

**3R-1001**

**Remediation Plan  
Corrective Action  
Status Report**

**Date:**

**5/14/2014**





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

ENTERPRISE PRODUCTS OPERATING LLC

May 15, 2014

District Copy  
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Return Receipt Requested  
7011 3500 0002 5551 0249

Mr. Jim Griswold, Senior Hydrologist  
Environmental Bureau  
ENMRD/Oil Conservation Division  
1220 South St. Francis Drive  
Santa Fe, NM 87505

OIL CONS. DIV DIST. 3

MAY 19 2014

RE: **Remediation Plan (Corrective Action Status Report)**  
**Largo Compressor Station**  
**Enterprise Field Services LLC**  
**OCD GW Discharge Permit Number: 3RP-1001 / GW-211**  
**Rio Arriba County, New Mexico**

Attn: Glenn Von Gonten

Dear Mr. Griswold,

Enterprise Field Services LLC (Enterprise) is submitting the enclosed *Remediation Plan (Corrective Action Status Report)* dated March 19, 2014 for the facility referenced above.

This Remediation Plan (Corrective Action Status Report) describes the excavation and on-site treatment of petroleum hydrocarbon affected soils at the Largo Compressor Station from the area designated as Area 1 (Former Condensate Storage Tank Area) in previous reporting. Following construction of the approximately six acre treatment area consisting of four treatment cells, an estimated volume of 6,000 yards of petroleum hydrocarbon impacted soil was excavated and transported directly to the treatment cells.

Confirmation samples collected from the Area 1 excavation did not exhibit concentrations above the Oil Conservation Division (OCD) *Remediation Action Levels*. The Area 1 excavation was backfilled with the on-site derived unaffected soils, compacted with on-site equipment and contoured to approximate former grade. Two interim evaluation samples collected from the soils currently undergoing treatment show that petroleum hydrocarbon constituent concentrations have been significantly reduced during the initial treatment activities; however, the samples exhibited TPH GRO/DRO concentrations above OCD *Remediation Action Levels*.

Enterprise will continue treatment activities and perform periodic groundwater monitoring at the facility in accordance with the *Corrective Action Work Plan (Area 1 and Area 3 - Soils)* dated March 11, 2013.

If you have any questions, or require additional information, please do not hesitate to contact me at (713) 381-2286, or [drsmith@eprod.com](mailto:drsmith@eprod.com).



# Southwest GEOSCIENCE

606 S. Rio Grande Avenue, Suite A  
Aztec, New Mexico 87410  
Ph: (505) 334-5200  
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March 19, 2014

Enterprise Field Services, LLC  
P.O. Box 4324  
Houston, Texas 77210-4324  
Attn: Mr. David Smith

Re: Remediation Plan (Corrective Action Status Report)  
Largo Compressor Station  
GW-211, 3RP-1001  
SE ¼ of NE ¼, Section 15, Township 26N, Range 7W  
Rio Arriba County, New Mexico  
SWG Project No. 0410G002

OIL CONS. DIV DIST. 3  
MAY 19 2014

Dear Mr. Smith:

Southwest Geoscience (SWG) appreciates the opportunity to submit this status report detailing the corrective actions completed during the fall of 2013 at the above-referenced facility (hereinafter, the Site). The scope of work is based on SWG's *Corrective Action Work Plan*, dated March 11, 2013 and New Mexico Administrative Code (NMAC) 19.15.29.

## SITE LOCATION AND HISTORY

The Largo Compressor Station is located off of County Road (CR) 379 in Section 15, Township 26N, Range 7W in Rio Arriba County, New Mexico, referred to hereinafter as the "Site" or "subject Site". The Site is a natural gas compressor station utilized to dehydrate and compress natural gas collected from production wells in the area for transportation via pipeline. The Site was constructed in the mid-1960s and currently includes two (2) compressor engines, a dehydration unit and related treater, one (1) bullet storage tank, a new condensate storage tank battery, which includes seven (7) new condensate storage tanks, inlet scrubbers, a control room, and an office/shop building.

The Site is subject to regulatory oversight by the New Mexico Energy, Minerals, and Natural Resources Department (EMNRD), Oil Conservation Division (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 NMAC 19.15.30 *Remediation*. These guidance documents establish investigation and abatement action requirements for sites subject to reporting and/or corrective action.

The Site location is depicted on Figure 1 of Attachment A which was reproduced from a portion of the United States Geological Survey (USGS) 7.5-minute series topographic map. A Site vicinity map, created from an aerial photograph, is provided as Figure 2 of Attachment A.

