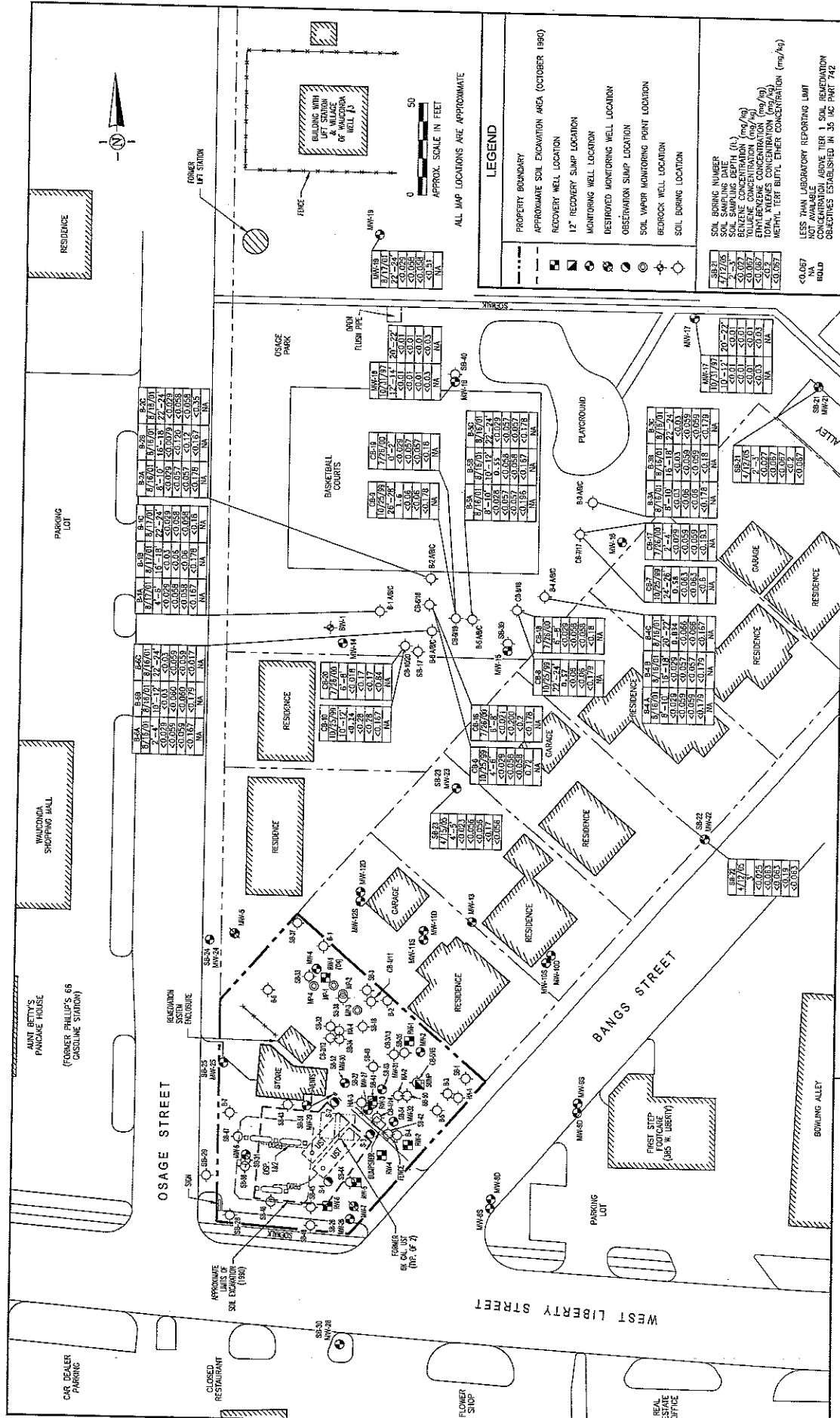


FIGURE 5B

DRAWN BY: MWS
 APPROVED BY: SAR
 SCALE: 1" = 50'
 DATE: 6/12/09
 DRAWING FILE: D401SA4

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

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

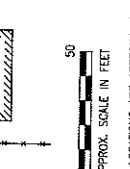
TriCore Environmental, LLC
 1800 West Hawthorne Lane, Suite P
 West Chicago, Illinois 60185
 (630) 520-9973

LEGEND

- PROPERTY BOUNDARY
- APPROXIMATE SOIL EXCAVATION AREA (OCTOBER 1990)
- RECOVERY WELL LOCATION
- 12" RECOVERY SLUMP LOCATION
- MONITORING WELL LOCATION
- DESTROYED MONITORING WELL LOCATION
- OBSERVATION SLUMP LOCATION
- SOIL VAPOR MONITORING POINT LOCATION
- BEDROCK WELL LOCATION
- SOIL BORING LOCATION

SOIL BORING NUMBER
 SOIL SAMPLING DATE
 BENZENE CONCENTRATION (mg/kg)
 TOLUENE CONCENTRATION (mg/kg)
 ETHYLENE CONCENTRATION (mg/kg)
 TOTAL PHENOLS CONCENTRATION (mg/kg)
 METHYL TERT BUTYL ETHER CONCENTRATION (mg/kg)

LESS THAN LABORATORY REPORTING LIMIT
 NOT AVAILABLE
 NA
 BUILD
 CONCENTRATION ABOVE TIER 1 SOIL REMEDIATION CRITERIA ESTABLISHED IN 35 IAC PART 742

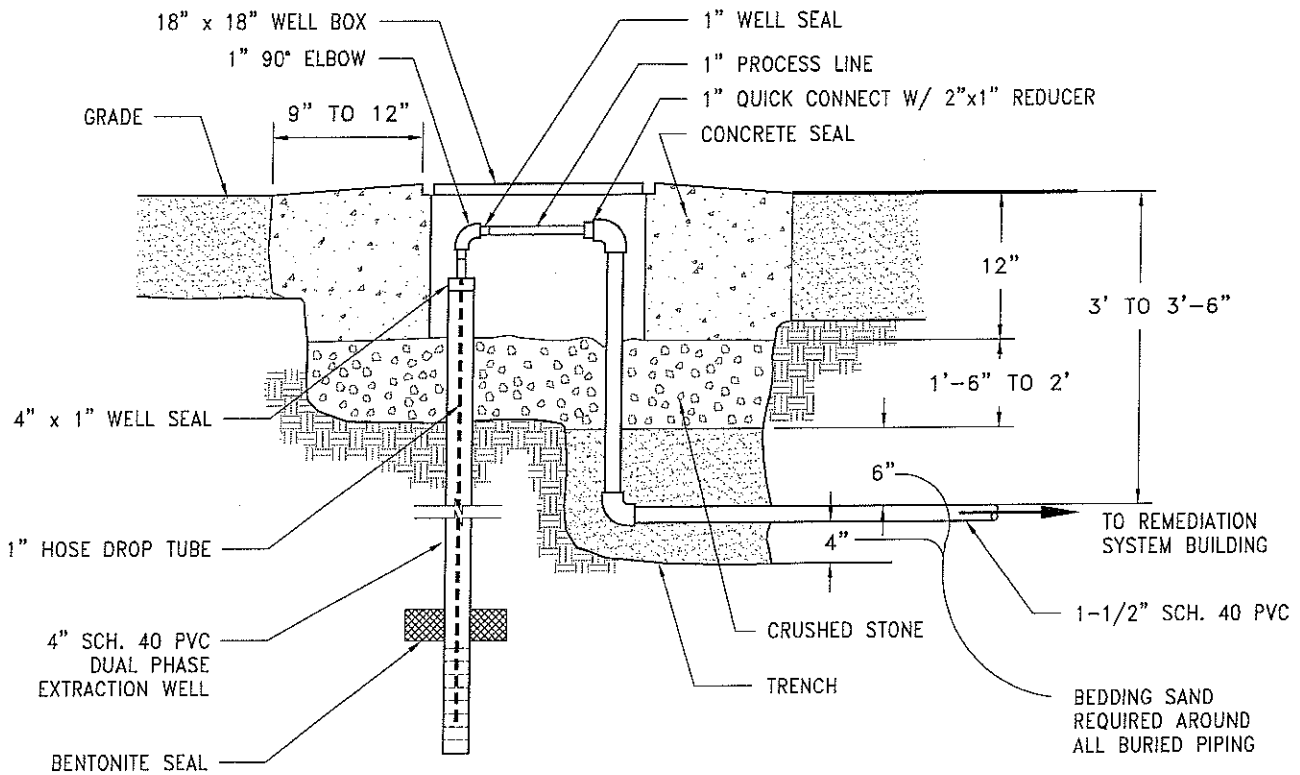


Well ID	Sampling Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylene (mg/kg)	Total Phenols (mg/kg)	Methyl TERT Butyl Ether (mg/kg)
SW-1	8/17/01	8.5	16.18	22.74	NA	NA
SW-2	8/17/01	8.5	16.18	22.74	NA	NA
SW-3	8/17/01	8.5	16.18	22.74	NA	NA
SW-4	8/17/01	8.5	16.18	22.74	NA	NA
SW-5	8/17/01	8.5	16.18	22.74	NA	NA
SW-6	8/17/01	8.5	16.18	22.74	NA	NA
SW-7	8/17/01	8.5	16.18	22.74	NA	NA
SW-8	8/17/01	8.5	16.18	22.74	NA	NA
SW-9	8/17/01	8.5	16.18	22.74	NA	NA
SW-10	8/17/01	8.5	16.18	22.74	NA	NA
SW-11	8/17/01	8.5	16.18	22.74	NA	NA
SW-12	8/17/01	8.5	16.18	22.74	NA	NA
SW-13	8/17/01	8.5	16.18	22.74	NA	NA
SW-14	8/17/01	8.5	16.18	22.74	NA	NA
SW-15	8/17/01	8.5	16.18	22.74	NA	NA
SW-16	8/17/01	8.5	16.18	22.74	NA	NA
SW-17	8/17/01	8.5	16.18	22.74	NA	NA
SW-18	8/17/01	8.5	16.18	22.74	NA	NA
SW-19	8/17/01	8.5	16.18	22.74	NA	NA
SW-20	8/17/01	8.5	16.18	22.74	NA	NA
SW-21	8/17/01	8.5	16.18	22.74	NA	NA
SW-22	8/17/01	8.5	16.18	22.74	NA	NA
SW-23	8/17/01	8.5	16.18	22.74	NA	NA
SW-24	8/17/01	8.5	16.18	22.74	NA	NA
SW-25	8/17/01	8.5	16.18	22.74	NA	NA
SW-26	8/17/01	8.5	16.18	22.74	NA	NA
SW-27	8/17/01	8.5	16.18	22.74	NA	NA
SW-28	8/17/01	8.5	16.18	22.74	NA	NA
SW-29	8/17/01	8.5	16.18	22.74	NA	NA
SW-30	8/17/01	8.5	16.18	22.74	NA	NA
SW-31	8/17/01	8.5	16.18	22.74	NA	NA
SW-32	8/17/01	8.5	16.18	22.74	NA	NA
SW-33	8/17/01	8.5	16.18	22.74	NA	NA
SW-34	8/17/01	8.5	16.18	22.74	NA	NA
SW-35	8/17/01	8.5	16.18	22.74	NA	NA
SW-36	8/17/01	8.5	16.18	22.74	NA	NA
SW-37	8/17/01	8.5	16.18	22.74	NA	NA
SW-38	8/17/01	8.5	16.18	22.74	NA	NA
SW-39	8/17/01	8.5	16.18	22.74	NA	NA
SW-40	8/17/01	8.5	16.18	22.74	NA	NA
SW-41	8/17/01	8.5	16.18	22.74	NA	NA
SW-42	8/17/01	8.5	16.18	22.74	NA	NA
SW-43	8/17/01	8.5	16.18	22.74	NA	NA
SW-44	8/17/01	8.5	16.18	22.74	NA	NA
SW-45	8/17/01	8.5	16.18	22.74	NA	NA
SW-46	8/17/01	8.5	16.18	22.74	NA	NA
SW-47	8/17/01	8.5	16.18	22.74	NA	NA
SW-48	8/17/01	8.5	16.18	22.74	NA	NA
SW-49	8/17/01	8.5	16.18	22.74	NA	NA
SW-50	8/17/01	8.5	16.18	22.74	NA	NA

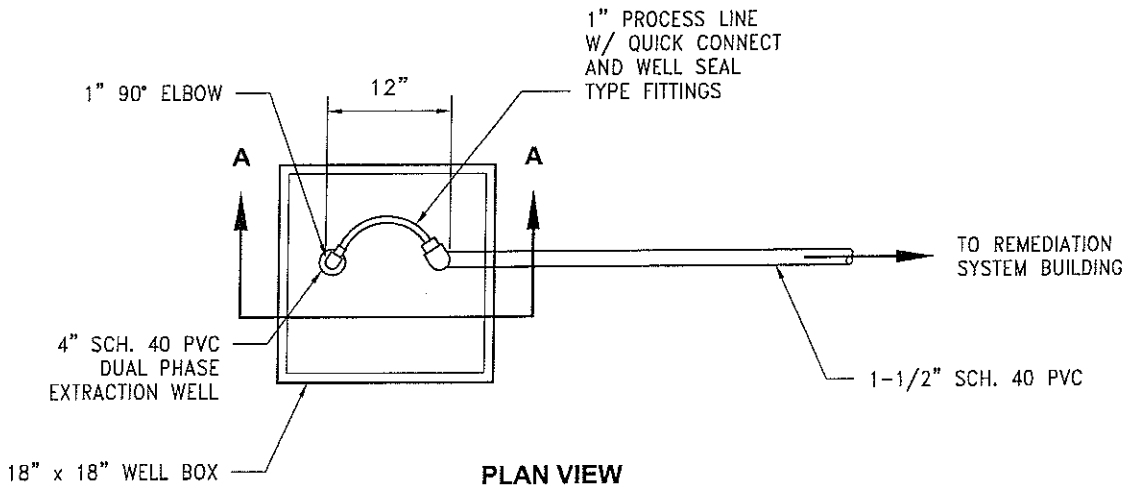
Well ID	Sampling Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylene (mg/kg)	Total Phenols (mg/kg)	Methyl TERT Butyl Ether (mg/kg)
MW-19	7/27/01	7.0	13.0	18.0	NA	NA
MW-18	7/27/01	7.0	13.0	18.0	NA	NA
MW-17	7/27/01	7.0	13.0	18.0	NA	NA
MW-16	7/27/01	7.0	13.0	18.0	NA	NA
MW-15	7/27/01	7.0	13.0	18.0	NA	NA
MW-14	7/27/01	7.0	13.0	18.0	NA	NA
MW-13	7/27/01	7.0	13.0	18.0	NA	NA
MW-12	7/27/01	7.0	13.0	18.0	NA	NA
MW-11	7/27/01	7.0	13.0	18.0	NA	NA
MW-10	7/27/01	7.0	13.0	18.0	NA	NA
MW-9	7/27/01	7.0	13.0	18.0	NA	NA
MW-8	7/27/01	7.0	13.0	18.0	NA	NA
MW-7	7/27/01	7.0	13.0	18.0	NA	NA
MW-6	7/27/01	7.0	13.0	18.0	NA	NA
MW-5	7/27/01	7.0	13.0	18.0	NA	NA
MW-4	7/27/01	7.0	13.0	18.0	NA	NA
MW-3	7/27/01	7.0	13.0	18.0	NA	NA
MW-2	7/27/01	7.0	13.0	18.0	NA	NA
MW-1	7/27/01	7.0	13.0	18.0	NA	NA

Well ID	Sampling Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylene (mg/kg)	Total Phenols (mg/kg)	Methyl TERT Butyl Ether (mg/kg)
SW-1	7/27/01	7.0	13.0	18.0	NA	NA
SW-2	7/27/01	7.0	13.0	18.0	NA	NA
SW-3	7/27/01	7.0	13.0	18.0	NA	NA
SW-4	7/27/01	7.0	13.0	18.0	NA	NA
SW-5	7/27/01	7.0	13.0	18.0	NA	NA
SW-6	7/27/01	7.0	13.0	18.0	NA	NA
SW-7	7/27/01	7.0	13.0	18.0	NA	NA
SW-8	7/27/01	7.0	13.0	18.0	NA	NA
SW-9	7/27/01	7.0	13.0	18.0	NA	NA
SW-10	7/27/01	7.0	13.0	18.0	NA	NA
SW-11	7/27/01	7.0	13.0	18.0	NA	NA
SW-12	7/27/01	7.0	13.0	18.0	NA	NA
SW-13	7/27/01	7.0	13.0	18.0	NA	NA
SW-14	7/27/01	7.0	13.0	18.0	NA	NA
SW-15	7/27/01	7.0	13.0	18.0	NA	NA
SW-16	7/27/01	7.0	13.0	18.0	NA	NA
SW-17	7/27/01	7.0	13.0	18.0	NA	NA
SW-18	7/27/01	7.0	13.0	18.0	NA	NA
SW-19	7/27/01	7.0	13.0	18.0	NA	NA
SW-20	7/27/01	7.0	13.0	18.0	NA	NA
SW-21	7/27/01	7.0	13.0	18.0	NA	NA
SW-22	7/27/01	7.0	13.0	18.0	NA	NA
SW-23	7/27/01	7.0	13.0	18.0	NA	NA
SW-24	7/27/01	7.0	13.0	18.0	NA	NA
SW-25	7/27/01	7.0	13.0	18.0	NA	NA
SW-26	7/27/01	7.0	13.0	18.0	NA	NA
SW-27	7/27/01	7.0	13.0	18.0	NA	NA
SW-28	7/27/01	7.0	13.0	18.0	NA	NA
SW-29	7/27/01	7.0	13.0	18.0	NA	NA
SW-30	7/27/01	7.0	13.0	18.0	NA	NA
SW-31	7/27/01	7.0	13.0	18.0	NA	NA
SW-32	7/27/01	7.0	13.0	18.0	NA	NA
SW-33	7/27/01	7.0	13.0	18.0	NA	NA
SW-34	7/27/01	7.0	13.0	18.0	NA	NA
SW-35	7/27/01	7.0	13.0	18.0	NA	NA
SW-36	7/27/01	7.0	13.0	18.0	NA	NA
SW-37	7/27/01	7.0	13.0	18.0	NA	NA
SW-38	7/27/01	7.0	13.0	18.0	NA	NA
SW-39	7/27/01	7.0	13.0	18.0	NA	NA
SW-40	7/27/01	7.0	13.0	18.0	NA	NA
SW-41	7/27/01	7.0	13.0	18.0	NA	NA
SW-42	7/27/01	7.0	13.0	18.0	NA	NA
SW-43	7/27/01	7.0	13.0	18.0	NA	NA
SW-44	7/27/01	7.0	13.0	18.0	NA	NA
SW-45	7/27/01	7.0	13.0	18.0	NA	NA
SW-46	7/27/01	7.0	13.0	18.0	NA	NA
SW-47	7/27/01	7.0	13.0	18.0	NA	NA
SW-48	7/27/01	7.0	13.0	18.0	NA	NA
SW-49	7/27/01	7.0	13.0	18.0	NA	NA
SW-50	7/27/01	7.0	13.0	18.0	NA	NA

