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December 16, 2015

Kelly Gelske
TravelCenters of America
24601 Center Ridge Road, Suite 200
Westlake, Ohio 44145-5634

RE: Free Product Remedial Action Plan
Former TravelCenters of America Facility (Jay Brothers Station)
74975 Road 444
Overton, Nebraska
Program ID: LST 030494-GY-0000 & LST 07186-BH-1300
NDEQ ID: 8531
GSI Project No. 2405837

Dear Ms. Gelske:

In a letter dated April 8, 2015, the Nebraska Department of Environmental Quality (NDEQ) requested a Remedial Action Plan (RAP) to address the free product at the site.

Enclosed is a copy of the RAP. This RAP proposes to divide the site into two operable units based on the location and type of free product present. Monitor wells MW-9 and MW-17 are located around the gasoline dispensers and laboratory analysis indicated the product to be similar to gasoline. MW-2 and MW-11R are located southeast of the diesel dispensers and laboratory analysis indicated the product to be similar to diesel. The soil impacts around MW-2 and MW-11R was excavated and backfilled with fill sand.

GSI proposes soil vapor extraction (SVE) and air sparging to remove the gasoline range free phase product around MW-9 and MW-17. We propose using dual phase extractions for the diesel fuel range free product around MW-2 and MW-11.

If available, GSI will use surplus remediation system or components from the NDEQ "LUST Remedial Equipment Inventory", if available. If equipment is not available, a new system will be designed for the site.

COST ESTIMATES

The tables below provide a cost estimate for each system installation, startup, free product removal, project management, and report writing. A general breakdown of costs by phase of the work is shown on Table 1 for the North System and Table 2 for the South System. Costs for long-term operations and maintenance, and groundwater monitoring are not included in the tables.

Table 1– Cost Estimate for North System

Phase of Work	Time to Complete	Cost
Meetings/Utility Locate/Layout	1 Week	4,000
Permit Fees	8 Weeks	0
Well Installation	2 weeks	44,000
SVE & Air Sparge Piping Installation	4 weeks	141,000
Electricity to Trailer (based on previous system install)	1 week	26,500
New System (based on NDEQ Surplus Equipment)	15 weeks	110,000
Installation of SVE & Sparge Units & Insulation and Building for Exposure Piping	1 week	18,000
Startup	3 weeks	8,000
Project Management & Reports		15,000
Total		**$366,500**

Table 2 – Cost Estimate for South System

Phase of Work	Time to Complete	Cost
Meetings/Utility Locate/Layout	1 week	4,000
Permit Fees	8 weeks	0
Well Installation	1 week	29,000
SVE & Air Sparge Piping Installation	3 weeks	86,000
Electricity to Trailer (base on previous system install)		26,500
New System	15 weeks	115,000
System Installation and Insulation and Building for Exposed Piping	1 week	18,000
Startup	3 weeks	8,000
Project Management & Reports		15,000
Total		**$288,500**

Please note that this site is eligible for the Title 200 reimbursement program and all of the above costs may be eligible for reimbursement. GSI requests that the NDEQ allow partial billing of this activity on a periodic basis. An update letter and invoice will be submitted at the completion of each phase of work or at 60-day intervals. The General Conditions are considered part of this proposal/contract.

GSI will begin work on the project upon receipt of approval from the NDEQ and TravelCenters of America. In order to be eligible for reimbursement under the Title 200 program, all scope of work and estimate of costs must first be approved by the NDEQ. Two copies of this cover letter and one copy of the RAP are included. Please sign and date the cover letter, keep one for your records and return one copy of just the cover letter to GSI. A copy of the RAP has been forwarded to John Fogerty with NDEQ.

Thank you for the opportunity to assist TravelCenters of America with its environmental needs. Should you have any questions or require additional information, please contact Carrie Thomas at 308.381.1987 or cthomas@gsinetwork.com.