The areas of known or suspected impact at the Site have been previously identified as Areas 1 through 4 in OCD correspondence. Each of the areas is depicted on Figure 3 in relation to pertinent Site features and general Site boundaries. This Remediation Plan (Corrective Action Status Report (CASR)) addresses petroleum hydrocarbon impacted



soils from Area 1 (Former Condensate Storage Tanks). Area 1 is briefly described below:

#### Area 1(Former Condensate Storage Tank Area)

Area 1 is defined as the northwestern portion of the Site and includes the former condensate storage tank battery associated with on-going investigation and/or corrective actions since a release from a condensate storage tank valve was reported to the OCD in January of 2008. Additional detail regarding the investigative and corrective activities at Area 1 are provided in the *Environmental Site Investigation - Largo Compressor Station (GW-211) (SWG - March 24, 2011)*, and the *Corrective Action Pilot Study Report (SWG - October 10, 2011)*.

#### CHEMICALS OF CONCERN

The soil samples collected during previous site investigation activities were analyzed for TPH GRO/DRO utilizing EPA method SW-846 #8015 and BTEX using EPA SW-846 method #8021.

#### Summary of Historical Soil Exceedances

- Based on the laboratory analytical results, TPH GRO/DRO concentrations were identified in soil samples collected from borings B-1(4'), B-2(12.5'), B-5 (17.5'), B-14(17.5') (*Geoprobe Investigation at Largo Compressor Station, Lodestar - May 16, 2009*); B-22(15.0'), B-23(15.0'), B-24(15.0'), B-29(18.0'), hand auger-2(14.0') (*Report of Subsurface Investigation at Largo Compressor Station, Lodestar - November 30, 2009*); MW-33(7.5'), MW-35(9.5'), MW-37(11.5') (*Environmental Site Investigation, SWG - March 24, 2011*); SB-59(15.0') (*Supplemental Site Investigation (November 2012 and January 2013) (SWG - February 22, 2013)*); and Area 3 excavation samples "BWT" and "NE Wall" (*General Report EPCO Largo Station Summary, SMA - 2009*) above the OCD Remediation Action Level of 100 mg/Kg.
- Based on the laboratory analytical results, benzene concentrations were identified in soil samples collected from borings MW-35(9.5') (*Environmental Site Investigation, SWG - March 24, 2011*), and Area 3 excavation sample "BWT" (see *General Report EPCO Largo Station Summary, SMA - 2009*) above the OCD Remediation Action Level of 10 mg/Kg.
- Based on the laboratory analytical results, the total BTEX concentrations identified in soil samples collected from borings B-22(15.0'), B-23(15.0') (*Report of Subsurface Investigation at Largo Compressor Station, Lodestar - November 30, 2009*); MW-33(7.5'), MW-35(9.5'), MW-37(11.5') (*Environmental Site Investigation, SWG - March 24, 2011*); SB-59(15.0') (*Supplemental Site Investigation (November 2012 and January 2013) (SWG - February 22, 2013)*); and excavation samples "BWT" and "NE Wall" (see *General Report EPCO Largo Station Summary, SMA - 2009*) were above the OCD Remediation Action Level of 50 mg/Kg.

Figure 3 indicates the approximate locations of the borings/piezometers/monitoring wells completed at the Site in relation to pertinent Site features and general Site boundaries. Figure 4 details the OCD Remediation Action Level Exceedance Zone in soil.



## SITE RANKING & PROPOSED CLEANUP GOALS

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 NMAC 19.15.30 *Remediation*. These guidance documents establish investigation and abatement action requirements for sites subject to reporting and/or corrective action.

In accordance with the OCD's *Guidelines for Remediation of Leaks, Spills and Releases*, SWG 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 •<br><1,000 feet from a water source, or; <200 feet from private domestic water source. | Yes               | 20 | 0             |
|  | No                | 0  |               |
| Distance to Surface Water Body   | <200 feet         | 20 | 10            |
|  | 200 to 1,000 feet | 10 |               |
|  | >1,000 feet       | 0  |               |
| Total Ranking Score  |                   |    | 30            |

Based on SWG's evaluation of the scoring criteria, the Site would have a Total Ranking Score of 30. This ranking is based on the following:

- The depth to the initial groundwater-bearing zone is <50 feet at the Site.
- Nearby drinking water sources were not identified within 1,000 feet of the Site.
- Largo wash, which is approximate 425 feet north of the Site, is the nearest surface water feature.
- Two (2) Out of Service water wells are located up- and/or cross-gradient from the areas of impact, greater than 200 feet from delineated impact.

