2R - ___422____

WORKPLANS

DATE:
2010 - Present

Chavez, Carl J, EMNRD

From: Liz Scaggs <LScaggs@apexcos.com>
Sent: Friday, November 21, 2014 8:24 AM
To: Griswold, Jim, EMNRD; Chavez, Carl J, EMNRD; VonGonten, Glenn, EMNRD; Bratcher, Mike, EMNRD
Cc: Miller, Greg; Smith, David; Joseph Martinez
Subject: Enterprise S. Carlsbad Compressor Station (OCD Permit No. 2R-422)

The Supplemental Corrective Action Report and Corrective Action Workplan Response to NMOCD comments dated October 24, 2014, for the Enterprise S. Carlsbad Compressor Station (OCD Permit No. 2R-422) was uploaded to the New Mexico FTP site this morning for your review.

Thank you,

Liz Scaggs

Liz Scaggs
Apex TITAN, Inc.
2351 W. Northwest Highway, Suite 3321
Dallas, TX 75220
O) 214-350-5469 M) 972-467-0838

Southwest Geoscience is now Apex TITAN, Inc., a subsidiary of Apex Companies, LLC. Click here to learn more about Apex.

Enterprise Products

ENTERPRISE PRODUCTS PARTNERS L.P.
ENTERPRISE PRODUCTS HOLDINGS LLC
(General Partner)

ENTERPRISE PRODUCTS OPERATING LLC

November 19, 2014

Submitted via email w/delivery confirmation: Jim Griswold@state.nm.us

Mr. Jim Griswold, Environmental Bureau Chief
New Mexico Energy, Minerals & Natural Resources
Department - Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Attn: Carl Chavez

RE: Supplemental Corrective Action Report & Corrective Action Work Plan - Response to NM OCD Comments dated October 24, 2014
Enterprise S. Carlsbad Compressor Station (OCD Permit No. 2R-422)
SE ¼ of SE ¼ in S12, T23S, R27E
Carlsbad, Eddy County, New Mexico

Dear Mr. Griswold:

On October 3, 2014, Enterprise Products Operating LLC (Enterprise) submitted the *Supplemental Corrective Action Report & Corrective Action Work Plan* referenced above for our South Carlsbad facility located in Eddy County, New Mexico. The OCD approved the site groundwater investigations proposed in this work plan on October 24, 2014 with comments. This response has been submitted within 30 days, in accordance with OCD Plan Comment No. 2. OCD comments, with Enterprise responses are provided in italics, are provided below:

Report:

1) **There are 4 water wells within 1,000 ft. of the facility.**

Agreed. Note that these well locations were based on information obtained from the NM Office of the State Engineer (OSE) records. Two well locations (C03053 and C03457), indicated as immediately West of the facility on the Water Well Location Summary Map, were based on NM Office of the State Engineer (OSE) records, were not identified during the field survey. These wells actually appear to be located on a farmstead to the northwest of the Site in excess of 1,000 feet from the facility.

2) **The water table is much shallower (~ 30 ft.) than previously expected.**

Agreed.

3) **OCD Notices that the 5 borings have no designations, but are represented in a report figure by red dots.**

Agreed. Note that the red dots referenced on Figure 3B of the subject report are proposed locations for the soil boring/monitoring wells. These locations may require adjustment based on pre-job subsurface line locate activities, or other factors. Apex will assign soil boring/monitoring well location numbers

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After final locations have been cleared, and drilling activities have commenced. This is standard practice for site investigations.

4) **OCD observes from its July 17, 2012 correspondence to Mr. Joseph Martinez (SWG, but now APEX) that a completed C-137EZ Form(s) for the small landfarm(s) was requested to be submitted and that landfarmed soils must meet the closure standards for a small landfarm(s) or other means for contaminated soils disposition approved by the OCD. Therefore, OCD allowed the small landfarm(s) corrective action for petroleum contaminated soils under the 19.15.29 NMAC remediation plan process.**

Agreed.

5) **OCD observes that the report did not include all environmental laboratory QA/QC reports for the sample locations depicted in the figures.**

Laboratory QA/QC information for current information presented in the subject report is included. Note that summary information is presented on Tables and Figures from previous site investigations and this analytical information and QA/QC results have been previously reported.

Plan:

1) **The 5 borings shall be hereafter referred to as monitor wells (MWs 1 - 5) and should not meet with "refusal" based on the drill rig, strata, and relative shallow depth to the water table aquifer.**

Agreed.

2) **The operator shall collect standard hydrogeologic information from the MWs to assess ground water flow direction. The topography appears to slope E-NE toward Cass Draw.**

Agreed.

Conditions:

1) **The small landfarm with the VZ-2 elevated chloride concentration appears to be anomalous based on the surrounding sampling, and ground water sampling should verify whether chloride contamination exists at depth from the release**

Agreed.

2) **The operator has met the C-137EZ Form closure criteria in the small landfarm(s) with the exception of landfarm VZ-2 sample location. The operator may conduct further investigation with depth at the VZ-2 location to verify that a chloride source does not exist with depth or rely on the MW water media data collected under the plan to verify that a source of chloride contamination is not present.**

Note that chloride concentrations did not exceed OCD standards at the locations of three (3) subsequent soil samples [B-15 (3-4'), B-16 (3-4'), and B-17 (3-4')] located near the original VZ-2 sampling location. However, Enterprise agrees to add chlorides to the constituent list for groundwater analyses.

The operator shall propose the final disposition of stockpiled soils (~ 600 yds) from the landfarm(s) remediation to the OCD within 30 days of the date of this correspondence. OCD does not recommend stockpiling and/or concentrating soils with residual hydrocarbons to prevent new source areas from precipitation, etc. at the facility.

Following OCD approval, Enterprise proposes to spread the treated soils within the facility in areas which require leveling. Soils will not be spread in thicknesses greater than 6-inches.

3) **OCD requires the proposed borings to be denominated as MWs 1 – 5 with "1" being closest to the EC-1 location where the operator identified contamination, but backfilled the location before OCD could approve the corrective action**

Agreed.

4) **The MW water media samples shall include chloride analysis.**

Agreed.

5) **The operator shall collect standard hydrogeologic data and triangulate ground water flow direction from at least 3 MWs and attempt to position a downgradient MW away from the source area.**

Agreed. Note that groundwater flow direction cannot be confirmed until the monitoring wells have been installed and properly surveyed. However, the proposed monitoring well locations have been selected based on a high probability of having at least one monitoring well located in a down gradient position from the source area. If necessary, Enterprise will install additional wells to ensure adequate groundwater flow directions can be determined, and that any affected groundwater is delineated.

6) **A report based on the MW installations and sampling shall be submitted to the OCD within 60 days of completion of the work. The report shall include complete environmental analytical laboratory data with QA/QC for the water media sampling conducted with "conclusions" and "recommendations" sections to assist OCD with the path forward based on the data results.**

Enterprise will submit a report of the MW installations within 60-days of completion of field work, including a survey of monitor well locations and elevations which will be conducted as soon as possible following well installations. Groundwater monitoring analytical results will be submitted within 45-days of receipt of final analytical results.

Should you have any questions, comments or concerns, or need additional information, please feel free to contact me at 713-381-2286.

Sincerely,

David R. Smith, P.G.
Sr. Environmental Scientist

Gregory E. Miller, P.G.
Supervisor, Environmental

/dep

ec: Carl Chavez, OCD, Santa Fe, NM
Mike Bratcher, OCD District 2, Artesia, NM
Joseph Martinez, Southwest Geoscience

SUPPLEMENTAL CORRECTIVE ACTION REPORT & CORRECTIVE ACTION WORK PLAN

Property:

Enterprise S. Carlsbad Compressor Station
NWC of Carrasco Road and CR 710
Carlsbad, Eddy County, New Mexico
(OCD Permit No. 2R-422)

July 24, 2014

Apex Job No: 7010210G003.001

Prepared for:

Enterprise Products Operating LLC
PO Box 4324
Houston, Texas 77210-4324
Attention: Mr. David R. Smith, P.G.

Joseph W. Martinez
Branch Manager/Senior Scientist

B. Chris Mitchell, P.G.
Senior Technical Review

Table of Contents

1.0 INTRODUCTION

1.1 Site Description and Background

Apex TITAN, Inc. (Apex), formerly Southwest Geoscience (SWG), has completed a Supplemental Corrective Action Report and Corrective Action Work Plan for the Enterprise Products Operating LLC (Enterprise) S. Carlsbad Compressor Station located at the northwest corner of Carrasco Road and CR 710, approximately ten (10) miles southeast of Carlsbad in Eddy County, New Mexico [SE1/4 of SE1/4 of S12, T23S, R27E], referred to hereinafter as the "Site" or "subject Site." The Site is currently improved as a natural gas compressor station. A topographic map depicting the location of the Site is included as Figure 1 and a site vicinity map is included as Figure 2 of Appendix A. A site map depicting on-site improvements and the location of investigation and corrective action activities, described herein, is included as Figure 3A and 3B in Appendix A.

The Site formerly included a tank battery on the south/southwestern portion of the property which included four (4) 300-barrel aboveground storage tanks (ASTs) within two earthen berm containment systems. The ASTs contained natural gas condensate or produced liquids separated from the natural gas stream at the Site. During the decommissioning activities of the former tank battery, Enterprise personnel identified stained soils indicative of a historical leak. Initial site investigation activities were performed by SWG in November of 2009. The initial site investigation activities included the advancement of one (1) soil boring (B-1), within the western portion of the former main containment system, to a depth of 20 feet below ground surface (bgs). Soil samples were collected from soil boring B-1 at 7 to 8 feet bgs and 19 to 20 feet bgs and submitted for benzene, toluene, ethylbenzene, and xylenes (BTEX) and total petroleum hydrocarbon (TPH) gasoline range organics (GRO)/diesel range organics (DRO) analysis utilizing SW-846 #8021B and EPA method SW-846 #8015M, respectively. Concentrations of constituents of concern (COC) were compared to the New Mexico Energy, Minerals and Natural Resources Department (EMNRD) Oil Conservation Division's (OCD) Remediation Action Levels. Based on the laboratory analytical results, the soil samples collected from soil boring B-1 did not exhibit benzene or total BTEX concentrations in exceedance of the OCD Remediation Action Levels. The soil sample collected from soil boring B-1 at 7 to 8 feet bgs exhibited a TPH GRO/DRO concentration of 980 mg/Kg, which exceeds the OCD Remediation Action Level of 100 mg/Kg. The soil sample collected form soil boring B-1 19 to 20 feet bgs did not exhibit TPH GRO/DRO concentrations in exceedance of the OCD Remediation Action Levels. It should be noted that the soil samples collected from soil boring B-1 were previously reported as having TPH GRO/DRO concentrations below the OCD Remediation Action Levels, which has been revised based on the adjusted "ranking" of the Site. The field screening results are presented on the soil boring log Appendix C. The results of the soil sample analysis and the OCD Remediation Action Levels are presented on Table 1 of Appendix D.

SWG utilized the OCD Guidelines for Remediation of Leaks, Spills and Release to assess and establish the appropriate "ranking" or Remediation Action Levels for the Site. Based on a review of the New Mexico Office of the State Engineer (OSE) water well records, the depth to groundwater in the vicinity of the Site was estimated to be approximately 56 feet bgs. A search of New Mexico water well records identified four (4) water wells within 1,000 feet of the Site. One (1) water well [point of diversion (POD) #C03053] was reportedly located approximately 60 feet west of the Site, or 400 feet northwest of the release source area; one (1) water well (POD #C03457) was reportedly located approximately 200 feet west of the Site, or 575 feet northwest of the release source area; one (1) water well (POD #C00069) was reportedly located approximately 350 feet east of the Site, or 850 feet east of the release source area; and one (1) water well (POD C00461) was reportedly located approximately 550 feet southeast of the Site, or 900 feet southeast of the release source area. SWG did not identify the water wells reported at POD location #C03053 or C03457. It is suspected that these wells may be located on farmsteads further northwest or southwest of the Site. SWG observed an irrigation well near the reported POD location #00069, which was approximately 100 feet east of the Site, or 500 east of the release source area. This well is currently active and utilized to pump water into nearby irrigation canals. SWG observed an irrigation well near the reported POD location #C00461, which was approximately 600 feet southeast of the Site or 800 feet southeast of the release source area. This well appeared to be out of use. The hydrogeologic gradient at the Site was estimated based on the surface topography relief, which is generally to the northeast. A field survey identified one (1) down-gradient surface water feature within 1,000 feet of the Site. A concrete-lined irrigation canal which traverses north and south along the east side of CR 710 was identified approximately 50 feet east of the Site. However, this feature was not included in the Site ranking based on the presence of a concrete lining. Based on SWG's review of Site characteristics (specifically: depth to groundwater, wellhead protection area and distance to surface water) an associated ranking score of forty (40) was determined for the Site in accordance with the OCD's Guidelines for Remediation of Leaks, Spills and Releases. The OCD's Remediation Action Levels for sites with a total ranking score of >19 is 10 milligrams per kilogram (mg/Kg) benzene, 50 mg/Kg total BTEX, and 100 mg/Kg TPH GRO/DRO. It should be noted that the Site was previously reported to have a total ranking score of ten (10). This has since been revised based on the review of additional well logs and site investigation activities. A copy of the New Mexico OSE water well records and location summary map is in Attachment F. It should be noted that the water well locations for POD #00069 and #C00461, on the Water Well Location Summary Map, were adjusted based on observations made during the field survey.

July 6, 2010, a Corrective Action Work Plan (CAWP) was issued for the Site, which was reviewed and approved by the OCD. In October 2010, excavation activities were initiated in vicinity of the former tank battery. An approximate total of 600 cubic yards (cy) of petroleum hydrocarbon impacted soil was excavated from the Site. The excavation continued horizontally and vertically with final dimensions of approximately 60 feet long by 25 feet wide and up to 15 feet deep. During the excavation activities, SWG

encountered silty clays, clayey silts, and silty sands to approximately 8 feet bgs followed by a weathered sandstone at approximately 15 feet bgs where equipment refusal to advancement was encountered. Subsequent to the completion of excavation activities soil confirmation samples were collected from the final extents of each of the excavation sidewalls and floor and submitted for BTEX and TPH GRO/DRO analysis. Based on the laboratory analytical results, the most recent excavation confirmation soil samples collected from the north, east, and southeast portion of the excavation sidewalls [i.e.: EC-1(R), EC-2(R), EC-3(R)A, and EC-5 respectively] exhibited total BTEX and/or TPH GRO/DRO concentrations in exceedance of the OCD Remediation Action Levels. The remaining excavation confirmation soil samples did not exhibit benzene, total BTEX, or TPH GRO/DRO concentrations in exceedance of the OCD Remediation Action Levels.

Subsequent to the completion of excavation activities, the excavation was backfilled using imported fill. The excavated soils were placed within two (2) landfarm treatment cells constructed on the northwest and southwest portion of the Site. The soils were spread and tilled or raked to enhance aeration of petroleum hydrocarbon COCs. In addition, a bioremediation agent (Remedy) was applied which includes nonpathogenic bacterial strains which assist in degradation and metabolism of petroleum hydrocarbons. Subsequent to proposed aeration and attenuation schedules, confirmation soil samples were collected from 20 sampling points within the landfarm treatment cells and submitted for BTEX, TPH GRO/DRO, and chlorides analysis. Some of the sampling points within the landfarm treatment cell were resampled for one or more COCs. Based on the laboratory analytical results, the most recent confirmation soil samples collected from the landfarm treatment cell did not exhibit benzene, total BTEX, TPH GRO/DRO, and/or chlorides concentrations in exceedance of the New Mexico Administrative Code (NMAC) *Small Landfarm Closure Performance Standards*. The laboratory analytical results for the landfarm confirmation soil samples are summarized in Table 2 of Appendix D.

The soils within and below the landfarm treatment cells were treated such that COC concentrations were below the NMAC *Small Landfarm Closure Performance Standards.* As a result, the treated soils were stockpiled on the northwest portion of the Site pending OCD approval for future on-site and/or off-site reuse. Vadose zone soil samples (VZ-1 and VZ-2) were collected from the native soil where the landfarm treatment cells were previously located. The vadose zone soil samples did not exhibit benzene, total BTEX, TPH GRO/DRO, or chlorides concentrations in exceedance of the NMAC *Small Landfarm Closure Performance Standards,* with one exception. Vadose zone soil sample VZ-2 exhibited a chlorides concentration in exceedance of the NMAC *Small Landfarm Closure Performance Standards*. However, based on the predominately low levels of chlorides concentration previously observed within the confirmation soil samples collected from the landfarm treatment cells, it was believed that the exceedance may have been an anomolly. The laboratory analytical results for the vadose zone soil samples are summarized in Table 2 of Appendix D.

February 25, 2011, supplemental site investigation activities were conducted in the vicinity of the former tank battery to further evaluate the magnitude and extent of COC concentrations in the on-site soils within in the vicinity of the former tank battery. The supplemental site investigation activities included the advancement of eight (8) additional soil borings to a refusal depth of 8 feet bgs in the area north, east, and south of the former tank battery. The soil borings were advanced utilizing direct-push technology. The soil cores were collected continuously utilizing a split-spoon sampler via Geoprobe® to the terminus depth of each soil boring. The lithology encountered during the advancement of the supplemental soil borings included a silty clay, clayey silt, or silty sand. Petroleum hydrocarbon odors were detected in the soil cores collected from soil borings B-2 through B-8. SWG screened the soil core samples with a photoionization detector (PID) for the presence of volatile organic compounds (VOCs). The PID readings from soil borings B-2 through B-9 ranged from zero (0) to 384 ppm. The highest PID reading was observed in the soil sample collected from soil boring B-2 at a depth of 5 to 6 feet bgs. SWG's soil sampling program involved submitting up to two (2) soil samples from soil borings B-3 through B-9. The soil samples were collected from the zone exhibiting the highest PID reading, from a change in lithology, and/or from the bottom of the boring, based on the field professional's judgment. A soil sample from soil boring B-2 was not submitted for laboratory analysis. Based on the laboratory analytical results, soil samples collected from the supplemental soil borings B-3 through B-8, which were advanced to the north, northeast, east, southeast, and south of the former excavation exhibited total BTEX and/or TPH GRO/DRO concentrations in exceedance of the OCD *Remediation Action Levels*. The remaining soil samples collected from the supplemental soil borings did not exhibit benzene, total BTEX, or TPH GRO/DRO concentrations in exceedance of the OCD *Remediation Action Levels*. Field screening results are presented on soil boring logs included in Attachment C.

May 1, 2012, a Corrective Action Report was issued for the Site, which documented the findings of on-site investigation and corrective action activities. Excavation confirmation soil samples EC-1(R), EC-2(R), EC-3(R)A, and EC-5 and soil samples collected from soil borings B-3 through B-8 exhibited total BTEX and/or TPH GRO/DRO concentrations in exceedance of the OCD *Remediation Action Levels.* It was anticipated that the area of affected soil was primarily limited to upper 20 feet of soils as evidenced by previous field screening data and the laboratory analytical results of the soil samples collected from the excavation confirmation soil samples and the soil borings. It was believed that the previous corrective actions addressed source area soils, which were most heavily impacted as a result of historic leakage originating from the former on-site tank battery. In addition, it was believed that the affected soils were likely limited to the area north, northeast, east, and south of the former storage tank battery and excavation. Numerous aboveground and/or underground appurtenances related to natural gas processing operations exist within these areas. Thus, excavation activities in the vicinity of the affected soils which remain in-place would not be feasible.

July 17, 2012, the New Mexico OCD reviewed the Corrective Action Report and responded with conclusions/recommendations in a correspondence email. The OCD requested the submission of the C-137EZ form for closure of the former on-site landfarms treatment cells; resampling of the vadose zone below the former southwest landfarm for chlorides analysis; advancement of an additional soil borings in the vicinity of B-1 and B-2 to groundwater, conversion of the additional soil boring to a 2-inch monitoring well if phase-separated hydrocarbons are identified in the vadose zone or groundwater bearing unit, and delineation of the area to the north, northeast, and east of the former tank battery and excavation.

September 10, 2012, SWG issued a letter response to the Corrective Action Report review. The letter response proposed the collection of three (3) additional soil samples below the former southwest landfarm treatment cell to further evaluate chlorides concentrations in the vadose zone. A Form C-137EZ was proposed for completion subsequent to the completion of vadose zone sampling activities and attainment of the NMAC *Small Landfarm Closure Performance Standards*. Additional soil borings were not proposed citing the results of previously documented field screening data, soil sampling data, and site lithology. The OCD replied by phone on October 4, 2012. Mr. Carl Chavez of the OCD agreed with the proposed additional corrective actions with one exception. Additional investigation and/or response action activities were requested in the area east and northeast of the former tank battery and excavation, near soil borings B-2 and B-3.

September 25, 2013, a supplemental Corrective Action Work Plan was issued for the Site. SWG proposed to advance five (5) soil borings to a depth of 25 feet bgs to the north, northeast, and east of the former tank battery and excavation. In addition, three (3) soil borings were proposed to a total depth of 3.5 feet bgs within the former southwest landfarm treatment cell. SWG proposed surface soil (0-15 feet bgs) to be considered vertically delineated and protective of groundwater provided that field screening and laboratory analytical results indicate that the lower 10 feet of each soil column is not affected with COC concentrations in exceedance of the OCD *Remediation Action Levels*. In addition, a C-137EZ Form was proposed for completion provided that the vadose zone soil samples collected from the former southwest landfarm indicate chlorides concentrations below the NMAC *Small Landfarm Closure Performance Standards*. The OCD responded by email approving the Supplemental Corrective Action Work Plan on September 25, 2013. It should be noted that SWG previously utilized the American Petroleum Institute (API) Spreadsheet for Calculating Risk-Based Screening Levels (RBSL) and the inverse weighted average (TPH Mass Fractions of aliphatic and aromatic hydrocarbons) to establish a Site Specific RBSL for the complete TPH mixture (i.e., the whole product). The calculated API Site-Specific TPH RBSL for Residential Soil at the Site utilizing the EC-1(R) soil sample was 5,000 mg/Kg for the totals soil combined pathway. The API Site-Specific TPH RBSL has since been removed from consideration or evaluations at the Site.

A summary of historical environmental site investigation and corrective action reports issued for the Site includes the following:

- *Corrective Action Work Plan*, issued by SWG on July 6, 2010;
- *Corrective Action Report*, issued by SWG on May 1, 2012;
- *Letter Response to Corrective Action Report Review*, issued by SWG on September 10, 2012;
- *Supplemental Corrective Action Work Plan*, issued by SWG on September 25, 2013.

A summary of historical correspondence from the New Mexico OCD includes the following:

- New Mexico OCD email response and approval associated with the review of the *Corrective Action Work Plan*, sent July 13, 2010;
- New Mexico OCD email response and information request associated with the review of the *Corrective Action Report*, sent July 17, 2012;
- New Mexico OCD email response and information request associated with the review of the *Letter Response to Corrective Action Report*, sent October 4, 2012;
- New Mexico OCD email response and approval associated with the review of the *Supplemental Corrective Action Work Plan*, sent October 9, 2013,

1.2 Site Ranking

Apex referenced guidance and regulations published by the OCD to estimate the environmental sensitivity of the site. In accordance with the OCD's *Guidelines for Remediation of Leaks, Spills and Releases*, Apex utilized the general site characteristics to determine the appropriate "ranking" for the Site. The ranking criteria and associated scoring are provided in the table below:

Ranking Criteria			Ranking Score
Depth to Groundwater	<50 feet	20	**20**
	50 to 99 feet	10	
	>100 feet	0	
Wellhead Protection Area • <1,000 feet from a water source, or; <200 feet from private domestic water source.	Yes	20	**20**
	No	0	
Distance to Surface Water Body	<200 feet	20	**0**
	200 to 1,000 feet	10	
	>1,000 feet	0	
Total Ranking Score			**20**

Based on Apex's review of Site characteristics (specifically: depth to groundwater, wellhead protection area and distance to surface water) an associated ranking score of forty (40) was determined for the Site in accordance with the OCD's *Guidelines for Remediation of Leaks, Spills and Releases*. The OCD's *Remediation Action Levels* for sites with a total ranking score of >19 is 10 milligrams per kilogram (mg/Kg) benzene, 50 mg/Kg total BTEX, and 100 mg/Kg TPH GRO/DRO. It should be noted that the Site

was previously reported to have a total ranking score of ten (10). This has since been revised based on the review of additional well logs and visual observations. A copy of the New Mexico OSE water well records and location summary map is in Attachment F. It should be noted that the water well locations for POD #00069 and #C00461 were adjusted based on observations made during the field survey.

1.3 Project Objective

Apex performed supplemental site investigation activities to further evaluate the magnitude and extent of petroleum hydrocarbon COCs in soil to the north, northeast, and east of the former tank battery and excavation. In addition, the vadose zone below the former southwest landfarm was evaluated for chloride concentrations in exceedance of the NMAC *Small Landfarm Closure Performance Standards*.

1.4 Standard of Care and Limitations

The findings and recommendations contained in this report represent Apex's professional opinions based upon information derived from the on-Site activities and other services performed under this scope of work and were prepared in accordance with currently acceptable professional standards. The findings were based upon analytical results provided by an independent laboratory. Evaluations of the geologic/hydrogeologic conditions at the Site for the purpose of this investigation are made from a limited number of available data points (i.e. soil borings) and Site-wide subsurface conditions may vary from these data points. Apex makes no warranties, express or implied, as to the services performed hereunder. Additionally, Apex does not warrant the work of third parties supplying information used in the report (e.g. laboratories, regulatory agencies, or other third parties).

This report is based upon a specific scope of work requested by Enterprise. The agreement between Apex and Enterprise outlines the scope of work, and only those tasks specifically authorized by that agreement or outlined in this report were performed. This report has been prepared for the intended use of Enterprise and its subsidiaries, and any authorization for use or reliance by any other party (except a governmental entity having jurisdiction over the Site) is prohibited without the express written authorization of Enterprise and Apex.

2.0 SUPPLEMENTAL SITE INVESTIGATION ACTIVITIES

2.1 Soil Borings

Supplemental site investigation activities were performed at the Site on January 14 and 15, 2014. The supplemental site investigation activities were conducted by Joseph W. Martinez, an Apex environmental professional. As part of the approved scope of work, six (6) soil borings (B-10, B-11, B-12, B-13, B-14, and B-18) were advanced to total depths ranging between 25 to 30 feet bgs. Soil borings B-15, B-16, and B-17 were advanced to a total depth of 4 feet bgs. The soil borings were advanced utilizing a truck mounted drilling rig equipped with hollow stem augers under the supervision of a New Mexico licensed water well driller. The soil samples were collected continuously from soil cuttings in one-foot intervals to the terminus depth of each soil boring. Soil borings B-10 and B-18 were advanced north of the former tank battery and excavation; B-11 and B-13 was advanced east of the former tank battery and excavation; and B-12 and B-14 was advanced in the area northeast of the former tank battery and excavation. In addition, soil borings B-15, B-16, and B-17 were advanced within the former southwest landfarm. Figure 3B is a site map which indicates the approximate location of the soil borings in relation to pertinent land features and on-site improvements (Appendix A). Photographic documentation of field investigation activities is available in Appendix B.

Soil samples were observed to document soil lithology, color, moisture content, and visual and olfactory evidence of petroleum hydrocarbons. Upon retrieval of each sample from the borehole, each soil sample was immediately divided into portions designated for field screening or laboratory analysis. Field headspace analysis was conducted by placing the portion of the soil sample designated for field screening into a plastic Ziploc® bag. The plastic bag was sealed and then placed in a warm area to promote volatilization. The air above the sample, the headspace, was then evaluated using a photoionization detector (PID) capable of detecting volatile organic compounds (VOCs). The PID was calibrated utilizing an isobutylene standard prior to use in the field.