Respectfully,
GSI Engineering Northern Division, LLC

Prepared by,

Carrie A. Thomas
Environmental Scientist

Reviewed by,

Rick Bean, P.G.
Senior Geologist

Enclosure: RAP

Copy: John Fogerty
NDEQ

Accepted by:_____
(signature)

Print name:_____

Date:_____

GSI

REMEDIAL ACTION PLAN

FORMER TRAVELCENTERS OF AMERICA
(JAY BROTHERS STATION)
74975 ROAD 444
OVERTON, NEBRASKA

NDEQ UG #07186-BHI-1300 &
#030494-GY-0000
NDEQ ID NO.: 8531

GSI PROJECT NO. 2405837

DECEMBER 16, 2015

PREPARED BY:

GSI ENGINEERING NORTHERN
DIVISION, LLC
2960 NORTH DIERS AVENUE
GRAND ISLAND, NEBRASKA
68803

PREPARED FOR:

TRAVELCENTERS OF AMERICA
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GSI

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Remedial Action Plan

Former TravelCenters of America
74975 Road 444 (I-80, Exit 248)
Overton, Nebraska

NDEQ UG# 07186-BHI-1300 and UG# 030494-GY-0000
NDEQ IIS #8531

GSI Project No. 2405837

December 16, 2015

INTRODUCTION

GSI Engineering Northern Division, LLC (GSI) is pleased to present the revised Remedial Action Plan (RAP) for the Former TravelCenters of America facility site near Overton, Nebraska.

In a letter dated April 8, 2015, the Nebraska Department of Environmental Quality (NDEQ) requested a Remedial Action Plan (RAP) to address the free product at the site. A proposal was submitted to the NDEQ on May 22, 2015 to obtain additional data to develop the RAP.

Free product has been encountered in several groundwater monitor wells (MW-2, MW-9, MW-17, and MW-11R) at the site. This RAP proposes to divide the site into two operable units based on the location and type of free product present. Monitor wells MW-9 and MW-17 are located around the gasoline dispensers and laboratory analysis indicated the product to be similar to gasoline. MW-2 and MW-11R are located southeast of the diesel dispensers and laboratory analysis indicated the product to be similar to diesel.

A remedial excavation was conducted in 2012 in the area of the diesel fuel dispensers (around MW-2 and MW-11R). The excavated area was backfilled with fill sand.

GSI proposes soil vapor extraction (SVE) and air sparging to remove the gasoline range free phase product around MW-9 and MW-17. We propose using dual phase extractions for the diesel fuel range free product around MW-2 and MW-11.

1.0 BACKGROUND

The Former TravelCenters of America project dates back to 1980. Since that time, there have been numerous investigations and response actions taken. The following provides a general timeline of events at the site:

- 1980 -1998 – Petroleum hydrocarbon on-site releases were documented in 1980 and 1984. In 1980, a diesel dispenser line ruptured, releasing approximately 8,000 gallons of fuel. In 1984, a tanker hose accidentally disconnected during delivery of gasoline product. Seven monitor wells were installed as part of an initial site investigation. Groundwater monitoring conducted in 1984 confirmed the presence of petroleum hydrocarbon impacted groundwater. A report was submitted to the NDEQ in 1986.

- 1993-1994 - GSI conducted further assessment work in 1993 (report dated May 26, 1993), which included the installation of additional monitor wells. In 1994, a Remedial Action Plan (RAP) was prepared for the site to address soil and groundwater

contamination (report dated February 28, 1994). Proposed remedial actions included over-excavation of impacted soil in the areas of the then existing USTs, dual phase groundwater/product removal, and soil vapor extraction/air sparging. As part of the remedial action, Burns Brothers (then owner of the facility) agreed to remove the existing USTs and install a new system west of the impacted area. The RAP was approved by the NDEQ. However, before remedial construction began, the NDEQ reimbursement fund became insolvent and work was suspended.

Since Burns Brothers had committed to the new UST system, the NDEQ did approve a limited over-excavation of impacted soil during removal of the old UST system. Approximately 1,600 cubic yards of material were excavated and land farmed on-site.

- 1999 - 2010 – Groundwater and free product monitoring was conducted during this timeframe.

- 2008 - GSI prepared a RAP with two options for remedial excavation. Option 1 included excavation on the south and west sides of the diesel fuel islands. Option 2 included the work proposed in Option 1, plus additional excavation west and north of the diesel islands.

- 2009 - GSI negotiated and prepared an access agreement with the current owner, Surinder Singh/Five Foods, Inc., on behalf of TravelCenters of America, the responsible party. The agreement was to allow a remedial excavation. The work was not conducted in 2009 due to a high groundwater table.

- 2010 - A second access agreement was negotiated and signed by the current owner. This agreement was for a two year period beginning in August 2010 and ending in August 2012.

- 2010 - A revised RAP was approved by the NDEQ which included Option 1 excavation work.