Well ID	Sampling Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylene (mg/kg)	Total Phenols (mg/kg)	Methyl TERT Butyl Ether (mg/kg)
SW-1	7/27/01	7.0	13.0	18.0	NA	NA
SW-2	7/27/01	7.0	13.0	18.0	NA	NA
SW-3	7/27/01	7.0	13.0	18.0	NA	NA
SW-4	7/27/01	7.0	13.0	18.0	NA	NA
SW-5	7/27/01	7.0	13.0	18.0	NA	NA
SW-6	7/27/01	7.0	13.0	18.0	NA	NA
SW-7	7/27/01	7.0	13.0	18.0	NA	NA
SW-8	7/27/01	7.0	13.0	18.0	NA	NA
SW-9	7/27/01	7.0	13.0	18.0	NA	NA
SW-10	7/27/01	7.0	13.0	18.0	NA	NA
SW-11	7/27/01	7.0	13.0	18.0	NA	NA
SW-12	7/27/01	7.0	13.0	18.0	NA	NA
SW-13	7/27/01	7.0	13.0	18.0	NA	NA
SW-14	7/27/01	7.0	13.0	18.0	NA	NA
SW-15	7/27/01	7.0	13.0	18.0	NA	NA
SW-16	7/27/01	7.0	13.0	18.0	NA	NA
SW-17	7/27/01	7.0	13.0	18.0	NA	NA
SW-18	7/27/01	7.0	13.0	18.0	NA	NA
SW-19	7/27/01	7.0	13.0	18.0	NA	NA
SW-20	7/27/01	7.0	13.0	18.0	NA	NA
SW-21	7/27/01	7.0	13.0	18.0	NA	NA
SW-22	7/27/01	7.0	13.0	18.0	NA	NA
SW-23	7/27/01	7.0	13.0	18.0	NA	NA
SW-24	7/27/01	7.0	13.0	18.0	NA	NA
SW-25	7/27/01	7.0	13.0	18.0	NA	NA
SW-26	7/27/01	7.0	13.0	18.0	NA	NA
SW-27	7/27/01	7.0	13.0	18.0	NA	NA
SW-28	7/27/01	7.0	13.0	18.0	NA	NA
SW-29	7/27/01	7.0	13.0	18.0	NA	NA
SW-30	7/27/01	7.0	13.0	18.0	NA	NA
SW-31	7/27/01	7.0	13.0	18.0	NA	NA
SW-32	7/27/01	7.0	13.0	18.0	NA	NA
SW-33	7/27/01	7.0	13.0	18.0	NA	NA
SW-34	7/27/01	7.0	13.0	18.0	NA	NA
SW-35	7/27/01	7.0	13.0	18.0	NA	NA
SW-36	7/27/01	7.0	13.0	18.0	NA	NA
SW-37	7/27/01	7.0	13.0	18.0	NA	NA
SW-38	7/27/01	7.0	13.0	18.0	NA	NA
SW-39	7/27/01	7.0	13.0	18.0	NA	NA
SW-40	7/27/01	7.0	13.0	18.0	NA	NA
SW-41	7/27/01	7.0	13.0	18.0	NA	NA
SW-42	7/27/01	7.0	13.0	18.0	NA	NA
SW-43	7/27/01	7.0	13.0	18.0	NA	NA
SW-44	7/27/01	7.0	13.0	18.0	NA	NA
SW-45	7/27/01	7.0	13.0	18.0	NA	NA
SW-46	7/27/01	7.0	13.0	18.0	NA	NA
SW-47	7/27/01	7.0	13.0	18.0	NA	NA
SW-48	7/27/01	7.0	13.0	18.0	NA	NA
SW-49	7/27/01	7.0	13.0	18.0	NA	NA
SW-50	7/27/01	7.0	13.			



SECTION A - A



PLAN VIEW

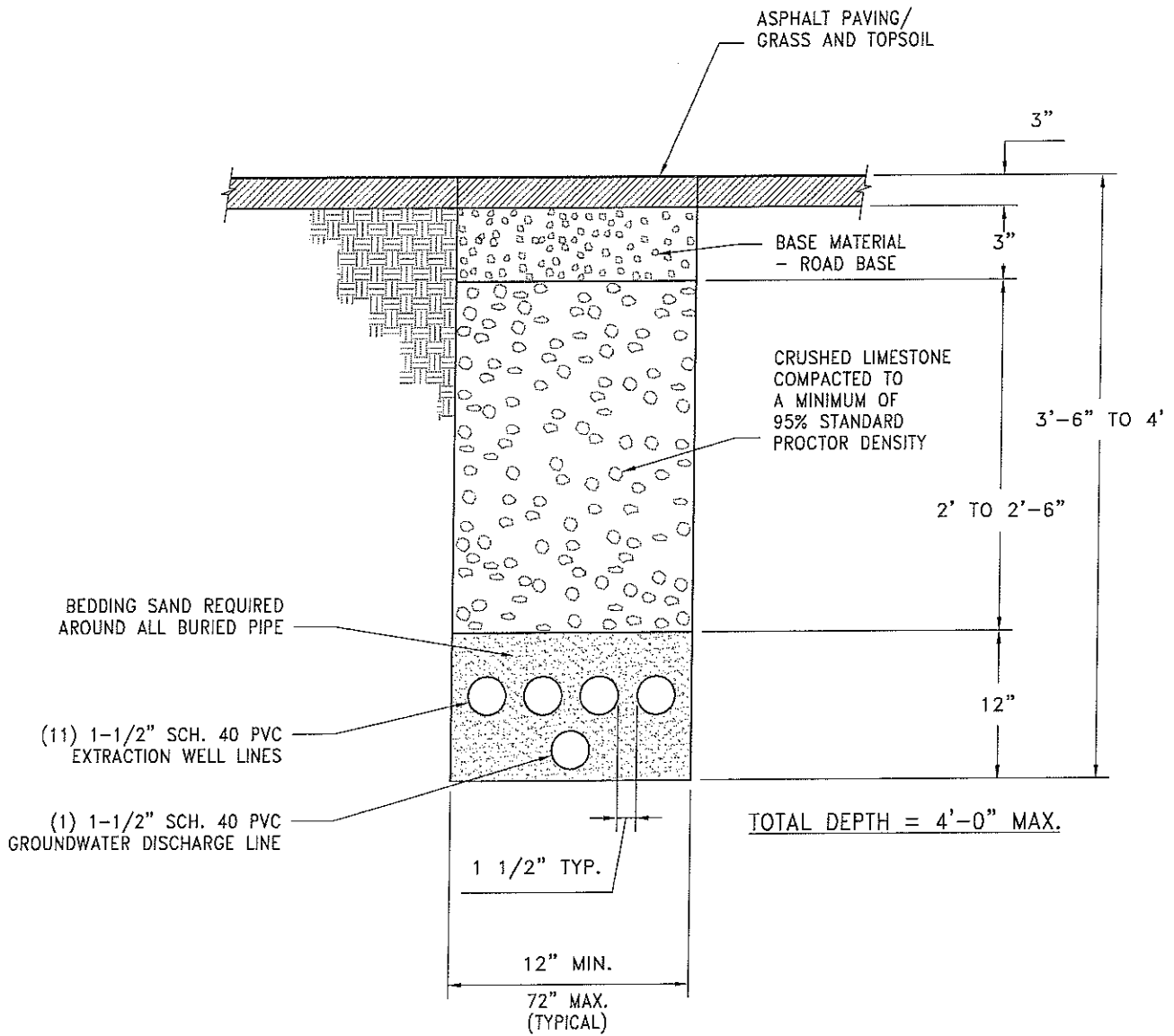
Shivam Energy, Inc.
 399 West Liberty Street
 Wauconda, Illinois 60084

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

DRAWN BY:	MWS
APPROVED BY:	MC
SCALE:	NOT TO SCALE
DATE:	6/10/09
DRAWING FILE:	0401DPWD1

FIGURE

7



TRENCH SECTION SHOWING BACKFILL

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

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

DRAWN BY:	MWS
APPROVED BY:	MC
SCALE:	NOT TO SCALE
DATE:	6/10/09
DRAWING FILE:	0401STBD1

FIGURE

8

TABLES

TABLE 1

Soil Geochemical and Geotechnical 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	11-Apr-05	1-3	0.5	14,000															
MP-2	11-Apr-05	5-6	0.7	19,000															
MP-3	11-Apr-06	6-7	238		7.2														
SB-32	1-Jun-06	7-9.5	414			<0.025	<20												
SB-32	1-Jun-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	18-Jan-07	10-11	31														<12	3,200	
SB-34	18-Jan-07	8-10	1,333														16	1,700	
SB-35	18-Jan-07	8-10	118														<13	2,000	
SB-36	18-Jan-07	10-11	0.3														<12	5,900	
SB-37	18-Jan-07	6-8	0.4														<12	4,200	
SB-38	11-Dec-07	2-3	0.1																3.27
SB-38	11-Dec-07	3-4	0.1																0.777
SB-39	7-Aug-08	14.25-15.25	NA														<11.8	12,769.88	
SB-40	7-Aug-08	16-17	0														<11.8	15,320.15	

Notes:

- 1) PID = photoionization detector
- 2) bis = below land surface; mg/kg = milligrams per kilogram; mg/L = milligrams per Liter; ppm = parts per million; pcf = pounds per cubic foot; % = percent; --- = no specific units
- 3) <1.9 = concentration less than the laboratory reporting limit
- 4) The samples were analyzed for grain size analysis, visual soil classification, total porosity, moisture content, dry bulk density, wet bulk density, specific gravity, and fraction of organic carbon using American Society for Testing and Materials methods
- 5) The samples were analyzed for total organic carbon using United States Environmental Protection Agency (USEPA) Method 9060
- 6) The sample was analyzed for pH using USEPA Method 9045C
- 7) The sample was analyzed for reactive cyanide using USEPA Method 7.3.3.2
- 8) The sample was analyzed for reactive sulfide using USEPA Method 7.3.4.2
- 9) The samples were analyzed for total petroleum hydrocarbon (TPH) gasoline range organics using USEPA Method 8015
- 10) The samples were analyzed for chemical oxygen demand using USEPA Method 410.4
- 11) Shading = not applicable

TABLE 2

Soil Analytical Results - Total Metals

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

Tier 1 Exposure Routes				COCs and Tier 1 Soil Remediation Objectives							
				Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)
Inhalation - Residential				750	690,000	1,800	270	---	10	---	---
Ingestion - Residential				13	5,500	78	230	400	23	390	390
Sample ID	Date Sampled	Sample Depth (feet bls)	PID Reading (ppm)								
SB-33	18-Jan-07	10-11	31	2.8	6.4	<0.59	3.9	2.2	0.012	<2.4	<1.2
SB-34	18-Jan-07	8-10	1,333	<2.4	3.6	<0.61	3.1	2	<0.012	<2.4	<1.2
SB-35	18-Jan-07	8-10	118	<2.5	4.3	<0.63	3.1	2.1	<0.013	<2.5	<1.3
SB-36	18-Jan-07	10-11	0.3	5.3	31	<0.58	15	6.2	<0.012	<2.3	<1.2
SB-37	18-Jan-07	6-8	0.4	<2.3	41	<0.58	18	7.6	0.017	<2.3	<1.2
SB-39	7-Aug-08	14.25-15.25		2.3	41.9	<0.29	14.4	5.9	<0.012	<1.2	<0.59
SB-40	7-Aug-08	16-17	0	3.8	40.7	<0.3	12.3	6.5	0.012	<1.2	<0.59

Notes:

- 1) PID = photoionization detector; COCs = constituents of concern
- 2) bls = below land surface; mg/kg = milligrams per kilogram; ppm = parts per million
- 3) <1.9 = concentration less than the laboratory reporting limit
- 4) The soil samples were analyzed for arsenic, barium, cadmium, chromium, lead, selenium, and silver using United States Environmental Protection Agency (USEPA) Method 6010B
- 5) The soil samples were analyzed for mercury using USEPA Method 7471A
- 6) --- = no toxicity criteria available for the route of exposure
- 7) All concentrations are below the Tier 1 soil remediation objectives established in 35 Illinois Administrative Code Part 742
- 8) Shading = not applicable

TABLE 3

Groundwater Geochemical Results

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

Sample ID	Date Sampled	Geochemical Parameters			
		Chemical Oxygen Demand (mg/L)	TPH Gasoline Range Organics (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Total Phosphorus (mg/L)
MW-2	19-Jan-07	96	12	1.1	<0.5
MW-11S	19-Jan-07	28	0.2	<1	<0.5
MW-18	19-Jan-07	<21	<0.1	8.5	<0.5
MW-26	19-Jan-07	66	0.13	<1	<0.5
MP-1	19-Jan-07	34	3.1	<1	<0.5
MW-15	23-Jun-08	35.3	0.46	1.2	<0.17
MW-18	23-Jun-08	17.4	<0.0396	8.4	0.18

Notes:

- 1) mg/L = milligrams per Liter
- 2) <0.005 = concentration less than the laboratory reporting limit
- 3) All groundwater samples were analyzed for chemical oxygen demand United States Environmental Protection Agency (USEPA) Method 410.4
- 4) All groundwater samples were analyzed for total petroleum hydrocarbon (TPH) gasoline range organics using USEPA Method 8015
- 5) All groundwater samples were analyzed for total kjeldahl nitrogen using USEPA Method 351.2
- 6) All groundwater samples were analyzed for total phosphorus using USEPA Method 365.4
- 7) Shading = not applicable

TABLE 4

Groundwater Analytical Results - Dissolved Metals

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

Tier 1 Exposure Routes		COCs and Tier 1 Groundwater Remediation Objectives							
		Arsenic (mg/L)	Barium (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Lead (mg/L)	Mercury (mg/L)	Selenium (mg/L)	Silver (mg/L)
GCGIER - Class I Groundwater		0.05	2	0.005	0.1	0.0075	0.002	0.05	0.05
GCGIER - Class II Groundwater		0.2	2	0.05	1	0.1	0.01	0.05	---
Sample ID	Date Sampled								
MW-2	19-Jan-07	<0.02	0.13	<0.005	<0.005	<0.0075	<0.0002	<0.02	<0.01
MW-11S	19-Jan-07	<0.02	0.058	<0.005	<0.005	<0.0075	<0.0002	<0.02	<0.01
MW-18	19-Jan-07	<0.02	0.17	<0.005	<0.005	<0.0075	<0.0002	<0.02	<0.01
MW-26	19-Jan-07	<0.02	0.055	<0.005	<0.005	<0.0075	<0.0002	<0.02	<0.01
MP-1	19-Jan-07	<0.02	0.19	<0.005	<0.005	<0.0075	<0.0002	<0.02	<0.01
MW-15	23-Jun-08	<0.0012	0.0988	0.00058	<0.00011	0.0044	<0.0001	<0.0016	<0.00034
MW-18	23-Jun-08	0.014	0.176	0.00014	0.0012	0.0039	<0.0001	<0.0016	<0.00034

Notes:

- 1) GCGIER = groundwater component of the groundwater ingestion exposure route; COCs = constituents of concern
- 2) mg/L = milligrams per Liter
- 3) <0.005 = concentration less than the laboratory reporting limit
- 4) All concentrations are below the Tier 1 groundwater remediation objectives established in 35 Illinois Administrative Code Part 742
- 5) All groundwater samples were analyzed for arsenic, barium, cadmium, chromium, lead, selenium, and silver using United States Environmental Protection Agency (USEPA) Method 6010B
- 6) All groundwater samples were analyzed for mercury using USEPA Method 7470A
- 7) --- = no toxicity criteria available for route of exposure