During the completion of each soil boring, an on-site geoscientist documented the lithology encountered and constructed a continuous profile of the soil column from the surface to the boring terminus. Undisturbed soil samples from each soil boring location were visually inspected and logged in the field. The lithology encountered during the advancement of soil boring B-10 included a reddish brown silty clay from the ground surface to 3.0 feet bgs, a gray silty sand from 3.0 to 11.0 feet bgs, and a pink/tan silty clay from 11.0 to a termination depth of 25 feet bgs. The lithology encountered in soil borings B-11 through B-18 was similar to that observed in soil boring B-10. Petroleum hydrocarbon odors were detected in the in soil cuttings collected from soil borings B-10, B-11, and B-12 at depths ranging from 3 to 30 feet bgs.

Petroleum hydrocarbon staining was observed in the soil samples collected from soil borings B-10, B-11, and B-12 at depths ranging from 7 to 23 feet bgs. The soil samples collected from soil borings B-10, B-11, and B-12 exhibited elevated PID readings which peaked between 1,540 and 5,000 ppm. The highest PID readings were observed in soil samples collected from soil boring B-11 from 8 to 15 feet bgs at 5,000 ppm. It should be noted that sour gas which is known to contain hydrogen sulfide is known to have been present in the gas stream processed at the Site. Thus, some petroleum hydrocarbon odors and elevated PID readings identified in soils screened at the Site may be influenced by the presence of hydrogen sulfide.

Groundwater was encountered in soil borings B-18 and B-11 at 24.5 and 29.5 feet bgs, respectively. Groundwater was not encountered in soil borings B-10, B-12, B-13, B-14, B-15, B-16, or B-17. Subsequent to completion of site investigation activities, the soil borings were plugged and abandoned by a State of New Mexico licensed monitoring well driller in accordance with *NMAC 19.27.4.30 Rules and Regulations Governing Well Driller Licensing, Construction, Repair, and Plugging of Wells*.

2.2 Soil Sampling Program

Apex's soil sampling program involved submitting up to three (3) soil samples from soil borings B-10 through B-18. The soil samples were collected from the zone exhibiting the highest PID reading, from a change in lithology, or from the bottom of the boring, based on the field professional's judgment. Soil sample intervals are presented with the soil sample analytical results (Table 1 and 2) in Appendix D and are provided on the soil boring logs included in Appendix C.

2.3 Laboratory Analytical Methods

The soil samples collected from the soil borings were submitted for BTEX, TPH GRO/DRO, and/or chlorides analysis utilizing, EPA SW-846 method #8021B, EPA SW-846 method #8015M, and EPA method 300.0 respectively. Laboratory analytical results are summarized in Table 1 and 2 included in Appendix D. The executed chain-of-custody form and laboratory data sheets are provided in Appendix E.

Sampling equipment was cleaned using an Alconox® wash and potable water rinse prior to the beginning of the project and before the collection of each sample. Soil samples were collected and placed in laboratory prepared glassware, sealed with custody tape and placed on ice in a cooler, which was secured with a custody seal. The sample coolers and completed chain-of-custody forms were relinquished to Hall Environmental Analysis (Hall) in Albuquerque, New Mexico on standard turnaround.

Hall performed the analyses of samples under an adequate and documented quality assurance program to meet the project and data quality objectives. The laboratory's quality assurance program is generally consistent with the quality standards outlined in the National Environmental Laboratory Accreditation Program, as amended. In addition, the data generated by Hall meets the intralaboratory performance standards for the selected analytical method and the performance standards are sufficient to meet the bias, precision, sensitivity, representativeness, comparability, and completeness, as specified in the project data quality objectives.

2.4 Data Evaluation

The Site is subject to regulatory oversight by the New Mexico OCD. To address activities related to crude oil/condensate related releases, the OCD utilizes the *Guidelines for Remediation of Leaks, Spills and Releases* as guidance, in addition to the OCD rules, specifically NMAC 19.15.30 Remediation. These guidance documents establish investigation and abatement action requirements for sites subject to reporting and/or corrective action. Apex compared the benzene, total BTEX, TPH GRO/DRO concentrations or sample reporting limits (SRLs)/sample detection limits (SDLs) associated with the soil samples collected from the soil borings to the OCD *Remediation Action Levels*. Apex compared the chlorides concentrations or SDLs associated with the soil samples collected from the soil borings to the NMAC *Small Landfarm Closure Performance Standards*. The results of the soil sample analysis along with the respective OCD *Remediation Action Levels* and the NMAC *Small Landfarm Closure Performance Standards* is provided in Table 1 and 2 of Appendix D.

Total Petroleum Hydrocarbons

The soil samples collected from soil borings B-11 (10-11), B-11 (20-21), B-12 (13-14), and B-12 (15-16) exhibited TPH GRO/DRO concentrations ranging from 168 mg/Kg to 1,380 mg/Kg, which exceed the OCD *Remediation Action Level* of 100 mg/Kg. The remaining soil samples collected from the soil borings at the Site did not exhibit TPH GRO/DRO concentrations in exceedance of the OCD *Remediation Action Levels*.

Benzene and total BTEX

The soil samples collected from soil borings B-10 through B-18 did not exhibit benzene or total BTEX concentrations in exceedance of the OCD *Remediation Action Levels*.

Chlorides

The soil samples collected from soil borings B-15, B-16, and B-17 exhibited chlorides concentrations ranging from 7.8 mg/Kg to 380.0 mg/kg, which are below the NMAC *Small Landfarm Closure Performance Standards* of 500 mg/Kg.

2.5 Investigation Derived Waste

Investigation derived waste (IDW) generated during the supplemental site investigation activities was segregated into 55-gallon drums according to the waste media type for each soil boring and monitoring well. A total of six (6) drums of investigation derived soil cuttings. Waste characterization and disposal of the drums is currently pending.

3.0 CORRECTIVE ACTION WORK PLAN

Based on the results of the corrective action and supplemental site investigation activities, petroleum hydrocarbon affected soils with COC concentrations in exceedance of the OCD *Remediation Action Levels* are known to remain is soil at the Site to the north, northeast, east, and south of the former excavation.

Soil sampling locations which exhibited COC concentrations in exceedance of the OCD *Remediation Action Levels* include: B-3 (6-7), B-4 (5-6), B-5 (4-5), B-6 (7-8), B-7 (5-6), B-8 (4-5), B-8 (7-8), B-11 (10-11), B-11 (20-21), B-12 (13-14), and B-12 (15-16) and excavation confirmation samples EC-1(R) (8-9), EC-2(R) (8-9), EC-3(R)A, EC-5. Groundwater was encountered in soil borings B-18 and B-11 at 24.5 and 29.5 feet bgs, respectively.

Apex proposes to perform additional site investigation activities to further evaluate the vertical and horizontal extent of affected soil in accordance with the OCD Remediation Action Levels. In addition, Apex proposes to evaluate groundwater at the Site to determine the presence, magnitude and/or extent of BTEX concentrations in groundwater.

3.1 Proposed Corrective Actions

Apex proposes to advance five (5) soil borings to the north, northeast, east, and south of the former excavation. One (1) soil boring will be advanced east of the former excavation in the vicinity of soil boring B-11, one (1) soil boring will be advanced north of the former excavation in the vicinity of soil boring B-10, one (1) soil boring will be advanced northeast of the former excavation in the vicinity of soil boring B-14, one (1) soil boring will be advanced east of facility operations building in the vicinity of soil boring B-13, and one (1) soil boring will be advanced south of the former excavation in the vicinity of soil boring B-8. The exact location of the proposed soil borings may require adjustment in the field should subsurface pipeline or electric conduit interference be encountered or anticipated. The locations of the proposed soil borings are depicted on the attached Figure 3B.

The soil borings will be advanced to a depth of 35 feet bgs, five (5) feet below the initial groundwater table, or auger refusal, whichever is shallower. The soil borings will be completed utilizing a drilling rig equipped with hollow stem augers. Each soil boring location will be cleared utilizing a hand auger or hydro excavation unit to a depth of five (5) feet bgs or refusal, whichever is more shallow, to screen the for the presence of underground pipelines or other underground utilities. Soil samples will be collected continuously from soil cuttings in one-foot intervals to document lithology, color, relative moisture content and visual or olfactory evidence of impairment. In addition, the samples will be scanned with a PID for the presence of VOCs.

Sampling and drilling equipment will be decontaminated by high pressure cleaning prior to commencement of the project and between the advancement of each soil boring. Drill cuttings and purged or decontamination water will be stored in labeled, 55-gallon, DOT-approved drums pending the results of the laboratory analyses for waste characterization purposes. The drum labels will bear the apparent contents of the drum and the accumulation date. The drums will be staged on-Site at a location designated by on-Site personnel.

Subsequent to the completion, the soil borings will be converted to permanent 2-inch groundwater monitoring wells under the supervision of a State of New Mexico licensed monitoring well driller. The groundwater monitoring wells will be completed as follows:

- Installation of 10 to 30 feet of 2-inch diameter, machine slotted PVC well screen assembly with a threaded bottom plug;
- Installation of riser pipe to surface;
- Addition of 20/40 graded silica sand for annular sand pack around the well screen from the bottom of the well to two feet above the top of the screen;
- Placement of hydrated bentonite pellets above the sand pack to 2 feet bgs;
- Addition of cement/bentonite slurry to the surface; and,
- Installation of a locking well cap and steel risers.

The monitoring wells will be developed by surging and removing groundwater until the fluid appears free of fine-grained sediment. Developed groundwater will be stored temporarily on-Site in labeled, 55-gallon, DOT-approved drums pending the results of the laboratory analyses. The drum labels will bear the apparent contents of the drum and the accumulation date.

3.2 Sampling Program

Apex's soil sampling program will involve submitting up to two (2) soil samples from each soil boring for BTEX and TPH GRO/DRO analysis utilizing EPA method SW-846 #8015M and SW-846 #8021B, respectively. Soil samples will be collected from the zone exhibiting the highest PID reading, from a change in lithology, or from the bottom of the boring, based on the field professional's judgment. In addition, one (1) groundwater sample will be collected from each monitoring well and submitted for BTEX and TPH GRO/DRO analysis.

3.3 Corrective Action Report

A corrective action report will be issued subsequent to completion of the supplemental site investigation activities. The results of the soil sample analysis will be compared to the OCD *Remediation Action Levels*. In addition, groundwater will be evaluated to determine whether BTEX concentrations

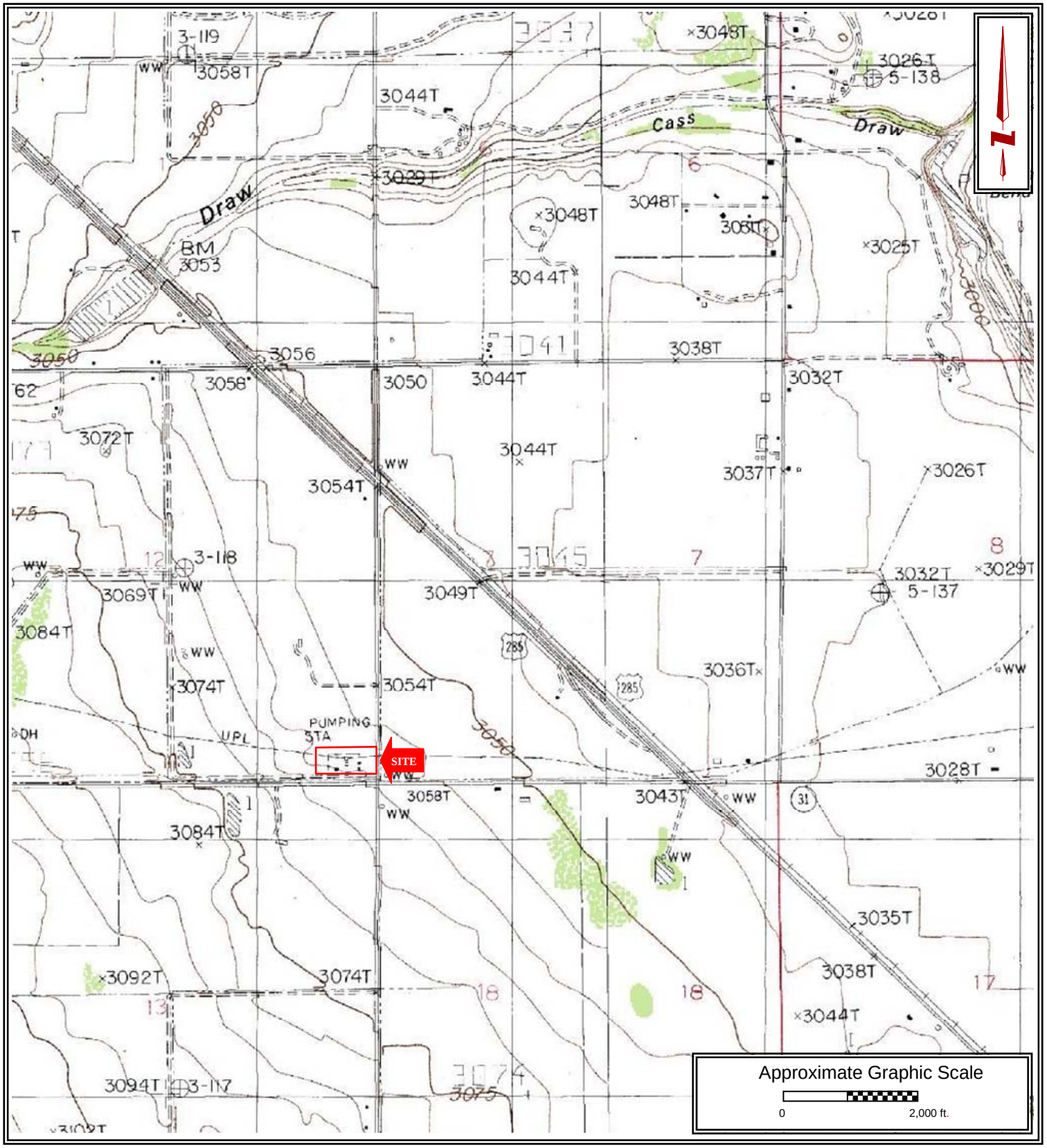
exceed the NMAC 20.6.2.3103 *Standards for Groundwater of 10,000 mg/L TDS Concentration or Less*. Recommendations concerning further action, if any, will be included in the final report.

3.4 Schedule

The proposed field investigation activities are anticipated to require three (3) work days to complete. The deliverable will be completed approximately two (2) weeks following receipt of the final laboratory analytical results.

APPENDIX 1

Figures



Supplemental CAR
Enterprise Products Operating LLC
S. Carlsbad Compressor Station
Carrasco Road and CR 710
Carlsbad, Eddy County, New Mexico

Project No. 7010210G003.001

Apex TITAN, Inc.
7979 Broadway Street, Suite 100
San Antonio, Texas 78209
Phone: (210) 804-9922
www.apexcos.com
A Subsidiary of Apex Companies, LLC

FIGURE 1

Topographic Map
Otis, NM Quadrangle
Contour Interval – 10 Feet

Supplemental CAR
Enterprise Products Operating LLC
S. Carlsbad Compressor Station
Carrasco Road and CR 710
Carlsbad, Eddy County, New Mexico

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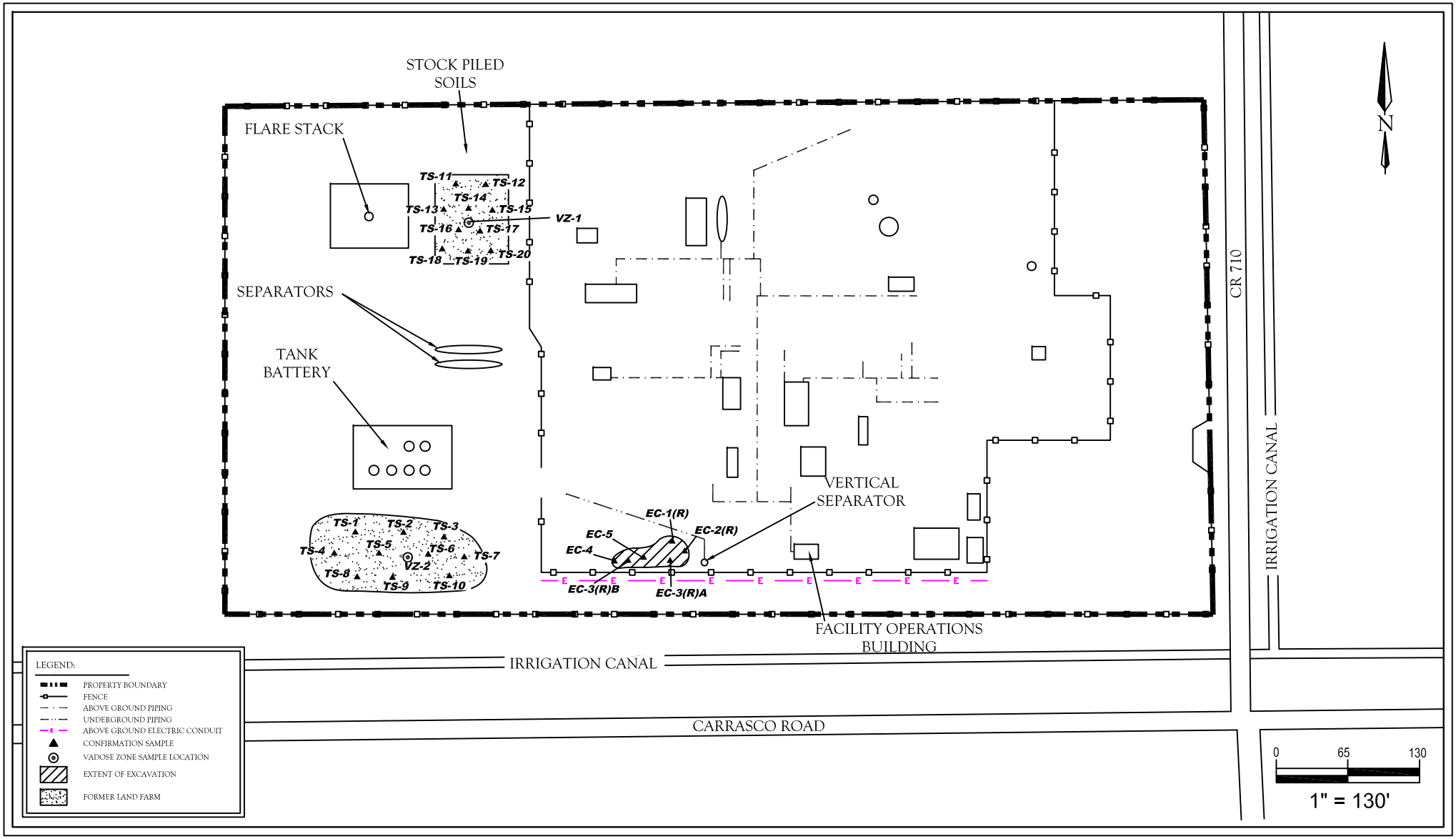
FIGURE 2

Site Vicinity Map

Google Earth 2013



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Project No. 7010210G003.001

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FIGURE 3A
Excavation/Remediation
Sample Location Map

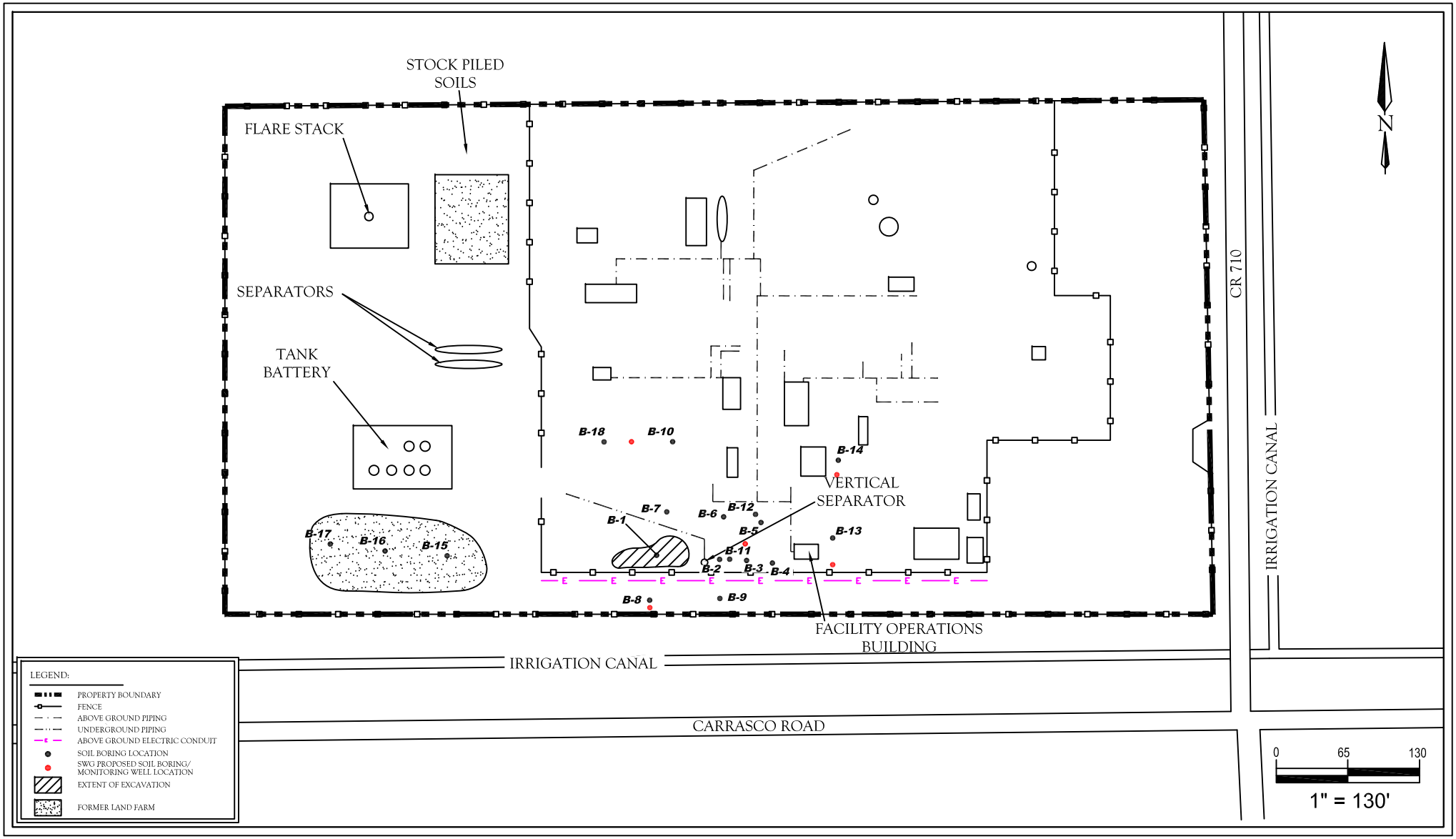

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FIGURE 3B
Soil Boring Location Map

APPENDIX 2

Photographic Documentation

1.) View of soil boring B-13 location (at the cone), located east of the facility operations building, looking west/southwest.

2.) View of soil boring B-14 location (at the cone), located north/northeast of the facility operations building, looking north.

3.) View of soil boring B-10 location (at the cone), located north of the former tank battery and excavation, looking southeast.

4.) View of soil boring B-18 location (at the cone), located north of the former tank battery and excavation, looking southeast.

5.) View of soil borings B-10 and B-18 locations (at the cones), located north of the former tank battery and excavation, looking north.

6.) View of 55-gal drums containing soil cuttings, staged on the northwest portion of the Site.

APEX

APPENDIX 3

Boring Logs

Client: Enterprise Products Operating LLC
Project Name: S. Carlsbad Compressor Station
Project Location: Off S. Carassco Rd, Carlsbad, NM
Project Manager: Joseph W. Martinez

SOIL BORING LOG

DRILLING & SAMPLING INFORMATION

Date Started: November 5, 2009
Date Completed: November 5, 2009
Drilling Company: Straub Corporation
Driller: Marty Straub
Geologist: B. Chris Mitchell, P.G.
Boring Method: AR
Bore Hole Dia: 6-Inch

Soil Boring Number: B-1
Project #: 0210G003
Drawn By: Joseph W. Martinez
Approved By: B. Chris Mitchell, P.G.

Well Diam: N/A
Screen Size: N/A
Screen Length: N/A
Casing Length: N/A

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▼ AT WELL STABILIZATION

Monitor Well Detail	SOIL CLASSIFICATION	Stratum	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	FID/PID Readings (ppm)	BORING AND SAMPLING NOTES
	SURFACE ELEVATION:								
	Silty Sand, Gray, Dry, Petroleum Hydrocarbon Odor		5	7-8		100 %		205	
								228	
								150	
								329	
								324	
						100 %		194	
								280	
								341	
								339	
	Sandy Silt, Pale Brown, Dry, Petroleum Hydrocarbon Odor		10			100 %		244	
								92	
								103	
								65	
								111	
						100 %		109	
			15					35	
								53	
	Silty Sand, Brown, Dry, No Odor							47	
								0	
				19-20				0	
	Bottom of Soil Boring at 20'		20						
			25						
			30						

Note: This log is not to be used outside the original report.

APEX

Client: Enterprise Products Operating LLC
Project Name: S. Carlsbad Compressor Station
Project Location: Off S. Carassco Rd, Carlsbad, NM
Project Manager: Joseph W. Martinez

SOIL BORING LOG

DRILLING & SAMPLING INFORMATION

Date Started: 2.25.2011
Date Completed: 2.25.2011
Drilling Company: Earth Worx
Driller: Louis Trujillo
Geologist: B. Chris Mitchell, P.G.
Boring Method: GP
Bore Hole Dia: 6-Inch

Soil Boring Number: B-2
Project #: 0210G003
Drawn By: Joseph W. Martinez
Approved By: B. Chris Mitchell, P.G.

Well Diam: N/A
Screen Size: N/A
Screen Length: N/A
Casing Length: N/A

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▼ AT WELL STABILIZATION

Monitor Well Detail	SOIL CLASSIFICATION	Stratum	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	FID/PID Readings (ppm)	BORING AND SAMPLING NOTES
	SURFACE ELEVATION:								
	Silty Clay with Sand, Gray, Dry, Petroleum Hydrocarbon Odor					100%		0	
								16	
								89	
								139	
			5					171	
						100%		384	
								122	
								63	
	Refusal at 8'		10						
			15						
			20						
			25						
			30						

Note: This log is not to be used outside the original report.

APEX

Client: Enterprise Products Operating LLC
Project Name: S. Carlsbad Compressor Station
Project Location: Off S. Carassco Rd, Carlsbad, NM
Project Manager: Joseph W. Martinez

SOIL BORING LOG

DRILLING & SAMPLING INFORMATION

Date Started: 2.25.2011
Date Completed: 2.25.2011
Drilling Company: Earth Worx
Driller: Louis Trujillo
Geologist: B. Chris Mitchell, P.G.
Boring Method: GP
Bore Hole Dia: 6-Inch

Soil Boring Number: B-3
Project #: 0210G003
Drawn By: Joseph W. Martinez
Approved By: B. Chris Mitchell, P.G.

Well Diam: N/A
Screen Size: N/A
Screen Length: N/A
Casing Length: N/A

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▼ AT WELL STABILIZATION

Monitor Well Detail	SOIL CLASSIFICATION	Stratum	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	FID/PID Readings (ppm)	BORING AND SAMPLING NOTES
	SURFACE ELEVATION:								
	Clayey Silt with Sand, Gray, Dry, Petroleum Hydrocarbon Odor		5	6' - 7'		100%		113	
								196	
								219	
								146	
						100%		227	
								187	
			10					287	
	Refusal at 8'							106	
			15						
			20						
			25						
			30						

Note: This log is not to be used outside the original report.