- 2012 – GSI conducted the excavation. The excavation area was located west and south of the diesel dispensers and approximately 13 feet below grade. Approximately 2,017 tons of material were removed and hauled to the Lexington Landfill. The area was backfilled with sand and then a layer of crushed concrete. Concrete and gravel were used to replace the surface.

- 2012-2015 – Groundwater sampling was conducted at the site during this timeframe

2.0 CURRENT CONDITIONS

The site is now referred to as Jay Brothers Station. A Site Map showing the estimated free product plume along with the general on-site utility locations, buildings, pumps, USTs, surrounding structures, and streets is in Appendix A. Free product has been encountered consistently in two monitor wells (MW-2 and MW-11R) around the diesel pumps. Free product has been intermittent in two monitor wells (MW-9 and MW-17) west and southeast of the gasoline pumps.

The general lithology at the site, based on logs from previous reports is:

0.5-3 feet	silt
3-5 feet	clayey silt
5-7 feet	lean clay to clayey silt

7-9 feet	silty sand
9+ feet	coarse sand and gravel

Within the excavation area there is 0.5 to 1 foot of concrete screenings at the surface and fill sand between 1 to 10 feet below grade.

Currently, groundwater is approximately 9 feet below ground surface at the site.

3.0 FIELD ACTIVITIES

Field activities consisted of installing monitor wells to define the dissolved contamination plume. In addition, two sets of Air Sparge (AS) and Soil Vapor Extraction (SVE) pilot tests were conducted, one in the northern section and one in the southern section within the excavation area.

3.1 Monitor Well Installation

Six monitor wells (MW-20 through MW-25) were installed at the site on August 11 through August 15, 2015. GSI attempted to drill a seventh well but encountered auger refusal.

GSI installed an additional four monitor wells (MW-26 through MW-28) on November 23 through November 24, 2015. This drilling included the monitoring well that was not installed in August.

A utilities check was requested by GSI prior to commencing drilling operations. All monitor wells were drilled/installed using a truck-mounted, CME-45 drilling rig. Borings were advanced using 4.25-inch, inside diameter, hollow stem augers.

Soil samples were collected continuously at two-foot intervals to the depth of 8 feet. Soil samples were collected by a split-spoon sampler. The split-spoon sampler was set inside of the augers and collected the sample ahead of the lead auger. The split-spoon was retrieved every two feet and soil samples were collected and logged. A new acetate liner was placed in the split-spoon sampler each time. The split-spoon sampler was decontaminated between sampling events with Alconox/tap water and a water rinse.

Soil samples were split into two sections; one section was placed in an air tight container and cooled to approximately 4 degrees Celsius for storage purposes. The other portion of the sample was placed into head-space jars, covered with aluminum foil, warmed to approximately 15 degrees Celsius for a minimum of 30 minutes, and analyzed with a MiniRae PID calibrated to isobutylene. Results of the head-space analyses are given in relative response units on the boring logs.

Boring logs were prepared by the field professional and a field classification of the samples was made using the Unified Soil Classification System. Groundwater level readings were estimated during drilling and measured after completion of the monitor wells.

The monitor wells were installed after the appropriate soil samples were collected through the augers. The monitor wells were constructed of 2-inch diameter, schedule 40 PVC with a 10-foot section of 0.010-inch, machine slotted screen. In the well annulus, 16/30 silica sand was one to two feet above the screened interval, and then a two-foot bentonite plug with 3/8-inch bentonite chips was installed. A flush mount well protector was then placed in a concrete plug and the wells were locked to prevent tampering. Soil Boring Log & Monitoring Well Construction Diagrams are included in Appendix B.

3.2 Groundwater Sampling

On August 28, 2015, GSI technicians visited the site. Seventeen monitor wells (MW-2, MW-3aR, MW-5, MW-9, MW-11R, MW-12, MW-13, MW-14, MW-17, MW-19 through MW-25, and an unknown well) were opened and allowed to adjust to atmospheric conditions prior to taking measurements. A pin locator was used to search for several wells.

On November 25, 2015, GSI technicians visited the site. Four wells (MW-26 through MW-29) were opened and allowed to adjust to atmospheric conditions prior to taking measurements.