TABLE 5

Free Product Recovery Volumes

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

Well ID	Recovery/Gauging Date	Depth to Free Product (feet below TOC)	Depth to Water (feet below TOC)	Free Product Thickness (feet)	Free Product Recovered (gallons)	Free Product and Groundwater Recovered (gallons)
MW-2	29-Nov-90	10.00	10.30	0.30		
MW-2	27-Jan-92	FP				
MW-2	19-Feb-92	FP				
MW-2	24-Aug-92	FP				
MW-2	19-Jan-93	FP				
MW-2	27-Jun-94	10.95	10.96	0.01		
MW-6	11-Oct-01	sheen	7.39			
MW-6	14-Mar-02	sheen	6.93			
MW-6	6-Jun-02	sheen	6.7			
MW-6	30-Aug-02	sheen	7.27			
MW-6	6-Dec-02	sheen	7.83			
MW-6	6-May-04	sheen	7.45			
MW-7	29-Nov-90	7.39	7.69	0.30		
S-1	31-Dec-08	6.15	6.19	0.04	15	2,500
S-1	5-Jan-09	6.95	7.00	0.05	0.01	4
S-1	9-Jan-09	6.95	6.99	0.04	10	2,000
S-1	27-Jan-09	7.78	7.87	0.09	10	2,100
S-1	30-Jan-09	8.83	8.87	0.04		
S-1	26-Feb-09	7.23	7.31	0.08	0.01	4
S-1	9-Mar-09	5.97	6.03	0.06	15	3,000
S-1	13-Mar-09	6.43	6.47	0.04	14	2,800
S-1	1-Apr-09	6.2	6.23	0.03	10	2,000
S-1	19-May-09	6.94	6.99	0.05		
S-2	31-Dec-08	6.24	6.27	0.03	See S-1 Above	See S-1 Above
S-2	27-Jan-09	9.19	9.30	0.11	See S-1 Above	See S-1 Above
S-2	26-Feb-09	7.32	7.39	0.07	See S-1 Above	See S-1 Above
S-2	9-Mar-09	6.04	6.08	0.04	See S-1 Above	See S-1 Above
S-2	13-Mar-09	6.52	6.55	0.03	See S-1 Above	See S-1 Above
S-2	1-Apr-09	6.25	6.27	0.02	See S-1 Above	See S-1 Above
S-2	19-May-09	6.95	7.00	0.05		
S-3	31-Dec-08	6.23	6.26	0.03	See S-1 Above	See S-1 Above
S-3	5-Jan-09	6.77	6.82	0.05	0.01	4
S-3	9-Jan-09	6.96	7.02	0.06	See S-1 Above	See S-1 Above
S-3	27-Jan-09	8.15	8.3	0.15	See S-1 Above	See S-1 Above
S-2	30-Jan-09	8.93	8.97	0.04		
S-3	26-Feb-09	7.32	7.39	0.07	See S-1 Above	See S-1 Above
S-3	9-Mar-09	6.04	6.10	0.06	See S-1 Above	See S-1 Above
S-3	13-Mar-09	6.51	6.54	0.03	See S-1 Above	See S-1 Above
S-3	1-Apr-09	6.26	6.29	0.03	See S-1 Above	See S-1 Above
S-3	19-May-09	7.05	7.10	0.05		
MW-27	31-Dec-08	6.97	7.03	0.06	See S-1 Above	See S-1 Above
MW-27	5-Jan-09	7.25	7.35	0.1	0.01	4
MW-27	6-Jan-09	7.3	7.36	0.06	0.01	1
MW-27	9-Jan-09	7.29	7.39	0.1	See S-1 Above	See S-1 Above
MW-27	27-Jan-09	7.59	7.72	0.13	See S-1 Above	See S-1 Above
MW-27	30-Jan-09	7.66	7.68	0.02	See S-1 Above	See S-1 Above
MW-27	26-Feb-09	7.28	7.36	0.08	See S-1 Above	See S-1 Above
MW-27	13-Mar-09	6.82	6.825	0.005	See S-1 Above	See S-1 Above
Totals:					74.05	14,417.0

Notes:

- 1) TOC = top-of-casing
- 2) Shading = not applicable or not present
- 3) See S-1 above indicates that the individual volumes of product and groundwater recovered for each well was not noted during that event. The total volumes recovered during that event are noted in S-1.

TABLE 6

Groundwater Elevation and Analytical Results - BTEX and MTBE

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

Tier 1 Exposure Routes							COCs and Tier 1 Groundwater Remediation Objectives				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GGC/IER - Class I Groundwater							0.005	1	0.7	10	0.07
GGC/IER - Class II Groundwater							0.025	2.5	1	10	0.07
Sample ID	Date Sampled	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)					
MW-2	29-Nov-90		10.00	10.30	0.30						
MW-2	27-Jan-92		FP								
MW-2	19-Feb-92		FP								
MW-2	24-Aug-92		FP								
MW-2	19-Jan-93		FP								
MW-2	17-Jun-93	101.06		10.71		90.35	0.23	3.2	0.65	15	
MW-2	11-Nov-93	101.06		10.96		90.10	0.134	0.01	0.052	1.43	
MW-2	27-Jun-94	101.06	10.95	10.96	0.01	90.11					
MW-2	18-Feb-95	101.06		10.36		90.70	0.178	0.0313	0.447	0.3	
MW-2	28-Jul-95	101.06		10.13		90.93	0.257	0.117	0.139	0.808	
MW-2	22-Mar-96	101.06		11.14		89.92	0.1	0.154	0.331	3.93	
MW-2	17-Jun-96	101.06		9.33		91.73	0.0029	0.0041	0.0107	0.355	
MW-2	25-Sep-96	101.06		10.68		90.38	0.0154	0.0167	0.0546	0.584	
MW-2	24-Apr-97	101.06		9.89		91.17	1.11	3.1	0.71	5.78	
MW-2	17-Jun-97	101.06		9.88		91.18	2.57	3.85	0.487	5.53	
MW-2	27-Aug-97	101.06		10.48		90.58	0.116	0.519	0.534	7.45	
MW-2	5-Nov-97	113.61		10.75		102.86	0.076	0.02	0.31	2.4	
MW-2	27-Feb-98	113.61		10.23		103.38	0.17	0.029	0.074	0.73	
MW-2	10-Jun-98	113.61		10.08		103.53	0.0079	0.0011	0.0075	0.15	
MW-2	8-Oct-98	113.61		10.31		103.30	0.013	0.019	0.18	1.38	
MW-2	31-Mar-99	113.61		10.12		103.49	0.64	0.024	0.087	250/*5	
MW-2	9-Jun-99	113.61		10.00		103.61	0.77	0.22	0.075	0.62	
MW-2	2-Sep-99	113.61		10.60		103.01	0.086	0.0076	0.029	0.066	
MW-2	28-Oct-99	113.61		10.52		103.09	0.16	0.0025	0.016	0.041	
MW-2	23-Feb-00	113.61		10.32		103.29	0.55	0.019	0.27	0.861	
MW-2	24-May-00	113.61		9.77		103.84	0.09	0.11	0.11	1.37	
MW-2	15-Aug-00	113.61		10.21		103.40	0.36	0.13	0.054	0.41	
MW-2	9-Nov-00	113.61		10.03		103.58	0.14	0.099	0.12	0.96	
MW-2	11-Oct-01	113.61		10.24		103.37	0.027	0.036	0.02	0.142	
MW-2	14-Mar-02	113.61		9.85		103.76	0.083	0.012	0.13	0.72	
MW-2	6-Jun-02	113.61		9.62		103.99	0.1	0.052	0.32	3.08	
MW-2	30-Aug-02	113.61		10.16		103.45	0.017	0.0058	0.073	0.448	
MW-2	6-Dec-02	113.61		10.62		102.99	0.012	<0.001	0.003	0.0031/*0.001	
MW-2	6-May-04	113.61		10.34		103.27	0.031	0.0014	0.0046	0.003	
MW-2	21-Apr-05	113.61		10.17		103.44	0.035	<0.001	0.0022	0.029	
MW-2	31-Dec-08	113.61		9.58		104.03				<0.01	
MW-2	5-Jan-09	113.61		9.84		103.77				0.024	
MW-2	6-Jan-09	113.61					Obstruction in well, not able to collect samples				
MW-4	28-Nov-90						3.5	0.33	0.27	1.1	
MW-4	27-Jan-92						3.1	0.065	0.072	4.147	
MW-4	24-Aug-92						0.14	0.024	0.19	0.49	
MW-4	19-Jan-93						0.26	0.006	BDL	0.021	
MW-4	17-Jun-93	98.97		8.22		90.75	0.015	<0.001	<0.001	0.005	
MW-4	11-Nov-93	98.97		8.58		90.39	<0.001	<0.001	<0.001	<0.001	
MW-4	27-Jun-94	98.97		8.65		90.32	0.154	0.0243	0.0081	0.0098	
MW-4	18-Feb-95	98.97		8.24		90.73	0.253	0.113	0.0845	0.202	
MW-4	28-Jul-95	98.97		8.06		90.91	0.179	0.0115	0.175	0.261	
MW-4	22-Mar-96	98.97		8.75		90.22	0.363	0.346	0.178	0.466	
MW-4	17-Jun-96	98.97		5.79		93.18	<0.002	<0.002	<0.002	<0.005	
MW-4	25-Sep-96	98.97		8.44		90.53	0.0032	<0.002	0.0052	0.0052	
MW-4	24-Apr-97	98.97		7.84		91.13	0.444	0.0255	0.0945	0.11	
MW-4	17-Jun-97	98.97		6.87		92.10	0.386	0.0359	0.125	0.273	
MW-4	27-Aug-97	98.97		8.23		90.74	0.0568	0.0321	0.128	0.322	
MW-4	5-Nov-97	111.44		8.54		102.90	0.037	0.0035	0.043	0.11	
MW-4	27-Feb-98	111.44		7.98		103.46	0.13	<0.005	<0.005	0.04	
MW-4	10-Jun-98	111.44		7.94		103.50	0.029	0.019	0.022	0.052	
MW-4	8-Oct-98	111.44		8.52		102.92	0.018	0.0024	0.033	0.1/*0.001	
MW-4	31-Mar-99	111.44		8.07		103.37	<0.001	<0.001	<0.001	<0.003	
MW-4	9-Jun-99	111.44		8.07		103.37	0.36	0.028	0.28	0.8228	
MW-4	2-Sep-99	111.44		9.50		101.94	0.18	0.017	0.28	1.1/*0.005	
MW-4	28-Oct-99	111.44		8.44		103.00	0.073	0.0046	0.095	0.360/*0.004	
MW-4	23-Feb-00	111.44		8.17		103.27	0.57	<0.005	0.042	0.081/*0.005	
MW-4	24-May-00	111.44		7.69		103.75	0.095	0.0057	0.01	0.0089/*0.001	
MW-4	15-Aug-00	111.44		8.10		103.34	0.36	0.022	0.13	0.140/*0.0025	
MW-4	9-Nov-00	111.44		7.97		103.47	0.16	<0.025	0.13	0.084/*0.005	
MW-4	11-Oct-01	111.44		8.11		103.33	0.039	0.005	0.03	0.013/*0.001	
MW-4	14-Mar-02	111.44		7.68		103.76	0.13	0.0049	<0.001	<0.003	
MW-4	6-Jun-02	111.44		7.35		104.09	0.013	<0.001	0.0058	0.0025/*0.001	

TABLE 6

Groundwater Elevation and Analytical Results - BTEX and MTBE

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

Tier 1 Exposure Routes							COCs and Tier 1 Groundwater Remediation Objectives				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GGIER - Class I Groundwater							0.005	1	0.7	10	0.07
GGIER - Class II Groundwater							0.025	2.5	1	10	0.07
Sample ID	Date Sampled	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)					
MW-4	30-Aug-02	111.44		8.05		103.39	0.14	0.013	0.035	0.031/<0.001	
MW-4	6-Dec-02	111.44		8.53		102.91	0.17	0.004	0.0016	0.016/<0.001	
MW-4	6-May-04	111.44		8.25		103.19	Obstruction in well, not able to collect samples				
MW-4	21-Apr-05	111.44		8.07		103.37	0.14	0.003	<0.001	0.0035	
MW-4	5-Jan-09	111.44		7.64		103.80	Obstruction in well, not able to collect samples				
MW-4	6-Jan-09	111.44					Obstruction in well, not able to collect samples				
MW-5	28-Nov-90						<0.005	<0.005	<0.005	<0.01	
MW-5	27-Jan-92						<0.002	<0.002	<0.002	<0.005	
MW-5	24-Aug-92						<0.002	<0.002	<0.002	<0.005	
MW-5	19-Jan-93						BDL	BDL	BDL	BDL	
MW-5	17-Jun-93	95.44		4.71		90.73	<0.001	<0.001	<0.001	<0.001	
MW-5	11-Nov-93	95.44		5.09		90.35	<0.001	<0.001	<0.001	<0.001	
MW-5	27-Jun-94	95.44		5.31		90.13	<0.001	<0.001	<0.001	<0.003	
MW-5	16-Feb-95	95.44		4.81		90.63	<0.002	<0.002	<0.002	<0.005	
MW-5	28-Jul-95	95.44		4.99		90.45	<0.0073	<0.002	<0.002	<0.005	
MW-5	22-Mar-96	95.44		5.28		90.16	<0.002	<0.002	<0.002	<0.005	
MW-6	17-Jun-96	95.44		4.24		91.20	<0.002	<0.002	<0.002	<0.005	
MW-5	25-Sep-96	95.44		5.07		90.37	<0.002	<0.002	<0.002	<0.005	
MW-5	24-Apr-97	95.44		4.40		91.04	<0.002	<0.002	<0.002	<0.005	
MW-5	17-Jun-97	95.44		4.34		91.10	<0.002	<0.002	<0.002	<0.003	
MW-5	27-Aug-97	95.44		4.84		90.60	<0.002	<0.002	<0.002	<0.003	
MW-5	5-Nov-97	108.15		5.21		102.94	<0.001	<0.001	<0.01	<0.003	
MW-5	27-Feb-98	108.15		4.58		103.57	<0.001	<0.001	<0.001	<0.003	
MW-5	10-Jun-98	108.15		4.53		103.62	<0.001	<0.001	<0.001	<0.003	
MW-5	8-Oct-98	108.15		4.78		103.37	<0.001	<0.001	<0.001	<0.003	
MW-5	31-Mar-99	108.15		4.76		103.39	0.053	0.07	0.11	0.38	
MW-5	9-Jun-99	108.15		4.65		103.50	<0.001	<0.001	<0.001	<0.003	
MW-5	2-Sep-99	108.15		5.34		102.81	<0.001	<0.001	<0.001	<0.002	
MW-5	28-Oct-99	108.15		5.19		102.96	<0.001	<0.001	<0.001	<0.003	
MW-5	23-Feb-00	108.15		4.92		103.23					
MW-5	24-May-00	108.15		4.34		103.81	<0.001	<0.001	<0.001	<0.003	
MW-5	15-Aug-00	108.15		4.81		103.34	<0.001	<0.001	<0.001	<0.003	
MW-5	9-Nov-00	108.15		4.75		103.40	<0.001	<0.001	<0.001	<0.003	
MW-5	11-Oct-01	108.15		4.80		103.35	<0.001	<0.001	<0.001	<0.003	
MW-5	14-Mar-02	108.15		4.41		103.74	<0.001	<0.001	<0.001	<0.003	
MW-5	6-Jun-02	108.15		4.83		103.52	<0.001	<0.001	<0.001	<0.003	
MW-5	30-Aug-02	108.15		4.75		103.40	<0.001	<0.001	<0.001	<0.003	
MW-5	6-Dec-02	108.15		5.24		102.91	<0.001	<0.001	<0.001	<0.003	
MW-5	6-May-04						Well destroyed				
MW-6	28-Nov-90						<0.005	<0.005	<0.005	<0.01	
MW-6	27-Jan-92										
MW-6	24-Aug-92										
MW-6	19-Jan-93						BDL	BDL	BDL	BDL	
MW-6	17-Jun-93	98.46		7.07		91.39	<0.001	<0.001	<0.001	<0.001	
MW-6	11-Nov-93	98.46		7.63		90.83	<0.001	<0.001	<0.001	<0.001	
MW-6	27-Jun-94	98.46		7.57		90.89	<0.001	<0.001	<0.001	<0.003	
MW-6	16-Feb-95	98.46		7.41		91.05	<0.002	<0.002	<0.002	<0.005	
MW-6	28-Jul-95	98.46		7.11		91.35	0.0045	<0.002	<0.002	<0.005	
MW-6	22-Mar-96	98.46		7.89		90.57	<0.002	<0.002	<0.002	<0.005	
MW-6	17-Jun-96	98.46		6.11		92.35	<0.002	<0.002	<0.002	<0.005	
MW-6	25-Sep-96	98.46		7.59		90.87	<0.002	<0.002	<0.002	<0.005	
MW-6	24-Apr-97	98.46		6.87		91.59	<0.002	<0.002	<0.002	<0.005	
MW-6	17-Jun-97	98.46		6.81		91.65	<0.002	<0.002	<0.002	<0.005	
MW-6	27-Aug-97	98.46		7.34		91.12	<0.002	<0.002	<0.002	<0.005	
MW-6	5-Nov-97	111.06		7.74		103.32	<0.001	<0.001	<0.002	<0.003	
MW-6	27-Feb-98	111.06		7.03		104.03	<0.001	<0.001	<0.001	<0.003	
MW-6	10-Jun-98	111.06		6.97		104.09	<0.001	<0.001	<0.001	<0.003	
MW-6	8-Oct-98	111.06		7.28		103.78	<0.001	<0.001	<0.001	<0.003	
MW-6	31-Mar-99	111.06		7.14		103.92	<0.001	<0.001	<0.001	<0.003	
MW-6	9-Jun-99	111.06		6.95		104.11	<0.001	<0.001	<0.001	<0.003	
MW-6	2-Sep-99	111.06		7.71		103.35	<0.001	<0.001	<0.001	<0.002	
MW-6	28-Oct-99	111.06		7.64		103.42	<0.001	<0.001	<0.001	<0.002	
MW-6	23-Feb-00	111.06		7.42		103.64	<0.001	<0.001	<0.001	<0.003	
MW-6	24-May-00	111.06		6.68		104.38	<0.001	<0.001	<0.001	<0.003	
MW-8	15-Aug-00	111.06		7.25		103.81	0.58	3.1	0.55	2.49	
MW-6	9-Nov-00	111.06		7.11		103.95	0.069	1	0.35	2.3	
MW-6	11-Oct-01	111.06	sheen	7.39		103.67					
MW-6	14-Mar-02	111.06	sheen	6.93		104.13	0.0029	0.002	0.015	0.032	