APEX

Client: Enterprise Products Operating LLC
Project Name: S. Carlsbad Compressor Station
Project Location: Off S. Carassco Rd, Carlsbad, NM
Project Manager: Joseph W. Martinez

SOIL BORING LOG

DRILLING & SAMPLING INFORMATION

Date Started: 2.25.2011
Date Completed: 2.25.2011
Drilling Company: Earth Worx
Driller: Louis Trujillo
Geologist: B. Chris Mitchell, P.G.
Boring Method: GP
Bore Hole Dia: 6-Inch

Soil Boring Number: B-4
Project #: 0210G003
Drawn By: Joseph W. Martinez
Approved By: B. Chris Mitchell, P.G.

Well Diam: N/A
Screen Size: N/A
Screen Length: N/A
Casing Length: N/A

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▼ AT WELL STABILIZATION

Monitor Well Detail	SOIL CLASSIFICATION	Stratum	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	FID/PID Readings (ppm)	BORING AND SAMPLING NOTES
	SURFACE ELEVATION:								
	Clayey Silt with Sand, Gray, Dry, Petroleum Hydrocarbon Odor			3' - 4'		100%		0	
								0	
								0	
								0	
			5	5' - 6'		100%		0	
								155	
								107	
								67	
	Refusal at 8'		10						
			15						
			20						
			25						
			30						

Note: This log is not to be used outside the original report.

APEX

Client: Enterprise Products Operating LLC
Project Name: S. Carlsbad Compressor Station
Project Location: Off S. Carassco Rd, Carlsbad, NM
Project Manager: Joseph W. Martinez

SOIL BORING LOG

DRILLING & SAMPLING INFORMATION

Date Started: 2.25.2011
Date Completed: 2.25.2011
Drilling Company: Earth Worx
Driller: Louis Trujillo
Geologist: B. Chris Mitchell, P.G.
Boring Method: GP
Bore Hole Dia: 6-Inch

Soil Boring Number: B-5
Project #: 0210G003
Drawn By: Joseph W. Martinez
Approved By: B. Chris Mitchell, P.G.

Well Diam: N/A
Screen Size: N/A
Screen Length: N/A
Casing Length: N/A

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▼ AT WELL STABILIZATION

Monitor Well Detail	SOIL CLASSIFICATION	Stratum	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	FID/PID Readings (ppm)	BORING AND SAMPLING NOTES
	SURFACE ELEVATION:								
	Clayey Silt with Sand, Tan and Gray, Dry, Petroleum Hydrocarbon Odor							0	
								18	
								30	
								38	
			5	4' - 5'				186	
								130	
								108	
								67	
	Refusal at 8'		10						
			15						
			20						
			25						
			30						

Note: This log is not to be used outside the original report.

APEX

Client: Enterprise Products Operating LLC
Project Name: S. Carlsbad Compressor Station
Project Location: Off S. Carassco Rd, Carlsbad, NM
Project Manager: Joseph W. Martinez

SOIL BORING LOG

DRILLING & SAMPLING INFORMATION

Date Started: 2.25.2011
Date Completed: 2.25.2011
Drilling Company: Earth Worx
Driller: Louis Trujillo
Geologist: B. Chris Mitchell, P.G.
Boring Method: GP
Bore Hole Dia: 6-Inch

Soil Boring Number: B-6
Project #: 0210G003
Drawn By: Joseph W. Martinez
Approved By: B. Chris Mitchell, P.G.

Well Diam: N/A
Screen Size: N/A
Screen Length: N/A
Casing Length: N/A

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▼ AT WELL STABILIZATION

Monitor Well Detail	SOIL CLASSIFICATION	Stratum	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	FID/PID Readings (ppm)	BORING AND SAMPLING NOTES
	SURFACE ELEVATION:								
	Silty Clay, Dark Brown, Dry, No Odor							0	
	Clayey Silt with Sand, Gray, Dry, Petroleum Hydrocarbon Odor							0	
								44	
								82	
			5	4' - 5'				140	
								100	
				7' - 8'				119	
								67	
	Refusal at 8'		10						
			15						
			20						
			25						
			30						

Note: This log is not to be used outside the original report.

APEX

Client: Enterprise Products Operating LLC
Project Name: S. Carlsbad Compressor Station
Project Location: Off S. Carassco Rd, Carlsbad, NM
Project Manager: Joseph W. Martinez

SOIL BORING LOG

DRILLING & SAMPLING INFORMATION

Date Started: 2.25.2011
Date Completed: 2.25.2011
Drilling Company: Earth Worx
Driller: Louis Trujillo
Geologist: B. Chris Mitchell, P.G.
Boring Method: GP
Bore Hole Dia: 6-Inch

Soil Boring Number: B-7
Project #: 0210G003
Drawn By: Joseph W. Martinez
Approved By: B. Chris Mitchell, P.G.

Well Diam: N/A
Screen Size: N/A
Screen Length: N/A
Casing Length: N/A

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▼ AT WELL STABILIZATION

Monitor Well Detail	SOIL CLASSIFICATION	Stratum	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	FID/PID Readings (ppm)	BORING AND SAMPLING NOTES
	SURFACE ELEVATION:								
	Clayey Silt with Sand, Tan and Gray, Dry, No Odor to Petroleum Hydrocarbon Odor			2' - 3'				0	
								0	
								0	
								0	
			5	5' - 6'				57	
								137	
								118	
								67	
	Refusal at 8'		10						
			15						
			20						
			25						
			30						

Note: This log is not to be used outside the original report.

APEX

Client: Enterprise Products Operating LLC
Project Name: S. Carlsbad Compressor Station
Project Location: Off S. Carassco Rd, Carlsbad, NM
Project Manager: Joseph W. Martinez

SOIL BORING LOG

DRILLING & SAMPLING INFORMATION

Date Started: 2.25.2011
Date Completed: 2.25.2011
Drilling Company: Earth Worx
Driller: Louis Trujillo
Geologist: B. Chris Mitchell, P.G.
Boring Method: GP
Bore Hole Dia: 6-Inch

Soil Boring Number: B-8
Project #: 0210G003
Drawn By: Joseph W. Martinez
Approved By: B. Chris Mitchell, P.G.

Well Diam: N/A
Screen Size: N/A
Screen Length: N/A
Casing Length: N/A

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▼ AT WELL STABILIZATION

Monitor Well Detail	SOIL CLASSIFICATION	Stratum	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	FID/PID Readings (ppm)	BORING AND SAMPLING NOTES
	SURFACE ELEVATION:								
	Clayey Silt with Sand, Tan, Dry, No Odor							0	
								0	
								0	
	Silty Clay, Gray, Dry, Petroleum, Hydrocarbon Odor							0	
			5	4' - 5'	■			212	
								157	
	Silty Sand, Tan, Dry, No Odor							0	
				7' - 8'	■			0	
	Refusal at 8'		10						
			15						
			20						
			25						
			30						

Note: This log is not to be used outside the original report.

APEX

Client: Enterprise Products Operating LLC
Project Name: S. Carlsbad Compressor Station
Project Location: Off S. Carassco Rd, Carlsbad, NM
Project Manager: Joseph W. Martinez

SOIL BORING LOG

DRILLING & SAMPLING INFORMATION

Date Started: 2.25.2011
Date Completed: 2.25.2011
Drilling Company: Earth Worx
Driller: Louis Trujillo
Geologist: B. Chris Mitchell, P.G.
Boring Method: GP
Bore Hole Dia: 6-Inch

Soil Boring Number: B-9
Project #: 0210G003
Drawn By: Joseph W. Martinez
Approved By: B. Chris Mitchell, P.G.

Well Diam: N/A
Screen Size: N/A
Screen Length: N/A
Casing Length: N/A

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▼ AT WELL STABILIZATION

Monitor Well Detail	SOIL CLASSIFICATION	Stratum	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	FID/PID Readings (ppm)	BORING AND SAMPLING NOTES
	SURFACE ELEVATION:								
	Clayey Silt with Sand, Tan, Dry, No Odor							0	
								0	
								0	
								0	
			5	4' - 5'				0	
								0	
	Sandy Silt, Tan, Dry, No Odor							0	
				7' - 8'				0	
	Refusal at 8'		10						
			15						
			20						
			25						
			30						

Note: This log is not to be used outside the original report.

APEX

Client: Enterprise Products Operating LLC
Project Name: S. Carlsbad Compressor Station
Project Location: Off S. Carassco Rd, Carlsbad, NM
Project Manager: Joseph W. Martinez

SOIL BORING LOG

DRILLING & SAMPLING INFORMATION

Date Started: 1.14.2014
Date Completed: 1.14.2014
Drilling Company: Talon/LPE, Inc.
Driller: Jason Stuart
Geologist: Joseph W. Martinez
Boring Method: HA/HSA
Bore Hole Dia: 8-Inch

Soil Boring Number: B-10
Project #: 0210G003
Drawn By: Aaron C. Bentley, E.I.T
Approved By: Marc E. Gentry, P.G.

Well Diam: N/A
Screen Size: N/A
Screen Length: N/A
Casing Length: N/A

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▼ AT WELL STABILIZATION

Monitor Well Detail	SOIL CLASSIFICATION	Stratum	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	FID/PID Readings (ppm)	BORING AND SAMPLING NOTES
	SURFACE ELEVATION:								
	Silty Clay, Reddish Brown grading to Light Gray at 2 ft, Stiff, Moist, No Odor					100%		1 1 1 4 5	Hand Augered/Hydro Excavated 0-5 ft bgs
	Silty Sand, Gray grading to Gray and Pink at 8 ft, Stiff, Moist, Petroleum Hydrocarbon Staining 8 ft to 11 ft, Petroleum Hydrocarbon Odor 8 ft to 20 ft		5 10	8'-9'		40%		NR NR NR 1540 970	NR = No Recovery
	Silty Clay, Pink/Tan, Very Stiff, Moist, Petroleum Hydorcarbon Odor 8 ft to 20 ft		15 20	14'-15'		100% 100%		430 380 577 385 110 110 65 35 35 32 13 17	
	Bottom of Soil Boring at 25'		25 30	24'-25'		100%		48 34 45	

Note: This log is not to be used outside the original report.

APEX

Client: Enterprise Products Operating LLC
Project Name: S. Carlsbad Compressor Station
Project Location: Off S. Carassco Rd, Carlsbad, NM
Project Manager: Joseph W. Martinez

SOIL BORING LOG

DRILLING & SAMPLING INFORMATION

Date Started: 1.15.2014
Date Completed: 1.15.2014
Drilling Company: Talon/LPE, Inc.
Driller: Jason Stuart
Geologist: Joseph W. Martinez
Boring Method: HA/HSA
Bore Hole Dia: 8-Inch

Soil Boring Number: B-11
Project #: 0210G003
Drawn By: Aaron C. Bentley, E.I.T.
Approved By: Marc E. Gentry, P.G.

Well Diam: N/A
Screen Size: N/A
Screen Length: N/A
Casing Length: N/A

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▼ AT WELL STABILIZATION

Monitor Well Detail	SOIL CLASSIFICATION	Stratum	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	FID/PID Readings (ppm)	BORING AND SAMPLING NOTES
	SURFACE ELEVATION:								
	Silty Clay, Light Brown grading to Gray at 7 ft, grading to Pink/Tan at 13 ft, Medium Stiff to Very Stiff throughout, Hard from 15 ft to 18 ft and 22 ft to 30 ft, Moist to Wet at 29.5 ft, Petroleum Hydrocarbon Staining from 7 ft to 23 ft, Petroleum Hydrocarbon Odor 7 ft to 30 ft		5	10'-11'		0%		NR	Hydro Excavated 0-5 ft bgs
						40%		NR	
			10					NR	NR = No Recovery
								NR	
								NR	
								NR	
								NR	Groundwater at 29.5 ft bgs
								5000	
								5000	
						100%		5000	
			15					5000	
								5000	
								5000	
								3300	
						100%		3780	
								1854	
								1218	
								1620	
			20	20'-21'				3500	
						100%		4480	
								3600	
								1765	
								NR	
			25					NR	
						100%		235	
								219	
								190	
				29'-30'			▽	253	
	Bottom of Soil Boring at 30'		30						

Note: This log is not to be used outside the original report.

APEX

Client: Enterprise Products Operating LLC
Project Name: S. Carlsbad Compressor Station
Project Location: Off S. Carassco Rd, Carlsbad, NM
Project Manager: Joseph W. Martinez

SOIL BORING LOG

DRILLING & SAMPLING INFORMATION

Date Started: 1.14.2014
Date Completed: 1.15.2014
Drilling Company: Talon/LPE, Inc.
Driller: Jason Stuart
Geologist: Joseph W. Martinez
Boring Method: HA/HSA
Bore Hole Dia: 8-Inch

Soil Boring Number: B-12
Project #: 0210G003
Drawn By: Aaron C. Bentley, E.I.T
Approved By: Marc E. Gentry, P.G.

Well Diam: N/A
Screen Size: N/A
Screen Length: N/A
Casing Length: N/A

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▼ AT WELL STABILIZATION

Monitor Well Detail	SOIL CLASSIFICATION	Stratum	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	FID/PID Readings (ppm)	BORING AND SAMPLING NOTES
	SURFACE ELEVATION:								
	Silty Clay, Light Brown grading to Gray at 1 ft, Stiff, Moist, No Odor							1	Hand Augered/Hydro Excavated 0-5 ft bgs
								12	
								48	
								85	
								1139	
	Silty Sand, Gray,Stiff, Moist, Petroleum Hydrocarbon Staining 7 ft to 15 ft, Petroleum Hydrocarbon Odor 7 ft to 25 ft		5			100%		NR	NR = No Recovery
								NR	
						0%		NR	
								NR	
			10					2442	
						100%		2800	
				13'-14'				2043	
	Silty Clay, Gray grading to Pink/Tan at 15 ft, Very Stiff, Moist, Petroleum Hydrocarbon Staining 7 ft to 15 ft, Petroleum Hydrocarbon Odor 7 ft to 25 ft		15					3596	
				15'-16'				2400	
						100%		2240	
								3347	
								1584	
			20					1606	
								397	
						100%		1188	
								776	
								381	
								357	
				24'-25'				248	
	Bottom of Soil Boring at 25'		25						
			30						

Note: This log is not to be used outside the original report.

APEX

Client: Enterprise Products Operating LLC
Project Name: S. Carlsbad Compressor Station
Project Location: Off S. Carassco Rd, Carlsbad, NM
Project Manager: Joseph W. Martinez

SOIL BORING LOG

DRILLING & SAMPLING INFORMATION

Date Started: 1.14.2014
Date Completed: 1.14.2014
Drilling Company: Talon/LPE, Inc.
Driller: Jason Stuart
Geologist: Joseph W. Martinez
Boring Method: HA/HSA
Bore Hole Dia: 8-Inch

Soil Boring Number: B-13
Project #: 0210G003
Drawn By: Aaron C. Bentley, E.I.T
Approved By: Marc E. Gentry, P.G.

Well Diam: N/A
Screen Size: N/A
Screen Length: N/A
Casing Length: N/A

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▼ AT WELL STABILIZATION

Monitor Well Detail	SOIL CLASSIFICATION	Stratum	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	FID/PID Readings (ppm)	BORING AND SAMPLING NOTES
	SURFACE ELEVATION:								
	Fill: Silty Sand, Tan, Stiff, Moist, No Odor					100%		9	Hand Augered/Hydro Excavated 0-5 ft bgs
	Silty Clay, Light Brown, Stiff, Moist, No Odor							3	
	Silty Sand, Tan, Stiff, Moist, No Odor							2	
			5					2	
						0%		NR	NR = No Recovery
								NR	
								NR	
								NR	
			10					NR	
						40%		NR	
	Silty Clay, Reddish Brown, Very Stiff, Moist, No Odor			14'-15'				6	
			15					6	
						100%		7	
								9	
								10	
			20					5	
						100%		6	
								6	
								5	
								4	
				24'-25'				5	
			25					5	
	Bottom of Soil Boring at 25'								
			30						

Note: This log is not to be used outside the original report.

APEX

Client: Enterprise Products Operating LLC
Project Name: S. Carlsbad Compressor Station
Project Location: Off S. Carassco Rd, Carlsbad, NM
Project Manager: Joseph W. Martinez

SOIL BORING LOG

DRILLING & SAMPLING INFORMATION

Date Started: 1.14.2014
Date Completed: 1.15.2014
Drilling Company: Talon/LPE, Inc.
Driller: Jason Stuart
Geologist: Joseph W. Martinez
Boring Method: HA/HSA
Bore Hole Dia: 8-Inch

Soil Boring Number: B-14
Project #: 0210G003
Drawn By: Aaron C. Bentley, E.I.T
Approved By: Marc E. Gentry, P.G.

Well Diam: N/A
Screen Size: N/A
Screen Length: N/A
Casing Length: N/A

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▼ AT WELL STABILIZATION

Monitor Well Detail	SOIL CLASSIFICATION	Stratum	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	FID/PID Readings (ppm)	BORING AND SAMPLING NOTES
	SURFACE ELEVATION:								
	Silty Clay, Light Brown grading to Tan/Pink at 3 ft, Moist, Stiff, No Odor					100%		1 1 1 1 1	Hand Augered/Hydro Excavated 0-5 ft bgs
	Silty Sand, Pink/Tan, Stiff, Moist, No Odor		5			0%		NR NR NR NR NR	NR = No Recovery
	Silty Clay, Reddish Brown, Very Siff, Hard from 16 ft to 18 ft and 22 ft to 23 ft, Moist, No Odor		10			40%		NR NR NR 8	
			15	14'-15'		100%		5 7 12 9	
	Bottom of Soil Boring at 25'		20			100%		9 5 5 6	
			25	24'-25'				4 6 6	
			30						

Note: This log is not to be used outside the original report.

APEX

Client: Enterprise Products Operating LLC
Project Name: S. Carlsbad Compressor Station
Project Location: Off S. Carassco Rd, Carlsbad, NM
Project Manager: Joseph W. Martinez

SOIL BORING LOG

DRILLING & SAMPLING INFORMATION

Date Started: 1.14.2014
Date Completed: 1.14.2014
Drilling Company: Talon/LPE, Inc.
Driller: Jason Stuart
Geologist: Joseph W. Martinez
Boring Method: HSA
Bore Hole Dia: 8-Inch

Soil Boring Number: B-15
Project #: 0210G003
Drawn By: Aaron C. Bentley, E.I.T
Approved By: Marc E. Gentry, P.G.

Well Diam: N/A
Screen Size: N/A
Screen Length: N/A
Casing Length: N/A

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▼ AT WELL STABILIZATION

Monitor Well Detail	SOIL CLASSIFICATION	Stratum	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	FID/PID Readings (ppm)	BORING AND SAMPLING NOTES
	SURFACE ELEVATION:								
	Silty Sand, Pink/Tan, Stiff, Moist, No Odor			3'-4'		25%		NR NR NR 27	NR = No Recovery
	Bottom of Soil Boring at 4'		5 10 15 20 25 30						

Note: This log is not to be used outside the original report.

APEX

Client: Enterprise Products Operating LLC
Project Name: S. Carlsbad Compressor Station
Project Location: Off S. Carassco Rd, Carlsbad, NM
Project Manager: Joseph W. Martinez

SOIL BORING LOG

DRILLING & SAMPLING INFORMATION

Date Started: 1.14.2014
Date Completed: 1.14.2014
Drilling Company: Talon/LPE, Inc.
Driller: Jason Stuart
Geologist: Joseph W. Martinez
Boring Method: HSA
Bore Hole Dia: 8-Inch

Soil Boring Number: B-16
Project #: 0210G003
Drawn By: Aaron C. Bentley, E.I.T
Approved By: Marc E. Gentry, P.G.

Well Diam: N/A
Screen Size: N/A
Screen Length: N/A
Casing Length: N/A

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▼ AT WELL STABILIZATION

Monitor Well Detail	SOIL CLASSIFICATION	Stratum	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	FID/PID Readings (ppm)	BORING AND SAMPLING NOTES
	SURFACE ELEVATION:								
	Silty Sand, Pink/Tan, Stiff, Moist, No Odor			3'-4'		25%		NR NR NR 2.2	NR = No Recovery
	Bottom of Soil Boring at 4'		5 10 15 20 25 30						

Note: This log is not to be used outside the original report.

APEX

Client: Enterprise Products Operating LLC
Project Name: S. Carlsbad Compressor Station
Project Location: Off S. Carassco Rd, Carlsbad, NM
Project Manager: Joseph W. Martinez

SOIL BORING LOG

DRILLING & SAMPLING INFORMATION

Soil Boring Number: B-17
Date Started: 1.14.2014
Project #: 0210G003
Date Completed: 1.14.2014
Drawn By: Aaron C. Bentley, E.I.T
Drilling Company: Talon/LPE, Inc.
Approved By: Marc E. Gentry, P.G.
Driller: Jason Stuart
Geologist: Joseph W. Martinez
Well Diam: N/A
Boring Method: HSA
Screen Size: N/A
Bore Hole Dia: 8-Inch
Screen Length: N/A
Casing Length: N/A

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▼ AT WELL STABILIZATION

Monitor Well Detail	SOIL CLASSIFICATION	Stratum	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	FID/PID Readings (ppm)	BORING AND SAMPLING NOTES
	SURFACE ELEVATION:								
	Silty Sand, Pink/Tan, Stiff, Moist, No Odor			3'-4'		25%		NR NR NR 0.8	NR = No Recovery
	Bottom of Soil Boring at 4'		5 10 15 20 25 30						

Note: This log is not to be used outside the original report.

APEX

Client: Enterprise Products Operating LLC
Project Name: S. Carlsbad Compressor Station
Project Location: Off S. Carassco Rd, Carlsbad, NM
Project Manager: Joseph W. Martinez

SOIL BORING LOG

DRILLING & SAMPLING INFORMATION

Date Started: 1.15.2014
Date Completed: 1.15.2014
Drilling Company: Talon/LPE, Inc.
Driller: Jason Stuart
Geologist: Joseph W. Martinez
Boring Method: HA/HSA
Bore Hole Dia: 8-Inch

Soil Boring Number: B-18
Project #: 0210G003
Drawn By: Aaron C. Bentley, E.I.T
Approved By: Marc E. Gentry, P.G.

Well Diam: N/A
Screen Size: N/A
Screen Length: N/A
Casing Length: N/A

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▼ AT WELL STABILIZATION

Monitor Well Detail	SOIL CLASSIFICATION	Stratum	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	FID/PID Readings (ppm)	BORING AND SAMPLING NOTES
	SURFACE ELEVATION:								
	Silty Clay, Light Brown, Stiff, Moist, No Odor							1	Hand Augered 0-5 ft bgs
	Silty Sand, Pink/Tan, Stiff, Moist, No Odor							1	
						100%		2	
								2	
			5					2	
						100%		2	
								2	
								2	
			10					2	
						100%		6	
				12'-13'				5	
	Silty Clay, Reddish Brown, Very Stiff, Hard from 10 ft to 25 ft, Moist to Wet at 29.5, No Odor							5	
			15					3	
						80%		5	
								4	
			20					8	
						80%		4	
								5	NR = No Recovery
								NR	
								NR	
								8	
			25					8	
				24'-25'				8	
	Bottom of Soil Boring at 25'							7	
			30						

Note: This log is not to be used outside the original report.

APEX

APPENDIX 4

Tables

TABLE 1
ENTERPRISE PRODUCTS OPERATING LLC S. CARLSBAD COMPRESSOR STATION
CARRASCO ROAD AND CR 710
CARLSBAD, EDDY COUNTY, NEW MEXICO
SOIL ANALYTICAL RESULTS - SOIL BORING SAMPLES

Sample I.D.	Date	Sample Depth (feet)	Chlorides (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Total BTEX** (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH GRO/DRO** (mg/kg)
New Mexico Energy, Minerals & Natural Resources Department, Oil Conservation Division, Remediation Action Level			**NE**	**10**	**NE**	**NE**	**NE**	**50**	**NE**	**NE**	**100**
B-1 (7-8)	11/5/2009	7 to 8	NA	0.34	7.1	1.5	31	39.94	270	710	**980**
B-1 (19-20)	11/5/2009	19 to 20	NA	<0.0021	<0.0022	<0.0024	0.036	0.0427	0.15	24	24.15
B-2	2/25/2011	Soil Samples Not Collected									
B-3 (6-7)	2/25/2011	6 to 7	NA	0.0091	56.8	13.1	224	**293.9091**	2,070	4,830	**6,900**
B-4 (3-4)	2/25/2011	3 to 4	NA	<0.00131	<0.00131	<0.00131	<0.00394	<0.00787	<0.0657	4.17	4.2357
B-4 (5-6)	2/25/2011	5 to 6	NA	<0.00133	0.00316	<0.00133	0.0198	0.02562	3.75	368	**371.75**
B-5 (4-5)	2/25/2011	4 to 5	NA	<0.00125	7.62	0.00991	29.4	37.03116	1,540	2,520	**4,060**
B-6 (4-5)	2/25/2011	4 to 5	NA	<0.00122	0.00847	<0.00122	0.0147	0.02561	1.12	25.5	26.62
B-6 (7-8)	2/25/2011	7 to 8	NA	<0.00128	7.17	4.15	46.3	**57.62128**	1,930	2,210	**4,140**
B-7 (2-3)	2/25/2011	2 to 3	NA	<0.00122	<0.00122	<0.00122	<0.00366	<0.04026	<0.0612	7.98	<8.0412
B-7 (5-6)	2/25/2011	5 to 6	NA	<0.0012	2.23	2.28	10.5	15.0112	960	1,480	**2,440**
B-8 (4-5)	2/25/2011	4 to 5	NA	<0.00135	6.93	2.93	17.8	27.66135	2,100	1,920	**4,020**
B-8 (7-8)	2/25/2011	7 to 8	NA	<0.00119	<0.00119	<0.00119	<0.00358	<0.00715	<0.0597	199	**199.0597**
B-9 (4-5)	2/25/2011	4 to 5	NA	<0.0012	0.00416	<0.0012	<0.00359	0.01015	<0.0598	4.5	4.5598
B-9 (7-8)	2/25/2011	7 to 8	NA	<0.00186	<0.00186	<0.00186	<0.00558	<0.01116	<0.0929	8.98	9.0729
B-10 (8-9)	1/14/2014	8 to 9	NA	0.0076	0.029	<0.0033	0.15	0.1899	33	59	92
B-10 (14-15)	1/14/2014	14 to 15	NA	<0.0030	0.026	<0.0034	0.037	0.0694	6.6	<3.9	10.5
B-10 (24-25)	1/14/2014	24 to 25	NA	<0.0029	0.025	<0.0033	<0.011	0.0422	<2.8	<3.9	<6.7
B-11 (10-11)	1/15/2014	10 to 11	NA	0.14	1.3	1.3	11	13.74	380	1,000	**1,380**
B-11 (20-21)	1/15/2014	20 to 21	NA	0.021	0.088	<0.0032	1.3	1.4122	110	58	**168**
B-11 (29-30)	1/15/2014	29 to 30	NA	0.0071	0.045	0.043	0.18	0.2751	18	8.3	26.3
B-12 (13-14)	1/15/2014	13 to 14	NA	0.49	<0.060	2.4	2.2	5.15	350	820	**1,170**
B-12 (15-16)	1/15/2014	15 to 16	NA	0.096	0.052	0.91	0.96	2.018	180	45	**225**
B-12 (24-25)	1/15/2014	24 to 25	NA	0.01	0.016	0.047	0.087	0.16	18	4.2	22.2
B-13 (14-15)	1/14/2014	14 to 15	NA	<0.0030	0.025	<0.0034	<0.011	0.0424	<3.0	<3.9	<6.9
B-13 (24-25)	1/14/2014	24 to 25	NA	<0.0030	0.021	<0.0034	<0.011	0.0384	<2.9	<3.9	<6.8
B-14 (14-15)	1/15/2014	14 to 15	NA	<0.0029	0.024	<0.0033	<0.0011	0.0313	<2.9	29	31.9
B-14 (24-25)	1/15/2014	24 to 25	NA	<0.0031	0.024	<0.0035	<0.011	0.0416	<3.0	<3.9	6.9
B-15 (3-4)	1/14/2014	3 to 4	8.1	NA	NA	NA	NA	NA	NA	NA	NA
B-16 (3-4)	1/14/2014	3 to 4	380	NA	NA	NA	NA	NA	NA	NA	NA
B-17 (3-4)	1/14/2014	3 to 4	7.8	NA	NA	NA	NA	NA	NA	NA	NA
B-18 (12-13)	1/15/2014	12 to 13	NA	<0.0029	0.025	<0.0033	<0.0011	0.0323	<2.9	<4.0	<6.9
B-18 (24-25)	1/15/2014	24 to 25	NA	<0.0029	0.023	<0.0033	<0.011	0.0402	<2.9	<3.9	<6.8
EC-1	1/31/2011	8 to 9	NA	<0.0125	13	9.23	103	<125.2425	903	6,040	6,943
EC-1(R)	2/24/2011	8 to 9	NA	<0.0123	13.1	2.62	50.1	**65.8323**	569	1,250	**1,819**
EC-2	1/31/2011	8 to 9	NA	<0.00611	0.214	0.240	16.8	17.26011	1.34	4,530	4,531.34
EC-2(R)	2/24/2011	8 to 9	NA	<0.0127	7.98	0.836	25.4	34.2287	6,980	674	7,654
EC-2(R)*	2/24/2011	8 to 9	NA	NA	NA	NA	NA	NA	835	2,050	**2,885**
EC-3	1/31/2011	8 to 9	NA	<0.00128	0.00713	<0.00128	59.4	59.40969	1,260	5,200	6,460
EC-3(R)A	2/24/2011	8 to 9	NA	<0.0126	4.22	1.26	12.3	17.7926	515	640	**1,155**
EC-3(R)B	2/24/2011	8 to 9	NA	<0.00135	0.00204	<0.00135	<0.00406	0.0088	0.545	14.9	15.445
EC-4	1/31/2011	8 to 9	NA	<0.00126	<0.00126	<0.00126	<0.00379	<0.00757	0.722	44	44.722
EC-5	1/31/2011	14 to 15	NA	<0.0013	0.0156	0.04	0.123	0.1799	0.836	692	**692.836**