Depths to groundwater were measured to the nearest 0.01 foot using an electronic oil/water interface probe. Measurements were collected from the north side of the well casing. The probe was decontaminated between each measurement using an Alconox wash and clean water rinse. Free product was detected in MW-2 and MW-11R. New single-use bailers were used to confirm the presence of free product. The average depth to groundwater was 9.14 feet below top of casing. The inferred groundwater flow direction is variable and is to the southeast in the northern part of the site and to the northeast in the southern part of the site. A Cumulative Groundwater/Free Product Measurements Table is included in Appendix C. The Free Product Map and Groundwater Contour Map are included in Appendix A.

Monitor wells MW-3aR, MW-5, MW-9, MW-12, MW-13, MW-14, MW-17, MW-19 through MW-25, and the unknown well were sampled on August 28, 2015. Monitor wells MW-26 through MW-29 were sampled on November 25, 2015. MW-29 was incorrectly labeled as MW-25 for the sampling event.

Prior to sampling, each well was purged of three well volumes of groundwater using a new single-use bailer. The groundwater samples from each well were placed into two 40-milliliter vials fitted with a Teflon septum and one-liter amber bottle. Samples were cooled to four degrees Celsius and shipped to Platte Valley Laboratories, Inc. in Gibbon, Nebraska, accompanied by a chain of custody record. The groundwater samples were analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX), methyl-t-butyl ether (MTBE), n-Hexane, and naphthalene via EPA Method 8260 and Iowa Method OA-2 for Total Extractable Hydrocarbons (TEH). The groundwater sampled from MW-9 was analyzed for 8260 Full Scan.

Quality assurance/quality control measures were implemented according to NDEQ protocol. On August 28, 2015, GSI collected three duplicate samples from MW-5, the unknown well, and MW-12 and labeled these samples as Dup-1, Dup-2, and Dup-3, respectively. A field blank was exposed to atmospheric conditions for approximately one minute during sampling activities at MW-24.

On November 25, 2015, GSI collected one duplicate sample from MW-26 and labeled the sample Dup-1. A field blank was exposed to atmospheric conditions for approximately one minute during sampling activities at MW-27.
For each sampling event, a trip blank was prepared by Platte Valley Laboratories, Inc. in Gibbon, Nebraska and accompanied the samples throughout field activities and transportation to the laboratory. The duplicate samples, field blank, and trip blank were analyzed for BTEX, MTBE, n-Hexane, and naphthalene by EPA Method 8260.

No problems or unusual conditions were encountered during field activities. Groundwater samples were above the risk-based screening levels (RBSLs) for benzene, toluene, ethylbenzene, naphthalene, and TEH as diesel. The Isoconcentration Maps are in Appendix A. The Cumulative Groundwater Analytical Data Table is in Appendix C. The Laboratory Analytical Report is in Appendix D.

3.3 SVE & AS Pilot Test

GSI conducted two SVE and two AS pilot tests. One SVE and AS test was located in the vicinity of MW-9 in native material and one SVE and AS test near MW-11R in the excavation area. Below is a description of the SVE and AS testing.

On October 27 and 28, 2015, GSI traveled to the site and installed five temporary SVE and two temporary AS points using 4.25-inch, inside diameter, hollow stem augers. The SVE points were installed to a depth of 13 feet below grade with an eight foot screened section from 5 to 13 feet below surface. The AS points were installed to 20 feet below grade with one foot of screen from 19 to 20 feet below grade.

An initial SVE pilot test was conducted and showed very little influence in the observation wells. GSI redrilled the extractions points and installed the screen from 3 feet to 11 feet below grade. GSI allowed the extraction points to sit 24 hours before continuing the SVE pilot test.

Both SVE and AS points were constructed of 2-inch diameter, schedule 40 PVC with 0.010-inch, machine slotted screen. In the well annulus, 16/30 silica sand was added one to two feet above the screened interval, and then a two-foot bentonite plug was installed.

Boring logs (included in Appendix B) were prepared from the samples using the Unified Soil Classification System. Groundwater level readings were estimated during drilling and measured after completion of the monitor wells.

3.4 Northern Pilot Test

This pilot test was conducted north of MW-9 in native material outside the excavation area. The pilot test was conducted to help determine the radius of influence in the area around MW-9 and MW-17. The data from the pilot tests are presented in Appendix E.

3.4.1 SVE

On October 29, 2015, GSI conducted a SVE pilot test using a positive displacement vacuum unit. The blower was rated at approximately 80 inches of vacuum under low flow (10-15 cfm) and approximately 100 cfm airflow under low vacuum (10-30 inches).