Based on a Total Ranking Score of 30, cleanup goals for soils remaining in place at Area 1 and Area 3 include: 10 mg/Kg for benzene, 50 mg/Kg for total BTEX, 100 mg/Kg for TPH GRO/DRO.

Proposed cleanup goals for the treated soils removed from Areas 1 and 3 include: 0.2 mg/kg for benzene, 50 mg/kg for total BTEX, 2,500 mg/kg total TPH, 500 mg/kg for TPH GRO and DRO fractions, and 500 mg/kg for chlorides.

Based on the absence of beneficial use of the initial groundwater-bearing unit in the Site vicinity and the presence of elevated TDS concentrations in several of the apparently



unaffected monitoring wells across the site, the initial groundwater-bearing unit should not be considered an "Underground Source of Drinking Water" in accordance with 19.15.30 NMAC *Remediation*.

#### BACKGROUND SAMPLING

Prior to the initiation of corrective action activities, background sampling was performed within the proposed treatment area to evaluate the proposed backfill material and determine soil conditions on the floor of the proposed treatment cells. Background sampling results are presented in the letter report "*Largo Compressor Station - Background Sampling*" dated June 18, 2013.

#### OBJECTIVES OF CORRECTIVE ACTION

The primary objective of the completed corrective actions was to reduce the concentrations of COCs in soil in Area 1, which are a result of historic operations, through excavation and on-site treatment.

#### TREATMENT CELL & BACKFILL MATERIAL

Prior to the initiation of corrective action activities, an approximate six (6) acre treatment area was constructed on the southeast portion of the Site. A containment berm, ranging from 2 feet to 5 feet high and 4 feet to 8 feet wide, was constructed along the perimeter of each of the four (4) treatment cells within the treatment area utilizing unaffected surface soils from the treatment cell construction. Silt fencing was installed around the perimeter of the treatment area as a best management practice.

To enhance containment as well as generate unaffected soils suitable for backfill, Enterprise obtained the unaffected backfill material from the treatment cell construction area. Unaffected soils, as determined during the background sampling described in the letter report "*Largo Compressor Station - Background Sampling*" dated June 18, 2013, were excavated during treatment cell construction to an average depth of (3) feet below grade (refer to the "Treatment Cells" depicted on Figure 3 in Attachment A). The actual depth of backfill excavation varied based on depth to bedrock, and the actual locations of buried utilities (no closer than 20-foot encroachment). This material was stockpiled for use as backfill material for Areas 1 and 3.

The treatment cell area is located completely within the fenced facility boundary, in an upgradient portion of the facility (both topographically and hydrogeologically).

Based on available data, the depth to the initial groundwater bearing unit in the treatment cell area ranges from approximately 15 feet bgs north of the elevated on-site road that traverses the site, to  $\geq 25$  feet bgs in the southern and more elevated areas. Soil boring data indicates a fine-grained (typically silty clay or clay) sediment is present at the top of the potentiometric surface in the areas south of the elevated road, ranging in thickness from four (4) to six (6) feet.

Based on the absence of beneficial use of the initial groundwater-bearing unit in the Site vicinity and the presence of elevated TDS concentrations in several of the apparently unaffected monitoring wells across the site, the initial groundwater-bearing unit should not be considered an "Underground Source of Drinking Water" in accordance with 19.15.30 NMAC *Remediation*.



## EXCAVATION AND TREATMENT

### Area 1 (Former Condensate Storage Tank Area)

Excavation activities were initiated in the vicinity of the former condensate storage tanks and proceeded horizontally and vertically to remove soils in exceedance of the OCD Remediation Action Levels. A pre-calculated volume (estimated of 6,000 cubic yards (in-place)) of soils affected by historical condensate releases from gathering operations were excavated from the condensate storage tank area during the course of corrective actions. Unaffected overburden soils, excavated during corrective actions were segregated to the extent practical and utilized as berm material adjacent to the excavation pending reuse.

The excavated petroleum hydrocarbon impacted soils were transported directly from the excavation and placed in the treatment cells in shallow (approximately 8-inch) lifts. Saturated soils were allowed to completely drain in the polyethylene-lined temporary containment cell prior to transfer to the treatment area. Soils removed from Area 1 were periodically subjected to field chloride tests (field test strips) prior to loading into trucks for transport to the treatment cells. Field tests indicated chloride levels ranging from 100 to 200 mg/Kg.