Note: Concentrations in **bold** and yellow exceed the applicable OCD Remediation Action Level
Note: Excavation confirmation samples shaded indicates the area was overexcavated and removed.
* Indicates analysis of a new extraction from sample
** Totals include reported concentration and/or assume concentrations up to the SDL.
NA = Not Analyzed
ND = Not Detected
NE = Not Established

TABLE 2
ENTERPRISE PRODUCTS OPERATING LLC S. CARLSBAD COMPRESSOR STATION
CARRASCO ROAD AND CR 710
CARLSBAD, EDDY COUNTY, NEW MEXICO
SOIL ANALYTICAL RESULTS - TREATED SOILS AND VADOSE ZONE SAMPLES

Sample I.D.	Date	Sample Depth (feet)	Chlorides (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzen (mg/kg)	Xylenes (mg/kg)	Total BTEX** (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH GRO/DRO** (mg/kg)
NMAC *Small Landfarm Closure Performance Standards*			**500**	**0.2**	**NE**	**NE**	**NE**	**50**	**NE**	**NE**	**500**
TS-1	3/24/2011	0 to 0.5	410	<0.19	<0.23	<0.23	<0.69	<1.34	140 (j)	1,600	**1,740**
TS-1 (R)	6/20/2011	0 to 0.5	NA	NA	NA	NA	NA	NA	81 (j)	1,800	**1,881**
TS-1 (R2)	8/24/2011	0 to 0.5	NA	NA	NA	NA	NA	NA	<16	570	**586**
TS-1 (R3)	11/3/2011	0 to 0.5	120	NA	NA	NA	NA	NA	<9.8	440	449.8
TS-2	3/24/2011	0 to 0.5	310	<0.019	<0.023	<0.023	<0.069	<0.134	8.3 (j)	770	**778.3**
TS-2 (R)	6/20/2011	0 to 0.5	NA	NA	NA	NA	NA	NA	<16	560	**576**
TS-2 (R2)	8/24/2011	0 to 0.5	NA	NA	NA	NA	NA	NA	<16	470	486
TS-3	3/24/2011	0 to 0.5	**600**	<0.19	<0.23	<0.23	0.83 (j)	1.48	<80	1,700	**1,780**
TS-3 (R)	6/20/2011	0 to 0.5	290	NA	NA	NA	NA	NA	<30	1,400	**1,430**
TS-3 (R2)	8/24/2011	0 to 0.5	NA	NA	NA	NA	NA	NA	<16	1,200	**1,216**
TS-3 (R3)	11/3/2011	0 to 0.5	120	NA	NA	NA	NA	NA	<24	1,200	**1,224**
TS-3 (R4)	12/6/2011	0.5 to 1	NA	NA	NA	NA	NA	NA	<4.8	270	274.8
TS-4	3/24/2011	0 to 0.5	270	<0.019	<0.023	<0.023	0.14 (j)	0.205	17 (j)	1,300	**1,317**
TS-4 (R)	6/20/2011	0 to 0.5	NA	NA	NA	NA	NA	NA	<15	820	**835**
TS-4 (R2)	8/24/2011	0 to 0.5	NA	NA	NA	NA	NA	NA	<7.5	250	257.5
TS-5	3/24/2011	0 to 0.5	440	<0.019	<0.023	<0.023	<0.069	<0.134	<8.0	1,300	**1,308**
TS-5 (R)	6/20/2011	0 to 0.5	NA	NA	NA	NA	NA	NA	1.6 (j)	14	15.6
TS-6	3/24/2011	0 to 0.5	190	**<0.37**	<0.46	<0.45	1.6 (j)	2.88	<160	2,000	**2,160**
TS-6 (R)	6/20/2011	0 to 0.5	NA	<0.018	<0.022	<0.021	<0.065	<0.126	<7.6	230	237.6
TS-7	3/24/2011	0 to 0.5	260	<0.019	<0.023	0.023 (j)	0.25 (j)	0.315	20 (j)	1,500	**1,520**
TS-7 (R)	6/20/2011	0 to 0.5	NA	NA	NA	NA	NA	NA	<1.6	56	57.6
TS-8	3/24/2011	0 to 0.5	350	<0.019	0.039 (j)	0.069 (j)	0.09	0.217	47	1,500	**1,547**
TS-8 (R)	6/20/2011	0 to 0.5	NA	NA	NA	NA	NA	NA	<1.6	<3.5	<5.1
TS-9	3/24/2011	0 to 0.5	410	<0.019	<0.023	0.023 (j)	<0.069	0.134	<8.0	650	**658**
TS-9 (R)	6/20/2011	0 to 0.5	NA	NA	NA	NA	NA	NA	<8.0	270	278
TS-10	3/24/2011	0 to 0.5	110	<0.19	<0.23	<0.23	<0.69	<1.34	<80	1,000	**1,080**
TS-10 (R)	6/20/2011	0 to 0.5	NA	NA	NA	NA	NA	NA	<8.4	250	258.4

Note: Concentrations in **bold** and yellow exceed the applicable NMAC *Small Landfarm Closure Performance Standards*
(j) indicates that the analyte was reported at or above the Method Detection Limit and below the Practical Quantitation Limit
** Totals include reported concentration and/or assume concentrations up to the SDL.
NA = Not Analyzed
NE = Not Established

TABLE 2 (Cont.)
ENTERPRISE PRODUCTS OPERATING LLC S. CARLSBAD COMPRESSOR STATION
CARRASCO ROAD AND CR 710
CARLSBAD, EDDY COUNTY, NEW MEXICO
SOIL ANALYTICAL RESULTS - TREATED SOILS AND VADOSE ZONE SAMPLES

Sample I.D.	Date	Sample Depth (feet)	Chlorides (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzen (mg/kg)	Xylenes (mg/kg)	Total BTEX** (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH GRO/DRO** (mg/kg)
NMAC *Small Landfarm Closure Performance Standards*			**500**	**0.2**	**NE**	**NE**	**NE**	**50**	**NE**	**NE**	**500**
TS-11	3/24/2011	0 to 0.5	160	<0.19	<0.23	<0.23	<0.69	<1.34	<80	1,800	**1,880**
TS-11 (R)	6/20/2011	0 to 0.5	NA	NA	NA	NA	NA	NA	<16	790	**806**
TS-11 (R2)	8/24/2011	0 to 0.5	NA	NA	NA	NA	NA	NA	<1.5	350	351.5
TS-12	3/24/2011	0 to 0.5	160	<0.19	<0.23	<0.23	<0.69	<1.34	<80	1,400	1,480
TS-12 (R)	6/20/2011	0 to 0.5	NA	NA	NA	NA	NA	NA	<15	440	455
TS-13	3/24/2011	0 to 0.5	100	**<0.37**	<0.46	<0.45	<1.4	2.68	<160	1,900	**2,060**
TS-13 (R)	6/20/2011	0 to 0.5	NA	**<0.24**	<0.24	<0.24	<0.24	<0.48	<7.7	290	297.7
TS-14	3/24/2011	0 to 0.5	210	<0.19	<0.23	<0.23	<0.69	<1.34	<80	1,100	**1,180**
TS-14 (R)	6/20/2011	0 to 0.5	NA	NA	NA	NA	NA	NA	<15	500	515
TS-15	3/24/2011	0 to 0.5	210	<0.19	<0.23	<0.23	<0.69	<1.34	160 (j)	2,400	**2,560**
TS-15 (R)	6/20/2011	0 to 0.5	NA	NA	NA	NA	NA	NA	17 (j)	430	447
TS-16	3/24/2011	0 to 0.5	230	<0.19	<0.23	<0.23	<0.69	<1.34	210 (j)	1,900	**2,110**
TS-16 (R)	6/20/2011	0 to 0.5	NA	NA	NA	NA	NA	NA	<1.5	73	74.5
TS-17	3/24/2011	0 to 0.5	320	<0.037	<0.046	<0.045	<0.14	<0.268	<16	1,200	**1,216**
TS-17 (R)	6/20/2011	0 to 0.5	NA	NA	NA	NA	NA	NA	3.3 (j)	99	102.3
TS-18	3/24/2011	0 to 0.5	280	<0.19	<0.23	<0.23	<0.69	<1.34	<80	2,800	**2,880**
TS-18 (R)	6/20/2011	0 to 0.5	NA	NA	NA	NA	NA	NA	<1.6	63	64.6
TS-19	3/24/2011	0 to 0.5	290	<0.19	<0.23	<0.23	<0.69	<1.34	<80	2,700	**2,780**
TS-19 (R)	6/20/2011	0 to 0.5	NA	NA	NA	NA	NA	NA	<16	790	**806**
TS-19 (R2)	8/24/2011	0 to 0.5	NA	NA	NA	NA	NA	NA	<7.5	330	337.5
TS-20	3/24/2011	0 to 0.5	230	<0.19	<0.23	<0.23	<0.69	<1.34	<80	2,200	**2,280**
TS-20 (R)	6/20/2011	0 to 0.5	NA	NA	NA	NA	NA	NA	<1.6	72	73.6
VZ-1	3/3/2012	3 to 3.25	460	<0.0047	<0.0081	<0.0039	<0.0160	<0.0327	<1.4	<5.4	<6.8
VZ-2	3/3/2012	3 to 3.25	**1,300**	<0.0046	<0.0079	<0.0038	<0.0160	<0.0323	<1.3	<5.4	6.7
B-15	1/14/2014	3 to 4	8.1	NA	NA	NA	NA	NA	NA	NA	NA
B-16	1/14/2014	3 to 4	380	NA	NA	NA	NA	NA	NA	NA	NA
B-17	1/14/2014	3 to 4	7.8	NA	NA	NA	NA	NA	NA	NA	NA

Note: Concentrations in **bold** and yellow exceed the applicable NMAC *Small Landfarm Closure Performance Standards*
(j) indicates that the analyte was reported at or above the sample reporting limit/sample detection limit.
** Totals include reported concentration and/or assume concentrations up to the SDL.
NA = Not Analyzed
NE = Not Established

APPENDIX 5

Laboratory Analytical Reports and Chain of Custody Documentation

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

February 26, 2014

Joseph Martinez

Southwest Geoscience
7979 Broadway Street
Suite 100
San Antonio, TX 78209
TEL: (210) 804-9922
FAX (210) 804-9944

RE: S Carlsbad CS OrderNo.: 1401753

Dear Joseph Martinez:

Hall Environmental Analysis Laboratory received 18 sample(s) on 1/17/2014 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued January 28, 2014.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Client Sample ID: B-10 (8-9)
Project: S Carlsbad CS
Collection Date: 1/14/2014 2:30:00 PM
Lab ID: 1401753-001
Matrix: SOIL
Received Date: 1/17/2014 8:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: **BCN**	
Diesel Range Organics (DRO)	59	3.9	10		mg/Kg	1	1/21/2014 3:56:45 PM	11296
Surr: DNOP	81.1	0	66-131		%REC	1	1/21/2014 3:56:45 PM	11296
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **JMP**	
Gasoline Range Organics (GRO)	33	2.9	4.7		mg/Kg	1	1/21/2014 10:13:05 PM	11304
Surr: BFB	322	0	74.5-129	S	%REC	1	1/21/2014 10:13:05 PM	11304
EPA METHOD 8021B: VOLATILES							Analyst: **JMP**	
Benzene	0.0076	0.0029	0.047	J	mg/Kg	1	1/21/2014 10:13:05 PM	11304
Toluene	0.029	0.0030	0.047	J	mg/Kg	1	1/21/2014 10:13:05 PM	11304
Ethylbenzene	ND	0.0033	0.047		mg/Kg	1	1/21/2014 10:13:05 PM	11304
Xylenes, Total	0.15	0.011	0.095		mg/Kg	1	1/21/2014 10:13:05 PM	11304
Surr: 4-Bromofluorobenzene	114	0	80-120		%REC	1	1/21/2014 10:13:05 PM	11304

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Client Sample ID: B-10 (14-15)
Project: S Carlsbad CS
Collection Date: 1/14/2014 2:50:00 PM
Lab ID: 1401753-002
Matrix: SOIL
Received Date: 1/17/2014 8:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: **BCN**	
Diesel Range Organics (DRO)	ND	3.9	10		mg/Kg	1	1/21/2014 5:25:22 PM	11296
Surr: DNOP	94.6	0	66-131		%REC	1	1/21/2014 5:25:22 PM	11296
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **JMP**	
Gasoline Range Organics (GRO)	6.6	2.9	4.8		mg/Kg	1	1/21/2014 11:38:54 PM	11304
Surr: BFB	138	0	74.5-129	S	%REC	1	1/21/2014 11:38:54 PM	11304
EPA METHOD 8021B: VOLATILES							Analyst: **JMP**	
Benzene	ND	0.0030	0.048		mg/Kg	1	1/21/2014 11:38:54 PM	11304
Toluene	0.026	0.0031	0.048	J	mg/Kg	1	1/21/2014 11:38:54 PM	11304
Ethylbenzene	ND	0.0034	0.048		mg/Kg	1	1/21/2014 11:38:54 PM	11304
Xylenes, Total	0.037	0.011	0.096	J	mg/Kg	1	1/21/2014 11:38:54 PM	11304
Surr: 4-Bromofluorobenzene	108	0	80-120		%REC	1	1/21/2014 11:38:54 PM	11304

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Client Sample ID: B-10 (24-25)
Project: S Carlsbad CS
Collection Date: 1/14/2014 3:20:00 PM
Lab ID: 1401753-003 **Matrix:** SOIL **Received Date:** 1/17/2014 8:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: **BCN**	
Diesel Range Organics (DRO)	ND	3.9	10		mg/Kg	1	1/21/2014 5:47:28 PM	11296
Surr: DNOP	98.5	0	66-131		%REC	1	1/21/2014 5:47:28 PM	11296
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **JMP**	
Gasoline Range Organics (GRO)	ND	2.8	4.7		mg/Kg	1	1/22/2014 1:04:29 AM	11304
Surr: BFB	91.8	0	74.5-129		%REC	1	1/22/2014 1:04:29 AM	11304
EPA METHOD 8021B: VOLATILES							Analyst: **JMP**	
Benzene	ND	0.0029	0.047		mg/Kg	1	1/22/2014 1:04:29 AM	11304
Toluene	0.025	0.0030	0.047	J	mg/Kg	1	1/22/2014 1:04:29 AM	11304
Ethylbenzene	ND	0.0033	0.047		mg/Kg	1	1/22/2014 1:04:29 AM	11304
Xylenes, Total	ND	0.011	0.093		mg/Kg	1	1/22/2014 1:04:29 AM	11304
Surr: 4-Bromofluorobenzene	102	0	80-120		%REC	1	1/22/2014 1:04:29 AM	11304

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Client Sample ID: B-11 (10-11)
Project: S Carlsbad CS
Collection Date: 1/15/2014 1:20:00 PM
Lab ID: 1401753-004 **Matrix:** SOIL **Received Date:** 1/17/2014 8:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: **BCN**	
Diesel Range Organics (DRO)	1000	39	99		mg/Kg	10	1/22/2014 12:15:44 PM	11296
Surr: DNOP	0	0	66-131	S	%REC	10	1/22/2014 12:15:44 PM	11296
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **JMP**	
Gasoline Range Organics (GRO)	380	59	97		mg/Kg	20	1/22/2014 1:32:59 AM	11304
Surr: BFB	166	0	74.5-129	S	%REC	20	1/22/2014 1:32:59 AM	11304
EPA METHOD 8021B: VOLATILES							Analyst: **JMP**	
Benzene	0.14	0.060	0.97	J	mg/Kg	20	1/22/2014 1:32:59 AM	11304
Toluene	1.3	0.062	0.97		mg/Kg	20	1/22/2014 1:32:59 AM	11304
Ethylbenzene	1.3	0.068	0.97		mg/Kg	20	1/22/2014 1:32:59 AM	11304
Xylenes, Total	11	0.22	1.9		mg/Kg	20	1/22/2014 1:32:59 AM	11304
Surr: 4-Bromofluorobenzene	107	0	80-120		%REC	20	1/22/2014 1:32:59 AM	11304

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Client Sample ID: B-11 (20-21)
Project: S Carlsbad CS
Collection Date: 1/15/2014 1:40:00 PM
Lab ID: 1401753-005 **Matrix:** SOIL **Received Date:** 1/17/2014 8:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: **BCN**	
Diesel Range Organics (DRO)	58	3.9	10		mg/Kg	1	1/21/2014 6:31:36 PM	11296
Surr: DNOP	90.5	0	66-131		%REC	1	1/21/2014 6:31:36 PM	11296
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **JMP**	
Gasoline Range Organics (GRO)	110	2.8	4.6		mg/Kg	1	1/22/2014 2:01:37 AM	11304
Surr: BFB	716	0	74.5-129	S	%REC	1	1/22/2014 2:01:37 AM	11304
EPA METHOD 8021B: VOLATILES							Analyst: **JMP**	
Benzene	0.021	0.0029	0.046	J	mg/Kg	1	1/22/2014 2:01:37 AM	11304
Toluene	0.088	0.0030	0.046		mg/Kg	1	1/22/2014 2:01:37 AM	11304
Ethylbenzene	ND	0.0032	0.046		mg/Kg	1	1/22/2014 2:01:37 AM	11304
Xylenes, Total	1.3	0.010	0.092		mg/Kg	1	1/22/2014 2:01:37 AM	11304
Surr: 4-Bromofluorobenzene	148	0	80-120	S	%REC	1	1/22/2014 2:01:37 AM	11304

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Client Sample ID: B-11 (29-30)
Project: S Carlsbad CS
Collection Date: 1/15/2014 2:00:00 PM
Lab ID: 1401753-006
Matrix: SOIL
Received Date: 1/17/2014 8:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: **BCN**	
Diesel Range Organics (DRO)	8.3	3.9	10	J	mg/Kg	1	1/21/2014 7:15:32 PM	11296
Surr: DNOP	93.8	0	66-131		%REC	1	1/21/2014 7:15:32 PM	11296
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **JMP**	
Gasoline Range Organics (GRO)	18	2.9	4.8		mg/Kg	1	1/22/2014 4:36:22 PM	11304
Surr: BFB	192	0	74.5-129	S	%REC	1	1/22/2014 4:36:22 PM	11304
EPA METHOD 8021B: VOLATILES							Analyst: **JMP**	
Benzene	0.0071	0.0030	0.048	J	mg/Kg	1	1/22/2014 4:36:22 PM	11304
Toluene	0.045	0.0031	0.048	J	mg/Kg	1	1/22/2014 4:36:22 PM	11304
Ethylbenzene	0.043	0.0034	0.048	J	mg/Kg	1	1/22/2014 4:36:22 PM	11304
Xylenes, Total	0.18	0.011	0.096		mg/Kg	1	1/22/2014 4:36:22 PM	11304
Surr: 4-Bromofluorobenzene	107	0	80-120		%REC	1	1/22/2014 4:36:22 PM	11304

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Client Sample ID: B-12 (13-14)
Project: S Carlsbad CS
Collection Date: 1/15/2014 10:40:00 AM
Lab ID: 1401753-007
Matrix: SOIL
Received Date: 1/17/2014 8:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: **BCN**	
Diesel Range Organics (DRO)	820	7.9	20		mg/Kg	2	1/22/2014 12:37:43 PM	11296
Surr: DNOP	114	0	66-131		%REC	2	1/22/2014 12:37:43 PM	11296
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **JMP**	
Gasoline Range Organics (GRO)	350	57	93		mg/Kg	20	1/22/2014 3:27:20 AM	11304
Surr: BFB	175	0	74.5-129	S	%REC	20	1/22/2014 3:27:20 AM	11304
EPA METHOD 8021B: VOLATILES							Analyst: **JMP**	
Benzene	0.49	0.058	0.93	J	mg/Kg	20	1/22/2014 3:27:20 AM	11304
Toluene	ND	0.060	0.93		mg/Kg	20	1/22/2014 3:27:20 AM	11304
Ethylbenzene	2.4	0.065	0.93		mg/Kg	20	1/22/2014 3:27:20 AM	11304
Xylenes, Total	2.2	0.21	1.9		mg/Kg	20	1/22/2014 3:27:20 AM	11304
Surr: 4-Bromofluorobenzene	108	0	80-120		%REC	20	1/22/2014 3:27:20 AM	11304

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Client Sample ID: B-12 (15-16)
Project: S Carlsbad CS
Collection Date: 1/15/2014 10:50:00 AM
Lab ID: 1401753-008
Matrix: SOIL
Received Date: 1/17/2014 8:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: **BCN**	
Diesel Range Organics (DRO)	45	3.9	10		mg/Kg	1	1/21/2014 7:59:28 PM	11296
Surr: DNOP	99.7	0	66-131		%REC	1	1/21/2014 7:59:28 PM	11296
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **JMP**	
Gasoline Range Organics (GRO)	180	2.9	4.8		mg/Kg	1	1/22/2014 3:55:52 AM	11304
Surr: BFB	400	0	74.5-129	S	%REC	1	1/22/2014 3:55:52 AM	11304
EPA METHOD 8021B: VOLATILES							Analyst: **JMP**	
Benzene	0.096	0.0030	0.048		mg/Kg	1	1/22/2014 3:55:52 AM	11304
Toluene	0.052	0.0031	0.048		mg/Kg	1	1/22/2014 3:55:52 AM	11304
Ethylbenzene	0.91	0.0033	0.048		mg/Kg	1	1/22/2014 3:55:52 AM	11304
Xylenes, Total	0.96	0.011	0.096		mg/Kg	1	1/22/2014 3:55:52 AM	11304
Surr: 4-Bromofluorobenzene	181	0	80-120	S	%REC	1	1/22/2014 3:55:52 AM	11304

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Client Sample ID: B-12 (24-25)
Project: S Carlsbad CS
Collection Date: 1/15/2014 11:10:00 AM
Lab ID: 1401753-009
Matrix: SOIL
Received Date: 1/17/2014 8:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: **BCN**	
Diesel Range Organics (DRO)	4.2	3.9	10	J	mg/Kg	1	1/21/2014 8:21:23 PM	11296
Surr: DNOP	98.0	0	66-131		%REC	1	1/21/2014 8:21:23 PM	11296
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **JMP**	
Gasoline Range Organics (GRO)	18	2.9	4.7		mg/Kg	1	1/22/2014 5:04:52 PM	11304
Surr: BFB	201	0	74.5-129	S	%REC	1	1/22/2014 5:04:52 PM	11304
EPA METHOD 8021B: VOLATILES							Analyst: **JMP**	
Benzene	0.010	0.0029	0.047	J	mg/Kg	1	1/22/2014 5:04:52 PM	11304
Toluene	0.016	0.0030	0.047	J	mg/Kg	1	1/22/2014 5:04:52 PM	11304
Ethylbenzene	0.047	0.0033	0.047	J	mg/Kg	1	1/22/2014 5:04:52 PM	11304
Xylenes, Total	0.087	0.011	0.095	J	mg/Kg	1	1/22/2014 5:04:52 PM	11304
Surr: 4-Bromofluorobenzene	109	0	80-120		%REC	1	1/22/2014 5:04:52 PM	11304

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Client Sample ID: B-13 (14-15)
Project: S Carlsbad CS
Collection Date: 1/14/2014 5:00:00 PM
Lab ID: 1401753-010
Matrix: SOIL
Received Date: 1/17/2014 8:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: **BCN**	
Diesel Range Organics (DRO)	ND	3.9	10		mg/Kg	1	1/21/2014 8:43:27 PM	11296
Surr: DNOP	97.0	0	66-131		%REC	1	1/21/2014 8:43:27 PM	11296
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **JMP**	
Gasoline Range Organics (GRO)	ND	3.0	4.9		mg/Kg	1	1/22/2014 5:33:30 PM	11304
Surr: BFB	92.4	0	74.5-129		%REC	1	1/22/2014 5:33:30 PM	11304
EPA METHOD 8021B: VOLATILES							Analyst: **JMP**	
Benzene	ND	0.0030	0.049		mg/Kg	1	1/22/2014 5:33:30 PM	11304
Toluene	0.025	0.0031	0.049	J	mg/Kg	1	1/22/2014 5:33:30 PM	11304
Ethylbenzene	ND	0.0034	0.049		mg/Kg	1	1/22/2014 5:33:30 PM	11304
Xylenes, Total	ND	0.011	0.098		mg/Kg	1	1/22/2014 5:33:30 PM	11304
Surr: 4-Bromofluorobenzene	102	0	80-120		%REC	1	1/22/2014 5:33:30 PM	11304

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Client Sample ID: B-13 (24-25)
Project: S Carlsbad CS
Collection Date: 1/14/2014 5:15:00 PM
Lab ID: 1401753-011
Matrix: SOIL
Received Date: 1/17/2014 8:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: **BCN**	
Diesel Range Organics (DRO)	ND	3.9	9.9		mg/Kg	1	1/21/2014 9:05:17 PM	11296
Surr: DNOP	93.8	0	66-131		%REC	1	1/21/2014 9:05:17 PM	11296
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **JMP**	
Gasoline Range Organics (GRO)	ND	2.9	4.8		mg/Kg	1	1/22/2014 6:02:09 PM	11304
Surr: BFB	87.6	0	74.5-129		%REC	1	1/22/2014 6:02:09 PM	11304
EPA METHOD 8021B: VOLATILES							Analyst: **JMP**	
Benzene	ND	0.0030	0.048		mg/Kg	1	1/22/2014 6:02:09 PM	11304
Toluene	0.021	0.0031	0.048	J	mg/Kg	1	1/22/2014 6:02:09 PM	11304
Ethylbenzene	ND	0.0034	0.048		mg/Kg	1	1/22/2014 6:02:09 PM	11304
Xylenes, Total	ND	0.011	0.096		mg/Kg	1	1/22/2014 6:02:09 PM	11304
Surr: 4-Bromofluorobenzene	95.7	0	80-120		%REC	1	1/22/2014 6:02:09 PM	11304