GSI attached the vacuum unit to the SVE point designated as SVE-5. Vacuum gages were placed on top of the following monitor wells to use as observation points:

- MW-22 ~ 10 feet from SVE pilot point
- SVE-4 ~ 20 feet from SVE pilot point
- MW-9 ~ 40 feet from SVE pilot point

Vacuum pressure was adjusted using a dilution air valve. The test started under low vacuum (10 inches of water vacuum) and the vacuum was gradually increased. At a vacuum of 70 inches of water, groundwater entered the well and the hose to the vacuum unit. When moisture entered the vacuum hose, the SVE pilot test was terminated. During the SVE test, 48 inches of water vacuum applied to the SVE point yielded a radius of influence of approximately 10 feet and a flow of approximately 68 cubic feet per minute (cfm).

3.4.2 AS

On October 29, GSI conducted an AS pilot test using a rotary screw compressor connected to the AS-2 injection point. The compressor was rated at approximately 25 cfm at 5 to 10 pounds per square inch (psi). The following wells were used as observation points.

- SVE-4 ~ 5 feet from AS pilot point
- SVE-5 ~ 15 feet from AS pilot point

During the test, flow and pressure were regulated with a pressure relief valve and readings were recorded. GSI applied 55 inches of water (~2 PSI) and did not yield any reading in the observation points.

3.5 Southern Pilot Test

This pilot test was conducted southeast of MW-11R in the excavation area. The pilot test was conducted to help determine the radius of influence in the area around MW-11R and MW-2. The data from the pilot tests are presented in Appendix E.

3.5.1 SVE

GSI conducted a SVE pilot test using a positive displacement vacuum unit. The blower was rated at approximately 80 inches of vacuum under low flow (10-15 cfm) and approximately 100 cfm airflow under low vacuum (10-30 inches).

GSI attached the vacuum unit to the SVE point designated as SVE-1. Vacuum gages were placed on top of the following monitor wells to use as observation points:

- MW-11R ~ 10 feet from SVE pilot point
- SVE-2 ~ 20 feet from SVE pilot point
- SVE-3 ~ 40 feet from SVE pilot point

Vacuum pressure was adjusted using a dilution air valve. The test started under low vacuum (10 inches of water vacuum) and the vacuum was gradually increased (45 inches of water) until groundwater entered the well and the hose to the vacuum unit. When moisture entered the vacuum hose, the SVE pilot test was terminated. During the SVE test, 45 inches of water vacuum applied to the SVE point and did not yield readings in the observation wells, and water entered the line.

3.5.2 AS

On July 16, 2015, GSI conducted an AS pilot test using a rotary screw compressor connected to the AS-1 injection point. The compressor was rated at approximately 25 cfm at 5 to 10 pounds per square inch (psi). The following wells were used as observation points.

- MW-13 ~ 15 feet from AS pilot point
- MW-12 ~ 25 feet from AS pilot point
- MW-7 ~ 35 feet from AS pilot point
- MW-8 ~ 50 feet from AS pilot point

During the test, flow and pressure were regulated with a pressure relief valve and readings were recorded. During the test, flow and pressure were regulated with a pressure relief valve and readings were recorded. GSI applied 55 inches (2 psi) of water and did not yield any reading in the observation points.

4.0 PROPOSED REMEDIATION

Monitor wells MW-9 and MW-17 are located around the gasoline dispensers and laboratory analysis indicated the product to be similar to gasoline. GSI used the data from the pilot test and the information about the free phase contamination, to determine the type of system and the

spacing of the wells. GSI proposes a SVE system and AS system (after free phase contamination has been removed). The pilot test indicated that each extraction point would have a radius of influence of 10 feet with a vacuum of 54 inches of water.

MW-2 and MW-11R are located southeast of the diesel dispensers and laboratory analysis indicated the product to be similar to diesel. The impacted soil around MW-2 and MW-11R was excavated and backfilled with fill sand. Since the pilot test was inconclusive, GSI relied upon the results of the pilot around MW-9 to help determine the type of system and the spacing of the wells. GSI proposes a dual phase extraction system. GSI estimates the radius of influence of 10 feet with a vacuum of 40 inches of water.

The proposed remedial system and design was reviewed by Mr. Fred Jones, an engineer licensed to practice in the State of Nebraska.

4.1 Northern Area

GSI proposes a SVE system and AS system (after free phase contamination has been removed). The extraction wells will be placed on 17 feet centers and in three rows (one row of eight points, one row of seven points, and one row of 10 points). The air sparge points will be placed within the extraction points in two rows (one row of four and one row of six). This layout should provide coverage from MW-9, west-southwest of the gasoline dispensers, going northeast to the east side of the gasoline dispensers (MW-17). Please refer to the North Proposed Remediation Layout in Appendix A.