TABLE 6

Groundwater Elevation and Analytical Results - BTEX and MTBE

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

Tier 1 Exposure Routes							COCs and Tier 1 Groundwater Remediation Objectives				
							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
GCCIER - Class II Groundwater							0.025	2.5	1	10	0.07
Sample ID	Date Sampled	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)					
MW-6	6-Jun-02	111.06	sheen	6.70		104.36	0.0017	0.0016	0.012	0.0256	
MW-6	30-Aug-02	111.06	sheen	7.27		103.79	0.0015	0.0011	0.1	0.0245	
MW-6	6-Dec-02	111.06	sheen	7.83		103.23	<0.001	<0.001	0.0041	0.0099	
MW-6	6-May-04	111.06	sheen	7.45		103.61	<0.001	<0.001	0.001	<0.003	<0.001
MW-6	21-Apr-05	111.06		7.26		103.80					
MW-6	22-Apr-05						<0.001	<0.001	<0.001	<0.003	<0.001
MW-6	29-Dec-08	111.06		6.67		104.39					
MW-6	5-Jan-09	111.06		7.06		104.00					
MW-6	6-Jan-09	111.06					<0.001	<0.001	<0.001	<0.003	<0.001
MW-7	29-Nov-90		7.39	7.69	0.30						
MW-7	21-Apr-05										
MW-8S	1-Apr-91	86.89		6.81		80.27	<0.005	<0.005	<0.005	<0.01	
MW-8S	27-Jan-92						<0.002	<0.003	<0.002	<0.01	
MW-8S	24-Aug-92						<0.002	<0.003	<0.002	<0.007	
MW-8S	19-Jan-93										
MW-8S	17-Jun-93	98.29		7.56		90.73	<0.001	<0.001	<0.001	<0.001	
MW-8S	11-Nov-93	98.29		7.56		90.71	<0.001	<0.001	<0.001	<0.001	
MW-8S	27-Jun-94	98.29		7.46		90.83	<0.001	<0.001	<0.001	<0.003	
MW-8S	16-Feb-95	98.29		7.43		90.86	<0.002	<0.002	<0.002	<0.005	
MW-8S	28-Jul-95	98.29		7.14		91.15	<0.0034	<0.002	<0.002	<0.005	
MW-8S	22-Mar-96	98.29		7.73		90.66	<0.002	<0.002	<0.002	<0.005	
MW-8S	17-Jun-96	98.29		6.46		91.83	<0.002	<0.002	<0.002	<0.005	
MW-8S	25-Sep-96	98.29		7.49		90.80	<0.002	<0.002	<0.002	<0.005	
MW-8S	24-Apr-97	98.29		6.94		91.35	<0.002	<0.002	<0.002	<0.005	
MW-8S	17-Jun-97	98.29		6.86		91.43	<0.002	<0.002	<0.002	<0.005	
MW-8S	27-Aug-97	98.29		7.26		91.03	<0.002	<0.002	<0.002	<0.005	
MW-8S	5-Nov-97	110.89		7.62		103.27	<0.001	<0.001	<0.001	<0.003	
MW-8S	27-Feb-98	110.89		7.50		103.39	<0.001	<0.001	<0.001	<0.003	
MW-8S	10-Jun-98	110.89		6.95		103.94	<0.001	<0.001	<0.001	<0.001	
MW-8S	8-Oct-98	110.89		7.19		103.70	<0.001	<0.001	<0.001	<0.003	
MW-8S	31-Mar-99	110.89		7.12		103.77	<0.001	<0.001	<0.001	<0.003	
MW-8S	9-Jun-99	110.89		7.00		103.89	<0.001	<0.001	<0.001	<0.003	
MW-8S	2-Sep-99	110.89		7.61		103.28	<0.001	<0.001	<0.001	<0.002	
MW-8S	28-Oct-99	110.89		7.56		103.33	<0.001	<0.001	<0.001	<0.002	
MW-8S	23-Feb-00	110.89		7.48		103.41	<0.001	0.0024	<0.001	<0.0041	
MW-8S	24-May-00	110.89		6.77		104.12	<0.001	<0.001	<0.001	<0.003	
MW-8S	15-Aug-00	110.89		7.62		103.27	<0.001	<0.001	<0.001	<0.003	
MW-8S	9-Nov-00	110.89		7.20		103.69	<0.001	<0.001	<0.001	<0.003	
MW-8S	11-Oct-01	110.89		7.26		103.63	<0.001	<0.001	<0.001	<0.003	
MW-8S	14-Mar-02	110.89		6.91		103.98	<0.001	<0.001	<0.001	<0.003	
MW-8S	6-Jun-02	110.89		6.71		104.18	<0.001	<0.001	<0.001	<0.003	
MW-8S	30-Aug-02	110.89		7.18		103.71	<0.001	<0.001	<0.001	<0.003	
MW-8S	6-Dec-02	110.89		7.64		103.25	<0.001	<0.001	<0.001	<0.003	
MW-8S	6-May-04	110.89		7.39		103.50	<0.001	<0.001	<0.001	<0.003	<0.001
MW-8S	21-Apr-05	110.89		7.22		103.67					
MW-8S	22-Apr-05						<0.001	<0.001	<0.001	<0.003	<0.001
MW-8S	5-Jan-09	110.89		6.97		103.92					
MW-8S	6-Jan-09	110.89		7.00		103.89	<0.001	<0.001	<0.001	<0.003	<0.001
MW-8D	1-Apr-91	86.96		6.77		80.19	<0.005	<0.005	<0.005	<0.01	
MW-8D	27-Jan-92						<0.002	<0.002	<0.002	<0.005	
MW-8D	24-Aug-92						<0.002	<0.002	<0.002	<0.005	
MW-8D	19-Jan-93										
MW-8D	17-Jun-93										
MW-8D	11-Nov-93	98.31		7.50		90.81	<0.001	<0.001	<0.001	<0.001	
MW-8D	27-Jun-94	98.31		7.94		90.37	<0.001	<0.001	<0.001	<0.003	
MW-8D	16-Feb-95	98.31		7.80		90.51	<0.002	0.0039	<0.002	<0.005	
MW-8D	28-Jul-95	98.31		7.65		90.66	0.0023	<0.002	<0.002	0.0054	
MW-8D	22-Mar-96	98.31		8.06		90.25	<0.002	<0.002	<0.002	<0.005	
MW-8D	17-Jun-96	98.31		8.81		91.50	<0.002	<0.002	<0.002	<0.005	
MW-8D	25-Sep-96	98.31		7.55		90.76	<0.002	<0.002	<0.002	<0.005	
MW-8D	24-Apr-97	98.31		7.33		90.98	<0.002	<0.002	<0.002	<0.005	
MW-8D	17-Jun-97	98.31		7.32		90.99	<0.002	<0.002	<0.002	<0.005	
MW-8D	27-Aug-97	98.31		7.85		90.46	<0.002	<0.002	<0.002	<0.005	
MW-8D	5-Nov-97	111.03		8.06		102.97	<0.001	<0.001	<0.001	<0.003	
MW-8D	27-Feb-98	111.03		7.00		104.03	<0.001	<0.001	<0.001	<0.003	
MW-8D	10-Jun-98	111.03		7.36		103.67	<0.001	<0.001	<0.001	<0.003	
MW-8D	8-Oct-98	111.03		7.67		103.36	<0.001	<0.001	<0.001	<0.003	
MW-8D	31-Mar-99	111.03		7.40		103.63	<0.001	<0.001	<0.001	<0.003	

TABLE 6

Groundwater Elevation and Analytical Results - BTEX and MTBE

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

Tier 1 Exposure Routes							COCs and Tier 1 Groundwater Remediation Objectives				
							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
GCGIER - Class II Groundwater							0.025	2.5	1	10	0.07
Sample ID	Date Sampled	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)					
MW-8D	9-Jun-99	111.03		7.10		103.93	<0.001	<0.001	<0.001	<0.003	
MW-8D	2-Sep-99	111.03		8.02		103.01	<0.001	<0.001	<0.001	<0.002	
MW-8D	28-Oct-99	111.03		7.95		103.08	<0.001	<0.001	<0.001	<0.002	
MW-8D	23-Feb-00	111.03		7.92		103.11	<0.001	<0.001	<0.001	<0.003	
MW-8D	24-May-00	111.03		7.01		104.02	<0.001	<0.001	<0.001	<0.003	
MW-8D	15-Aug-00	111.03		7.62		103.41	<0.001	<0.001	<0.001	<0.003	
MW-8D	9-Nov-00	111.03		7.72		103.31	<0.001	<0.005	<0.001	<0.003	
MW-8D	11-Oct-01	111.03		7.67		103.36	<0.001	<0.001	<0.001	<0.003	
MW-8D	14-Mar-02	111.03		7.28		103.75	<0.001	<0.001	<0.001	<0.003	
MW-8D	6-Jun-02	111.03		7.04		103.99	<0.001	<0.001	<0.001	<0.003	
MW-8D	30-Aug-02	111.03		7.51		103.52	<0.001	<0.001	<0.001	<0.003	
MW-8D	6-Dec-02	111.03		8.00		103.03	<0.001	<0.001	<0.001	<0.003	
MW-8D	6-May-04	111.03		7.70		103.33	<0.001	<0.001	<0.001	<0.003	
MW-8D	21-Apr-05	111.03		7.53		103.50				<0.001	
MW-8D	22-Apr-05						<0.001	<0.001	<0.001	<0.003	
MW-8D	5-Jan-09	111.03		7.14		103.89				<0.001	
MW-8D	6-Jan-09	111.03					<0.001	<0.001	<0.001	<0.003	
MW-9S	1-Apr-91	86.00		6.12		79.88	<0.005	<0.005	<0.005	<0.01	
MW-9S	27-Jan-92						<0.002	<0.002	<0.002	<0.005	
MW-9S	24-Aug-92						<0.002	<0.002	<0.002	<0.005	
MW-9S	19-Jan-93						BDL	BDL	BDL	BDL	
MW-9S	17-Jun-93	97.42		6.79		90.63	<0.001	<0.001	<0.001	<0.001	
MW-9S	11-Nov-93	97.42		7.04		90.38	<0.001	<0.001	<0.001	<0.001	
MW-9S	27-Jun-94	97.42		7.03		90.39	<0.001	<0.001	<0.001	<0.003	
MW-9S	16-Feb-95	97.42		7.04		90.38	<0.002	<0.002	<0.002	<0.005	
MW-9S	28-Jul-95	97.42		6.82		90.60	<0.002	<0.002	<0.002	<0.005	
MW-9S	22-Mar-96	97.42		7.32		90.10	<0.002	<0.002	<0.002	<0.005	
MW-9S	17-Jun-96	97.42		6.35		91.07	<0.002	<0.002	<0.002	<0.005	
MW-9S	25-Sep-96	97.42		7.10		90.32	<0.002	<0.002	<0.002	<0.005	
MW-9S	24-Apr-97	97.42		6.72		90.70	<0.002	<0.002	<0.002	<0.005	
MW-9S	17-Jun-97	97.42		6.74		90.68	<0.002	<0.002	<0.002	<0.005	
MW-9S	27-Aug-97	97.42		6.90		90.52	<0.002	<0.002	<0.001	<0.005	
MW-9S	5-Nov-97	110.16		7.21		102.95	<0.001	<0.001	<0.001	<0.003	
MW-9S	27-Feb-98	110.16		6.86		103.30	<0.001	<0.001	<0.001	<0.003	
MW-9S	10-Jun-98	110.16		6.67		103.49	<0.001	<0.001	<0.001	<0.003	
MW-9S	8-Oct-98	110.16		6.83		103.33	<0.001	<0.001	<0.001	<0.003	
MW-9S	31-Mar-99	110.16		6.90		103.26	<0.001	<0.001	<0.001	<0.003	
MW-9S	9-Jun-99	110.16		6.76		103.40	<0.001	<0.001	<0.001	<0.003	
MW-9S	2-Sep-99	110.16		7.26		102.90	<0.001	<0.001	<0.001	<0.003	
MW-9S	28-Oct-99	110.16		7.20		102.96	<0.001	<0.001	<0.001	<0.003	
MW-9S	23-Feb-00	110.16		7.90		102.26	<0.001	<0.001	<0.001	<0.003	
MW-9S	24-May-00	110.16		6.64		103.52	<0.001	<0.001	<0.001	<0.003	
MW-9S	15-Aug-00	110.16		6.93		103.23	<0.001	<0.001	<0.001	<0.003	
MW-9S	9-Nov-00	110.16		6.75		103.41	<0.001	<0.005	<0.001	<0.003	
MW-9S	11-Oct-01	110.16		6.96		103.20	<0.001	<0.001	<0.001	<0.003	
MW-9S	14-Mar-02	110.16		6.73		103.43	<0.001	<0.001	<0.001	<0.003	
MW-9S	6-Jun-02	110.96		6.52		104.44	<0.001	<0.001	<0.001	<0.003	
MW-9S	30-Aug-02	110.96		6.92		104.04	<0.001	<0.001	<0.001	<0.003	
MW-9S	6-Dec-02	110.96		7.27		103.69	<0.001	<0.001	<0.001	<0.003	
MW-9S	6-May-04	110.96		7.12		103.84	<0.001	<0.001	<0.001	<0.003	
MW-9S	21-Apr-05	110.96		6.95		104.01				<0.001	
MW-9S	22-Apr-05						<0.001	<0.001	<0.001	<0.003	
MW-9S	6-Jan-09									<0.001	
							Obstruction in well, not able to gauge or collect samples				
MW-9D	1-Apr-91	86.06		6.26		79.80	<0.005	<0.005	<0.005	<0.01	
MW-9D	27-Jan-92						<0.002	<0.002	<0.002	<0.005	
MW-9D	24-Aug-92						<0.002	<0.002	<0.002	<0.005	
MW-9D	19-Jan-93										
MW-9D	17-Jun-93										
MW-9D	11-Nov-93	97.48		7.13		90.35	<0.001	<0.001	<0.001	<0.001	
MW-9D	27-Jun-94	97.48		7.13		90.35	<0.001	<0.001	<0.001	<0.003	
MW-9D	16-Feb-95	97.48		7.15		90.33	<0.002	<0.002	<0.002	<0.005	
MW-9D	28-Jul-95	97.48		6.92		90.56	<0.002	<0.002	<0.002	<0.005	
MW-9D	22-Mar-96	97.48		7.42		91.06	<0.002	<0.002	<0.002	<0.005	
MW-9D	17-Jun-96	97.48		6.44		91.04	<0.002	<0.002	<0.002	<0.005	
MW-9D	25-Sep-96	97.48		7.19		90.29	<0.002	<0.002	<0.002	<0.005	
MW-9D	24-Apr-97	97.48		6.84		90.64	<0.002	<0.002	<0.002	<0.005	
MW-9D	17-Jun-97	97.48		6.79		90.69	<0.002	<0.002	<0.002	<0.005	
MW-9D	27-Aug-97	97.48		7.02		90.46	<0.002	<0.002	<0.002	<0.005	