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Client Sample ID: B-14 (14-15)
Project: S Carlsbad CS
Collection Date: 1/15/2014 9:10:00 AM
Lab ID: 1401753-012
Matrix: SOIL
Received Date: 1/17/2014 8:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: **BCN**	
Diesel Range Organics (DRO)	29	3.9	10		mg/Kg	1	1/21/2014 9:27:11 PM	11296
Surr: DNOP	102	0	66-131		%REC	1	1/21/2014 9:27:11 PM	11296
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **JMP**	
Gasoline Range Organics (GRO)	ND	2.9	4.7		mg/Kg	1	1/22/2014 6:30:45 PM	11304
Surr: BFB	90.5	0	74.5-129		%REC	1	1/22/2014 6:30:45 PM	11304
EPA METHOD 8021B: VOLATILES							Analyst: **JMP**	
Benzene	ND	0.0029	0.047		mg/Kg	1	1/22/2014 6:30:45 PM	11304
Toluene	0.024	0.0030	0.047	J	mg/Kg	1	1/22/2014 6:30:45 PM	11304
Ethylbenzene	ND	0.0033	0.047		mg/Kg	1	1/22/2014 6:30:45 PM	11304
Xylenes, Total	ND	0.011	0.094		mg/Kg	1	1/22/2014 6:30:45 PM	11304
Surr: 4-Bromofluorobenzene	97.3	0	80-120		%REC	1	1/22/2014 6:30:45 PM	11304

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Client Sample ID: B-14 (24-25)
Project: S Carlsbad CS
Collection Date: 1/15/2014 9:25:00 AM
Lab ID: 1401753-013
Matrix: SOIL
Received Date: 1/17/2014 8:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: **BCN**	
Diesel Range Organics (DRO)	ND	3.9	10		mg/Kg	1	1/21/2014 9:49:03 PM	11296
Surr: DNOP	96.9	0	66-131		%REC	1	1/21/2014 9:49:03 PM	11296
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **JMP**	
Gasoline Range Organics (GRO)	ND	3.0	5.0		mg/Kg	1	1/22/2014 8:53:29 PM	11304
Surr: BFB	89.0	0	74.5-129		%REC	1	1/22/2014 8:53:29 PM	11304
EPA METHOD 8021B: VOLATILES							Analyst: **JMP**	
Benzene	ND	0.0031	0.050		mg/Kg	1	1/22/2014 8:53:29 PM	11304
Toluene	0.024	0.0032	0.050	J	mg/Kg	1	1/22/2014 8:53:29 PM	11304
Ethylbenzene	ND	0.0035	0.050		mg/Kg	1	1/22/2014 8:53:29 PM	11304
Xylenes, Total	ND	0.011	0.099		mg/Kg	1	1/22/2014 8:53:29 PM	11304
Surr: 4-Bromofluorobenzene	98.3	0	80-120		%REC	1	1/22/2014 8:53:29 PM	11304

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Client Sample ID: B-15 (3-4)
Project: S Carlsbad CS
Collection Date: 1/14/2014 1:35:00 PM
Lab ID: 1401753-014
Matrix: SOIL
Received Date: 1/17/2014 8:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **JRR**	
Chloride	8.1	0.23	1.5		mg/Kg	1	1/21/2014 4:28:57 PM	11327

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Client Sample ID: B-16 (3-4)
Project: S Carlsbad CS
Collection Date: 1/14/2014 1:40:00 PM
Lab ID: 1401753-015
Matrix: SOIL
Received Date: 1/17/2014 8:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **JRR**	
Chloride	380	4.6	30		mg/Kg	20	1/21/2014 5:06:11 PM	11327

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Client Sample ID: B-17 (3-4)
Project: S Carlsbad CS
Collection Date: 1/14/2014 1:47:00 PM
Lab ID: 1401753-016
Matrix: SOIL
Received Date: 1/17/2014 8:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **JRR**	
Chloride	7.8	0.23	1.5		mg/Kg	1	1/21/2014 5:18:35 PM	11327

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
E	Value above quantitation range
J	Analyte detected below quantitation limits
O	RSD is greater than RSDlimit
R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2.
RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Client Sample ID: B-18 (12-13)
Project: S Carlsbad CS
Collection Date: 1/15/2014 4:45:00 PM
Lab ID: 1401753-017
Matrix: SOIL
Received Date: 1/17/2014 8:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: **BCN**	
Diesel Range Organics (DRO)	ND	4.0	10		mg/Kg	1	1/21/2014 10:11:06 PM	11296
Surr: DNOP	98.6	0	66-131		%REC	1	1/21/2014 10:11:06 PM	11296
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **JMP**	
Gasoline Range Organics (GRO)	ND	2.9	4.7		mg/Kg	1	1/22/2014 9:22:00 PM	11304
Surr: BFB	88.1	0	74.5-129		%REC	1	1/22/2014 9:22:00 PM	11304
EPA METHOD 8021B: VOLATILES							Analyst: **JMP**	
Benzene	ND	0.0029	0.047		mg/Kg	1	1/22/2014 9:22:00 PM	11304
Toluene	0.025	0.0030	0.047	J	mg/Kg	1	1/22/2014 9:22:00 PM	11304
Ethylbenzene	ND	0.0033	0.047		mg/Kg	1	1/22/2014 9:22:00 PM	11304
Xylenes, Total	ND	0.011	0.095		mg/Kg	1	1/22/2014 9:22:00 PM	11304
Surr: 4-Bromofluorobenzene	97.4	0	80-120		%REC	1	1/22/2014 9:22:00 PM	11304

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience
Client Sample ID: B-18 (24-25)
Project: S Carlsbad CS
Collection Date: 1/15/2014 5:10:00 PM
Lab ID: 1401753-018
Matrix: SOIL
Received Date: 1/17/2014 8:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: **BCN**	
Diesel Range Organics (DRO)	ND	3.9	10		mg/Kg	1	1/21/2014 10:32:56 PM	11296
Surr: DNOP	95.7	0	66-131		%REC	1	1/21/2014 10:32:56 PM	11296
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **JMP**	
Gasoline Range Organics (GRO)	ND	2.9	4.7		mg/Kg	1	1/22/2014 9:50:36 PM	11304
Surr: BFB	87.8	0	74.5-129		%REC	1	1/22/2014 9:50:36 PM	11304
EPA METHOD 8021B: VOLATILES							Analyst: **JMP**	
Benzene	ND	0.0029	0.047		mg/Kg	1	1/22/2014 9:50:36 PM	11304
Toluene	0.023	0.0030	0.047	J	mg/Kg	1	1/22/2014 9:50:36 PM	11304
Ethylbenzene	ND	0.0033	0.047		mg/Kg	1	1/22/2014 9:50:36 PM	11304
Xylenes, Total	ND	0.011	0.094		mg/Kg	1	1/22/2014 9:50:36 PM	11304
Surr: 4-Bromofluorobenzene	96.5	0	80-120		%REC	1	1/22/2014 9:50:36 PM	11304

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1401753**

26-Feb-14

Client: Southwest Geoscience

Project: S Carlsbad CS

Sample ID	**MB-11327**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**11327**	RunNo:	**16219**					
Prep Date:	**1/21/2014**	Analysis Date:	**1/21/2014**	SeqNo:	**467595**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-11327**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**11327**	RunNo:	**16219**					
Prep Date:	**1/21/2014**	Analysis Date:	**1/21/2014**	SeqNo:	**467596**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1401753**

26-Feb-14

Client: Southwest Geoscience

Project: S Carlsbad CS

Sample ID **MB-11296**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **11296**	RunNo: **16168**
Prep Date: **1/20/2014**	Analysis Date: **1/20/2014**	SeqNo: **466482** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Surr: DNOP	9.6		10.00		95.8	66	131			

Sample ID **LCS-11296**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **11296**	RunNo: **16168**
Prep Date: **1/20/2014**	Analysis Date: **1/20/2014**	SeqNo: **466483** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	53	10	50.00	0	105	60.8	145			
Surr: DNOP	4.9		5.000		97.8	66	131			

Sample ID **1401753-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **B-10 (8-9)**	Batch ID: **11296**	RunNo: **16189**
Prep Date: **1/20/2014**	Analysis Date: **1/21/2014**	SeqNo: **467281** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	130	9.9	49.70	58.50	151	47.4	148			S
Surr: DNOP	4.6		4.970		93.4	66	131			

Sample ID **1401753-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **B-10 (8-9)**	Batch ID: **11296**	RunNo: **16189**
Prep Date: **1/20/2014**	Analysis Date: **1/21/2014**	SeqNo: **467282** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	120	10	49.95	58.50	115	47.4	148	14.0	22.7	
Surr: DNOP	4.9		4.995		98.8	66	131	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1401753**

26-Feb-14

Client: Southwest Geoscience

Project: S Carlsbad CS

Sample ID	**MB-11304**	SampType: **MBLK**			TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID: **11304**			RunNo: **16199**					
Prep Date:	**1/20/2014**	Analysis Date: **1/21/2014**			SeqNo: **467111**		Units: **mg/Kg**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)		ND	5.0								
Surr: BFB		890		1000		88.5	74.5	129			

Sample ID	**LCS-11304**	SampType: **LCS**			TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID: **11304**			RunNo: **16199**					
Prep Date:	**1/20/2014**	Analysis Date: **1/21/2014**			SeqNo: **467112**		Units: **mg/Kg**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)		27	5.0	25.00	0	108	74.5	126			
Surr: BFB		920		1000		92.3	74.5	129			

Sample ID	**1401753-002AMS**	SampType: **MS**			TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID:	**B-10 (14-15)**	Batch ID: **11304**			RunNo: **16199**					
Prep Date:	**1/20/2014**	Analysis Date: **1/22/2014**			SeqNo: **467121**		Units: **mg/Kg**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)		34	4.8	24.13	6.580	116	69.5	145			
Surr: BFB		1400		965.3		148	74.5	129			S

Sample ID	**1401753-002AMSD**	SampType: **MSD**			TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID:	**B-10 (14-15)**	Batch ID: **11304**			RunNo: **16199**					
Prep Date:	**1/20/2014**	Analysis Date: **1/22/2014**			SeqNo: **467122**		Units: **mg/Kg**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)		34	4.8	24.11	6.580	114	69.5	145	1.59	20	
Surr: BFB		1600		964.3		164	74.5	129	0	0	S

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1401753**

26-Feb-14

Client: Southwest Geoscience

Project: S Carlsbad CS

Sample ID **MB-11304**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **11304**	RunNo: **16199**
Prep Date: **1/20/2014**	Analysis Date: **1/21/2014**	SeqNo: **467136** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	0.020	0.050								J
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		101	80	120			

Sample ID **LCS-11304**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **11304**	RunNo: **16199**
Prep Date: **1/20/2014**	Analysis Date: **1/21/2014**	SeqNo: **467137** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.050	1.000	0	103	80	120			
Toluene	1.0	0.050	1.000	0	102	80	120			
Ethylbenzene	1.0	0.050	1.000	0	100	80	120			
Xylenes, Total	3.0	0.10	3.000	0	100	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		105	80	120			

Sample ID **1401753-001AMS**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **B-10 (8-9)**	Batch ID: **11304**	RunNo: **16199**
Prep Date: **1/20/2014**	Analysis Date: **1/21/2014**	SeqNo: **467149** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.047	0.9452	0.007597	121	67.4	135			
Toluene	1.1	0.047	0.9452	0.02904	119	72.6	135			
Ethylbenzene	1.2	0.047	0.9452	0.04768	118	69.4	143			
Xylenes, Total	3.5	0.095	2.836	0.1856	118	70.8	144			
Surr: 4-Bromofluorobenzene	1.1		0.9452		114	80	120			

Sample ID **1401753-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **B-10 (8-9)**	Batch ID: **11304**	RunNo: **16199**
Prep Date: **1/20/2014**	Analysis Date: **1/21/2014**	SeqNo: **467150** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.047	0.9479	0.007597	120	67.4	135	0.364	20	
Toluene	1.2	0.047	0.9479	0.02904	119	72.6	135	0.576	20	
Ethylbenzene	1.2	0.047	0.9479	0.04768	119	69.4	143	0.606	20	
Xylenes, Total	3.6	0.095	2.844	0.1856	120	70.8	144	2.25	20	
Surr: 4-Bromofluorobenzene	1.1		0.9479		116	80	120	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

ENVIRONMENTAL ANALYSIS LABORATORY

4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Southwest Geoscience S Work Order Number: 1401753 RcptNo: 1

Received by/date: AG 01/17/14

Logged By: Anne Thorne 1/17/2014 8:40:00 AM Anne Thorne

Completed By: Anne Thorne 1/20/2014 Anne Thorne

Reviewed By: MG 01/20/14

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☑	No ☐	Not Present ☐
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	FedEx		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified:	JOSEPH MARTINEZ	Date	1/20/2014
By Whom:	Anne Thorne	Via:	☐ eMail ☑ Phone ☐ Fax ☐ In Person
Regarding:	SAMPLE ID		
Client Instructions:	CORRECT SAMPLE ID IS B-18 (12-13)		

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.5	Good	Yes			

CHAIN OF CUSTODY RECORD

Southwest GEOSCIENCE
Environmental & Hydrogeologic Consultants

Office Location: San Antonio
Project Manager: Joseph Martinez

Laboratory: Hall Env
Address: 4901 Hawkins NE
Albuquerque, NM 87109
Contact: Andy Freeman
Phone: 505-345-3975
PO/SO #:

Lab use only
Due Date:
Temp. of coolers when received (C°): 1.5
1 | 2 | 3 | 4 | 5

Page 1 of 2
AT 01/17/14

Sampler's Name: Joseph W. Martinez
Sampler's Signature: Joseph W. Martinez

Proj. No.: 02106003
Project Name: S. Carlsbad CS
No/Type of Containers

ANALYSIS REQUESTED: TPH GRO/DRO #8015M; BTEX #8021B; Hold

Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	VOA	A/G 1 Lt.	250 ml	P/O	Lab Sample ID (Lab Use Only)
S	1/14/14	1430		✓	B-10 (8-9)	8	9				2	1401753-001
	1/14/14	1450			B-10 (14-15)	14	15					-002
	1/14/14	1520			B-10 (24-25)	24	25					-003
	1/15/14	1320			B-11 (10-11)	10	11					-004
	1/15/14	1340			B-11 (20-21)	20	21					-005
	1/15/14	1400			B-11 (29-30)	29	30					-006
	1/15/14	1040			B-12 (13-14)	13	14					-007
	1/15/14	1050			B-12 (15-16)	15	16					-008
	1/15/14	1110			B-12 (24-25)	24	25					-009
	1/14/14	1700			B-13 (14-15)	14	15					-010

Turn around time: (X) Normal ❑ 25% Rush ❑ 50% Rush ❑ 100% Rush

Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Joseph W Martinez	1/16/14	1800	FedEx		
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date: 01/17/14	Time: 0840
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:

NOTES: New Mexico

Matrix: WW - Wastewater; W - Water; S - Soil; SD - Solid; L - Liquid; A - Air Bag; C - Charcoal tube; SL - sludge; O - Oil
Container: VOA - 40 ml vial; A/G - Amber / Or Glass 1 Liter; 250 ml - Glass wide mouth; P/O - Plastic or other

CHAIN OF CUSTODY RECORD

Southwest GEOSCIENCE

Environmental & Hydrogeologic Consultants

Office Location: San Antonio

Project Manager: J. Martinez

Laboratory: Hall Env.

Address: 4901 w Hawkins NE Albuquerque, NM 87109

Contact: Andy Freeman

Phone: 505-345-3975

PO/SO #:

Lab use only
Due Date:

Temp. of coolers when received (C°): 1.5

1	2	3	4	5

Page 2 of 2

Sampler's Name: Joseph W. Martinez

Sampler's Signature: Joseph W. Martinez

Proj. No.: 02106003

Project Name: S. Carlsbad CS

Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	VOA	A/G 1 Lt.	250 ml	P/O	TPH 600/DRO #8015M	BTEX #8021B	Chlorides EPA 300.0	NFE	Lab Sample ID (Lab Use Only)
S	1/14/14	1715		✓	B-13 (24-25)	24	25				2	✓	✓			1401753-011
	1/15/14	0910			B-14 (14-15)	14	15				2	✓	✓			-012
	1/15/14	0925			B-14 (24-25)	24	25				2	✓	✓			-013
	1/14/14	1335			B-15 (3-4)	3	4				1			✓		-014
	1/14/14	1340			B-16 (3-4)	3	4				1			✓		-015
	1/14/14	1347			B-17 (3-4)	3	4				1			✓		-016
	1/15/14	1645			B-18 (12-13)	12	13				2	✓	✓			-017
	1/15/14	1710		↓	B-18 (24-25)	24	25				2	✓	✓			-018

Turn around time: ☒ Normal ☐ 25% Rush ☐ 50% Rush ☐ 100% Rush

Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Joseph W. Martinez	1/16/14	1500	Fed Ex		
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
			Jonathan Ballinger	01/17/14	0840
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:

NOTES: New Mexico

Matrix: WW - Wastewater; W - Water; S - Soil; SD - Solid; L - Liquid; A - Air Bag; C - Charcoal tube; SL - sludge; O - Oil

Container: VOA - 40 ml vial; A/G - Amber / Or Glass 1 Liter; 250 ml - Glass wide mouth; P/O - Plastic or other

APPENDIX 6

Supporting Documentation

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

For State Use Only
Registration #

Form C-137 EZ
Revised August 1, 2011

Submit 1 Copy to Santa Fe Office

REGISTRATION/ FINAL CLOSURE REPORT FOR SMALL LANDFARM

Section 7 of 19.15.36 NMAC defines a small landfarm as a centralized landfarm of two acres or less that has a total capacity of 2000 cubic yards or less in a single lift of eight inches or less, remains active for a maximum of three years from the date of its registration and that receives only petroleum hydrocarbon-contaminated soils (excluding drill cuttings) that are exempt or non-hazardous waste. The operator shall operate only one active small landfarm per governmental section at any time.

GENERAL INFORMATION

1. ☐ Small Landfarm Registration ☒ Small Landfarm Final Closure Report*
(*Must be submitted within three years from the registration date)

2. Operator: Enterprise Products Operating
Address: P.O. Box 4324, Houston, Texas 77210-4324
Contact Person: Mr. David R. Smith Phone: (713) 381-6629

3. Location: SE /4 SE /4 Section 12 Township 23S Range 27E

REGISTRATION

1. As operator, are you the surface estate owner of the proposed site? ☐ Yes ☐ No If no, please attach a certification statement that demonstrates a written agreement is established with the surface estate owner authorizing the use of the site for the proposed small landfarm.

2. Will the proposed small landfarm comply with the siting requirements of Subsections A and B of 19.15.36.13 NMAC?
☐ Yes ☐ No

A. Depth to ground water.
- No small landfarm shall be located where ground water is less than 50 feet below the lowest elevation at which the operator will place oil field waste.

B. No surface waste management facility shall be located:
- within 200 feet of a watercourse, lakebed, sinkhole or playa lake;
- within an existing wellhead protection area or 100-year floodplain;
- within, or within 500 feet of, a wetland;
- within the area overlying a subsurface mine;
- within 500 feet from the nearest permanent residence, school, hospital, institution or church in existence at the time of initial application; or
- within an unstable area, unless the operator demonstrates that engineering measures have been incorporated into the surface waste management facility design to ensure that the surface waste management facility's integrity will not be compromised.

3. Attach a plat and topographic map showing the small landfarm's location in relation to governmental surveys (quarter-quarter section, township and range); highways or roads giving access to the small landfarm site; watercourses; fresh water sources, including wells and springs; oil and gas wells or other production facilities; and inhabited buildings within one mile of the site's perimeter.

Based on the information provided with this submittal, registration of a small landfarm can only be granted if the operator complies with the following understandings and conditions:

- The operator shall operate only one active small landfarm per governmental section at any time. No small landfarm shall be located more than one mile from the operator's nearest oil or gas well or other production facility.
- The operator shall accept only exempt or non-hazardous wastes consisting of soils (excluding drill cuttings) generated as a result of accidental releases from production operations, that are predominantly contaminated by petroleum hydrocarbons, do not contain free liquids, would pass the paint filter test and where testing shows chloride concentrations are 500 mg/kg or below.
- The operator shall berm the landfarm to prevent rainwater run-on and run-off.
- The operator shall post a sign at the site readable from a distance of 50 feet and listing the operator's name; small landfarm registration number; location by unit letter, section, township and range; expiration date; and an emergency contact telephone number.
- The operator shall spread and disk contaminated soils in a single eight inch or less lift within 72 hours of receipt. The operator shall conduct treatment zone monitoring to ensure that the TPH concentration, as determined by EPA SW-846 method 8015M or EPA method 418.1 or other EPA method approved by the division, does not exceed 2500 mg/kg; and that the chloride

concentration, as determined by EPA method 300.1, does not exceed 500 mg/kg. The operator shall treat soils by disking at least once a month and by watering and adding bioremediation enhancing materials when needed.

- The operator shall maintain records reflecting the generator, the location of origin, the volume and type of oil field waste, the date of acceptance and the hauling company for each load of oil field waste received. The division shall post on its website each small landfarm's location, operator and registration date. In addition, the operator shall maintain records of the small landfarm's remediation activities in a form readily accessible for division inspection. The operator shall maintain all records for five years following the small landfarm's closure.
- The operator shall submit a final closure report on a form C-137 EZ, together with photographs of the closed site, to the environmental bureau in the division's Santa Fe office.

CERTIFICATION

I hereby certify that the information submitted with this registration is true, accurate and complete to the best of my knowledge and belief and agree to the understandings and conditions of this registration.

Name: David R Smith Title: Sr. Environmental Scientist

Signature: [signature] Date: 9/19/14

E-mail Address: drsmith@eprod.com

OCD REGISTRATION: ☐ Approved. Date : _____ ☐ Denied. Date: _____

Comments: _____

OCD Representative Signature: _____

Title: _____ **OCD Registration Number:** _____

FINAL CLOSURE REPORT

Were the landfarmed soils able to achieve the closure performance standards, listed below, within three years from the registration date? ☒ Yes ☐ No (Please provide laboratory analytical results)

- benzene, as determined by EPA SW-846 method 8021 B or 8260B, shall not exceed 0.2 mg/kg;
- Total BTEX, as determined by EPA SW-846 method 8021 B or 8260B, shall not exceed 50 mg/kg;
- TPH, as determined by EPA SW-846 method 418.1 or other EPA method approved by the division, shall not exceed 2500 mg/kg; the GRO and DRO combined fraction, as determined by EPA SW-846 method 8015M, shall not exceed 500 mg/kg; and
- chlorides, as determined by EPA method 300.1, shall not exceed 500 mg/kg.

If yes, were the additional closure requirements listed below satisfied? ☒ Yes ☐ No (Please provide photos)

- The operator shall re-vegetate soils remediated to the closure performance standards if left in place in accordance with Paragraph (6) of Subsection A of 19.15.36.18 NMAC.
- If the operator returns remediated soils to the original site, or with division permission, recycles them, re-vegetate the cell filled in with native soil to the standards in Paragraph (6) of Subsection A of 19.15.36.18 NMAC;
- The operator shall remove berms on the small landfarm and buildings, fences, roads and equipment; and
- The operator shall clean up the site and collect one vadose zone soil sample from three to five feet below the middle of the treatment zone, or in an area where liquids may have collected due to rainfall events; the vadose zone soil sample shall be collected and analyzed using the methods specified above for TPH, BTEX and chlorides.

If no, were the landfarmed soils that have not or cannot be remediated to the closure performance standards within three years removed to a division-approved surface waste management facility, and the cell filled in with native soil to the standards in Paragraph (6) of Subsection A of 19.15.36.18 NMAC and re-vegetated? ☒ Yes ☐ No (Please provide photos)

CERTIFICATION

I hereby certify that the information submitted with this final closure report is true, accurate and complete to the best of my knowledge and belief.

Name: David R. Smith Title: Senior Environmental Scientist

Signature: [signature] Date: 9/19/14

E-mail Address: DRSmith@eprod.com

OCD CLOSURE REVIEW: ☐ Closure Approved. Date : _____ ☐ Closure Denied. Date: _____

Comments: _____

OCD Representative Signature: _____

Title: _____ **OCD Registration Number:** _____

Supplemental CAR
Enterprise Products Operating LLC
S. Carlsbad Compressor Station
Carrasco Road and CR 710
Carlsbad, Eddy County, New Mexico

Project No. 7010210G003.001

Apex TITAN, Inc.
7979 Broadway Street, Suite 100
San Antonio, Texas 78209
Phone: (210) 804-9922
www.apexcos.com
A Subsidiary of Apex Companies, LLC

Water Well Location Summary Map

Google Earth 2013

Note: Locations adjusted based on field survey observations

New Mexico Office of the State Engineer

Wells with Well Log Information

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

(in feet)

POD Number	POD Sub-basin Code	County	Source	q 6416	q 4	q 4	Sec	Tws	Rng	X	Y	Distance	Start Date	Finish Date	Log File Date	Depth Well	Depth Water	Driller	License Number
C 03053	C	ED	Shallow	3	4	4	12	23S	27E	581122	3575505*	164	03/16/2004	03/17/2004	04/12/2004	94	14		1348

Record Count: 1

UTMNAD83 Radius Search (in meters):

Easting (X): 581286.13 **Northing (Y):** 3575508.46 **Radius:** 450

***UTM location was derived from PLSS - see Help**

New Mexico Office of the State Engineer
Wells Without Well Log Information

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest)

(NAD83 UTM in meters)

POD Number	POD Code	Subbasin	County	Source	q 64	q 16	q 4	Sec	Tws	Rng	X	Y	Distance
C 03457		C	ED		3	4	4	12	23S	27E	581081	3575530	206
C 00069			ED	Shallow	3	3	3	07	23S	28E	581526	3575510*	239
C 00461			ED	Shallow	1	1	1	18	23S	28E	581526	3575307*	313

Record Count: 3

UTMNAD83 Radius Search (in meters):

Easting (X): 581286.13 **Northing (Y):** 3575508.46 **Radius:** 450

***UTM location was derived from PLSS - see Help**

New Mexico Office of the State Engineer
Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
C 03053	3	4	4	12	23S	27E	581122	3575505*

Driller License: TAYLOR WATER WELL SERVICE
Driller Name:

Drill Start Date:	03/16/2004	**Drill Finish Date:**	03/17/2004	**Plug Date:**	
Log File Date:	04/12/2004	**PCW Rcv Date:**		**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	5
Casing Size:	5.00	**Depth Well:**	94 feet	**Depth Water:**	14 feet

Water Bearing Stratifications:	Top	Bottom	Description
	56	94	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	54	94

***UTM location was derived from PLSS - see Help**

New Mexico Office of the State Engineer
Point of Diversion Summary

		(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest)						(NAD83 UTM in meters)	
POD Number		**Q64**	**Q16**	**Q4**	**Sec**	**Tws**	**Rng**	**X**	**Y**
C	03457	3	4	4	12	23S	27E	581081	3575530

Driller License:

Driller Name:

Drill Start Date:		**Drill Finish Date:**		**Plug Date:**	
Log File Date:		**PCW Rcv Date:**		**Source:**	
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	
Casing Size:	7.00	**Depth Well:**	200 feet	**Depth Water:**	

New Mexico Office of the State Engineer
Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

POD Number	Q64	Q16	Q4	Sec	Twns	Rng	X	Y
C 00069	3	3	3	07	23S	28E	581526	3575510*

Driller License:
Driller Name:

Drill Start Date:		**Drill Finish Date:**		**Plug Date:**	
Log File Date:		**PCW Rcv Date:**	02/16/1949	**Source:**	Shallow
Pump Type:	TURBIN	**Pipe Discharge Size:**		**Estimated Yield:**	
Casing Size:	18.00	**Depth Well:**		**Depth Water:**	

***UTM location was derived from PLSS - see Help**

New Mexico Office of the State Engineer
Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

POD Number	Q64	Q16	Q4	Sec	Twp	Rng	X	Y
C 00461	1	1	1	18	23S	28E	581526	3575307*

Driller License:
Driller Name: J.R. JOLLEY

Drill Start Date:		**Drill Finish Date:**		**Plug Date:**	
Log File Date:		**PCW Rcv Date:**	06/07/1956	**Source:**	Shallow
Pump Type:	TURBIN	**Pipe Discharge Size:**		**Estimated Yield:**	100
Casing Size:		**Depth Well:**		**Depth Water:**	

***UTM location was derived from PLSS - see Help**

Enterprise Products™

July 9, 2010

ENTERPRISE PRODUCTS PARTNERS LP
ENTERPRISE PRODUCTS OPERATING LLC

ENTERPRISE PRODUCTS GP, LLC, GENERAL PARTNER
ENTERPRISE PRODUCTS OLPGP, INC., SOLE MANAGER

Return Receipt Requested
7009 3410 0001 6448 5242

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

RECEIVED OCD
2010 JUL 12 A 11:0

RE: Corrective Action Work Plan
South Carlsbad Compressor Station
Off Carrasco Road and CR 710
Carlsbad, Eddy County, New Mexico

Dear Mr. Chavez:

Enterprise Products Operating LLC (Enterprise) is submitting the enclosed *Corrective Action Work Plan* dated July 1, 2010 for the South Carlsbad Compressor Station located in Carlsbad, New Mexico. Initial field investigation activities were conducted in November 2009, and included the advancement of one (1) soil boring (B-1) in the vicinity of the former storage tank battery containment area to a depth of 20 feet below ground surface (bgs). The soil sample taken at a depth of 7 to 8 feet below ground surface (bgs) exhibited a total petroleum hydrocarbons concentration of 980 milligrams per kilogram (mg/kg) which exceeds the OCD's Remediation Action Level of 100 mg/kg.