4.1.1 Well Installation

4.1.1.1 Soil Vapor Extraction Wells

The 25 extraction wells will be installed with a truck-mounted drill, using 4.25-inch, inside diameter, hollow-stem augers. The extraction wells will be constructed of 2-inch diameter, schedule 40 PVC, with 8 feet of 0.010-inch, machine-slotted screen. Total depth of wells is expected to be 12 feet.

Appropriate filter pack will be placed in the well annulus to a level approximately two feet above the screened interval. A two-foot bentonite plug will be placed above the filter pack and the remainder of the well will be pressure grouted to approximately one foot below surface. A protective well cover (flush mount) will be placed in a concrete pad to protect the well head. The well schematic is presented in Appendix F.

4.1.1.2 Air Sparge Wells

Nine air sparge wells will be installed using 4.25-inch inside diameter, hollow stem augers and will be constructed of two-inch diameter, schedule 40 PVC casing and screen. A one foot section of 0.010-inch machine slotted screen will be placed from 18 to 19 feet below surface. Gravel pack (16-30 silica sand) will be placed to approximately one foot above the screened interval and a three foot thick bentonite pellet seal placed above the gravel pack. The remainder of the well annulus will be filled with bentonite grout to approximately four feet below surface. Each well will be finished with a j-plug in the casing and an eight-inch diameter flush mount well cover. A Well Schematic is presented in Appendix F.

4.1.2 Piping Installations

4.1.2.1 Soil Vapor Extraction Wells

Extraction points will have a gate valve and be piped to the equipment trailer using 2-inch diameter, schedule 40 PVC piping. The extraction points will to be grouped together before reaching the trailer. The 25 extraction points will be grouped into seven groups of three wells and one group of four wells for a total of eight pipes daylighting at the trailer.

Piping will be installed approximately 3.5 feet below surface. The trenches will be backfilled with sand and native soil, and compacted to 95 percent of the maximum dry density as determined by ASTM D698 (standard Proctor). The concrete surface will be replaced with eight inches of Nebraska Department of Roads 47B concrete. Construction Details – Soil Vapor Extraction are presented in Appendix F.

4.1.2.2 Air Sparge Wells

The nine air sparge wells will be individually piped to the equipment trailer using 2-inch diameter, schedule 40 PVC piping.

Piping will be installed approximately 3.5 feet below surface. The trenches will be backfilled with sand and native soil, and compacted to 95 percent of the maximum dry density as determined by ASTM D698 (standard Proctor). The concrete surface will be replaced with eight inches of Nebraska Department of Roads 47B concrete. Construction Details – Soil Vapor Extraction are presented in Appendix F.

4.1.3 System Installation

The SVE system will consist of a Subtor rotary lobe blower at 100 cfm and 50 to 60 inches of vacuum. The blower will have 240 volt, three phase explosion proof motors, equipped with a variable frequency drive. The SVE unit will include a moisture separator, particulate filter, outlet silencer, dilution air valve, temperature, and vacuum gages. The blower will be attached to a six-inch manifold with seven four-inch lines. Each line will have a vacuum gage, gate valve, and sample port. Flow will be measured with an anemometer.

The AS system will consist of one rotary claw compressor rated at approximately 125 cfm at 10 psi static pressure. A compressor inlet will be fitted with a particulate filter and dilution valve. The blower will have a 240 volt, three phase explosion proof motor. *A four inch manifold with nine two inch lines.*

The remediation system enclosure would be positioned southwest of MW-9 along the fence. The equipment will be enclosed in an insulated trailer or metal enclosure with a heater, power ventilation fan, and lights. All wiring, equipment, and electrical fixtures inside the trailer will be rated Class 1 Division 2 explosion proof. The control panel and main breaker will be mounted outside the trailer in a weather proof enclosure. The electrical service will be 230 volt three phase, with an estimated 200 amp capacity. Amperage may vary depending on equipment selected.

GSI will add insulation and a temporary building will be built around any external inlet pipes to protect the infrastructure from winter weather and prevent the pipes from freezing.

GSI will arrange for an electrician to connect power to the trailer once it has been delivered to the site. An electrical pole may also need to be installed at the site to support the exhaust stack for the SVE portion of the system.