TABLE 6

Groundwater Elevation and Analytical Results - BTEX and MTBE

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

Tier 1 Exposure Routes							COCs and Tier 1 Groundwater Remediation Objectives				
							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
GCGIER - Class II Groundwater							0.025	2.5	1	10	0.07
Sample ID	Date Sampled	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)					
MW-9D	5-Nov-97	110.26		7.32		102.94	<0.001	<0.001	<0.001	<0.003	
MW-9D	27-Feb-98	110.26		6.74		103.52	<0.001	<0.001	<0.001	<0.003	
MW-9D	10-Jun-98	110.26		6.79		103.47	<0.001	<0.001	<0.001	<0.003	
MW-9D	8-Oct-98	110.26		6.93		103.33	<0.001	<0.001	<0.001	<0.003	
MW-9D	31-Mar-99	110.26		7.01		103.25	<0.001	<0.001	<0.001	<0.003	
MW-9D	9-Jun-99	110.26		6.87		103.39	<0.001	<0.001	<0.001	<0.003	
MW-9D	2-Sep-99	110.26		7.41		102.85	<0.001	<0.001	<0.001	<0.003	
MW-9D	28-Oct-99	110.26		7.31		102.95	<0.001	<0.001	<0.001	<0.003	
MW-9D	23-Feb-00	110.26		7.10		103.16	<0.001	<0.001	<0.001	<0.003	
MW-9D	24-May-00	110.26		6.74		103.52	<0.001	<0.001	<0.001	<0.003	
MW-9D	15-Aug-00	110.26		7.07		103.19	<0.001	<0.001	<0.001	<0.003	
MW-9D	9-Nov-00	110.26		6.90		103.36	<0.001	<0.001	<0.001	<0.003	
MW-9D	11-Oct-01	110.26		7.05		103.21	<0.001	<0.001	<0.001	<0.003	
MW-9D	14-Mar-02	110.26		6.83		103.43	<0.001	<0.001	<0.001	<0.003	
MW-9D	6-Jun-02	110.26		6.82		103.64	<0.001	<0.001	<0.001	<0.003	
MW-9D	30-Aug-02	110.26		7.04		103.22	<0.001	<0.001	<0.001	<0.003	
MW-9D	6-Dec-02	110.26		7.38		102.88	<0.001	<0.001	<0.001	<0.003	
MW-9D	6-May-04	110.26		7.21		103.05	<0.001	<0.001	<0.001	<0.003	
MW-9D	21-Apr-05	110.26		7.04		103.22				<0.001	
MW-9D	22-Apr-05						<0.001	<0.001	<0.001	<0.003	
MW-9D	5-Jan-08	110.26		6.91		103.35				<0.001	
MW-9D	6-Jan-09	110.26					<0.001	<0.001	<0.001	<0.003	
MW-10S	1-Apr-91	85.93		5.28		80.65	<0.005	<0.005	<0.005	<0.010	
MW-10S	27-Jan-92						<0.002	<0.002	<0.002	<0.005	
MW-10S	24-Aug-92						<0.002	<0.002	<0.002	<0.005	
MW-10S	19-Jan-93						BDL	BDL	BDL	BDL	
MW-10S	17-Jun-93	96.38		5.91		90.47	<0.001	<0.001	<0.001	<0.001	
MW-10S	11-Nov-93	96.38		6.12		90.26	<0.001	<0.001	<0.001	<0.001	
MW-10S	27-Jun-94	96.38		6.11		90.27	<0.001	<0.001	<0.001	<0.003	
MW-10S	16-Feb-95	96.38		6.08		90.30	<0.002	<0.002	<0.002	<0.005	
MW-10S	28-Jul-95	96.38		5.84		90.54	<0.002	<0.002	<0.002	<0.005	
MW-10S	22-Mar-96	96.38		6.33		90.05	<0.002	<0.002	<0.002	<0.005	
MW-10S	17-Jun-96	96.38		5.26		91.12	<0.002	<0.002	<0.002	<0.005	
MW-10S	25-Sep-96	96.38		6.09		90.29	<0.002	<0.002	<0.002	<0.005	
MW-10S	24-Apr-97	96.38		5.73		90.65	<0.002	<0.002	<0.002	<0.005	
MW-10S	17-Jun-97	96.38		5.64		90.74	<0.002	<0.002	<0.002	<0.005	
MW-10S	27-Aug-97	96.38		5.90		90.48	0.0126	<0.002	<0.002	<0.005	
MW-10S	5-Nov-97	108.99		6.19		102.80	<0.001	<0.001	<0.001	<0.003	
MW-10S	27-Feb-98	108.99		5.77		103.22	<0.001	<0.001	<0.001	<0.003	
MW-10S	10-Jun-98	108.99		5.66		103.33	<0.001	<0.001	<0.001	<0.003	
MW-10S	8-Oct-98	108.99		5.83		103.16	<0.001	<0.001	<0.001	<0.003	
MW-10S	31-Mar-99	108.99		5.95		103.04	<0.001	<0.001	<0.001	<0.003	
MW-10S	9-Jun-99	108.99		5.76		103.23	<0.001	<0.001	<0.001	<0.003	
MW-10S	2-Sep-99	108.99		6.21		102.78	<0.001	<0.001	<0.001	<0.003	
MW-10S	28-Oct-99	108.99		6.30		102.69	<0.001	<0.001	<0.001	<0.003	
MW-10S	23-Feb-00	108.99		6.06		102.93	<0.001	<0.001	<0.001	<0.003	
MW-10S	24-May-00	108.99		5.68		103.31	<0.001	<0.001	<0.001	<0.003	
MW-10S	15-Aug-00	108.99		5.94		103.05	<0.001	<0.001	<0.001	<0.003	
MW-10S	9-Nov-00	108.99		5.90		103.09	<0.001	<0.005	<0.001	<0.003	
MW-10S	11-Oct-01	108.99		5.94		103.05	<0.001	<0.001	<0.001	<0.003	
MW-10S	14-Mar-02	108.99		5.79		103.20	<0.001	<0.001	<0.001	<0.003	
MW-10S	6-Jun-02	108.99		5.55		103.44	<0.001	<0.001	<0.001	<0.003	
MW-10S	30-Aug-02	108.99		5.91		103.08	<0.001	<0.001	<0.001	<0.003	
MW-10S	6-Dec-02	108.99		6.24		102.75	<0.001	<0.001	<0.001	<0.003	
MW-10S	6-May-04	108.99		6.15		102.84	<0.001	<0.001	<0.001	<0.003	
MW-10S	21-Apr-05	108.99		5.97		103.02				<0.001	
MW-10S	22-Apr-05						<0.001	<0.001	<0.001	<0.003	
MW-10S	5-Jan-09	108.99		5.69		103.30				<0.001	
MW-10S	6-Jan-09	108.99					<0.001	<0.001	<0.001	<0.003	
MW-10D	1-Apr-91	85.06		5.62		79.44	<0.005	<0.005	<0.005	<0.010	
MW-10D	27-Jan-92						0.005	<0.002	<0.002	<0.005	
MW-10D	24-Aug-92						<0.002	<0.002	<0.002	<0.005	
MW-10D	19-Jan-93										
MW-10D	17-Jun-93										
MW-10D	11-Nov-93	96.31		6.21		90.10	<0.001	<0.001	<0.001	<0.001	
MW-10D	27-Jun-94	96.31		6.23		90.08	<0.001	<0.001	<0.001	<0.003	
MW-10D	16-Feb-95	96.31		6.15		90.16	<0.002	<0.002	<0.002	<0.005	
MW-10D	28-Jul-95	96.31		5.90		90.41	<0.002	<0.002	<0.002	<0.005	

TABLE 6

Groundwater Elevation and Analytical Results - BTEX and MTBE

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

Tier 1 Exposure Routes							COCs and Tier 1 Groundwater Remediation Objectives				
							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
GCGIER - Class II Groundwater							0.025	2.5	1	10	0.07
Sample ID	Date Sampled	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)					
MW-10D	22-Mar-96	96.31		6.42		89.89	<0.002	<0.002	<0.002	<0.005	
MW-10D	17-Jun-96	96.31		5.27		91.04	<0.002	<0.002	<0.002	<0.005	
MW-10D	25-Sep-96	96.31		6.17		90.14	<0.002	<0.002	<0.002	<0.005	
MW-10D	24-Apr-97	96.31		5.77		90.54	<0.002	<0.002	<0.002	<0.005	
MW-10D	17-Jun-97	96.31		5.74		90.57	<0.002	<0.002	<0.002	<0.005	
MW-10D	27-Aug-97	96.31		6.83		89.48	<0.002	<0.002	<0.002	<0.005	
MW-10D	5-Nov-97	108.93		6.13		102.80	<0.001	<0.001	<0.001	<0.003	
MW-10D	27-Feb-98	108.93		5.71		103.22	<0.001	<0.001	<0.001	<0.003	
MW-10D	10-Jun-98	108.93		5.61		103.32	<0.001	<0.001	<0.001	<0.003	
MW-10D	8-Oct-98	108.93		6.79		102.14	<0.001	<0.001	<0.001	<0.003	
MW-10D	31-Mar-99	108.93		5.90		103.03	<0.001	<0.001	<0.001	<0.003	
MW-10D	9-Jun-99	108.93		5.81		103.12	<0.001	<0.001	<0.001	<0.003	
MW-10D	2-Sep-99	108.93		8.18		102.75	<0.001	<0.001	<0.001	<0.003	
MW-10D	28-Oct-99	108.93		6.18		102.75	<0.001	<0.001	<0.001	<0.003	
MW-10D	23-Feb-00	108.93		6.10		102.83	<0.001	<0.001	<0.001	<0.003	
MW-10D	24-May-00	108.93		5.55		103.38	<0.001	<0.001	<0.001	<0.003	
MW-10D	15-Aug-00	108.93		5.91		103.02	<0.001	<0.001	<0.001	<0.003	
MW-10D	9-Nov-00	108.93		5.80		103.13	<0.001	<0.001	<0.001	<0.003	
MW-10D	11-Oct-01	108.93		5.90		103.03	<0.001	<0.001	<0.001	<0.003	
MW-10D	14-Mar-02	108.93		5.74		103.19	<0.001	<0.001	<0.001	<0.003	
MW-10D	6-Jun-02	108.93		5.52		103.41	<0.001	<0.001	<0.001	<0.003	
MW-10D	30-Aug-02	108.93		5.85		103.08	<0.001	<0.001	<0.001	<0.003	
MW-10D	6-Dec-02	108.93		6.22		102.71	<0.001	<0.001	<0.001	<0.003	
MW-10D	6-May-04	108.93		6.09		102.84	<0.001	<0.001	<0.001	<0.003	
MW-10D	27-Apr-05	108.93		5.94		102.89				0.0055	
MW-10D	22-Apr-05						<0.001	<0.001	<0.001	0.0041	
MW-10D	5-Jan-09	108.93		5.62		103.31					
MW-10D	6-Jan-09	108.93					<0.001	<0.001	<0.001	<0.003	
MW-11S	1-Apr-91	85.82		5.52		80.30	0.15	<0.005	<0.005	0.011	
MW-11S	27-Jan-92						3.6	0.021	0.18	4.491	
MW-11S	24-Aug-92						0.006	0.029	0.006	0.81	
MW-11S	19-Jan-93						1.3	0.007	0.03	0.1	
MW-11S	17-Jun-93	96.99		6.01		90.98	0.14	<0.001	<0.001	<0.001	
MW-11S	11-Nov-93	96.99		6.80		90.19	1.35	<0.001	<0.001	<0.001	
MW-11S	27-Jun-94	96.99		6.84		90.15	0.785	0.0094	0.173	0.262	
MW-11S	16-Feb-95	96.99		6.53		90.46	1.55	0.0248	0.163	0.239	
MW-11S	28-Jul-95	96.99		6.42		90.57	0.954	0.0545	0.316	0.29	
MW-11S	22-Mar-96	96.99				96.99					
MW-11S	17-Jun-96	96.99		4.43		92.56	<0.002	<0.002	<0.002	<0.005	
MW-11S	25-Sep-96	96.99		6.77		90.22	1.76	0.0443	0.519	1.22	
MW-11S	24-Apr-97	96.99		6.12		90.87	0.384	0.0087	0.134	2.1	
MW-11S	17-Jun-97	96.99		6.11		90.88	3.94	1.02	0.734	2.06	
MW-11S	27-Aug-97	96.99		6.58		90.41	1.79	0.586	0.657	1.2	
MW-11S	5-Nov-97	109.54		6.85		102.69	1	0.05	0.37	0.023	
MW-11S	27-Feb-98	109.54		6.58		102.96	0.19	<0.005	0.033	0.11	
MW-11S	10-Jun-98	109.54		6.29		103.25	0.8	0.014	0.12	<0.001	
MW-11S	8-Oct-98	109.54		6.49		103.05	0.91	0.03	0.4	0.78	
MW-11S	31-Mar-99	109.54		6.42		103.12	0.28	<0.002	0.04	0.012/<0.002	
MW-11S	9-Jun-99	109.54		6.40		103.14	3.7	6.7	0.73	2.77	
MW-11S	2-Sep-99	109.54		7.16		102.38	1.4	0.029	0.43	1.34	
MW-11S	28-Oct-99	109.54		6.84		102.70	0.78	0.038	0.31	0.889	
MW-11S	23-Feb-00	109.54		6.25		103.29	0.0026	<0.001	<0.001	<0.003	
MW-11S	24-May-00	109.54		6.05		103.49	0.018	<0.001	0.0011	<0.003	
MW-11S	15-Aug-00	109.54		6.62		102.92	1.3	0.051	0.42	1.116	
MW-11S	9-Nov-00	109.54		6.35		103.19	0.37	<0.025	0.03	0.097/<0.005	
MW-11S	11-Oct-01	109.54		6.58		102.98	0.78	<0.021	0.44	0.95/<0.01	
MW-11S	14-Mar-02	109.54		5.89		103.65	0.024	<0.001	<0.001	<0.003	
MW-11S	6-Jun-02	109.54		5.43		104.11	0.073	0.0036	0.012	0.0077/<0.001	
MW-11S	30-Aug-02	109.54		6.52		103.02	1.2	0.051	0.55	0.86/<0.01	
MW-11S	6-Dec-02	109.54		6.86		102.66	2.1	0.045	0.67	0.26/<0.02	
MW-11S	6-May-04	109.54		6.59		102.95	0.059	<0.001	<0.001	<0.003	
MW-11S	21-Apr-05	109.54		6.38		103.16	0.012	<0.001	<0.001	<0.003	
MW-11S	6-Jan-09	109.54		5.65		103.89	<0.001	<0.001	<0.001	<0.003	
MW-11D	1-Apr-91	85.90		6.57		79.33	<0.005	<0.005	<0.005	<0.01	
MW-11D	27-Jan-92						<0.002	<0.002	<0.002	<0.005	
MW-11D	24-Aug-92						<0.004	<0.002	<0.002	<0.005	
MW-11D	19-Jan-93										
MW-11D	17-Jun-93										

TABLE 6

Groundwater Elevation and Analytical Results - BTEX and MTBE

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

Tier 1 Exposure Routes							COCs and Tier 1 Groundwater Remediation Objectives				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GCCIER - Class I Groundwater							0.005	1	0.7	10	0.07
GCCIER - Class II Groundwater							0.025	2.5	1	10	0.07
Sample ID	Date Sampled	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)					
MW-11D	11-Nov-93	97.02		6.81		90.21	<0.001	<0.001	<0.001	<0.001	
MW-11D	27-Jun-94	97.02		6.95		90.07	0.248	0.0028	0.0637	0.135	
MW-11D	16-Feb-95	97.02		6.70		90.32	0.433	0.0058	0.0407	0.0446	
MW-11D	28-Jul-95	97.02		6.49		90.53	0.94	0.0386	0.219	0.215	
MW-11D	22-Mar-96	97.02		7.07		89.95	0.424	0.0075	0.0467	0.0191	
MW-11D	17-Jun-96	97.02		6.12		90.90	0.0482	<0.002	<0.002	<0.005	
MW-11D	25-Sep-96	97.02		6.89		90.13	0.392	0.0077	0.104	0.204	
MW-11D	24-Apr-97	97.02		6.31		90.71	0.339	0.131	0.0807	0.184	
MW-11D	17-Jun-97	97.02		6.32		90.70	1.56	0.368	0.278	0.956	
MW-11D	27-Aug-97	97.02		7.84		89.18	0.311	0.0167	0.0837	0.224	
MW-11D	5-Nov-97	109.58		7.13		102.45	0.17	0.0045	0.09	0.29	
MW-11D	27-Feb-98	109.58		6.23		103.35	0.024	<0.001	<0.001	<0.003	
MW-11D	10-Jun-98	109.58		6.52		103.06	0.02	<0.001	<0.001	<0.003	
MW-11D	8-Oct-98	109.58		6.76		102.82	0.12	0.004	0.038	0.044	
MW-11D	31-Mar-99	109.58		6.90		102.68	0.0034	<0.001	<0.001	<0.003	
MW-11D	9-Jun-99	109.58		6.64		102.94	0.75	1.4	0.14	0.53	
MW-11D	2-Sep-99	109.58		7.22		102.36	0.082	0.0048	0.037	0.1225	
MW-11D	28-Oct-99	109.58		7.10		102.48	0.077	0.0023	0.035	0.1	
MW-11D	23-Feb-00	109.58		6.91		102.67	0.16	0.0012	0.0098	0.1	
MW-11D	24-May-00	109.58		6.49		103.09	0.0011	<0.001	<0.001	<0.003	
MW-11D	15-Aug-00	109.58		7.04		102.54	0.014	<0.001	0.0053	0.011	
MW-11D	9-Nov-00	109.58		6.95		102.63	0.26	<0.012	0.027	0.059	
MW-11D	11-Oct-01	109.58		6.83		102.75	0.017	<0.001	0.0035	<0.003	
MW-11D	14-Mar-02	109.58		6.42		103.16	<0.001	<0.001	<0.001	<0.003	
MW-11D	6-Jun-02	109.58		6.33		103.25	<0.001	<0.001	<0.001	<0.003	
MW-11D	30-Aug-02	109.58		6.74		102.84	0.035	<0.001	0.0012	<0.003	
MW-11D	6-Dec-02	109.58		7.09		102.49	0.001	<0.001	<0.001	<0.003	
MW-11D	6-May-04	109.58		6.80		102.78	0.008	<0.001	<0.001	<0.003	
MW-11D	21-Apr-05	109.58		6.63		102.95	<0.001	<0.001	<0.001	<0.003	
MW-11D	6-Jan-09	109.58		6.26		103.32	<0.001	<0.001	<0.001	0.0017	
MW-12S	1-Apr-91	81.23		2.21		79.02	1.8	0.14	0.11	0.4	
MW-12S	27-Jan-92						0.041	0.002	0.013	0.054	
MW-12S	24-Aug-92						0.2	0.002	0.004	0.005	
MW-12S	19-Jan-93						BDL	BDL	BDL	BDL	
MW-12S	17-Jun-93	92.64		2.60		90.04	0.003	<0.001	<0.001	<0.001	
MW-12S	11-Nov-93	92.64		2.45		90.19	<0.001	<0.001	<0.001	<0.001	
MW-12S	27-Jun-94	92.64		2.52		90.12	0.137	<0.001	<0.001	<0.003	
MW-12S	16-Feb-95	92.64		2.25		90.39	0.0902	<0.002	<0.002	<0.005	
MW-12S	26-Jul-95	92.64		2.10		90.54	0.0137	<0.002	<0.002	<0.005	
MW-12S	22-Mar-96	92.64		2.62		90.02	<0.002	<0.002	<0.002	<0.005	
MW-12S	17-Jun-96	92.64		1.50		91.14	<0.002	<0.002	<0.002	<0.005	
MW-12S	25-Sep-96	92.64		2.36		90.28	<0.002	<0.002	<0.002	<0.005	
MW-12S	24-Apr-97	92.64		1.89		90.75	<0.002	<0.002	<0.002	<0.005	
MW-12S	17-Jun-97	92.64		1.76		90.88	<0.002	<0.002	<0.002	<0.005	
MW-12S	27-Aug-97	92.64		2.24		90.40	<0.002	<0.002	<0.002	<0.005	
MW-12S	5-Nov-97	105.19		2.50		102.69	0.0028	<0.001	<0.001	<0.003	
MW-12S	27-Feb-98	105.19		2.58		102.63	<0.001	<0.001	<0.001	<0.003	
MW-12S	10-Jun-98	105.19		1.90		103.29	<0.001	<0.001	<0.001	<0.003	
MW-12S	8-Oct-98	105.19		2.17		103.02	<0.001	<0.001	<0.001	<0.003	
MW-12S	31-Mar-99	105.19		2.29		102.90	<0.001	<0.001	<0.001	<0.003	
MW-12S	9-Jun-99	105.19		2.13		103.06	0.07	<0.001	<0.001	<0.003	
MW-12S	2-Sep-99	105.19		3.75		101.44	<0.001	<0.001	<0.001	<0.002	
MW-12S	28-Oct-99	105.19		2.58		102.61	0.16	0.0045	0.0043	0.005	
MW-12S	23-Feb-00	105.19		2.33		102.86	0.054	0.0021	0.011	0.012	
MW-12S	24-May-00	105.19		1.92		103.27	0.13	0.0034	0.015	0.017	
MW-12S	15-Aug-00	105.19		2.23		102.96	0.24	0.016	0.053	0.059	
MW-12S	9-Nov-00	105.19		2.15		103.04	0.27	0.037	0.12	0.2133	
MW-12S	11-Oct-01	105.19		2.32		102.87	0.11	0.013	0.12	0.1224	
MW-12S	14-Mar-02	105.19		1.98		103.21	0.18	0.0075	0.041	0.121	
MW-12S	6-Jun-02	105.19		1.80		103.39	0.18	0.023	0.042	0.0061	
MW-12S	30-Aug-02	105.19		2.20		102.99	0.2	0.027	0.077	0.1817	
MW-12S	6-Dec-02	105.19		2.58		102.61	0.051	0.006	0.017	0.079	
MW-12S	6-May-04	105.19		2.40		102.79	0.043	0.0035	<0.001	0.022	
MW-12S	21-Apr-05	105.19		2.20		102.99	0.027	0.0014	<0.001	0.0097	
MW-12S	29-Dec-08	105.19		1.00		104.19				0.0012	
MW-12S	5-Jan-09	105.19		1.84		103.35				<0.001	
MW-12S	6-Jan-09	105.19					<0.001	<0.001	<0.001	<0.003	
MW-12D	1-Apr-91	81.36		2.21		79.15	0.074	<0.005	<0.005	<0.01	