The scope of work within the *Corrective Action Work Plan* includes the excavation of approximately 250 cubic yards of soil (approximate dimensions being 20 ft long by 20 ft wide and 15 ft deep) from the former storage tank battery containment area. Following the completion of the excavation activities, the petroleum hydrocarbon affected soils will be treated with the direct application of a bioremediation agent/water mixture to enhance natural attenuation of the petroleum hydrocarbons, chemically oxidize organic compounds, and stimulate naturally occurring bacteria in the on-site soils. Upon completion of excavation activities and receipt of confirmation samples that indicate the treated soils are below OCD Remediation Action Levels the treated soil will be backfilled into the excavation and request site closure.

We plan to conduct this work during the third quarter of this year and the NMOCD will be updated once the schedule is finalized. Should you have any question or concerns with the proposed work plan or need additional information please contact me at (713) 381-8327 or Rodney Sartor at (713) 381-6629.

Sincerely,

Russell Gregg
Environmental Scientist

Rodney Sartor
Manager Remediation

/bjm

cc: Jennifer Corser - Enterprise
Chris Mitchell – Southwest Geoscience

P. O. BOX 4324
HOUSTON, TX 77210-4324
713.381.6500

1100 LOUISIANA STREET
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Southwest
GEOSCIENCE
8829 Tradeway Street
San Antonio, Texas 78217
Ph: (210) 804-9922
Fax: (210) 804-9944

July 6, 2010

New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
Attention: Mr. Carl J. Chavez, CHMM

Re: **Corrective Action Work Plan**
S. Carlsbad Compressor Station
Off Carrasco Road and CR 710
Carlsbad, Eddy County, New Mexico

Mr. Chavez,

On behalf of Enterprise Products Operating, LLC (Enterprise), Southwest Geoscience (SWG) has prepared this corrective action work plan for the above referenced facility in accordance with the technical requirements for Small Landfarms under 19.15.36 New Mexico Administrative Code (NMAC). A topographic map depicting the location of the Site is attached as Figure 1 and a Site Vicinity Map is attached as Figure 2. In addition, a Site Plan indicating the approximate location of pertinent structures and past/proposed field activities is attached as Figure 3.

During previous investigation activities, SWG identified total petroleum hydrocarbons (TPH) concentrations in a soil sample collected from 7 to 8 feet below ground surface (bgs) at the Site in exceedance of the Oil Conservation Division's (OCD) *Remediation Action Levels*. Benzene, toluene, ethylbenzene, and xylenes (BTEX) concentrations were not identified at the Site in exceedance of the OCD's *Remediation Action Levels*. Constituent concentrations were compared to the OCD's *Remediation Action Levels* for Sites having a total ranking score of >19. The water table at the Site is estimated as being approximately 73 feet bgs. The Site is not located within 200 feet of a watercourse, lakebed, sinkhole, or playa lake; within an existing well head protection area or 100-year floodplain; within 500 feet of a wetland; within an area overlaying a subsurface mine; within 500 feet of a permanent residence, school, hospital, institution or church in existence at the time of initial application; or within an unstable area. Soil sample intervals and soil sample analytical results are presented on Table 1 (attached).

As part of the proposed corrective action, SWG will direct the excavation of an estimated 250 cubic yards of soil with approximate dimensions being 20 feet long by 20 feet wide and 15 feet deep within the former storage tank containment area (where the TPH concentration exceedance was identified). The excavated soils will be screened for the presence of volatile organic compounds (VOC) using a photoionization detector (PID). The precise extent of the excavation will be determined based on the visual, olfactory, and/or PID evidence obtained during field excavation activities. Records reflecting the generator, the location of origin, the volume, type of waste, and the date of generation from soils treated on-site will be maintained and be readily accessible for division personnel inspection. Prior to the commencement of field excavation activities, a berm will be constructed around the proposed treatment area and excavation to prevent stormwater run-on and run-off. In addition, a sign will be posted at this facility (which can be read from 50 feet away) that will include the operator's name, location by unit letter, section, township and range, and an emergency contact telephone number.

The excavated soils will be staged on the adjacent ground surface and spread to a max depth of eight (8) inches for subsequent treatment with a bioremediation agent (*Remedy*) within 72 hours of removal. Earth moving equipment and hand tools will be utilized to till excavated soils to enhance infiltration of the bioremediation agent and exposure of chemicals of concern (COCs) to oxygen. Remedy introduces nonpathogenic bacterial strains designed to metabolize petroleum hydrocarbons. It also enhances microbial activity thereby accelerating the biodegradation of organic contaminates. The agent delivery system will consist of a water truck or similar equipment such as a portable tank, a gas-powered water pump to distribute agent, and rubber hoses to allow for mobile and area specific application. The treated soils will be temporarily left in place to allow for optimal aeration and biodegradation of COCs. In the interim, the excavation will be fenced off to prevent accidental slips or falls into the excavation.

Upon completion of excavation activities, up to five (5) discrete soil confirmation samples will be collected from the excavation sidewalls and floor. In addition, up to five (5) soil confirmation samples will be collected from the treated soils, using hand augering equipment, ensuing the time and environmental conditions required for optimal biodegradation of COCs. All confirmation samples will be submitted for laboratory analysis of TPH GRO/DRO and BTEX utilizing EPA method SW-846 #8015M and #8021B, respectively. In addition, the confirmation samples will be submitted for analysis of Chlorides using EPA method 300.1. The confirmation samples will be compared to NMAC *closure performance standards* including: 0.2 mg/Kg for benzene, 50 mg/Kg for total BTEX, 500 mg/Kg for TPH GRO/DRO combined fraction, and 500 mg/Kg for Chlorides.

The treated soils will be returned to the excavation subsequent to the attainment of the NMAC *closure performance standards* for small landfarms. Earthen berms, fencing, roads, and equipment in place as part of the small landfarm will be removed (as applicable). In addition, disturbed areas will be revegetated to it's previous state. Furthermore, one (1) vadose zone soil sample will be collected from three (3) to five (5) feet below the middle of treatment area and submitted for analysis and comparison under the afore mentioned *closure performance standards*.

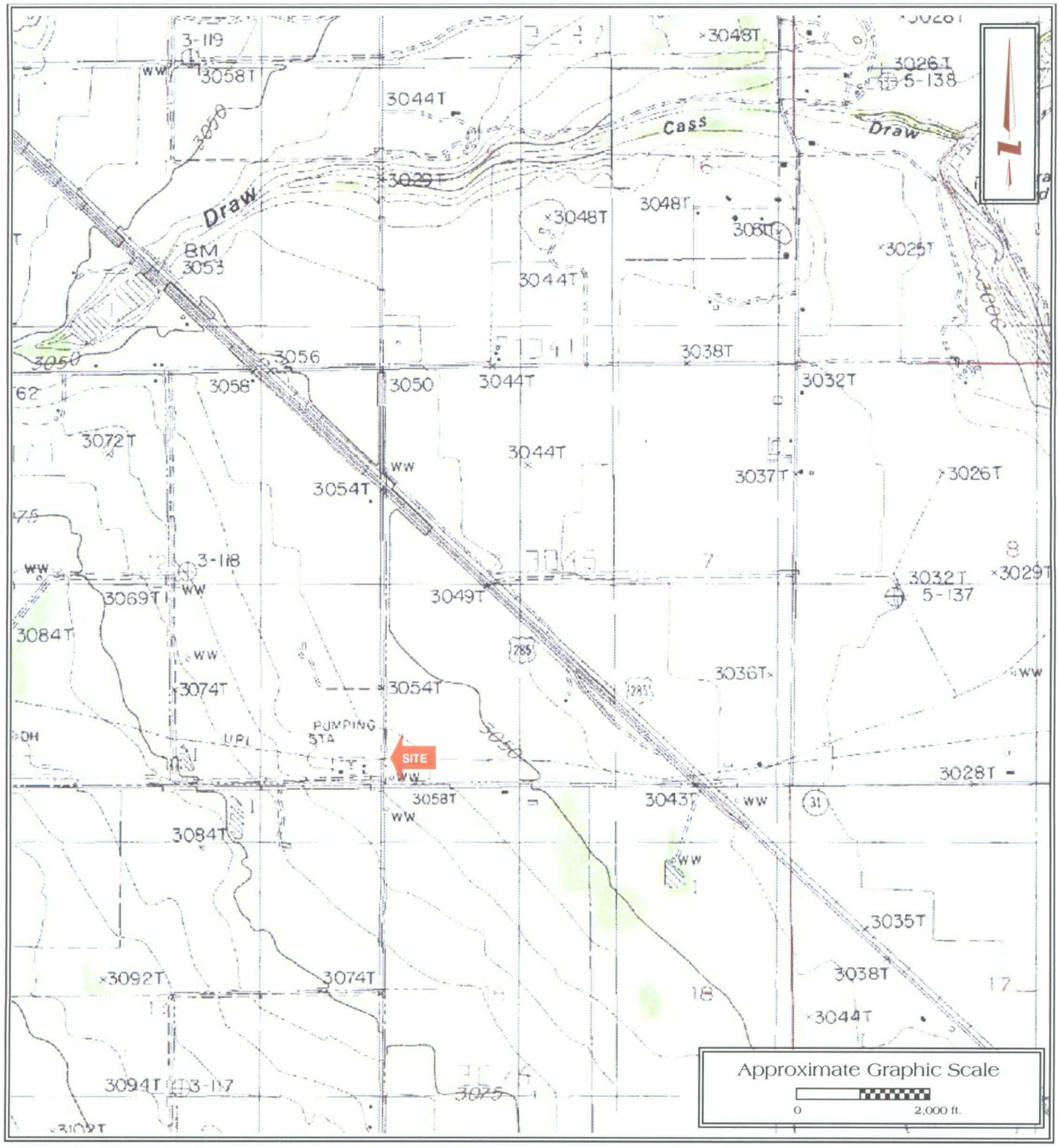
Upon conclusion of field activities and attainment of *closure performance standards* for treated soils, a final closure report will be prepared that will include: documentation of field activities; corrective actions; site plans and maps detailing pertinent site features and field activity locations; photographic documentation of field activities and the closed site; and laboratory analytical results from confirmation samples. The final closure report will be submitted to the bureau division's Santa Fe office. SWG estimates that the proposed excavation activities will require 1 to 2 working days to complete. The precise date on which excavation activities will commence is contingent upon contractor availability, weather, and field operations logistics. However, SWG will verify the work schedule of the proposed excavation activities with the OCD at least 72 hours in advance, once established. It is estimated that treated soils will require approximately 6 to 8 weeks to aerate and allow for a thorough biodegradation process. However, soils that cannot be successfully remediated within 3 years will be removed from the Site and disposed of at a division approved surface waste facility.

Should you have any questions or concerns regarding this work plan or otherwise, please contact either of the undersigned at your earliest convenience.

Sincerely,

Joseph W. Martinez
Project Manager

B. Chris Mitchell, P. G.
Principal



Corrective Action Work Plan
S. Carlsbad Compressor Sta.
N32° 18.7933'; W104° 8.1446'
Off Carrasco Road
Eddy County, New Mexico

SWG Project No. 0210003

Southwest GEOSCIENCE

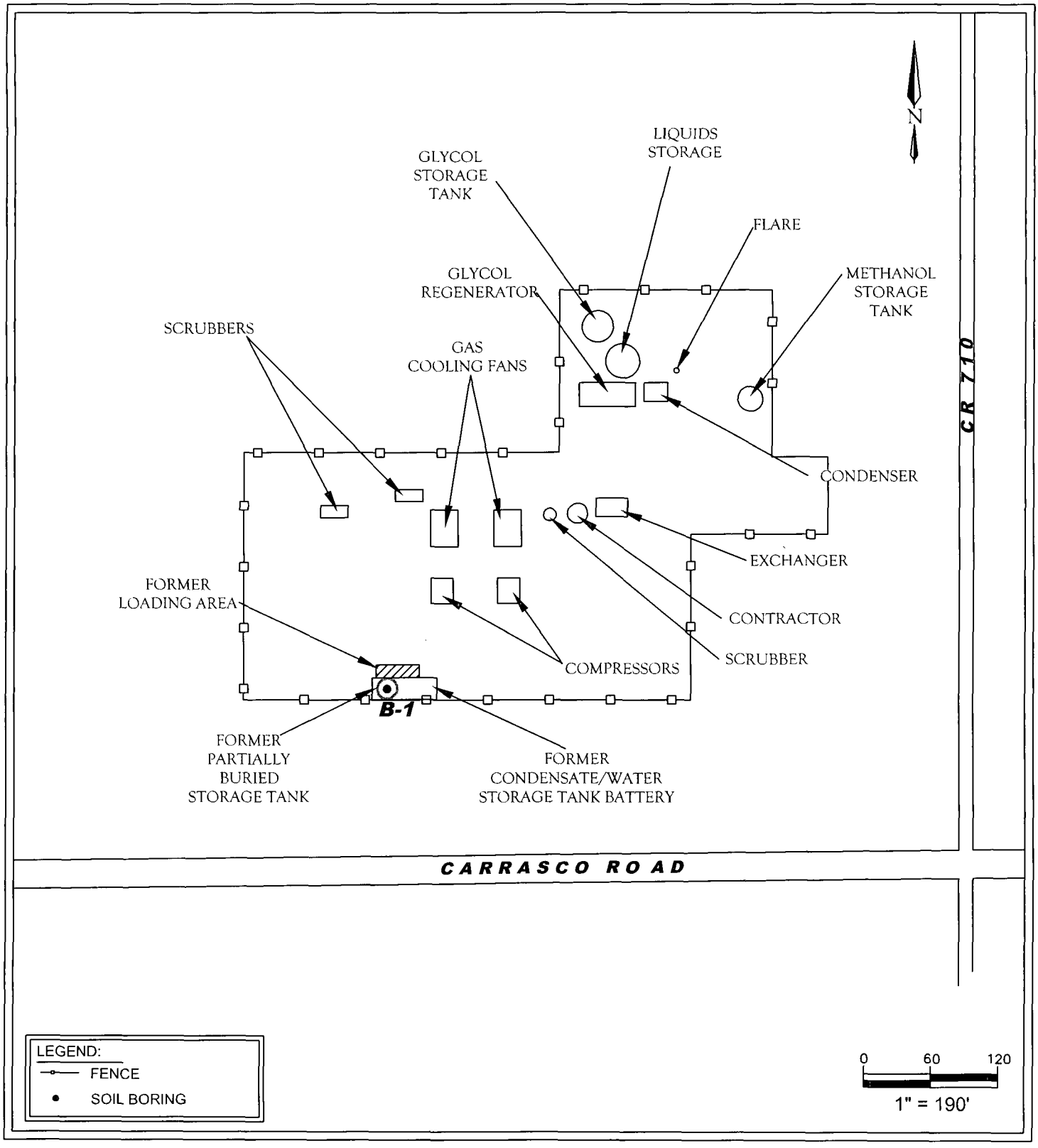
FIGURE 1
Topographic Map
Otis, NM Quadrangle
Contour Interval - 10 Feet

Corrective Action Work Plan
S. Carlsbad Compressor Sta.
N32° 18.7933'; W104° 8.1446'
Off Carrasco Road
Eddy County, New Mexico

SWG Project No. 0210003

Southwest GEOSCIENCE

FIGURE 2
Site Vicinity Map
2009 Aerial Photograph



Corrective Action Work Plan
South Carlsbad Compressor Station
N32° 18.7933'; W104° 8.1446'
Off Carrasco Road
Eddy County, New Mexico

SWG Project No. 0210003

Southwest GEOSCIENCE

FIGURE 3

SITE PLAN

Southwest GEOSCIENCE

TABLE 1
S. CARLSBAD COMPRESSOR STATION
SOIL ANALYTICAL RESULTS

Sample I.D.	Date	Sample Depth (feet)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)
New Mexico Energy, Minerals & Natural Resources Department, Oil Conservation Division, Remediation Action Level			10	NE	NE	NE	50	100	
B-1	11/5/2009	7 to 8	0.34	7.1	1.5	31	39.94	**270**	**710**
	11/5/2009	19 to 20	<0.0021	<0.0022	<0.0024	0.036	0.036	0.15	24

Note: Concentrations in **bold** and yellow exceed the applicable OCD Remediation Action Level

NE = Not Established

Enterprise Products™

RECEIVED OCD

April 26, 2010

ENTERPRISE PRODUCTS PARTNERS LP
ENTERPRISE PRODUCTS OPERATING LLC
ENTERPRISE PRODUCTS GP, LLC, GENERAL PARTNER
ENTERPRISE PRODUCTS OLPGP, INC., SOLE MANAGER

Return Receipt Requested
7009 3410 0001 6448 0247

Sherry Bonham
New Mexico Oil Conservation Division District 2
1301 W. Grand Avenue
Artesia, New Mexico 88210

RECEIVED
APR 29 2010
NMOCD ARTESIA

Re: Stage 1 & 2 Abatement Plan
Enterprise Field Services, LLC
South Carlsbad Compressor Station
Carlsbad, Eddy County, New Mexico

Dear Ms. Bonham:

Enterprise Field Services, LLC (Enterprise) is submitting the enclosed *Stage 1 Abatement Report & Stage 2 Abatement Plan,* dated April 26, 2010 for the Enterprise South Carlsbad Compressor Station. This facility is located at the northwest intersection of Carrasco Road and CR 719 approximately ten (10) miles southeast of Carlsbad, New Mexico. The Site is an approximate 4-acre gas processing and compression facility. The objectives of the Stage 1 Abatement investigation activities were to evaluate the presence, magnitude, and extent of petroleum hydrocarbons in the on-site soil and groundwater (if encountered) in the vicinity of the former storage tank battery. Also, enclosed is the Stage 2 Abatement Plan which documents remedial actions recommended for clean up of the site to applicable regulatory levels.

The Stage 1 field investigation activities were conducted in November 2009, and included the advancement of one (1) soil boring (B-1) in the vicinity of the former storage tank battery containment area to a depth of 20 feet below ground surface (bgs). The boring indicated total benzene, toluene, ethylbenzene, and xylenes (BTEX) concentration at 980 milligrams per kilogram (mg/Kg) at a depth of 7 to 8 feet bgs.

Recommended Stage 2 Abatement activities will include the excavation of approximately 250 cubic yards of soil (approximate dimensions being 20 ft long by 20 ft wide and 15 ft deep) from the former storage tank battery containment area. Following the completion of the excavation activities, the petroleum hydrocarbon affected soils will be treated with the direct application of a bioremediation agent/water mixture to enhance natural attenuation of the petroleum hydrocarbons, chemically oxidize organic compounds, and stimulate naturally occurring bacteria in the on-site soils. Upon completion of excavation activities and receipt of confirmation samples that indicate the treated soils are below OCD Remediation Action Levels the treated soil will be backfilled into the excavation and request site closure.

We plan to conduct this work during the second quarter of this year and the NMOCD will be updated once the schedule is finalized. Should you have question concerning these findings or recommendations or need additional information please contact me at (713) 381-8327 or Rodney Sartor at (713) 381-6629.

Sincerely,

Russell Gregg
Environmental Scientist

Rodney Sartor
Manager Remediation

/bjm
Cc: Jennifer Corser - Enterprise
Chris Mitchell – Southwest Geoscience

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HOUSTON, TX 77002-5227
www.epplp.com

STAGE 1 ABATEMENT REPORT AND STAGE 2 ABATEMENT PLAN

Property:

S. Carlsbad Compressor Station
Off Carrasco Road and CR 710
Carlsbad, Eddy County, New Mexico

April 9, 2010
SWG Project No. 0210003

Prepared for:

Enterprise Products Operating, LLC
PO Box 4324
Houston, Texas 77210-4324
Attn: Mr. Russell D. Gregg

Prepared by:

Joseph W. Martinez
Project Manager

B. Chris Mitchell, P.G.
Principal Geoscientist

Southwest
GEOSCIENCE
8829 Tradeway Street
San Antonio, Texas 78217
Phone: (210) 804-9922
Fax: (210) 804-9944

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STAGE 1 ABATEMENT REPORT AND STAGE 2 ABATEMENT PLAN

S. Carlsbad Compressor Station
Off Carrasco Road and CR 710
Carlsbad, Eddy County, New Mexico

SWG Project No. 0210003

1.0 EXECUTIVE SUMMARY

Southwest Geoscience (SWG) has prepared this Stage 1 Abatement Report and Stage 2 Abatement Plan for the purpose of detailing the results of site investigation activities conducted at the Enterprise Products Operating, LLC (Enterprise) S. Carlsbad Compressor Station, referred to hereinafter as "Site" or "subject Site", and to develop a plan for abatement of identified chemicals of concern (COCs) to levels below the New Mexico Energy, Minerals, and Natural Resources Department (EMNRD), Oil Conservation Division (OCD) *Remediation Action Levels* using the New Mexico EMNRD OCD's *Guidelines for Remediation of Leaks, Spills and Releases* as guidance.

The Site is located at the northwest intersection of Carrasco Road and CR 710, approximately ten (10) miles southeast of Carlsbad, New Mexico. The Site is an approximate 4-acre Enterprise facility utilized in association with the processing and compression of natural gas, which would be considered commercial/industrial (non-residential) land use.

The objective of the Stage 1 Abatement investigation activities was to evaluate the presence of petroleum hydrocarbons in the on-Site soil and groundwater (if encountered) in the vicinity of the former storage tank containment area.

One (1) soil boring was advanced at the Site during the completion of the investigation activities. Soil boring B-1 was advanced within the former tank containment area to a depth of 20 feet below ground surface (bgs). Ground water was not encountered in the soil boring.

Based on the laboratory analytical results, the soil sample collected at a depth of 7 to 8 feet bgs exhibited a total petroleum hydrocarbon (TPH) concentration of 980 mg/Kg, which exceeds the OCD's *Remediation Action Level* of 100 mg/Kg.

SWG developed a Stage 2 Abatement Plan for the abatement of the identified COCs. SWG will direct the excavation of approximately 250 cubic yards of soil from the former storage tank containment area. The excavated soils will be transported directly from the excavation and spread in an approximate 1-foot lift on the southwestern portion of the Site. SWG will direct the treatment of impacted soils with the bioremediation agent (*Remedy*®)/water mixture. Earth moving equipment/tiller and hand tools will be utilized to till the excavated soils to enhance infiltration of the bioremediation agent and increase the availability of oxygen to microbes that metabolize the COCs.

Subsequent to the completion of excavation and treatment activities, five (5) discrete soil samples will be collected from the excavation floor and sidewalls, and five (5) discrete soil samples will be collected from treated soils based on the PID field screening results. Confirmation samples will be analyzed for TPH GRO/DRO and

BTEX. Upon successful attainment of OCD *Remediation Action Levels*, the treated soils will be used to backfill the excavation.

2.0 INTRODUCTION

2.1 Site Description

The Site is located at the northwest intersection of Carrasco Road and County Road 710, approximately ten (10) miles southeast of Carlsbad, New Mexico.

A topographic map depicting the location of the Site is included as Figure 1, and a Site Vicinity Map is included as Figure 2 in Appendix A.

2.2 Site Investigation Scope of Work

The objective of the Stage 1 Abatement activities was to evaluate the presence of petroleum hydrocarbons in the on-Site soil and groundwater (if encountered) as a result of historic operations.

The scope of work provided by SWG during the completion of Stage 1 Abatement activities included the following:

1) The advancement of one (1) soil boring within the former storage tank battery containment area to a depth of twenty (20) ft below ground surface (bgs).

2) Conduct field screening during drilling operations utilizing a PID meter to evaluate the presence of volatile organic compounds (VOCs) and to assist in determining the soil sample locations.

3) Collect soil samples from the soil boring for analysis of total petroleum hydrocarbons (TPH) Gasoline Range Organics (GRO)/Diesel Range Organics (DRO) and benzene, toluene, ethylbenzene, and xylenes (BTEX) to determine if soil is impacted above applicable regulatory standards.

2.3 Standard of Care & Limitations

The findings and recommendations contained in this report represent SWG's professional opinions based upon information derived from the on-Site activities and other services performed under this scope of work and were arrived at in accordance with currently acceptable professional standards. The findings were based upon analytical results provided by an independent laboratory. Evaluations of the geologic conditions at the Site for the purpose of this investigation are made from a single data point (i.e. soil boring) and Site wide subsurface conditions may vary from this point. SWG makes no warranties, express or implied, as to the services performed hereunder. Additionally, SWG does not warrant the work of third parties supplying information used in the report (e.g. laboratories, regulatory agencies, or other third parties).

This report is based upon a specific scope of work requested by Enterprise Products Operating, LLC. The agreement between SWG and Enterprise Products Operating, LLC outlines the scope of work, and only those tasks specifically

authorized by that agreement or outlined in this report were performed. This report has been prepared for the intended use of Enterprise Products Operating, LLC and their subsidiaries, and any authorization for use or reliance by any other party (except a governmental entity having jurisdiction over the Site) is prohibited without the express written authorization of Enterprise Products Operating, LLC and SWG.

3.0 SITE CHARACTERIZATION

3.1 Geology & Hydrogeology

According to the New Mexico Bureau of Geology and Mineral Resource (*Geologic Map of New Mexico 2003*), the Site overlies the Quaternary Alluvium geologic formation. The Quaternary Alluvium geologic formation includes alluvial deposits of sand, gravel, and silt.