Once the petroleum hydrocarbon affected soils were spread within the treatment cell, the soils were tilled or agitated utilizing mechanical means (earth moving/tilling equipment) to increase oxygen availability to and stimulate naturally occurring bacteria in the soils which can metabolize organics including petroleum hydrocarbons. Soils in the treatment cell are periodically being monitored by PID headspace readings, and will ultimately be sampled for laboratory analysis to determine treatment progress. Two (2) interim evaluation samples were collected during January 2014, and are discussed herein.

## CORRECTIVE ACTION EFFECTIVENESS

Subsequent to the completion of excavation and treatment activities, SWG will evaluate the effectiveness of the soil treatment actions utilizing a confirmation sample program designed to verify the attainment of cleanup goals in the treated soils, and ensure COCs did not migrate to unaffected soils underlying the treatment area. SWG has already collected two (2) interim evaluation samples from the treated soils, which are discussed herein. SWG will also collect confirmation samples from the excavation limits at Area 1 and Area 3 to document any COC concentrations which remain in-place in place. Confirmation samples have already been collected from the Area 1 excavation and are discussed in this document.

To evaluate the effectiveness of the proposed treatment action, Enterprise will continue to periodically perform PID monitoring of the treated soils until the clean-up goals have apparently been met, at which time confirmation samples will be collected for laboratory analysis.

In addition, Enterprise will collect one (1) vadose zone sample (between 3 feet and 4 feet beneath the treatment zone) in each treatment cell. These samples will be analyzed for TPH, BTEX, and chlorides. If soils affected in excess of the proposed cleanup goals are encountered, the affected soils will be treated to meet the cleanup goals or removed for proper offsite disposal.



## CONFIRMATION SOIL SAMPLING

### *Area 1 Excavation*

The extent of excavation in Area 1 was guided by visual, olfactory and PID evidence of impairment. Subsequent to the completion of excavation activities, confirmation samples (A1-SW, A1-SE, A1-NW, A1-NE, A1-W, A1-E, A1-Floor 1 and A1-Floor 2) were collected from the sidewalls and floor of each excavation and submitted for laboratory analyses.

Non-disposable sampling equipment was decontaminated using an Alconox® wash and potable water rinse prior to commencement of the project and between the collection of each sample.

The soil samples collected from the excavation were analyzed for TPH GRO/DRO utilizing EPA method SW-846 #8015 and BTEX using EPA SW-846 #8021. A summary of the analyses, sample type, and EPA-approved methods for samples collected from the excavation within Area 1 are presented in the following table:

| Analysis    | Sample Type | Number of Samples | Method       |
|-------------|-------------|-------------------|--------------|
| TPH GRO/DRO | Soil        | 8                 | SW-846 #8015 |
| BTEX        | Soil        | 8                 | SW-846 #8021 |

### *Treatment Area Soils*

Subsequent to the completion of treatment activities, up to ten (10) discrete soil samples (one sample per 1,000 cubic yards) will be collected from the treated soils. The treated soils will be evaluated for potential reuse at the Site based on the laboratory analytical results and OCD approval. The soil samples collected from the treated soils will be analyzed for TPH GRO/DRO utilizing EPA method SW-846 #8015, TPH utilizing EPA method 418.1, chlorides utilizing EPA method 300.1 (or equivalent), and BTEX using EPA SW-846 #8021. A summary of the analyses, sample type, and EPA-approved methods are presented in the following table:

| Analysis    | Sample Type | Number of Samples | Method                  |
|-------------|-------------|-------------------|-------------------------|
| TPH GRO/DRO | Soil        | 10                | SW-846 #8015            |
| BTEX        | Soil        | 10                | SW-846 #8021            |
| TPH         | Soil        | 10                | EPA 418.1               |
| Chlorides   | Soil        | 10                | EPA 300.1 or equivalent |

In addition, subsequent to the completion of treatment activities, Enterprise will collect one (1) vadose zone sample (between 3 feet and 4 feet beneath the treatment zone) in each treatment cell. Soil borings will be advanced through the treated soils into the underlying native soils utilizing a direct-push drilling rig to evaluate if underlying soils



were impacted during the completion of treatment activities. These borings will be located in the center of each treatment cell, or in an area where water collected.

Soil samples will be collected using core barrels or split spoon samplers.