An Underground Injection Control permit will be obtained from the NDEQ authorizing the installation operation of the AS system.

4.2 Southern Area

The DPE system will consist of 20 extraction points placed on 15 feet centers and in two rows of eight points each and one row of six points. This layout should provide coverage from the west side of the diesel dispensers going southeast to the south side of the diesel dispensers within the excavation area. Please refer to the South Proposed Remediation Layout in Appendix A.

4.2.1 Well Installation

The extraction wells will be installed with a truck-mounted drill, using 6.25-inch, inside diameter, hollow-stem augers. The extraction wells will be constructed of 4-inch diameter, schedule 40 PVC, with 8 feet of 0.010-inch, machine-slotted screen. The total depth of the wells is expected to be 12 feet below ground surface. Since the area has been excavated and was backfilled with sand, the holes will not be logged by a professional during drilling operations.

Appropriate filter pack will be placed in the well annulus to a level approximately two feet above the screened interval. A two-foot bentonite plug will be placed above the filter pack and the remainder of the well will be pressure grouted to approximately one foot below surface. A protective well cover (flush mount) will be placed in a concrete pad to protect the well head. The well schematic is presented in Appendix F.

A 1-inch diameter, schedule 40 PVC stinger will be placed inside each 4-inch well to aide in liquid extraction. The top portion of the 1-inch stinger will be constructed of flexible piping so that the level of the stinger inside the well may be adjusted in response to groundwater level fluctuations. Each extraction point will be fitted with a vacuum gauge and a ball valve to control the vacuum applied to each extraction point.

4.2.2 Piping Installations

Extraction points will be piped to the equipment trailer using 2-inch diameter, schedule 40 PVC piping. Since there are only three inlets at the trailer, the extraction points will need to be grouped together before reaching the trailer. The 20 extraction points will be grouped into two groups of four points, four groups of three points, and one group of two points for a total of seven pipes daylighting at the trailer.

Piping will be installed approximately 3.5 feet below surface. The trenches will be backfilled with sand and native soil, and compacted to 95 percent of the maximum dry density as determined by ASTM D698 (standard Proctor). The concrete surface will be replaced with eight inches of Nebraska Department of Roads 47B concrete. Drawings are presented in Appendix F.

4.2.3 System Installation

The system will need to be rated at 100 cfm at 60 inches of water vacuum and operate by vacuuming soil vapor and free product/groundwater into the trailer/container via seven exposed pipes. The vapor is separated from the liquid by a knock-out tank. The vapor is extracted from the knock-out tank and discharged from the trailer, much like a typical SVE system. The liquid is pumped to an oil/water separator where the free product is skimmed from the groundwater and discharged from the trailer into a free product holding tank. The groundwater is then pumped to an air stripper tower housed inside the trailer and then discharged from the trailer after treatment. Upon approval of the current property owner, the trailer will be staged southeast of the diesel dispensers along the fence.

GSI will add insulation and a temporary building will be built around any external inlet pipes to protect the infrastructure from winter weather and prevent the pipes from freezing.

GSI will arrange for an electrician to connect power to the trailer once it has been delivered to the site. An electrical pole may also need to be installed at the site to support the exhaust stack for the SVE portion of the system.

A container for product will be placed within secondary containment and secured by a fence.

A National Pollutant Discharge Elimination System (NPDES) general permit will be obtained to authorize the discharge of treated groundwater before the system becomes operational. GSI has not identified where the effluent treated water will be discharged to, but will follow all applicable laws and regulations once a determination has been made.

5.0 STARTUP

Once the system is completely installed, GSI will schedule a startup of the system and notify the NDEQ. Upon operation of the system, GSI proposes to visit the site daily for the first week to observe and collect system operational data, then GSI will visit the site every two weeks or monthly based on the performance of the system. GSI will conduct the following minimum operations, maintenance, and monitoring (OM&M) tasks.

- Check/change blower oil
- Lubricate blower
- Check/adjust/change drive belt
- Check/rotate/change intake filter
- Drain water from knockout tank
- Obtain flow rate using a Velocicalc portable flow meter
- Obtain a vapor contaminant reading with a PID
- Check level probes in SVE moisture/vapor separator

Air samples will be collected from the exhaust of the SVE system at the following intervals: 12 hours, one week, two weeks, and once a month for six months after startup.