The lithology encountered during the advancement of soil boring B-1 included a gray silty sand to a depth of eleven (11) feet bgs. The silty sand was underlain by a brown sandy silt to a depth of 17 feet bgs. A brown silty sand was encountered from a depth of 17 feet bgs to the terminus of the soil boring at 20 feet bgs.

The initial groundwater bearing unit (GWBU) in the vicinity of the Site is associated with the Quaternary Alluvium geologic formation. Based on the water wells completed in the regional vicinity of the Site, the depth to the initial GWBU in the vicinity of the Site ranges from 14 to 73 feet bgs.

3.2 Sensitive Receptor Survey

During the completion of field activities, a sensitive receptor survey, which included a one-half (1/2) mile radius search for registered water wells and a 500-foot radius walking survey for unregistered water wells and potential sensitive human and ecological receptors, was performed in the vicinity of the Site.

A records inventory of water wells located within a one-half mile of the Site was completed and included as Appendix B. SWG searched the State of New Mexico, Office of the State Engineer records for water wells located in the SE¼ of Section 12 and the NE¼ of Section 13 in Township 23S, Range 27E and the SW¼ of Section 7 and the NW¼ of Section 18 in Township 23S, Range 28E. The results of the water well search, conducted during the investigation activities, identified one (1) registered domestic water well within a one-half (1/2) mile radius of the Site. The reported UTM coordinates of the well place it within the Site boundaries. However, Enterprise operations personnel reported that the Site is connected to the Malaga water supply. Enterprise operations personnel were not aware of any water wells located at or near the Site. In addition, SWG did not observe a water well at or near the Site during field investigation activities. Based on this information, the reported location of this well appears to be incorrect and located otherwise off-Site.

During the completion of the 500-foot receptor survey, SWG inspected the Site vicinity for dwellings, schools, hospitals, day care centers, nursing homes, businesses, and subsurface utilities located within 500 ft of the Site. In addition, sensitive receptors such as surface water bodies, parks, recreational areas, wildlife sanctuaries, and wetlands areas located within 500 ft of the Site were evaluated, if present. The Site is located within an agricultural rangeland and oil and gas

production and storage setting. SWG did not observe the above referenced sensitive receptors within a 500-foot radius of the Site.

4.0 SITE INVESTIGATION

4.1 Soil Borings

On November 5, 2009, one (1) soil boring was advanced at the Site under the direction of SWG. Soil boring B-1 was advanced within the former storage tank containment area to a depth of 20 feet bgs.

Figure 3 is a Site Plan that indicates the approximate location of the soil boring in relation to pertinent structures and land features (Appendix A). Photographic documentation is provided in Appendix C.

Soil boring B-1 was advanced using an air rotary drilling rig under the supervision of a State of New Mexico licensed water well driller. Soil samples were collected continuously. Soil samples were observed to document soil lithology, color, moisture content and visual and olfactory evidence of petroleum hydrocarbons. Each soil sample was immediately divided into portions designated for field screening or laboratory analysis. Field headspace analysis was conducted by placing the portion of the soil sample designated for field screening into a plastic Ziploc bag. The plastic bag was sealed and then placed in a warm area to promote volatilization. The air above the sample, the headspace, was then evaluated using a PID capable of detecting VOCs. The PID was calibrated utilizing an isobutylene standard prior to use in the field.

During the completion of the soil boring, an on-Site geoscientist documented the lithology encountered and constructed a continuous profile of the soil column from the surface to the soil boring terminus. Soil samples from the soil boring were visually inspected and classified in the field. The lithology encountered during the advancement of soil boring B-1 included a gray silty sand to a depth of eleven (11) feet bgs. A silty sand was underlain by a brown sandy silt to a depth of 17 feet bgs. The brown silty sand was encountered from a depth of 17 feet bgs to the terminus of the soil boring at 20 feet bgs. Groundwater was not encountered during the advancement of the soil boring. Detailed lithologic descriptions are presented on the soil boring logs included in Appendix E.

Petroleum hydrocarbon odors were noted from the surface to a depth of approximately 17 feet bgs. PID readings ranging from below the instruments detection limit to 341 parts per million (ppm) were detected in the soil samples collected from soil boring B-1. The highest PID reading was observed in the soil sample collected from a depth of 7 to 8 feet bgs in soil boring B-1. Field screening results are presented on the soil boring logs included in Appendix E.

4.2 Investigation Sampling Program

4.2.1 Soil Sampling Program

SWG's soil sampling program involved submitting two (2) soil samples from the soil boring for laboratory analysis. One (1) soil sample was collected from the zone exhibiting the highest concentration of VOC's based on visual, olfactory or PID

evidence, and one (1) sample was collected from soils underlying the petroleum hydrocarbon impacted soil based on visual, olfactory or PID evidence. Soil sample intervals are presented with the soil sample analytical results (Table 1) in Appendix D and are provided on the soil boring logs included in Appendix E.

5.0 LABORATORY ANALYTICAL PROGRAM

5.1 Laboratory Analytical Methods

The soil samples collected from soil boring B-1 were analyzed for TPH GRO/DRO and BTEX utilizing EPA method SW-846 #8015 and #8021B, respectively.

Laboratory results are summarized in the tables included in Appendix D. The executed chain-of-custody form and laboratory data sheets are provided in Appendix F.

5.2 Quality Assurance/Quality Control (QA/QC)

Sampling equipment was cleaned using an Alconox® wash and potable water rinse prior to the beginning of the project and before the collection of each sample.

Soil samples were collected and placed in laboratory prepared glassware, sealed with custody tape and placed on ice in a cooler, which was secured with a custody seal. The sample coolers and completed chain-of-custody forms were relinquished to TestAmerica Laboratories, Inc.'s (TestAmerica) analytical laboratory in Corpus Christi, Texas for normal turnaround.

TestAmerica performed the analyses of samples under an adequate and documented quality assurance program to meet the project and data quality objectives. The laboratory's quality assurance program is generally consistent with the quality standards outlined in the National Environmental Laboratory Accreditation Program, as amended. In addition, the data generated by TestAmerica meets the intralaboratory performance standards for the selected analytical method and the performance standards are sufficient to meet the bias, precision, sensitivity, representativeness, comparability, and completeness, as specified in the project data quality objectives.

6.0 DATA EVALUATION

The Site is subject to regulatory oversight by the New Mexico EMNRD OCD. To address activities related to condensate releases, the New Mexico EMNRD OCD utilizes the *Guidelines for Remediation of Leaks, Spills and Releases* as guidance, in addition to the OCD rules, specifically New Mexico Administrative Code (NMAC) 19.15.30 Remediation. These guidance documents establish investigation and abatement action requirements for sites subject to reporting and/or corrective action.

Based on SWG's review of Site characteristics (specifically: average depth to groundwater in the Site vicinity) an associated ranking score of 20 was determined for the Site in accordance with the *Guidelines for Remediation of Leaks, Spills and Releases*. Consequently, the OCD's *Remediation Action Levels* for the on-Site soils are 10 milligrams per kilogram (mg/Kg) benzene, 50 mg/Kg total BTEX, and 100 mg/Kg TPH.

6.1 Soil Samples

SWG compared the petroleum hydrocarbon constituent concentrations identified in the on-Site soils to the OCD's *Remediation Action Levels* for sites having a Total Ranking Score of 20.

The soil samples collected from soil boring B-1 at depths of 7 to 8 feet bgs and 19 to 20 feet bgs did not exhibit total BTEX concentrations above the OCD's *Remediation Action Levels*.

The soil sample collected at a depth of 7 to 8 feet bgs did exhibit TPH concentration of 980 mg/Kg, which exceeds the OCD's *Remediation Action Level* of 100 mg/Kg. However, the soil sample collected at a depth of 19 to 20 feet bgs did not exhibit TPH concentrations above the OCD's *Remediation Action Level*.

The results of the soil sample analytical results are summarized in Appendix D.

7.0 ABATEMENT OF CONTAMINANTS

SWG has developed the Stage 2 Abatement Plan hereunder for the abatement of the previously identified COCs. The abatement options evaluated to address the COCs identified at the Site were compiled based on the following assumptions:

- The primary constituents with regard to the proposed abatement actions at the Site are limited to TPH GRO/DRO.

7.1 Development & Assessment of Abatement Options

During the development of the Stage 2 Abatement Plan, SWG evaluated the following abatement options relative to the Site.

Option No. 1 – Excavation, Treatment & Natural Attenuation

Option No. 1 would include the excavation and treatment of identified impacted soils. During the completion of the proposed excavation activities, an estimated 250 cubic yards of petroleum hydrocarbon affected soils, which extend to a depth of approximately 15 feet bgs, will be brought to the surface. The excavated soils will be transported directly from the excavation and spread in an approximate 1-foot lift on the southwestern portion of the Site.

Subsequent to the completion of excavation activities, the petroleum hydrocarbon affected soils will be treated utilizing the direct application of a bioremediation agent (*Remedy*®)/water mixture to enhance natural attenuation of the petroleum hydrocarbons, stimulate naturally occurring bacteria in the on-site soils and introduce additional nonpathogenic bacterial strains designed to metabolize petroleum hydrocarbons. *Remedy*® is a product that enhances microbial activity thereby accelerating the biodegradation of organic contaminants. *Remedy*® introduces enzymes and microbial spores to the area of the impacted soil that is already experiencing natural biodegradation. The microbial spores along with indigenous microorganisms naturally present in the soil are bio-chemically stimulated to excite the organic contaminant eating microbes. The microbes rapidly

and effectively degrade organic contaminants in the soil until the organic food source is depleted. Because of the sandy lithology identified at the Site, it is anticipated that the oxygen content in the soil is elevated so it provides a favorable environment for the microbes.

Remedy® is not a dispersant and does not contain surfactants (<1%) to help facilitate organic molecular breakdown. *Remedy*® is a bioremediation enhancer that depends extensively on temperature, pH, moisture content, oxygen and existing nutrient content in the soil. Additional information on *Remedy*®, is available in Appendix G.

Option No. 2 – Soil Vapor Extraction

Option No. 2 would include the implantation of Soil Vapor Extraction (SVE) technology at the Site. As part of the proposed abatement activities, two (2) soil borings would be advanced within the former storage tank containment area, to a depth of up to 15 feet bgs, and would be completed as soil vapor extraction wells.

SVE, also known as "soil venting" or "vacuum extraction", is an *in situ* remedial technology that reduces concentrations of volatile constituents in petroleum products adsorbed to soils in the unsaturated (vadose) zone. Using this technology, a vacuum is applied through extraction wells near the source of contamination in the soil. Volatile constituents of the contaminant mass "evaporate" and the vapors are drawn toward the extraction wells. Extracted vapor is then treated as necessary (commonly with carbon adsorption) before being released to the atmosphere. The increased air flow through the subsurface can also stimulate biodegradation of some of the contaminants, especially those that are less volatile.

7.2 Proposed Abatement Actions

SWG will direct the excavation of approximately 250 cubic yards of soil (with approximate dimension being 20 feet long, 20 feet wide and 15 feet deep) from the former storage tank containment area. Soils will be screened for the presence of VOCs using a PID. Soils will be staged near the excavation and spread to a depth of approximately one (1) foot thick. In addition, earth moving equipment/tiller and hand tools will be utilized to till excavated soils to enhance infiltration of bioremediation agent and exposure of COCs to oxygen. SWG will direct the treatment of impacted soils with the bioremediation agent (*Remedy*®)/water mixture and subsequent reworking of soil media to ensure a thorough and consistent treatment of soils. The agent delivery system will consist of a water truck or similar equipment such as a portable tank, a gas powered water pump to distribute agent, and rubber hoses to allow for mobile and area specific application.

7.3 Post Abatement Confirmation

Subsequent to the completion of excavation activities, up to five (5) discrete soil samples will be collected from the excavation floor and sidewalls based on the PID field screening results. Following treatment of impacted soils, up to five (5) discrete soil samples will be collected from treated soils.

All confirmation samples will be analyzed for TPH GRO/DRO and BTEX utilizing EPA method SW-846 #8015B and #8021, respectively. In addition, the soil sample exhibiting the highest benzene concentration will be submitted for Toxicity Characteristic Leaching Procedure (TCLP) analysis.

8.0 COMPLETION AND SITE CLOSURE

Treatment of affected soils shall be deemed successful once confirmation samples from the excavation and treated soils indicate that COCs are below OCD *Remediation Action Levels*. The treated soils will be used to backfill the excavation subsequent to the attainment of OCD Remediation Action Levels.

Upon successful abatement of COCs in the affected soils, the results of the abatement actions will be reported to the OCD and a closure request would be made for the portion of the Site that was impacted by the former storage tank.

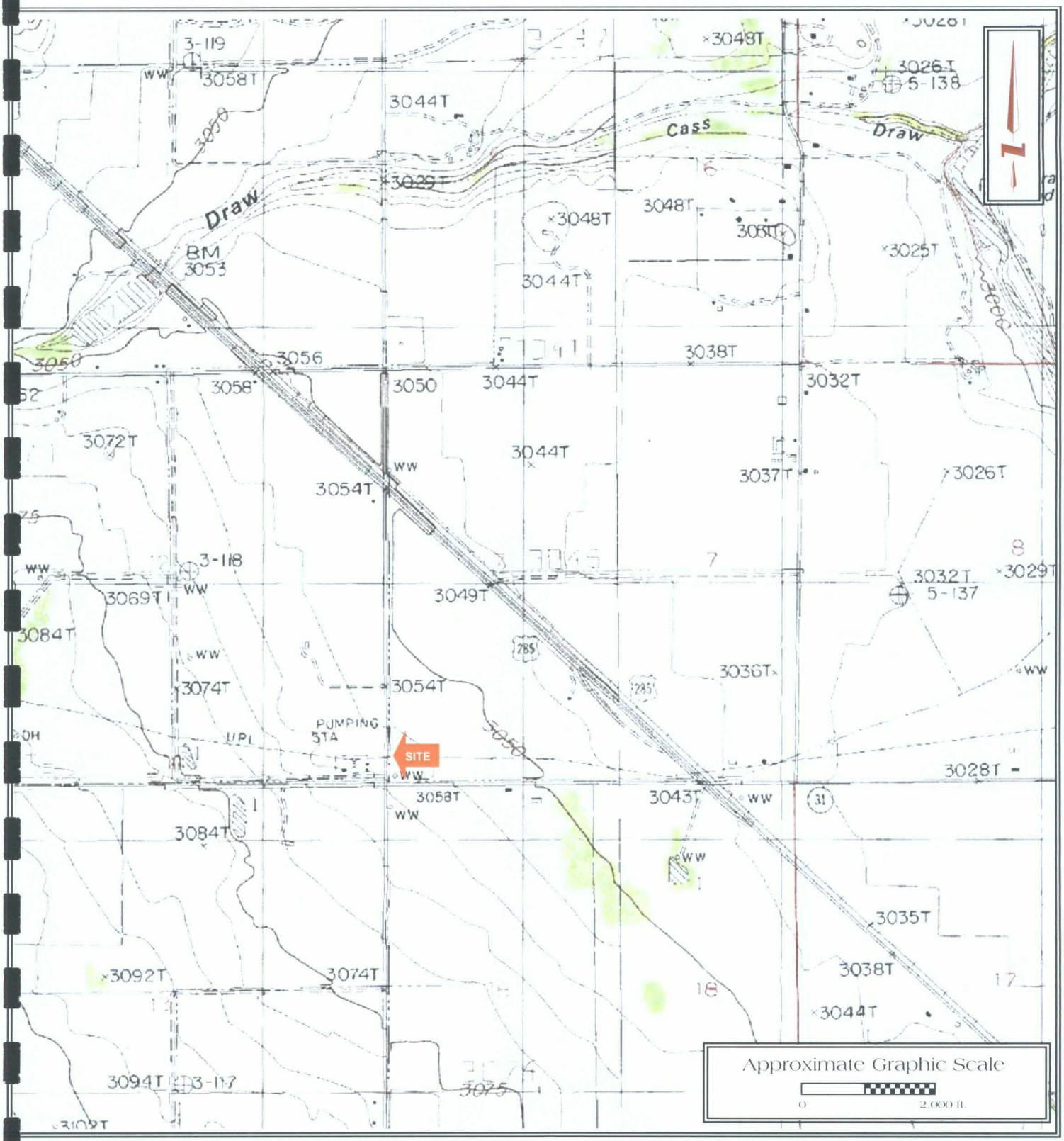
9.0 SCHEDULE

The completion of abatement actions will require an estimated three (3) months; however, time estimations regarding the completion of abatement actions depend upon several factors, many of which cannot be pre-determined. Variables which may impact the estimated time required to attain the applicable OCD *Remediation Action Levels* for the identified COCs include, inclement weather, regulatory input and/or operational encumbrances.

Southwest GEOSCIENCE

APPENDIX A

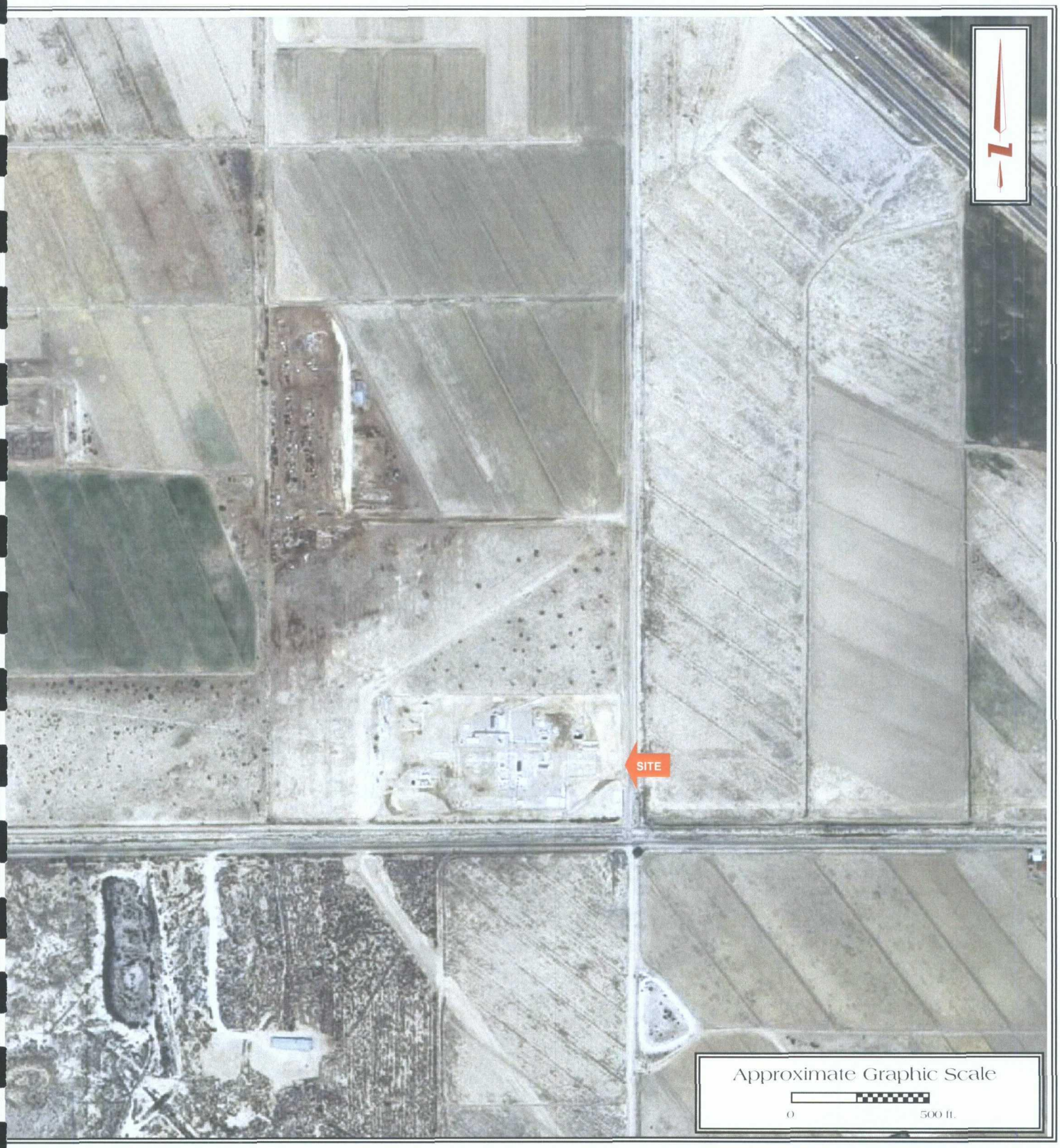
Figures



Stage 1 Abatement Report &
Stage 2 Abatement Plan
S. Carlsbad Compressor Sta.
N32° 18.7933'; W104° 8.1446'
Off Carrasco Road
Eddy County, New Mexico
SWG Project No. 0210003

Southwest GEOSCIENCE

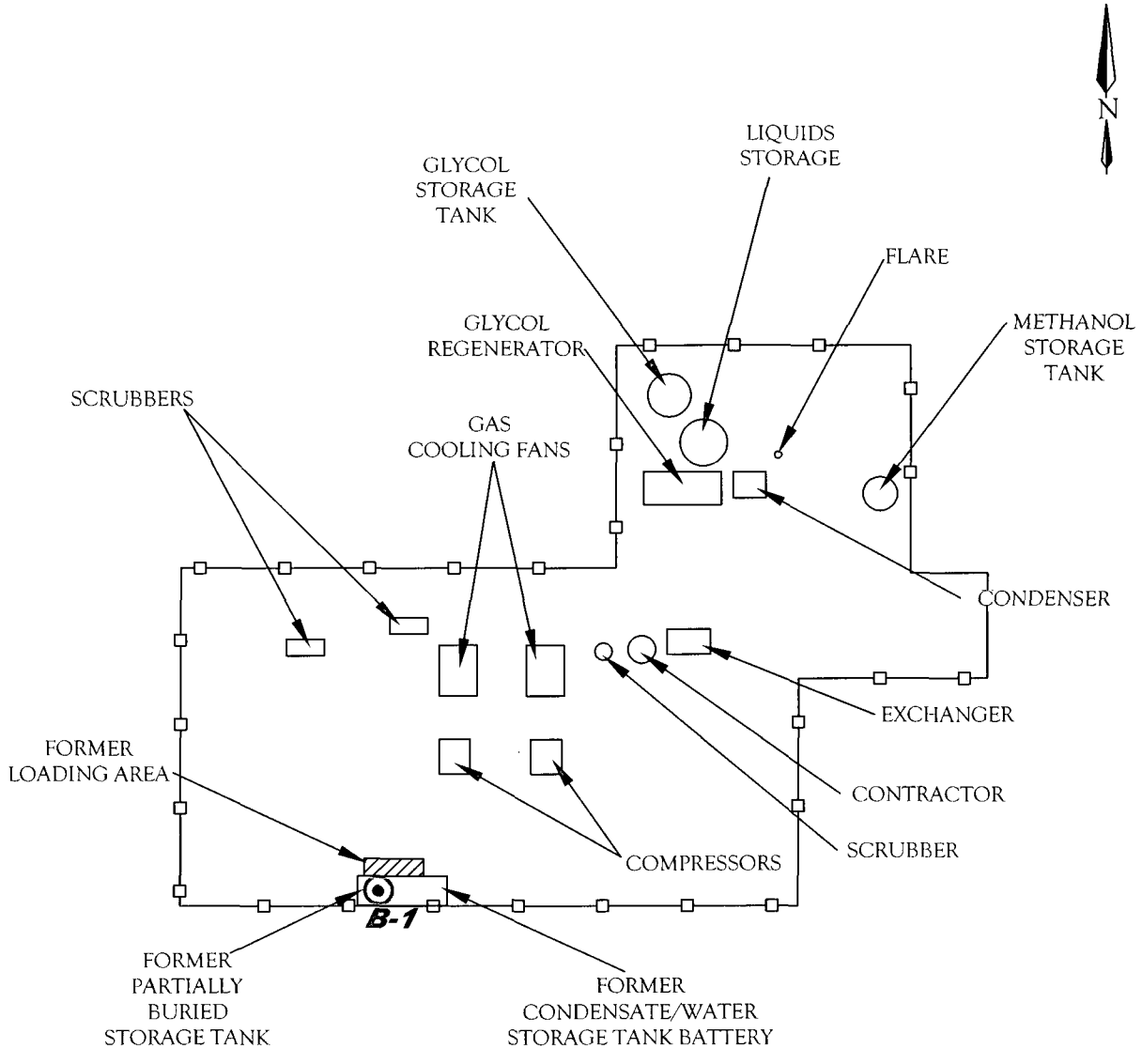
FIGURE 1
Topographic Map
Otis, NM Quadrangle
Contour Interval - 10 Feet



Stage 1 Abatement Report &
Stage 2 Abatement Plan
S. Carlsbad Compressor Sta.
N32° 18.7933'; W104° 8.1446'
Off Carrasco Road
Eddy County, New Mexico
SWG Project No. 0210003

Southwest GEOSCIENCE

FIGURE 2
Site Vicinity Map
2009 Aerial Photograph



Stage 1 Abatement Report &
Stage 2 Abatement Plan
South Carlsbad Compressor Station
N32° 18.7933'; W104° 8.1446'
Off Carrasco Road
Eddy County, New Mexico

SWG Project No. 0210003

Southwest GEOSCIENCE

FIGURE 3

SITE PLAN

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APPENDIX B

Water Well Records

New Mexico Office of the State Engineer
Wells Without Well Log Information

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

POD Number	Sub basin	Use	County	Source	q 64	q 16	q 4	Sec	Tws	Rng	X	Y
C 00241		IRR	ED	Shallow	3	3	2	12	23S	27E	580715	3576307*
C 03371 POD1		STK	ED		2	2	1	12	23S	27E	580965	3576917

Record Count: 2

Basin/County Search:

County: Eddy

PLSS Search:

Section(s): 12 **Township:** 23S **Range:** 27E

***UTM location was derived from PLSS - see Help**

New Mexico Office of the State Engineer
Wells with Well Log Information

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (in feet)

POD Number	Sub basin	Use	County	Source	q 6416	q	q	Sec	Tws	Rng	X	Y	Start Date	Finish Date	Log File Date	Depth Well	Depth Water
C 00155		IRR	ED	Shallow	3	4	1	12	23S	27E	580310	3576300*	06/19/1952	07/10/1952	07/18/1952	215	73
C 00332		DOM	ED	Shallow	2	2	1	12	23S	27E	580508	3576903*	06/11/1952	06/11/1952	06/16/1952	100	24
C 03053		DOM	ED	Shallow	3	4	4	12	23S	27E	581122	3575505*	03/16/2004	03/17/2004	04/12/2004	94	14

Record Count: 3

Basin/County Search:

County: Eddy

PLSS Search:

Section(s): 12 **Township:** 23S **Range:** 27E

l location was derived from PLSS - see Help

Southwest GEOSCIENCE

APPENDIX C

Photographic Documentation

1.) Representative view of the advancement of soil boring B-1, in the vicinity of the former partially buried liquids storage tank.

2.) General view of the former storage tank area.

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APPENDIX D

Tables

Southwest GEOSCIENCE

TABLE 1
S. CARLSBAD COMPRESSOR STATION
SOIL ANALYTICAL RESULTS

Sample I.D.	Date	Sample Depth (feet)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)
New Mexico Energy, Minerals & Natural Resources Department, Oil Conservation Division, Remediation Action Level			10	NE	NE	NE	50	100	
B-1	11/5/2009	7 to 8	0.34	7.1	1.5	31	39.94	**270**	**710**
	11/5/2009	19 to 20	<0.0021	<0.0022	<0.0024	0.036	0.036	0.15	24

Note: Concentrations in **bold** and yellow exceed the applicable OCD Remediation Action Level

NE = Not Established

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APPENDIX E

Soil Boring Logs

SOIL BORING LOG

Client: Enterprise Products Operating, LLC
Project Name: S. Carlsbad Compressor Station
Project Location: Off S. Carassco Rd, Carlsbad, NM
Project Manager: B. Chris Mitchell, P.G.