TABLE 6

Groundwater Elevation and Analytical Results - BTEX and MTBE

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

Tier 1 Exposure Routes							COCs and Tier 1 Groundwater Remediation Objectives:				
							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
GCGIER - Class II Groundwater							0.025	2.5	1	10	0.07
Sample ID	Date Sampled	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)					
MW-12D	27-Jan-92						<0.002	<0.002	<0.002	<0.005	
MW-12D	24-Aug-92						<0.002	<0.002	<0.002	<0.005	
MW-12D	19-Jan-93										
MW-12D	17-Jun-93										
MW-12D	11-Nov-93	92.79		2.57		90.22	<0.001	<0.001	<0.001	<0.001	
MW-12D	27-Jun-94	92.79		3.38		89.41	<0.001	<0.001	<0.001	<0.003	
MW-12D	16-Feb-95	92.79		2.85		89.94	<0.002	<0.002	<0.002	<0.005	
MW-12D	28-Jul-95	92.79		2.60		90.19	<0.002	<0.002	<0.002	<0.005	
MW-12D	22-Mar-96	92.79		3.15		89.64	<0.002	<0.002	<0.002	<0.005	
MW-12D	17-Jun-96	92.79		2.08		90.71	<0.002	<0.002	<0.002	<0.005	
MW-12D	25-Sep-96	92.79		2.93		89.86	<0.002	<0.002	<0.002	<0.005	
MW-12D	24-Apr-97	92.79		2.30		90.49	<0.002	<0.002	<0.002	<0.005	
MW-12D	17-Jun-97	92.79		2.29		90.50	<0.002	<0.002	<0.002	<0.005	
MW-12D	27-Aug-97	92.79		2.75		90.04	<0.002	<0.002	<0.002	<0.005	
MW-12D	5-Nov-97	105.34		3.13		102.21	<0.001	<0.001	<0.001	<0.003	
MW-12D	27-Feb-98	105.34		1.97		103.37	<0.001	<0.001	<0.001	<0.003	
MW-12D	10-Jun-98	105.34		2.47		102.87	<0.001	<0.001	<0.001	<0.003	
MW-12D	8-Oct-98	105.34		2.86		102.48	<0.001	<0.001	<0.001	<0.003	
MW-12D	31-Mar-99	105.34		2.77		102.57	<0.001	<0.001	<0.001	<0.003	
MW-12D	9-Jun-99	105.34		2.68		102.66	<0.001	<0.001	<0.001	<0.003	
MW-12D	2-Sep-99	105.34		3.31		102.03	<0.001	<0.001	<0.001	<0.002	
MW-12D	28-Oct-99	105.34		3.20		102.14	<0.001	<0.001	<0.001	<0.002	
MW-12D	23-Feb-00	105.34		3.00		102.34	<0.001	<0.001	<0.001	<0.003	
MW-12D	24-May-00	105.34		2.49		102.85	<0.001	<0.001	<0.001	<0.003	
MW-12D	15-Aug-00	105.34		2.82		102.52	<0.001	<0.001	<0.001	<0.003	
MW-12D	9-Nov-00	105.34		2.75		102.59	<0.001	<0.001	<0.001	<0.003	
MW-12D	11-Oct-01	105.34		2.82		102.52	<0.001	<0.001	<0.001	<0.003	
MW-12D	14-Mar-02	105.34		2.50		102.84	<0.001	<0.001	<0.001	<0.003	
MW-12D	6-Jun-02	105.34		2.34		103.00	<0.001	<0.001	<0.001	<0.003	
MW-12D	30-Aug-02	105.34		2.81		102.53	<0.001	<0.001	<0.001	<0.003	
MW-12D	6-Dec-02	105.34		3.20		102.14	<0.001	<0.001	<0.001	<0.003	
MW-12D	6-May-04	105.34		2.96		102.38	<0.001	<0.001	<0.001	<0.003	
MW-12D	21-Apr-05	105.34		3.73		101.61	<0.001	<0.001	<0.001	<0.003	
MW-12D	5-Jan-09	105.34		2.31		103.03				<0.001	
MW-12D	6-Jan-09	105.34					<0.001	<0.001	<0.001	<0.003	
MW-13	1-Apr-91	85.19		5.24		79.95	2.6	0.3	0.19	0.56	
MW-13	27-Jan-92										
MW-13	19-Feb-92						1.9	0.01	0.14	0.72	
MW-13	24-Aug-92						14	2.1	0.85	13	
MW-13	19-Jan-93						0.009	BDL	BDL	0.005	
MW-13	17-Jun-93	96.50		6.00		90.50	<0.001	<0.001	<0.001	<0.001	
MW-13	11-Nov-93	96.50		6.28		90.22	0.81	0.054	0.346	4.58	
MW-13	27-Jun-94	96.50		6.29		90.21	0.142	0.0037	0.119	0.413	
MW-13	16-Feb-95	96.50		6.20		90.30	0.0475	<0.002	0.0202	0.129	
MW-13	28-Jul-95	96.50		6.01		90.49	0.41	0.0051	0.56	2.548	
MW-13	22-Mar-96	96.50		6.53		89.97	0.212	0.0092	0.0901	0.573	
MW-13	17-Jun-96	96.50		3.78		92.72	<0.002	<0.002	<0.002	<0.005	
MW-13	25-Sep-96	96.50		6.29		90.21	0.109	0.0261	0.911	9.6	
MW-13	24-Apr-97	96.50		5.80		90.70	<0.002	<0.002	<0.002	<0.005	
MW-13	17-Jun-97	96.50		5.59		90.91	0.0195	<0.002	0.0201	0.107	
MW-13	27-Aug-97	96.50		6.17		90.33	1.4	0.38	0.361	3.65	
MW-13	5-Nov-97	109.12		6.38		102.74	0.16	<0.025	0.67	5.8	
MW-13	27-Feb-98	109.12		5.51		103.61	<0.001	<0.001	<0.001	<0.003	
MW-13	10-Jun-98	109.12		5.78		103.34	0.38	<0.025	0.67	3.4	
MW-13	8-Oct-98	109.12		6.02		103.10	<0.025	<0.025	0.28	3.5	
MW-13	31-Mar-99	109.12		6.17		102.95	0.027	<0.0025	0.11	0.81	
MW-13	9-Jun-99	109.12		6.07		103.05	0.008	0.013	0.13	0.9033	
MW-13	2-Sep-99	109.12		6.64		102.48	0.23	<0.025	0.12	0.72	
MW-13	28-Oct-99	109.12		6.45		102.67	0.2	<0.01	0.11	0.718	
MW-13	23-Feb-00	109.12		5.50		103.62					
MW-13	24-May-00	109.12		5.91		103.21	0.0073	<0.001	0.0019	0.021	
MW-13	15-Aug-00	109.12		6.24		102.88	0.038	<0.005	0.3	0.5453	
MW-13	9-Nov-00	109.12		6.08		103.04	<0.001	<0.005	0.0014	<0.003	
MW-13	11-Oct-01	109.12		6.21		102.91	0.05	0.0023	0.069	0.0122	
MW-13	14-Mar-02	109.12		5.89		103.23	<0.001	<0.001	<0.001	<0.003	
MW-13	6-Jun-02	109.12		5.06		104.06	0.0077	<0.001	0.009	<0.003	
MW-13	30-Aug-02	109.12		6.15		102.97	0.013	0.0018	0.03	0.0024	
MW-13	6-Dec-02	109.12		6.53		102.59	0.044	<0.01	0.085	<0.03	

TABLE 6

Groundwater Elevation and Analytical Results - BTEX and MTBE

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

Tier 1 Exposure Routes							COCs and Tier 1 Groundwater Remediation Objectives				
							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
CGGIER - Class II Groundwater							0.025	2.5	1	10	0.07
Sample ID	Date Sampled	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)					
MW-13	6-May-04	109.12		6.37		102.75	0.0039	<0.001	0.013	<0.003	<0.001
MW-13	21-Apr-05	109.12		6.27		102.85					
MW-13	22-Apr-05	109.12					0.0077	<0.001	0.039	0.013	<0.001
MW-13	29-Dec-08	109.12		5.00		104.12					
MW-13	5-Jan-09	109.12		5.88		103.24					
MW-13	6-Jan-09	109.12					<0.001	<0.001	<0.001	<0.003	<0.001
MW-14	27-Jan-92						<0.002	<0.002	<0.002	<0.005	
MW-14	24-Aug-92						<0.002	<0.002	<0.002	<0.005	
MW-14	19-Jan-93						BDL	BDL	BDL	BDL	
MW-14	17-Jun-93	89.62		0.00		89.62	<0.001	<0.001	<0.001	<0.001	
MW-14	11-Nov-93	89.62		0.00		89.62	<0.001	<0.001	<0.001	<0.001	
MW-14	27-Jun-94	89.62		0.00		89.62	<0.001	<0.001	<0.001	<0.003	
MW-14	16-Feb-95	89.62		0.00		89.62	<0.002	<0.002	<0.002	<0.005	
MW-14	28-Jul-95	89.62		0.00		89.62	<0.002	<0.002	<0.002	<0.005	
MW-14	22-Mar-96	89.62				89.62					
MW-14	17-Jun-96	89.62		0.03		89.59	<0.002	<0.002	<0.002	<0.005	
MW-14	25-Sep-96	89.62		0.05		89.57	<0.002	<0.002	<0.002	<0.005	
MW-14	24-Apr-97	89.62		0.00		89.62	<0.002	<0.002	<0.002	<0.005	
MW-14	17-Jun-97	89.62		0.00		89.62	<0.002	<0.002	<0.002	<0.005	
MW-14	27-Aug-97	89.62		0.00		89.62	<0.002	<0.002	<0.002	<0.005	
MW-14	5-Nov-97	99.46		0.79		98.67	<0.001	<0.001	<0.001	<0.003	
MW-14	27-Feb-98	99.46		0.00		99.46	<0.001	<0.001	<0.001	<0.003	
MW-14	10-Jun-98	99.46		0.00		99.46	<0.001	<0.001	<0.001	<0.003	
MW-14	8-Oct-98	99.46		0.09		99.37	<0.001	<0.001	<0.001	<0.003	
MW-14	31-Mar-99	99.46		0.00		99.46	<0.001	<0.001	<0.001	<0.003	
MW-14	9-Jun-99	99.46		0.00		99.46	<0.001	<0.001	<0.001	<0.003	
MW-14	2-Sep-99	99.46		0.19		99.27	<0.001	<0.001	<0.001	<0.003	
MW-14	28-Oct-99	99.46		0.00		99.46	<0.001	<0.001	<0.001	<0.003	
MW-14	23-Feb-00	99.46		0.00		99.46	<0.001	<0.001	<0.001	<0.003	
MW-14	24-May-00			0.00			<0.001	<0.001	<0.001	<0.003	
MW-14	15-Aug-00			0.00			<0.001	<0.001	<0.001	<0.003	
MW-14	9-Nov-00			0.00			<0.001	<0.001	<0.001	<0.003	
MW-14	11-Oct-01	99.16		0.02		99.14	<0.001	<0.001	<0.001	<0.003	
MW-14	14-Mar-02	99.16		0.02		99.14	<0.001	<0.001	<0.001	<0.003	
MW-14	6-Jun-02	99.16		0.00		99.16	<0.001	<0.001	<0.001	<0.003	
MW-14	30-Aug-02	99.16		0.00		99.16	<0.001	<0.001	<0.001	<0.003	
MW-14	6-Dec-02	99.16		0.00		99.16	<0.001	<0.001	<0.001	<0.003	
MW-14	6-May-04	99.16		0.00		99.16	<0.001	<0.001	<0.001	<0.003	<0.001
MW-14	21-Apr-05	99.16		0.00		99.16					
MW-14	22-Apr-05	99.16					<0.001	<0.001	<0.001	<0.003	<0.001
MW-14	5-Jan-09	99.16		0.30		98.86					
MW-14	6-Jan-09	99.16					<0.001	<0.001	<0.001	<0.003	<0.001
MW-15	27-Jan-92						0.005	<0.002	<0.002	<0.005	
MW-15	24-Aug-92						0.03	<0.002	<0.002	<0.005	
MW-15	19-Jan-93						0.24	BDL	BDL	BDL	
MW-15	17-Jun-93	88.40		0.00		88.40	0.85	<0.001	<0.001	<0.001	
MW-15	11-Nov-93	88.40		0.56		87.84	1.03	<0.001	<0.001	<0.001	
MW-15	27-Jun-94	88.40		0.50		87.90	2.04	<0.001	<0.001	<0.003	
MW-15	16-Feb-95	88.40		0.85		87.55	1.82	<0.002	<0.002	<0.005	
MW-15	28-Jul-95	88.40		0.20		88.20	3.55	<0.002	<0.002	<0.005	
MW-15	22-Mar-96	88.40		0.74		87.66	10.5	<0.002	<0.002	<0.005	
MW-15	17-Jun-96	88.40		0.00		88.40	9.75	<0.002	<0.002	<0.005	
MW-15	25-Sep-96	88.40		0.75		87.65	7.6	<0.002	<0.002	<0.005	
MW-15	24-Apr-97	88.40		0.16		88.24	10.7	0.0084	<0.002	<0.005	
MW-15	17-Jun-97	88.40		0.00		88.40	9.59	0.0381	<0.005	<0.005	
MW-15	27-Aug-97	88.40		0.40		88.00	8.32	<0.05	<0.05	<0.125	
MW-15	5-Nov-97	100.25		0.68		99.57	8.2	<0.05	<0.05	<0.15	
MW-15	27-Feb-98	100.25		0.22		100.03	7.4	<0.1	<0.1	<0.3	
MW-15	10-Jun-98	100.25		0.18		100.07	6.9	<0.1	<0.1	<0.3	
MW-15	8-Oct-98	100.25		0.43		99.82	5.4	<0.05	<0.05	<0.15	
MW-15	31-Mar-99	100.25		1.30		98.95	4.6	<0.025	<0.025	<0.075	
MW-15	9-Jun-99	100.25		1.20		99.05	4.2	0.032	<0.025	<0.075	
MW-15	2-Sep-99	100.25		1.55		98.70	2.9	0.036	0.034	0.079	
MW-15	28-Oct-99	100.25		1.44		98.81	2.5	0.049	0.078	0.165	
MW-15	23-Feb-00	100.25		0.90		99.35	1.2	0.045	0.091	0.2	
MW-15	24-May-00	100.25		0.71		99.54	0.97	0.034	0.11	0.255	
MW-15	15-Aug-00	100.25		0.86		99.39	0.58	0.024	0.12	0.264	
MW-15	9-Nov-00	100.25		0.75		99.50	0.13	0.0074	0.027	0.055	