The samples will be sent to Keystone Laboratories in Newton, Iowa, for BTEX/MTBE/TPH analyses. The laboratory results will be used to estimate hydrocarbon removal rates and to monitor compliance with applicable emission regulations. Air emission regulations limit the amount of hazardous air pollutant (HAP) emissions to 2.5 tons per year for any one HAP and 10 tons per year for any two or more HAPs combined.

The discharge from the dual phase extraction system will be monitored on a quarterly basis or as specified in the NPDES permit.

Groundwater will be monitored on a semi-annual basis. GSI will check all monitor wells for the presence of measurable free product using an interface probe and confirming with a disposal bailer. If free product is not detected on the water table, the monitor wells will be purged via hand bailing until three well volumes (three gallons for a two-inch well) are obtained. Groundwater samples will be collected from each monitor well using a dedicated disposable bailer. Groundwater samples will be analyzed by EPA Method 8260 for BTEX, MTBE, n-hexane, and naphthalene.

Groundwater samples collected for EPA Method 8260 will be placed in 40-milliliter vials fitted with a Teflon septum with zero head-space, with care taken to completely fill the bottles. Samples will be cooled to four degrees Celsius throughout transportation to Platte Valley Laboratories, Inc. in Gibbon, Nebraska. All samples submitted for laboratory analysis will be accompanied by a chain of custody/sample transmittal form.

Quality assurance/quality control measures will be implemented according to NDEQ protocol. A trip blank will be prepared by the laboratory and transported with the sample cooler throughout shipment and analyzed by EPA Method 8260 for BTEX, MTBE, and naphthalene. A field blank

will be exposed to atmospheric conditions during the sampling of one of the wells. A duplicate sample will be collected from one monitor well. The field blank and duplicate sample will be analyzed by EPA Method 8260.

All groundwater and air sampling will be conducted in accordance with the NDEQ Environmental Guidance Document Risk-Based Corrective Action (RBCA) at Petroleum Release Sites: Tier I/Tier II Assessments & Reports. A report giving details of startup and initial monitoring will be submitted to the NDEQ. Monitoring reports will be submitted semi-annually to the NDEQ.

6.0 COST ESTIMATE

The tables below provide a cost estimate for each system installation, startup, free product removal, project management, and report writing. A general breakdown of costs by phase of the work is shown on Table 1 for the North System and Table 2 for the South System. Costs for long-term operations and maintenance, and groundwater monitoring are not included in tables.

Table 1– Cost Estimate for North System

Phase of Work	Time to Complete	Cost
Meetings/Utility Locate/Layout	1 week	4,000
Permit Fees	8 weeks	0
Well Installation	2 weeks	44,000
SVE & Air Sparge Piping Installation	4 weeks	141,000
Electricity to Trailer (based on previous system install)	1 week	26,500
New System (based on NDEQ Surplus Equipment)	15 weeks	110,000
Installation of SVE & Sparge Units & Insulation and Building for Exposure Piping	1 week	18,000
Startup	3 weeks	8,000
Project Management & Reports		15,000
Total		**$366,500**

Table 2 – Cost Estimate for South System

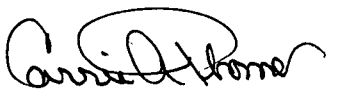
Phase of Work	Time to Complete	Cost
Meetings/Utility Locate/Layout	1 week	4,000
Permit Fees	8 weeks	0
Well Installation	1 week	29,000
SVE & Air Sparge Piping Installation	3 weeks	86,000
Electricity to Trailer (base on previous system install)		26,500
New System	15 weeks	115,000
System Installation and Insulation and Building for Exposed Piping	1 week	18,000
Startup	3 weeks	8,000
Project Management & Reports		15,000
Total		**$288,500**

GSI requests partial billing of this activity on a periodic basis. An update letter and invoice will be submitted at the completion of each phase of work or at 60-day intervals. The General Conditions are considered part of this proposal/contract.

Thank you for the opportunity to assist TravelCenters of America with its environmental needs. Should you have any questions or require additional information, please contact Carrie Thomas at 308.381.1987 or cthomas@gsinetwork.com.

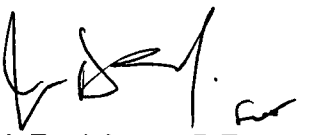
Respectfully,
GSI Engineering Northern Division, LLC

Prepared by,



Carrie A. Thomas
Environmental Scientist

Reviewed by,



J. Fred Jones, P.E.
Senior Engineer