DRILLING & SAMPLING INFORMATION

Date Started: November 5, 2009
Date Completed: November 5, 2009
Drilling Company: Straub Corporation
Driller: Marty Straub
Geologist: BCM
Boring Method: AR
Bore Hole Dia: 6-Inch

Soil Boring Number: B-1
Project #: 02100003
Drawn By: BCM
Approved By: BCM

Well Diam: N/A
Screen Size: N/A
Screen Length: N/A
Casing Length: N/A

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▼ AT WELL STABILIZATION

Monitor Well Detail	SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	PID/FID Readings (ppm)	BORING AND SAMPLING NOTES
	SURFACE ELEVATION:								
	SILTY SAND, Gray, Dry, Petroleum Hydrocarbon Odor		5			100 %		205 228 150 329 324	
	SANDY SILT, Pale Brown, Dry, Petroleum Hydrocarbon Odor		10			100 %		194 280 341 339 244 92 103 65	
	SILTY SAND, Brown, Dry, No Odor		15			100 %		111 109 35 53 47 0 0	
	BOTTOM OF BORING		20						
			25						
			30						

Southwest GEOSCIENCE

Southwest GEOSCIENCE

APPENDIX F

Laboratory Data Reports & Chain-of-Custody Documentation

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 560-17998-1

Job Description: 0209011- S. Carlsbad Comp.

For:
Southwest Geoscience
8620 N. New Braunfels Ave.
Suite 531
San Antonio, TX 78217

Attention: Mr. Chris Mitchell

Erica H Padilla

Approved for release.
Erica Padilla
Project Manager I
11/24/2009 8:30 PM

Erica Padilla
Project Manager I
erica.padilla@testamericainc.com
11/24/2009

The test results entered in this report meet all NELAC requirements for accredited parameters. Any exceptions to NELAC requirements are noted in the report. Pursuant to NELAC, this report may not be reproduced except in full, and with written approval from the laboratory. TestAmerica Corpus Christi Certifications and Approvals: NELAC TX T104704210-TX, NELAC KS E-10362, Oklahoma 9968, USDA Soil Permit P330-08-00033.

Job Narrative
560-17998-1

Comments
No additional comments.

Receipt
All samples were received in good condition within temperature requirements.

GC VOA
Samples 560-17998-1 and 2 were analyzed for BTEX using EPA Method 8021B. The client provided full Terra Core kits for each sample. Analysis was attempted on the VOA vials containing soil plugs. After foaming during direct purge of one vial from sample 2 and vials from a separate job, the instrument was stopped and the used vials were checked. The septa in all used vials were found to be torn and the vials used for both jobs were from the same lot number. The septa appeared to have torn upon injection of the instrument needle. The septa of all remaining vials were intact. The client was notified and due to septum failure, samples 1 and 2 were analyzed using the bulk jar provided with each Terra Core kit.

Sample 560-17998-2 was analyzed for GRO using EPA Method 8015 Modified. GRO was detected in the method blank (MB) associated with this sample. However, the amount detected was below the reporting limit. Therefore, data are reported.

No other analytical or quality issues were noted.

GC Semi VOA
Samples 560-17998-1 and 2 were analyzed for DRO using EPA Method 8015D. DRO was detected in the method blank (MB) associated with these samples. However, the amount detected was below the reporting limit. Therefore, data are reported.

No analytical or quality issues were noted.

General Chemistry
No analytical or quality issues were noted.

Organic Prep
No analytical or quality issues were noted.

VOA Prep
No analytical or quality issues were noted.

EXECUTIVE SUMMARY - Detections

Client: Southwest Geoscience

Job Number: 560-17998-1

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier		Reporting Limit	Units	Method
560-17998-1	**B-1 (7-8)**					
Gasoline Range Organics (GRO)-C6-C12		270		11	mg/Kg	8015M
Benzene		0.34		0.13	mg/Kg	8021B
Toluene		7.1		0.13	mg/Kg	8021B
Ethylbenzene		1.5		0.13	mg/Kg	8021B
Xylenes, Total		31		0.39	mg/Kg	8021B
Diesel (C10-C28)		710	B	12	mg/Kg	8015D
Percent Moisture		17		0.010	%	Moisture
Percent Solids		83		0.010	%	Moisture
560-17998-2	**B-1 (19-20)**					
Gasoline Range Organics (GRO)-C6-C12		0.15	B	0.11	mg/Kg	8015M
Xylenes, Total		0.036		0.016	mg/Kg	8021B
Diesel (C10-C28)		24	B	11	mg/Kg	8015D
Percent Moisture		7.8		0.010	%	Moisture
Percent Solids		92		0.010	%	Moisture

METHOD SUMMARY

Client: Southwest Geoscience

Job Number: 560-17998-1

Description	Lab Location	Method	Preparation Method
Matrix: Solid			
GRO by 8015M	TAL PEN	SW846 8015M	
Closed System Purge and Trap	TAL PEN		SW846 5035
Volatile Organic Compounds (GC)	TAL CC	SW846 8021B	
Purge and Trap	TAL CC		SW846 5030B
Diesel Range Orgnics (DRO) (GC)	TAL CC	SW846 8015D	
Ultrasonic Extraction	TAL CC		SW846 3550B
Percent Moisture	TAL CC	EPA Moisture	

Lab References:

TAL CC = TestAmerica Corpus Christi

TAL PEN = TestAmerica Pensacola

Method References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: Southwest Geoscience

Job Number: 560-17998-1

Method	Analyst	Analyst ID
SW846 8015M	Lee, Jefferson	JL
SW846 8015M	Potts, Charles	CP
SW846 8021B	Alvarez, Tracy L	TLA
SW846 8021B	Hernandez, Mark	MH
SW846 8015D	Craig, Bronson	BC
EPA Moisture	Mbipeh, Brenda	BM

SAMPLE SUMMARY

Client: Southwest Geoscience

Job Number: 560-17998-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
560-17998-1	B-1 (7-8)	Solid	11/05/2009 1115	11/07/2009 0848
560-17998-2	B-1 (19-20)	Solid	11/05/2009 1125	11/07/2009 0848

Mr. Chris Mitchell
Southwest Geoscience
8620 N. New Braunfels Ave.
Suite 531
San Antonio, TX 78217

Job Number: 560-17998-1

Client Sample ID: B-1 (7-8)
Lab Sample ID: 560-17998-1

Date Sampled: 11/05/2009 1115
Date Received: 11/07/2009 0848
Client Matrix: Solid
Percent Solids: 83

Analyte	Result/Qualifier		Unit	MDL	RL	Dilution
Method: 8015M			Date Analyzed:		11/17/2009 1955	
Prep Method: 5035			Date Prepared:		11/17/2009 1047	
Gasoline Range Organics (GRO)-C6-C12	270		mg/Kg	3.8	11	100
Surrogate					Acceptance Limits	
a,a,a-Trifluorotoluene (fid)	80		%		67 - 130	
Method: 8021B			Date Analyzed:		11/10/2009 1827	
Prep Method: 5030B			Date Prepared:		11/10/2009 0818	
Benzene	0.34		mg/Kg	0.026	0.13	50
Toluene	7.1		mg/Kg	0.026	0.13	50
Ethylbenzene	1.5		mg/Kg	0.026	0.13	50
Xylenes, Total	31		mg/Kg	0.077	0.39	50
Surrogate					Acceptance Limits	
4-Bromofluorobenzene (Surr)	113		%		36 - 158	
Trifluorotoluene (Surr)	121		%		31 - 138	
Method: 8015D			Date Analyzed:		11/11/2009 1832	
Prep Method: 3550B			Date Prepared:		11/11/2009 1100	
Diesel (C10-C28)	710	B	mg/Kg	1.4	12	1.0
Surrogate					Acceptance Limits	
o-Terphenyl	88		%		55 - 120	

Mr. Chris Mitchell
Southwest Geoscience
8620 N. New Braunfels Ave.
Suite 531
San Antonio, TX 78217

Job Number: 560-17998-1

Client Sample ID: B-1 (7-8)
Lab Sample ID: 560-17998-1

Date Sampled: 11/05/2009 1115
Date Received: 11/07/2009 0848
Client Matrix: Solid

Analyte	Result/Qualifier	Unit	RL	RL	Dilution
Method: Moisture			Date Analyzed:	11/09/2009 1645	
Percent Moisture	17	%	0.010	0.010	1.0

Mr. Chris Mitchell
Southwest Geoscience
8620 N. New Braunfels Ave.
Suite 531
San Antonio, TX 78217

Job Number: 560-17998-1

Client Sample ID: B-1 (19-20)
Lab Sample ID: 560-17998-2

Date Sampled: 11/05/2009 1125
Date Received: 11/07/2009 0848
Client Matrix: Solid
Percent Solids: 92

Analyte	Result/Qualifier		Unit	MDL	RL	Dilution
Method: 8015M			Date Analyzed:		11/18/2009 0154	
Prep Method: 5035			Date Prepared:		11/17/2009 0943	
Gasoline Range Organics (GRO)-C6-C12	0.15	B	mg/Kg	0.036	0.11	1.0
Surrogate					Acceptance Limits	
a,a,a-Trifluorotoluene (fid)	100		%		67 - 130	
Method: 8021B			Date Analyzed:		11/09/2009 1744	
Prep Method: 5030B			Date Prepared:		11/09/2009 1744	
Benzene	<0.0021		mg/Kg	0.0021	0.0054	1.0
Toluene	<0.0022		mg/Kg	0.0022	0.0054	1.0
Ethylbenzene	<0.0024		mg/Kg	0.0024	0.0054	1.0
Xylenes, Total	0.036		mg/Kg	0.0072	0.016	1.0
Surrogate					Acceptance Limits	
4-Bromofluorobenzene (Surr)	139		%		25 - 142	
Trifluorotoluene (Surr)	80		%		32 - 139	
Method: 8015D			Date Analyzed:		11/11/2009 1841	
Prep Method: 3550B			Date Prepared:		11/11/2009 1100	
Diesel (C10-C28)	24	B	mg/Kg	1.3	11	1.0
Surrogate					Acceptance Limits	
o-Terphenyl	93		%		55 - 120	

Mr. Chris Mitchell
Southwest Geoscience
8620 N. New Braunfels Ave.
Suite 531
San Antonio, TX 78217

Job Number: 560-17998-1

Client Sample ID: B-1 (19-20)
Lab Sample ID: 560-17998-2

Date Sampled: 11/05/2009 1125
Date Received: 11/07/2009 0848
Client Matrix: Solid

Analyte	Result/Qualifier	Unit	RL	RL	Dilution
Method: Moisture		Date Analyzed:	11/09/2009 1645		
Percent Moisture	7.8	%	0.010	0.010	1.0

DATA REPORTING QUALIFIERS

Client: Southwest Geoscience

Job Number: 560-17998-1

Lab Section	Qualifier	Description
GC VOA		
	B	Compound was found in the blank and sample.
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
GC Semi VOA		
	B	Compound was found in the blank and sample.
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

QUALITY CONTROL RESULTS

Client: Southwest Geoscience

Job Number: 560-17998-1

Method Blank - Batch: 400-99378

Method: 8015M
Preparation: 5035

Lab Sample ID: MB 400-99378/2-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/17/2009 1054
Date Prepared: 11/17/2009 0943

Analysis Batch: 400-99377
Prep Batch: 400-99378
Units: mg/Kg

Instrument ID: GC/PID/FID
Lab File ID: B111702.D
Initial Weight/Volume: 5 g
Final Weight/Volume: 5 g
Injection Volume:
Column ID: PRIMARY

Analyte	Result	Qual	MDL	RL
Gasoline Range Organics (GRO)-C6-C12	0.0363	J	0.033	0.10

Surrogate	% Rec	Acceptance Limits
a,a,a-Trifluorotoluene (fid)	100	67 - 130

Lab Control Sample - Batch: 400-99378

Method: 8015M
Preparation: 5035

Lab Sample ID: LCS 400-99378/1-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/17/2009 0943
Date Prepared: 11/17/2009 0943

Analysis Batch: 400-99377
Prep Batch: 400-99378
Units: mg/Kg

Instrument ID: GC/PID/FID
Lab File ID: B111701.D
Initial Weight/Volume: 5 g
Final Weight/Volume: 5 g
Injection Volume:
Column ID: PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	*Qual*
Gasoline Range Organics (GRO)-C6-C12	1.00	0.928	93	73 - 126	

Surrogate	% Rec	Acceptance Limits
a,a,a-Trifluorotoluene (fid)	100	67 - 130

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: Southwest Geoscience

Job Number: 560-17998-1

Method Blank - Batch: 400-99505

Method: 8015M
Preparation: 5035

Lab Sample ID: MB 400-99505/1-A
Client Matrix: Solid
Dilution: 50
Date Analyzed: 11/17/2009 2309
Date Prepared: 11/17/2009 1047

Analysis Batch: 400-99343
Prep Batch: 400-99505
Units: mg/Kg

Instrument ID: GC/PID/FID
Lab File ID: R111724.D
Initial Weight/Volume: 5.00 g
Final Weight/Volume: 5.00 g
Injection Volume:
Column ID: PRIMARY

Analyte	Result	Qual	MDL	RL
Gasoline Range Organics (GRO)-C6-C12	<1.6		1.6	5.0

Surrogate	% Rec	Acceptance Limits
a,a,a-Trifluorotoluene (fid)	87	67 - 130

Lab Control Sample - Batch: 400-99505

Method: 8015M
Preparation: 5035

Lab Sample ID: LCS 400-99505/2-A
Client Matrix: Solid
Dilution: 50
Date Analyzed: 11/18/2009 1545
Date Prepared: 11/17/2009 1047

Analysis Batch: 400-99343
Prep Batch: 400-99505
Units: mg/Kg

Instrument ID: GC/PID/FID
Lab File ID: R111812.D
Initial Weight/Volume: 5.00 g
Final Weight/Volume: 5.00 g
Injection Volume:
Column ID: PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Gasoline Range Organics (GRO)-C6-C12	10.0	9.64	96	73 - 126	

Surrogate	% Rec	Acceptance Limits
a,a,a-Trifluorotoluene (fid)	83	67 - 130

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: Southwest Geoscience

Job Number: 560-17998-1

Method Blank - Batch: 560-41947

Method: 8021B
Preparation: 5030B

Lab Sample ID: MB 560-41947/3
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/09/2009 1046
Date Prepared: 11/09/2009 1046

Analysis Batch: 560-41947
Prep Batch: N/A
Units: mg/Kg

Instrument ID: VGC#2
Lab File ID: 11090903.D
Initial Weight/Volume: 5 g
Final Weight/Volume: 5 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result	Qual	MDL	RL
Benzene	<0.0019		0.0019	0.0050
Toluene	<0.0021		0.0021	0.0050
Ethylbenzene	<0.0022		0.0022	0.0050
Xylenes, Total	<0.0067		0.0067	0.015

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene (Surr)	88	25 - 142
Trifluorotoluene (Surr)	84	32 - 139

Lab Control Sample - Batch: 560-41947

Method: 8021B
Preparation: 5030B

Lab Sample ID: LCS 560-41947/2
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/09/2009 1017
Date Prepared: 11/09/2009 1017

Analysis Batch: 560-41947
Prep Batch: N/A
Units: mg/Kg

Instrument ID: VGC#2
Lab File ID: 11090902.D
Initial Weight/Volume: 5 g
Final Weight/Volume: 5 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Benzene	0.0200	0.0183	91	73 - 120	
Toluene	0.0200	0.0197	98	71 - 125	
Ethylbenzene	0.0200	0.0202	101	74 - 123	
Xylenes, Total	0.0400	0.0417	104	77 - 129	

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene (Surr)	107	25 - 142
Trifluorotoluene (Surr)	103	32 - 139

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: Southwest Geoscience

Job Number: 560-17998-1

Method Blank - Batch: 560-41995

Method: 8021B
Preparation: 5030B

Lab Sample ID: MB 560-41995/2-A
Client Matrix: Solid
Dilution: 50
Date Analyzed: 11/10/2009 0941
Date Prepared: 11/10/2009 0818

Analysis Batch: 560-41994
Prep Batch: 560-41995
Units: mg/Kg

Instrument ID: VGC#1
Lab File ID: 11100903.D
Initial Weight/Volume: 5 g
Final Weight/Volume: 10 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result	Qual	MDL	RL
Benzene	<0.020		0.020	0.10
Toluene	<0.020		0.020	0.10
Ethylbenzene	<0.020		0.020	0.10
Xylenes, Total	<0.060		0.060	0.30

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene (Surr)	107	36 - 158
Trifluorotoluene (Surr)	91	31 - 138

Lab Control Sample - Batch: 560-41995

Method: 8021B
Preparation: 5030B

Lab Sample ID: LCS 560-41995/1-A
Client Matrix: Solid
Dilution: 50
Date Analyzed: 11/10/2009 0912
Date Prepared: 11/10/2009 0818

Analysis Batch: 560-41994
Prep Batch: 560-41995
Units: mg/Kg

Instrument ID: VGC#1
Lab File ID: 11100902.D
Initial Weight/Volume: 5 g
Final Weight/Volume: 10 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Benzene	1.00	1.01	101	78 - 124	
Toluene	1.00	1.06	106	80 - 126	
Ethylbenzene	1.00	1.03	103	80 - 124	
Xylenes, Total	2.00	2.03	101	80 - 135	

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene (Surr)	103	36 - 158
Trifluorotoluene (Surr)	86	31 - 138

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: Southwest Geoscience

Job Number: 560-17998-1

Method Blank - Batch: 560-42080

Method: 8015D
Preparation: 3550B

Lab Sample ID: MB 560-42080/1-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/11/2009 1724
Date Prepared: 11/11/2009 1100

Analysis Batch: 560-42095
Prep Batch: 560-42080
Units: mg/Kg

Instrument ID: SVGC#4
Lab File ID: 11110903.D
Initial Weight/Volume: 30.02 g
Final Weight/Volume: 5 mL
Injection Volume: 1 uL

Analyte	Result	Qual	MDL	RL
Diesel (C10-C28)	3.13	J	1.2	10

Surrogate	% Rec	Acceptance Limits
o-Terphenyl	87	55 - 120

Lab Control Sample - Batch: 560-42080

Method: 8015D
Preparation: 3550B

Lab Sample ID: LCS 560-42080/2-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/11/2009 1732
Date Prepared: 11/11/2009 1100

Analysis Batch: 560-42095
Prep Batch: 560-42080
Units: mg/Kg

Instrument ID: SVGC#4
Lab File ID: 11110904.D
Initial Weight/Volume: 30.00 g
Final Weight/Volume: 5 mL
Injection Volume: 1 uL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Diesel (C10-C28)	167	153	92	38 - 131	

Surrogate	% Rec	Acceptance Limits
o-Terphenyl	91	55 - 120

Calculations are performed before rounding to avoid round-off errors in calculated results.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

NEW MEXICO
S. CARLSBAD COMP.

No. 28066
Send IRS

CHAIN OF CUSTODY RECORD

17998

CUSTOMER INFORMATION	PROJECT INFORMATION
COMPANY: SOUTHWEST GEOSCIENCE	PROJECT NAME/NUMBER: 0209011 – S. CARLSBAD
SEND REPORT TO: CHRIS MITCHELL	**BILLING INFORMATION**
ADDRESS: 8620 N. NEW BRAUNFELS	BILL TO:
SUITE 531	ADDRESS:
SA TX 78217	
PHONE: (210) 804-9922	PHONE:
FAX: (210) 804-9944	FAX: PO NO:

SAMPLE NO.	SAMPLE DESCRIPTION	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	CONTAINER	PRESERV.	NUMBER OF CONTAINERS	TPH (SW-846 #8015 DRO)	BTEX (SW-846 #8021B)	LAB JOB NO.	REMARKS/PRECAUTIONS
	B-1 (7-8)	11.5.09	1115	SOIL	4	4°C/MEOH		✓	✓		
	B-1 (19-20)	11.5.09	1125	SOIL	4	4°C/MEOH		✓	✓		

No Further Entries

SAMPLER: B. CHRIS MITCHELL
SHIPMENT METHOD: Greyhound
AIRBILL NO: GLI 30 55163628

REQUIRED TURNAROUND* ☐ SAME DAY ☐ 24 HOURS ☐ 48 HOURS ☐ 72 HOURS ☐ 5 DAYS ☐ 10 DAYS ☒ ROUTINE ☐ OTHER

1. RELINQUISHED BY:	DATE	2. RELINQUISHED BY:	DATE	3. RELINQUISHED BY:	DATE
SIGNATURE:	11-6-09	SIGNATURE:	11-6-09	SIGNATURE:	
PRINTED NAME/COMPANY:	TIME 13:11	PRINTED NAME/COMPANY:	TIME 15:51	PRINTED NAME/COMPANY:	TIME
1. RECEIVED BY:	DATE	2. RECEIVED BY:	DATE	3. RECEIVED BY:	DATE
SIGNATURE:	11-6-09	SIGNATURE:	11/7/09	SIGNATURE:	
PRINTED NAME/COMPANY:	TIME 13:11	PRINTED NAME/COMPANY: FedEx	TIME 0348	PRINTED NAME/COMPANY:	TIME

TestAmerica
1733 N. Padre Island Drive
Corpus Christi, TX 78408
Phone: 361.289.2673 /Fax: 361.289.2471

TAL-8222-560 (0808)

Login Sample Receipt Check List

Client: Southwest Geoscience

Job Number: 560-17998-1

Login Number: 17998

List Source: TestAmerica Corpus Christi

Creator: Ortiz, Paul

List Number: 1

Question	T / F/ NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.8, 4.6, 4.0 C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Is the Field Sampler's name present on COC?	True	
Sample Preservation Verified	True	

Login Sample Receipt Check List

Client: Southwest Geoscience

Job Number: 560-17998-1

Login Number: 17998
Creator: Hedaria, Raven
List Number: 1

List Source: TestAmerica Pensacola
List Creation: 11/17/09 11:34 AM

Question	T / F/ NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.6°C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	Samples received with >50% of hold time expired.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	Volatile soils received in bulk jars.
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Was the Field Sampler's name present on COC?	True	
Sample Preservation Verified	True	

Southwest
GEOSCIENCE

APPENDIX G

Remedy Info

MATERIAL SAFETY DATA SHEET

REMEDY MICROBIAL PRODUCT

MSDS DATE: 12/1/2009

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME:	REMEDY Spill Solution
COMMON NAME:	Remediation Product, Bacterial Growth Additive
MANUFACTURER:	Lighthouse Environmental Services Inc.
ADDRESS:	4218 Pasadena Blvd. Pasadena, Texas 77503
EMERGENCY PHONE:	(281) 476-0030
CHEMTREC PHONE:	1-800-262-8200

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT: All ingredients are organic and completely biodegradable. Does not contain hazardous components or ingredients.

CAS No.:	N/A
%:	N/A
OSHA PEL:	N/A
ACGIH TLV :	N/A

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

Health Rating:	0 - None
Flammability Rating:	0 - None
Reactive Rating:	1 - Slight
Contact Rating:	1 – Slight
Protective Equipment:	Goggles; Apron: Proper Gloves
Storage Color Code:	Green (General Storage)

ROUTES OF ENTRY:

POTENTIAL HEALTH EFFECTS

EYES:	No adverse effects expected, but contact may cause mechanical irritation.
SKIN:	No adverse effects expected.
INGESTION:	Extremely large oral dosages may produce gastrointestinal disturbances.
INHALATION:	No adverse effects expected, but inhalation may cause slight nausea.
ACUTE HEALTH HAZARDS:	No information found.
CHRONIC HEALTH HAZARDS:	No information found.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:

Supersensitive individuals with skin or eye problems.

SECTION 4: FIRST AID MEASURES

EYES:	Immediately flush eyes for 15 minutes with water.
SKIN:	Wash exposed areas with soap and water.

INGESTION:	Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.
INHALATION:	Remove victim to fresh air or oxygen supply. Seek medical attention if breathing difficulty persists.

SECTION 5: FIRE-FIGHTING MEASURES

FLASH POINT:	Non-flammable
FLAMMABLE LIMITS:	Non-flammable
AUTOIGNITION TEMPERATURE:	Non-flammable
EXTINGUISHING MEDIA:	N/A
SPECIAL FIRE FIGHTING PROCEDURES:	None
UNUSUAL FIRE AND EXPLOSION HAZARDS:	None; Non-flammable

SECTION 6: ACCIDENTAL RELEASE MEASURES

ACCIDENTAL RELEASE MEASURES:	Ventilate area of leak or spill and wear appropriate personal protective equipment as specified in Section 8. Containerize material for reclamation or disposal.

SECTION 7: HANDLING AND STORAGE

HANDLING AND STORAGE:	To preserve product integrity, avoid temperatures under 32° or over 120°. Store in a tightly closed container and protect the container from physical damage.
OTHER PRECAUTIONS:	Do not freeze.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

VENTILATION :	Dilution ventilation is a satisfactory health hazard control for this substance. However, if conditions of use create discomfort to the worker, a local exhaust system should be considered.
RESPIRATORY PROTECTION:	In areas of concentration, dust mask recommended.
EYE PROTECTION:	Safety goggles.
SKIN PROTECTION:	Wear protective gloves, apron, and clean body-covering clothing.
WORK HYGIENIC PRACTICES:	Wash hand or skin contact areas thoroughly after use.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Clear to slightly tan
ODOR:	Develops odor of ammonia
PHYSICAL STATE:	Liquid
pH AS SUPPLIED:	6.0 to 9.0
BOILING POINT:	100 °C

MELTING POINT:	N/A
VAPOR PRESSURE (mmHg):	17.5 @ 20 °C
VAPOR DENSITY (AIR = 1):	N/A
SPECIFIC GRAVITY (H2O = 1):	1.0
EVAPORATION RATE:	N/A
SOLUBILITY IN WATER:	100% Soluble

SECTION 10: STABILITY AND REACTIVITY

STABILITY:	Stable under normal conditions
CONDITIONS TO AVOID:	Excessive Heat
INCOMPATIBILITY (MATERIAL TO AVOID):	Strong acids or alkali compounds may inactivate biological cultures.
HAZARDOUS POLYMERIZATION:	Will not occur.
OTHER REACTIVITIY CONCERNS:	Avoid incompatibilities.

SECTION 11: TOXICOLOGICAL INFORMATION

CARCINOGENICITY:	By NIP:	N/A
	By IAEC:	N/A
	OSHA Regulated:	N/A

SECTION 12: ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION: This material will 100% biodegrade when release to soil or water. When release to the air, this material is expected to have a half-life of less than 1 day.

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. If container cannot be reused, dispose of container and unused contents in accordance with federal, state and local requirements.

RCRA HAZARD CLASS: N/A

SECTION 14: TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION

PROPER SHIPPING NAME:	Not Regulated by U.S. Department of Transportation
HAZARD CLASS:	N/A
ID NUMBER:	N/A
PACKING GROUP:	N/A
LABEL STATEMENT:	N/A

MATERIAL SAFETY DATA SHEET
REMEDY MICROBIAL PRODUCT

SECTION 15: REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS	
TSCA (TOXIC SUBSTANCE CONTROL ACT):	N/A
CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT):	N/A
SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT):	N/A
311/312 HAZARD CATEGORIES:	N/A
313 REPORTABLE INGREDIENTS:	N/A
STATE REGULATIONS:	N/A
INTERNATIONAL REGULATIONS:	N/A

SECTION 16: OTHER INFORMATION

PREPARATION INFORMATION: The information contained herein is based on data considered accurate in light of current information. The technical information and recommendations herein are reliable, but they are provided without warranty or guarantee of any kind, expressed or implied. This material safety data sheet was prepared to comply with 24 CFR 1910.1200.