TABLE 6

Groundwater Elevation and Analytical Results - BTEX and MTBE

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

Tier 1 Exposure Routes							COCs and Tier 1 Groundwater Remediation Objectives				
							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
GCGIER - Class II Groundwater							0.025	2.5	1	10	0.07
Sample ID	Date Sampled	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)					
MW-15	11-Oct-01	100.25		0.84		99.41	0.2	0.012	0.062	0.1125	
MW-15	14-Mar-02	100.25		0.62		99.63	0.21	0.011	0.055	0.0993	
MW-15	6-Jun-02	100.25		0.47		99.78	0.17	0.0055	0.033	0.0688	
MW-15	30-Aug-02	100.25		0.83		99.42	0.22	0.0073	0.04	0.0628	
MW-15	6-Dec-02	100.25		1.11		99.14	0.24	0.0062	0.031	0.0394	
MW-15	6-May-04	100.25		0.95		99.30	0.12	0.004	0.0023	0.0063	
MW-15	21-Apr-05	100.25		0.79		99.46				<0.001	
MW-15	22-Apr-05	100.25					0.076	0.0024	<0.001	0.0045	
MW-15	5-Jan-09	100.25		0.40		99.85				<0.001	
MW-15	6-Jan-09	100.25					0.0739	0.004	<0.001	0.0135	
MW-16	27-Jan-92						<0.002	<0.002	<0.002	<0.005	
MW-16	24-Aug-92						<0.002	<0.002	<0.002	<0.005	
MW-16	19-Jan-93						BDL	BDL	BDL	BDL	
MW-16	17-Jun-93	91.82		2.23		89.59	<0.001	<0.001	<0.001	<0.001	
MW-16	11-Nov-93	91.82		2.47		89.35	<0.001	<0.001	<0.001	<0.001	
MW-16	27-Jun-94	91.82		2.59		89.23	<0.001	<0.001	<0.001	<0.003	
MW-16	16-Feb-95	91.82		2.60		89.22	0.0103	<0.002	<0.002	<0.005	
MW-16	28-Jul-95	91.82		2.44		89.38	0.182	<0.002	<0.002	<0.005	
MW-16	22-Mar-96	91.82		3.14		88.88	1.83	<0.002	<0.002	<0.005	
MW-16	17-Jun-96	91.82		1.63		90.19	2.08	<0.002	<0.002	<0.005	
MW-16	25-Sep-96	91.82		2.38		89.44	2.19	<0.002	<0.002	<0.005	
MW-16	24-Apr-97	91.82		7.95		83.87	3.53	<0.002	<0.002	<0.005	
MW-16	17-Jun-97	91.82		4.49		87.33	3.6	<0.002	<0.002	<0.005	
MW-16	27-Aug-97	91.82		5.51		86.31	4.17	0.219	<0.05	0.197	
MW-16	5-Nov-97	101.72		7.75		93.97	3.9	<0.025	<0.025	<0.075	
MW-16	27-Feb-98	101.72		6.28		95.44	4.2	<0.050	<0.05	<0.15	
MW-16	10-Jun-98	101.72		2.36		99.36	3.3	<0.050	<0.05	<0.15	
MW-16	8-Oct-98	101.72		2.55		99.17	5.1	<0.025	<0.025	<0.075	
MW-16	31-Mar-99	101.72		3.47		98.25	4	<0.025	<0.025	<0.075	
MW-16	9-Jun-99	101.72		3.30		98.42	4.6	<0.050	<0.05	<0.15	
MW-16	2-Sep-99	101.72		3.75		97.97	4.4	<0.050	<0.05	<0.1	
MW-16	28-Oct-99	101.72		3.50		98.22	4.4	<0.020	<0.02	<0.04	
MW-16	23-Feb-00	101.72		3.05		98.67	3.3	<0.025	<0.025	<0.075	
MW-16	24-May-00	101.72		2.91		98.81	2.6	<0.025	<0.025	<0.050	
MW-16	15-Aug-00	101.72		3.07		98.65	1.7	<0.010	<0.01	<0.03	
MW-16	9-Nov-00	101.72		3.11		98.61	1.5	<0.050	<0.01	<0.03	
MW-16	11-Oct-01	101.72		3.08		98.66	0.35	<0.050	<0.0025	<0.0075	
MW-16	14-Mar-02	101.72		2.75		98.97	0.017	<0.001	<0.001	<0.003	
MW-16	6-Jun-02	101.72		2.65		99.07	0.2	<0.002	<0.002	<0.006	
MW-16	30-Aug-02	101.72		2.97		98.75	0.13	<0.001	<0.001	<0.003	
MW-16	6-Dec-02	101.72		3.21		98.51	0.12	<0.001	<0.001	<0.003	
MW-16	6-May-04	101.72		3.07		98.65	0.049	<0.001	<0.001	<0.003	
MW-16	21-Apr-05	101.72		2.95		98.77				0.0034	
MW-16	22-Apr-05	101.72					0.045	<0.001	<0.001	<0.003	
MW-16	5-Jan-09	101.72		2.58		99.14				0.0032	
MW-16	6-Jan-09	101.72					0.0191	<0.001	<0.001	<0.003	
MW-17	5-Nov-97	100.91		2.05		98.88	<0.001	<0.001	<0.001	<0.003	
MW-17	27-Feb-98	100.91		1.63		99.28	<0.001	<0.001	<0.001	<0.003	
MW-17	10-Jun-98	100.91		1.58		99.33	<0.001	<0.001	<0.001	<0.003	
MW-17	8-Oct-98	100.91		1.87		99.04	<0.001	<0.001	<0.001	<0.003	
MW-17	31-Mar-99	100.91		2.29		98.62	<0.001	<0.001	<0.001	<0.003	
MW-17	9-Jun-99	100.91		2.15		98.76	<0.001	<0.001	<0.001	<0.003	
MW-17	2-Sep-99	100.91		2.65		98.26	<0.001	<0.001	<0.001	<0.002	
MW-17	29-Oct-99	100.91		2.54		98.37	<0.001	<0.001	<0.001	<0.002	
MW-17	23-Feb-00	100.91		2.04		98.87	<0.001	<0.001	<0.001	<0.003	
MW-17	24-May-00	100.91		1.81		99.10	<0.001	<0.001	<0.001	<0.002	
MW-17	15-Aug-00	100.91		2.07		98.84	<0.001	<0.001	<0.001	<0.003	
MW-17	9-Nov-00	100.91		1.98		98.93	<0.001	<0.005	<0.001	<0.003	
MW-17	11-Oct-01	100.91		2.14		98.77	<0.001	<0.001	<0.001	<0.003	
MW-17	14-Mar-02	100.91		1.81		99.10	<0.001	<0.001	<0.001	<0.003	
MW-17	6-Jun-02	100.91		1.59		99.32	0.0024	<0.001	<0.001	<0.003	
MW-17	30-Aug-02	100.91		2.01		98.90	<0.001	<0.001	<0.001	<0.003	
MW-17	6-Dec-02	100.91		2.34		98.57	<0.001	<0.001	<0.001	<0.003	
MW-17	6-May-04	100.91		2.13		98.78	0.0011	<0.001	<0.001	<0.003	
MW-17	21-Apr-05	100.91		1.99		98.92				0.053	
MW-17	22-Apr-05	100.91					0.0041	<0.001	<0.001	<0.003	
MW-17	5-Jan-09	100.91		1.48		99.43				0.057	
MW-17	6-Jan-09	100.91					<0.001	<0.001	<0.001	0.0128	

TABLE 6

Groundwater Elevation and Analytical Results - BTEX and MTBE

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

Tier 1 Exposure Routes							COCs and Tier 1 Groundwater Remediation Objectives				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GC/GIER - Class I Groundwater							0.005	1	0.7	10	0.07
GC/GIER - Class II Groundwater							0.025	2.5	1	10	0.07
Sample ID	Date Sampled	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)					
MW-18	5-Nov-87	99.19		5.32		93.87	<0.001	<0.001	<0.001	<0.003	
MW-18	27-Feb-98	99.19		2.63		96.56	<0.001	<0.001	<0.001	<0.003	
MW-18	10-Jun-98	99.19		2.85		96.34	<0.001	<0.001	<0.001	<0.003	
MW-18	8-Oct-98	99.19		6.37		92.82	<0.001	<0.001	<0.001	<0.003	
MW-18	31-Mar-99	99.19		2.81		96.38	<0.001	<0.001	<0.001	<0.003	
MW-18	9-Jun-99	99.19		2.46		96.73	<0.001	<0.001	<0.001	<0.003	
MW-18	2-Sep-99	99.19		4.73		94.46	<0.001	<0.001	<0.001	<0.003	
MW-18	28-Oct-99	99.19		3.95		95.24	<0.001	<0.001	<0.001	<0.003	
MW-18	23-Feb-00	99.19		3.25		95.94	<0.001	<0.001	<0.001	<0.003	
MW-18	24-May-00	99.19		2.34		96.85	<0.001	<0.001	<0.001	<0.003	
MW-18	15-Aug-00	99.19		2.98		96.21	<0.001	<0.001	<0.001	<0.003	
MW-18	9-Nov-00	99.19		3.35		95.84	<0.001	<0.005	<0.001	<0.003	
MW-18	11-Oct-01	99.19		3.42		95.77	<0.001	<0.001	<0.001	<0.003	
MW-18	14-Mar-02	99.19		2.40		96.79	<0.001	<0.001	<0.001	<0.003	
MW-18	6-Jun-02	99.19		2.33		96.86	<0.001	<0.001	<0.001	<0.003	
MW-18	30-Aug-02	99.19		3.50		95.69	<0.001	<0.001	<0.001	<0.003	
MW-18	6-Dec-02	99.19		3.54		95.65	<0.001	<0.001	<0.001	<0.003	
MW-18	6-May-04	99.19		2.83		96.36	<0.001	<0.001	<0.001	<0.003	<0.001
MW-18	21-Apr-05	99.19		2.73		96.46					
MW-18	22-Apr-05	99.19					<0.001	<0.001	<0.001	<0.003	<0.001
MW-18	5-Jan-09	99.19		2.34		96.85					
MW-18	6-Jan-09	99.19					<0.001	<0.001	<0.001	<0.003	<0.001
MW-19	19-Oct-01	100.62		5.42		95.20	<0.001	<0.001	<0.001	<0.003	
MW-19	14-Mar-02	100.62		3.70		96.92	<0.001	<0.001	<0.001	<0.003	
MW-19	6-Jun-02	100.62		2.90		97.72	<0.001	<0.001	<0.001	<0.003	
MW-19	30-Aug-02	100.62		4.85		95.77	<0.001	<0.001	<0.001	<0.003	
MW-19	6-Dec-02	100.62		5.71		94.91	<0.001	<0.001	<0.001	<0.003	
MW-19	3-May-04	100.62		4.10		96.52	<0.001	<0.001	<0.001	<0.003	<0.001
MW-19	21-Apr-05	100.62		3.77		96.85					
MW-19	22-Apr-05	100.62					<0.001	<0.001	<0.001	<0.003	<0.001
MW-19	5-Jan-09	100.62		3.33		97.29					
MW-19	6-Jan-09	100.62					<0.001	<0.001	<0.001	<0.003	<0.001
BW-1	19-Jan-93						BDL	BDL	BDL	BDL	
BW-1	17-Jun-93						<0.001	<0.001	<0.001	<0.001	
BW-1	11-Jan-93						<0.001	<0.001	<0.001	<0.001	
BW-1	27-Jun-94						<0.001	<0.001	<0.001	<0.003	
BW-1	16-Feb-95						<0.002	<0.002	<0.002	<0.005	
BW-1	28-Jul-95						<0.002	<0.002	<0.002	<0.005	
BW-1	22-Mar-96						<0.002	<0.002	<0.002	<0.005	
BW-1	27-Feb-98										
BW-1	11-Oct-01	99.08		27.34		71.74	<0.001	<0.001	<0.001	<0.003	
BW-1	14-Mar-02	99.08		25.56		73.52	<0.001	<0.001	<0.001	<0.003	
BW-1	6-Jun-02	99.08		30.36		68.72	<0.001	<0.001	<0.001	<0.003	
BW-1	30-Aug-02	99.08		28.25		70.83	<0.001	<0.001	<0.001	<0.003	
BW-1	6-Dec-02	99.08		26.61		72.47	<0.001	<0.001	<0.001	<0.003	
BW-1	6-May-04	99.08									
Not able to open, manhole needs to be repaired											
RW-1 (04)	21-Apr-05	108.01		4.58		103.43	0.44	0.0097	0.028	0.11	0.01
RW-1 (04)	29-Dec-08	108.01		2.42		105.59					
RW-1 (04)	5-Jan-09	108.01		3.93		104.08					
MP-1	21-Apr-05	108.51		5.09		103.42	0.49	0.013	<0.0025	0.015	0.0096
MP-1	6-Jan-09	108.51					0.0301	0.0011	0.0021	<0.003	0.001
MP-2	21-Apr-05	108.72		5.31		103.41	0.23	0.0095	0.14	0.2	0.0077
MP-3	21-Apr-05	109.30		5.89		103.41	0.13	0.65	0.13	1.2	0.011
MP-3	29-Dec-08	109.30		5.17		104.13					
MP-4	21-Apr-05	109.33		5.89		103.44	0.24	0.014	<0.001	0.013	0.0061
MW-21	21-Apr-05	102.43		8.79		93.64					
MW-21	22-Apr-05	102.43					<0.001	<0.001	<0.001	<0.003	<0.001
MW-21	5-Jan-09	102.43		6.12		96.31					
MW-21	6-Jan-09	102.43					<0.001	<0.001	<0.001	<0.003	<0.001
MW-22	21-Apr-05	107.15		4.62		102.53					
MW-22	22-Apr-05	107.15					<0.001	<0.001	<0.001	<0.003	<0.001
MW-22	6-Jan-09	107.15		4.34		102.31	<0.001	<0.001	<0.001	<0.003	<0.001
MW-23	21-Apr-05	104.89		6.90		97.99					
MW-23	22-Apr-05	104.89					<0.001	<0.001	<0.001	<0.003	<0.001
MW-23	5-Jan-09	104.89		6.78		98.11					
MW-23	6-Jan-09	104.89					<0.001	<0.001	<0.001	<0.003	<0.001
MW-24	21-Apr-05	105.54		4.35		101.19	<0.001	<0.001	<0.001	<0.003	<0.001
MW-25	24-May-05	107.74		4.31		103.43	<0.001	<0.001	<0.001	<0.003	<0.001

TABLE 6

Groundwater Elevation and Analytical Results - BTEX and MTBE

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

Tier 1 Exposure Routes							COCs and Tier 1 Groundwater Remediation Objectives				
							Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)
GGIER - Class I Groundwater							0.005	1	0.7	10	0.07
GGIER - Class II Groundwater							0.025	2.5	1	10	0.07
Sample ID	Date Sampled	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)					
MW-26	21-Apr-05	111.38		7.48		103.90					
MW-26	22-Apr-05	111.38					<0.001	<0.001	<0.001	<0.003	
MW-26	29-Dec-08	111.38		6.00		105.38					
MW-26	31-Dec-08	111.38		6.94		104.44					
MW-26	5-Jan-09	111.38		7.23		104.15					
MW-26	6-Jan-09	111.38					0.0403	0.0755	0.0048	0.0597	
MW-26	13-Mar-09	111.38		6.83		104.55					
MW-26	1-Apr-09	111.38		6.72		104.66					
MW-26	19-May-09	111.38		7.32		104.06					
MW-27	21-Apr-05	111.15		7.54		103.61	0.048	0.0095	0.15	0.68	
MW-27	29-Dec-08	111.15		8.83	Sheen	104.32					
MW-27	31-Dec-08	111.15	6.97	7.03	0.06	104.17					
MW-27	5-Jan-09	111.15	7.25	7.35	0.10	103.98					
MW-27	9-Jan-09	111.15	7.29	7.39	0.10	103.84					
MW-27	27-Jan-09	111.15	7.59	7.72	0.13	103.53					
MW-27	30-Jan-09	111.15	7.66	7.68	0.02	103.49					
MW-27	26-Feb-09	111.15	7.28	7.36	0.08	103.85					
MW-27	9-Mar-09	111.15		6.5		104.65					
MW-27	13-Mar-09	111.15	6.82	6.825	0.005	104.33					
MW-27	1-Apr-09	111.15		6.71		104.44					
MW-27	19-May-09	111.15	7.37	7.39	0.02	103.78					
MW-28	21-Apr-05	112.55		8.10		104.45					
MW-28	22-Apr-05	112.55					<0.001	<0.001	<0.001	<0.003	
MW-28	5-Jan-09	112.55		7.60		104.75					
MW-28	6-Jan-09	112.55					<0.001	<0.001	<0.001	<0.003	
RW-1	6-Jan-09						0.764	<0.005	0.0052	<0.015	
RW-1	19-May-09			6.10							
RW-2	1-Apr-09			9.40							
RW-2	19-May-09			9.70							
RW-3	19-May-09			7.20							
RW-4	19-May-09			7.36							
RW-5	19-May-09		6.93	8.40	1.47						
RW-6	19-May-09			7.05							
MW-29	19-May-09		7.32	9.39	2.07						
MW-30	19-May-09		7.48	7.54	0.08						
MW-31	19-May-09			7.36							
MW-32	19-May-09			7.43							

Notes:

- 1) GGIER = groundwater component of the groundwater ingestion exposure route; COCs = constituents of concern
- 2) mg/L = milligrams per Liter; TOC = top-of-casing
- 3) <0.005 = concentration less than the laboratory reporting limit
- 4) Bold = a concentration above the Tier 1 groundwater remediation objective(s) established in 35 Illinois Administrative Code Part 742
- 5) All groundwater samples were analyzed for and methyl tertiary butyl ether (MTBE) and/or benzene, toluene, ethylbenzene, and total xylenes (BTEX) using United States Environmental Protection Agency Method 8020 or 8021B
- 6) Shading = not available, not applicable, or not present; Sheen = a sheen of free product was present on the groundwater; BDL = concentration below the laboratory detection limit; FP = free product present
- 7) Groundwater elevations are relative to a site specific datum of 100 feet

TABLE 7

Soil Analytical Results - BTEX and MTBE

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

Tier 1 Exposure Routes				GOCs and Tier 1 Soil Remediation Objectives				
				Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)
SCGIER - Class I Groundwater				0.03	12	13	150	0.32
SCGIER - Class II Groundwater				0.17	29	19	150	0.32
Inhalation - Residential				0.8	650	400	320	8,800
Inhalation - Construction Worker				2.2	42	58	5.6	140
Ingestion - Residential				12	16,000	7,800	16,000	780
Ingestion - Construction Worker				2,300	410,000	20,000	41,000	2,000
Soil Saturation Limit				870	650	400	320	8,800
Sample ID	Date Sampled	Sample Depth (feet bls)	PID Reading (ppm)					
SB-1	21-Nov-90	4-5	20	<0.005	0.083	<0.005	0.085	
SB-2/MW-2	21-Nov-90	4-5	20	<0.005	0.11	0.29	1.8	
SB-3	21-Nov-90	4-5	>100	<0.005	0.2	0.22	2	
SB-4/MW-4	21-Nov-90	7-8	50	0.042	0.11	<0.005	<0.01	
SB-5/MW-5	21-Nov-90	9-10	0	0.041	0.11	<0.005	<0.01	
SB-6/MW-6	21-Nov-90	7-8	50	2.9	58	27	150	
SB-7/MW-7	21-Nov-90	7-8	200	0.27	33	20	120	
B-1	14-Jun-94	4-5.5	1	<0.002	<0.002	<0.002	<0.005	
B-2	14-Jun-94	1-3	10	<0.002	<0.002	<0.002	0.0085	
B-3	14-Jun-94	5-7	60	<0.002	<0.002	<0.002	0.342	
B-4	14-Jun-94	5-7	50	<0.002	<0.002	<0.002	0.098	
B-5	14-Jun-94	2-4	13	<0.002	<0.002	<0.002	<0.005	
B-6	14-Jun-94	2-4	500	<0.002	<0.002	<0.002	<0.005	
B-7	14-Jun-94			0.029	0.0168	0.219	0.066	
HA-1	27-Aug-97	7.5-8	0	<0.002	<0.002	<0.002	<0.005	
HA-2	27-Aug-97	7.5-8	12	<0.002	0.147	0.0068	0.376	
HA-3	27-Aug-97	7.5-8	212	8.21	92.4	39.4	238	
HA-4	27-Aug-97	6.0-6.5	284	1.45	6.06	3.46	44.5	
SB-19/MW-17	31-Oct-97	10-12	0	<0.01	<0.01	<0.01	<0.03	
SB-19/MW-17	31-Oct-97	20-22	0	<0.01	<0.01	<0.01	<0.03	
SB-20/MW-18	31-Oct-97	12-14	0	<0.01	<0.01	<0.01	<0.03	
SB-20/MW-18	31-Oct-97	20-22	0	<0.01	<0.01	<0.01	<0.03	
CB-1	25-Oct-99	6-8	104	0.2	0.35	0.72	<0.03	
CB-2	25-Oct-99	8-10	294	26	240	89	38	
CB-3	25-Oct-99	6-8	510	4.7	190	95	49	
CB-4	25-Oct-99	8-10	90	<0.12	1.9	3.4	200/<60	
CB-5	25-Oct-99	8-10	21.9	<0.028	<0.056	<0.056	37	
CB-6	25-Oct-99	4-6	6.6	<0.029	<0.058	<0.058	0.72	
CB-7	25-Oct-99	24-26	2.6	0.58	<0.063	<0.063	<0.6	
CB-8	25-Oct-99	22-24	6.3	0.57	<0.06	<0.06	<0.179	
CB-9	25-Oct-99	26-28	7.6	1.6	<0.06	<0.06	<0.178	
CB-10	25-Oct-99	10-12	2.6	<0.14	<0.28	<0.28	<0.167	
CB-11	26-Jul-00	10-12	321	0.7	13	5.9	3.9	
CB-12	26-Jul-00	6-8	553	<0.049	4.8	5.5	540	
CB-13	26-Jul-00	8-10	307	<0.03	0.11	0.085	590	
CB-14	26-Jul-00	8-10	514	<0.052	0.76	3.4	22.7	
CB-15	26-Jul-00	8-10	18	<0.03	<0.060	<0.060	<0.166	
CB-16	26-Jul-00	6-8	2.7	<0.021	<0.200	<0.2	<0.178	
CB-17	26-Jul-00	2-4	3.0	<0.029	<0.059	<0.059	<0.193	
CB-18	26-Jul-00	6-8	3.6	<0.029	<0.058	<0.058	<0.18	
CB-19	26-Jul-00	0-2	3.3	<0.029	<0.057	<0.057	<0.18	
CB-20	26-Jul-00	6-8	3.2	<0.018	<0.17	<0.17	<0.84	
MW-19	17-Aug-01	22-24		<0.029	<0.057	<0.057	<0.51	
B-1a	17-Aug-01	4-6		<0.029	<0.058	<0.058	<0.167	
B-1b	17-Aug-01	16-18		<0.03	<0.06	<0.06	<0.178	
B-1c	17-Aug-01	22-24		<0.029	<0.058	<0.058	<0.18	
B-2a	16-Aug-01	8-10		<0.029	<0.057	<0.057	<0.178	
B-2b	16-Aug-01	16-18		<0.0079	<0.120	<0.12	<0.167	
B-2c	16-Aug-01	22-24		<0.029	<0.058	<0.058	<0.35	
B-3a	16-Aug-01	8-10		<0.03	<0.06	<0.06	<0.178	
B-3b	16-Aug-01	16-18		<0.03	<0.059	<0.059	<0.18	
B-3c	16-Aug-01	22-24		<0.03	<0.059	<0.059	<0.179	
B-4a	16-Aug-01	8-10		<0.029	<0.059	<0.059	<0.179	
B-4b	16-Aug-01	16-18		<0.029	<0.057	<0.057	<0.179	
B-4c	16-Aug-01	20-22		0.034	<0.066	<0.066	<0.167	

TABLE 7

Soil Analytical Results - BTEX and MTBE

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

Tier 1 Exposure Routes				COCs and Tier 1 Soil Remediation Objectives				
				Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)
SCGIER - Class I Groundwater				0.03	12	13	150	0.32
SCGIER - Class II Groundwater				0.17	29	19	150	0.32
Inhalation - Residential				0.8	650	400	320	8,800
Inhalation - Construction Worker				2.2	42	58	5.6	140
Ingestion - Residential				12	16,000	7,800	16,000	780
Ingestion - Construction Worker				2,300	410,000	20,000	41,000	2,000
Soil Saturation Limit				870	650	400	320	8,800
Sample ID	Date Sampled	Sample Depth (feet bls)	PID Reading (ppm)					
B-5a	16-Aug-01	8-10		<0.028	<0.057	<0.057	<0.196	
B-5b	16-Aug-01	10-12		0.55	<0.058	<0.058	<0.167	
B-5c	16-Aug-01	22-24		<0.029	<0.057	<0.057	<0.178	
B-6a	16-Aug-01	2-4		<0.029	<0.059	<0.059	<0.167	
B-6b	16-Aug-01	16-18		<0.03	<0.060	<0.060	<0.179	
B-6c	16-Aug-01	20-22		<0.03	<0.059	<0.059	<0.017	
RW-1	11-Apr-05	4	1.3	<0.024	<0.059	<0.059	<0.12	<0.059
MP-1	11-Apr-05	5-7	0.8	<0.025	<0.062	<0.062	<0.12	<0.062
MP-2	11-Apr-05	5-6	0.7	<0.024	<0.06	<0.06	<0.12	<0.06
MP-3	11-Apr-05	6-7	238	0.15	0.13	1.7	8.197	0.16
MP-4	11-Apr-05	5-6	24.5	<0.023	<0.059	<0.059	<0.12	<0.059
SB-21/MW-21	12-Apr-05	2-3	5.1	<0.027	<0.067	<0.067	<0.2	<0.067
SB-22/MW-22	12-Apr-05	3	1.7	<0.025	<0.063	<0.063	<0.19	<0.063
SB-24/MW-24	12-Apr-05	4-5	0.9	<0.024	<0.059	<0.059	<0.18	<0.059
SB-25/MW-25	12-Apr-05	4	0.6	<0.023	<0.058	<0.058	<0.17	<0.058
SB-26/MW-26	12-Apr-05	5-6	5.3	<0.003	<0.074	<0.074	<0.22	<0.074
SB-27/MW-27	12-Apr-05	3-4	7.6	<0.023	<0.058	<0.058	<0.17	<0.058
SB-28	12-Apr-05	5-7	0.6	<0.02	<0.05	<0.05	<0.15	<0.05
SB-29	12-Apr-05	7-8	1.2	<0.023	<0.058	<0.058	<0.17	<0.058
SB-23/MW-23	15-Apr-05	4-5	1.3	<0.023	<0.056	<0.056	<0.17	<0.056
SB-30/MW-28	15-Apr-05	4-5	0.9	<0.024	<0.059	<0.059	<0.18	<0.18
SB-31	1-Jun-06	7-8	0.0	<0.023	<0.057	<0.057	<0.11	<0.057
SB-41	2-Feb-09	4-5	901	0.289	0.619	0.0731	0.731	<0.056
SB-41	2-Feb-09	5-8	>9,999	1.4	29.3	13.3	70.1	<0.673
SB-42	2-Feb-09	2-3	0.0	<0.0236	<0.059	<0.059	<0.177	<0.059
SB-42	2-Feb-09	6-8	629	0.0616	0.378	0.101	0.722	<0.0537
SB-43	2-Feb-09	4-5	33.7	<0.0232	<0.058	<0.058	<0.174	<0.058
SB-43	2-Feb-09	6-8	70.8	0.192	0.0798	1.24	6	0.219
SB-44	2-Feb-09	2-4	38.1	<0.0229	<0.0572	<0.0572	<0.171	<0.0572
SB-44	2-Feb-09	6-8	9,914	104	1,000	294	1,530	30.1
SB-45	2-Feb-09	4-5	7.8	<0.0233	<0.0581	<0.0581	<0.174	<0.0581
SB-45	2-Feb-09	5-7	16.0	<0.0234	<0.0585	<0.0585	<0.176	<0.0585
SB-46	2-Feb-09	1.5-2	11.4	<0.0237	<0.0593	<0.0593	<0.178	<0.0593
SB-46	2-Feb-09	6-8	314	<0.023	<0.0576	0.245	0.461	0.116
SB-47	2-Feb-09	2-4	0.6	<0.0227	<0.0567	<0.0567	<0.17	<0.0567
SB-47	2-Feb-09	6-8	6.8	0.0362	<0.058	<0.058	<0.174	0.108
SB-48	2-Feb-09	2-4	0.0	<0.028	<0.0701	<0.0701	<0.21	<0.0701
SB-48	2-Feb-09	6-8	>9,999	0.112	0.94	0.557	3.51	<0.0577
SB-49	2-Feb-09	3-4	63.7	0.709	2.48	0.175	2.57	<0.0573
SB-49	2-Feb-09	4-8	7,109	12.7	143	46.8	246	2.92
SB-50	2-Feb-09	5-8	8.5	<0.0268	<0.0669	<0.0669	<0.201	<0.0669

Notes:

- 1) SCGIER = soil component of the groundwater ingestion exposure route; PID = photoionization detector; COCs = constituents of concern
- 2) mg/kg = milligrams per kilogram; ppm = parts per million; bls = below land surface
- 3) <0.065 = concentration less than the laboratory reporting limit
- 4) Bold = a concentration above the Tier 1 soil remediation objective(s) established in 35 Illinois Administrative Code Part 742
- 5) All soil samples were analyzed for methyl tertiary butyl ether (MTBE) and/or benzene, toluene, ethylbenzene, and total xylenes (BTEX) using United States Environmental Protection Agency Method 8020 or 8021
- 6) Shading = not applicable or the soil sample location has been resampled

TABLE 8

Dual Phase Extraction Pilot Test Results

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

Time hours	Elapsed Time minutes	Test Well Vacuum		Air Flow acfm	PID ppm	Time Sample Collected Hours	Total Liquids Recovered gallons	Distance from extraction well RW-1 (feet)						Comments
		ft in. Hg	psi					6	12	12	24	24	63	
Test Well: RW-1		Initial DTP (feet): NA		Initial DTW (feet): 4.64		Stack Diameter (inches): 2		Distance from extraction well RW-1 (feet)						
Test Date: May 12, 2005		Final DTP (feet): NA		Final DTW (feet): NA		Liquids Recovered (gallons): 255		6	12	12	24	24	63	
9:06							Initial DTP (feet):							
9:10	04	18.32	9.00				Initial DTW (feet):	5.13	8.15	5.36	5.93	5.93	7.64	
9:15	09	14.76	7.25	16.36	6.5		Initial Pressure:	0	+0.05	+0.05	0	0	0	
9:30	24	13.23	6.50	16.91	5.0			0.05	1.4	2.5	0.025	0.05	0	Started pilot test.
9:50	44	12.22	6.00	18.54	4.9			0.025	0.575	2.75	0.025	0.05	0.05	
10:15	69	11.20	5.50	17.45	5.2			0.025	0.25	3.00	0.025	0.025	0.025	
10:35	89	10.69	5.25	18.54	4.1			0.025	0.15	2.50	0.025	0.05	0.05	
10:50	104	11.71	5.75	17.45	4.6			0.05	0.125	2.50	0.05	0.05	0.025	
11:00	114	11.71	5.75	18.54	3.7			0.05	0.50	2.25	0.05	0.05	0.025	
11:30	144	11.71	5.75	17.45	5.1			0.05	0.35	2.25	0.05	0.025	0.025	
12:15	189	11.20	5.50	17.45	3.1	12:15		0.05	0.175	2.25	0.05	0.05	0.025	
		Final DTP (feet):		Final DTW (feet):		255		5.9	8.88	5.76	6.41	6.24	7.73	
		Final DTP (feet):		Final DTW (feet):		255		5.9	8.88	5.76	6.41	6.24	7.73	

Notes:

- 1) ppm = parts per million
- 2) acfm = actual cubic feet per minute
- 3) in. Hg = inches of mercury
- 4) psi = pounds per square inch
- 5) DTW = depth to water; DTP = depth to product
- 6) Assume all readings on the observation wells are in H₂O vacuum, unless noted with a plus sign (+), which indicates pressure
- 7) NP, NA, or shading = not present or not applicable
- 8) PID = photoionization detector
- 9) Test Well Vacuum (psi) measurements collected from the influent air stream using a flow meter provided by TriCore

TABLE 9

Pounds of Total BTEX and MTBE Extracted by the Pilot Test

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

Operation Time	Operation Time (minutes)	Air Flow (acfm)	PID (ppm)	Groundwater Extracted (gallons)	Influent Total BTEX and MTBE (µg/L)	Mass of BTEX and MTBE Removed			Cumulative BTEX and MTBE Removed (pounds)	Cumulative VOCs Removed (pounds)
						Liquid (pounds)	Dissolved (pounds)	Vapor (pounds)		
9:06										
9:10	4					0	0.0000	0.00000	0.00000	0.0000
9:15	9	16.36	6.5			0	0.0000	0.00005	0.00005	0.0001
9:30	24	16.91	5.0			0	0.0000	0.00014	0.00020	0.0004
9:50	44	18.54	4.9			0	0.0000	0.00029	0.00049	0.0008
10:15	69	17.45	5.2			0	0.0000	0.00043	0.00092	0.0011
10:35	89	18.54	4.1			0	0.0000	0.00059	0.00151	0.0016
10:50	104	17.45	4.6			0	0.0000	0.00065	0.00216	0.0017
11:00	114	18.54	3.7			0	0.0000	0.00075	0.00291	0.0020
11:30	144	17.45	5.1			0	0.0000	0.00090	0.00381	0.0024
12:15	189	17.45	3.1	255	597.7	0	0.0013	0.00118	0.00245	0.0031

Notes:

- 1) cfm = cubic feet per minute
- 2) ppm = parts per million
- 3) µg/L = micrograms per Liter
- 4) Influent Total benzene, toluene, ethylbenzene, and total xylenes (BTEX) and methyl tertiary butyl ether (MTBE) data taken from analytical laboratory results from the groundwater samples collected from RW-1 on April 21, 2005
- 5) PID = photoionization detector
- 6) shading = not applicable
- 7) VOCs = volatile organic compounds

Equations:

dissolved BTEX and MTBE removed (lbs) = gw extracted (gal) * sum of the influent total BTEX and MTBE (µg/L) * (3.78 L/1 gal) * (1 lb/4.53e8 µg)
 vapor BTEX and MTBE removed (lbs) = sum of the vapor removed for each individual compound (lbs)
 vapor individual compound removed (lbs) = air bag concentration (ppmv)/10⁶ (ppmv) * molecular weight of compound (lb/lb-mole) * air flow (cfm) * operation time (min)
 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 (min)

Conversions:

1 gallon =	3.785412	liters
1 pound =	453,600,000	µg
1 pound =	453,600	mg
1 feet ³ =	0.028316847	meter ³
1 lb-mole =	379.5	scf

Molecular Weights:	
Benzene =	78.11
Toluene =	92.14
Ethylbenzene =	106.16
Total Xylenes =	106.16
MTBE =	88.15
TPH =	86.18

TABLE 10

Air Bag Analytical Results

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

Sample ID	Date Sampled	Time Sampled	Benzene (ppmv)	Toluene (ppmv)	Ethylbenzene (ppmv)	Total Xylenes (ppmv)	MTBE (ppmv)	TPH (ppmv)	Methane (ppmv)
RW-1 - Stack	12-May-05	12:15 PM	0.96	<0.1	<0.1	<0.3	<0.1	4.20	125.00

Notes:

- 1) The air sample was analyzed for benzene, toluene, ethylbenzene, total xylenes, methyl tert-butyl ether (MTBE), and total petroleum hydrocarbons (TPH) using United States Environmental Protection Agency (USEPA) Method TO-14 Source
- 2) The air was analyzed for methane using USEPA Method TO-3 Air
- 3) ppmv = parts per million by volume