The soil samples will be collected in laboratory prepared glassware and placed on ice in a cooler, which will be secured with a custody seal. The samples will be transported to a selected analytical laboratory along with a completed chain-of-custody form.

The soil samples collected from the confirmation soil borings will be analyzed for TPH GRO/DRO utilizing EPA method SW-846 #8015, TPH utilizing EPA method 418.1, chlorides utilizing EPA method 300.1 (or equivalent), and BTEX using EPA SW-846 #8021. A summary of the analysis, sample type, and EPA-approved methods are presented below:

| Analysis    | Sample Type | Number of Samples | Method                  |
|-------------|-------------|-------------------|-------------------------|
| TPH GRO/DRO | Soil        | 4                 | SW-846 #8015            |
| BTEX        | Soil        | 4                 | SW-846 #8021            |
| TPH         | Soil        | 4                 | EPA 418.1               |
| Chloride    | Soil        | 4                 | EPA 300.1 or equivalent |

#### ***Data Evaluation***

SWG compared the TPH GRO/DRO and BTEX concentrations or laboratory reporting limits (RLs) associated with the confirmation and evaluation soil samples collected from the Area 1 excavation and the treated soils to the OCD *Remediation Action Levels*. The results of the soil sample analyses are summarized in Table 1 and Table 2 included in Attachment B. Laboratory data sheets and chain-of-custody documentation is provided in Attachment D.

#### **Total Petroleum Hydrocarbons**

The confirmation soil samples collected from the Area 1 excavation did not exhibit TPH GRO/DRO concentrations above the laboratory RLs, which are below the OCD's *Remediation Action Level* of 100 mg/Kg.

Soil samples Eval-1 and Eval-2 collected from the soils currently undergoing treatment exhibited TPH GRO concentrations of 86 mg/Kg and 980 mg/Kg, respectively and TPH DRO concentrations of 57 mg/Kg and 440 mg/Kg, respectively. Soil samples Eval-1 and Eval-2 also exhibited total TPH values of 290 mg/Kg and 1,400 mg/Kg utilizing EPA Method 418.1. The petroleum hydrocarbon constituent concentrations have been significantly reduced during the initial treatment activities; however, the identified TPH values in the soils undergoing treatment are currently above the OCD's *Remediation Action Level* of 100 mg/Kg in the areas tested. Therefore, treatment activities will continue until the OCD *Remediation Action Levels* are attained.



### Benzene

The confirmation soil samples collected from the Area 1 excavation did not exhibit benzene concentrations above the laboratory RLs, which are below the OCD's *Remediation Action Level* of 10 mg/Kg.

The soil samples collected from the soils undergoing treatment did not exhibit benzene concentrations above the laboratory RLs, which are below the OCD's *Remediation Action Level* of 10 mg/Kg.

### Total BTEX

The confirmation soil samples collected from the Area 1 excavation did not exhibit total BTEX concentrations above the laboratory RLs, which are below the OCD's *Remediation Action Level* of 50 mg/Kg.

Soil sample Eval-2 from the soils undergoing treatment exhibited a total BTEX concentration of 50 mg/Kg, which is equal to the OCD's *Remediation Action Level* of 50 mg/Kg.

Soil Sample Eval-1 exhibited a total BTEX concentration of 1.3 mg/Kg, which is below the OCD's *Remediation Action Levels* of 50 mg/Kg.

### Chlorides

Soil Samples Eval-1 and Eval-2 from the soils undergoing treatment exhibited chloride concentrations of 98 mg/Kg and 180 mg/Kg, respectively.

### *Site Restoration*

Subsequent to the attainment of the OCD *Remediation Action Levels*, the treated soils will remain in-place within the treatment area or with OCD approval, a portion of the treated soils may be utilized for backfill at Area 3.

The Area 1 excavation was backfilled with the on-site unaffected soils and compacted with on-site equipment. The excavation was then contoured to approximate former grade (including berm removal), and sloped to drain, and was incorporated into the surrounding informal driving surface in the vicinity of the pig-launching station.



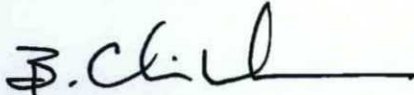
SWG appreciates the opportunity to provide the initial results of the corrective actions completed at the Site and look forward to working with you on this project. If you should have any questions or comments regarding this proposal, please contact the undersigned.

Sincerely,

Southwest  
GEOSCIENCE



Kyle Summers, CPG  
Manager, Four Corners/  
Senior Geologist



B. Chris Mitchell, P.G.  
Principal Geoscientist

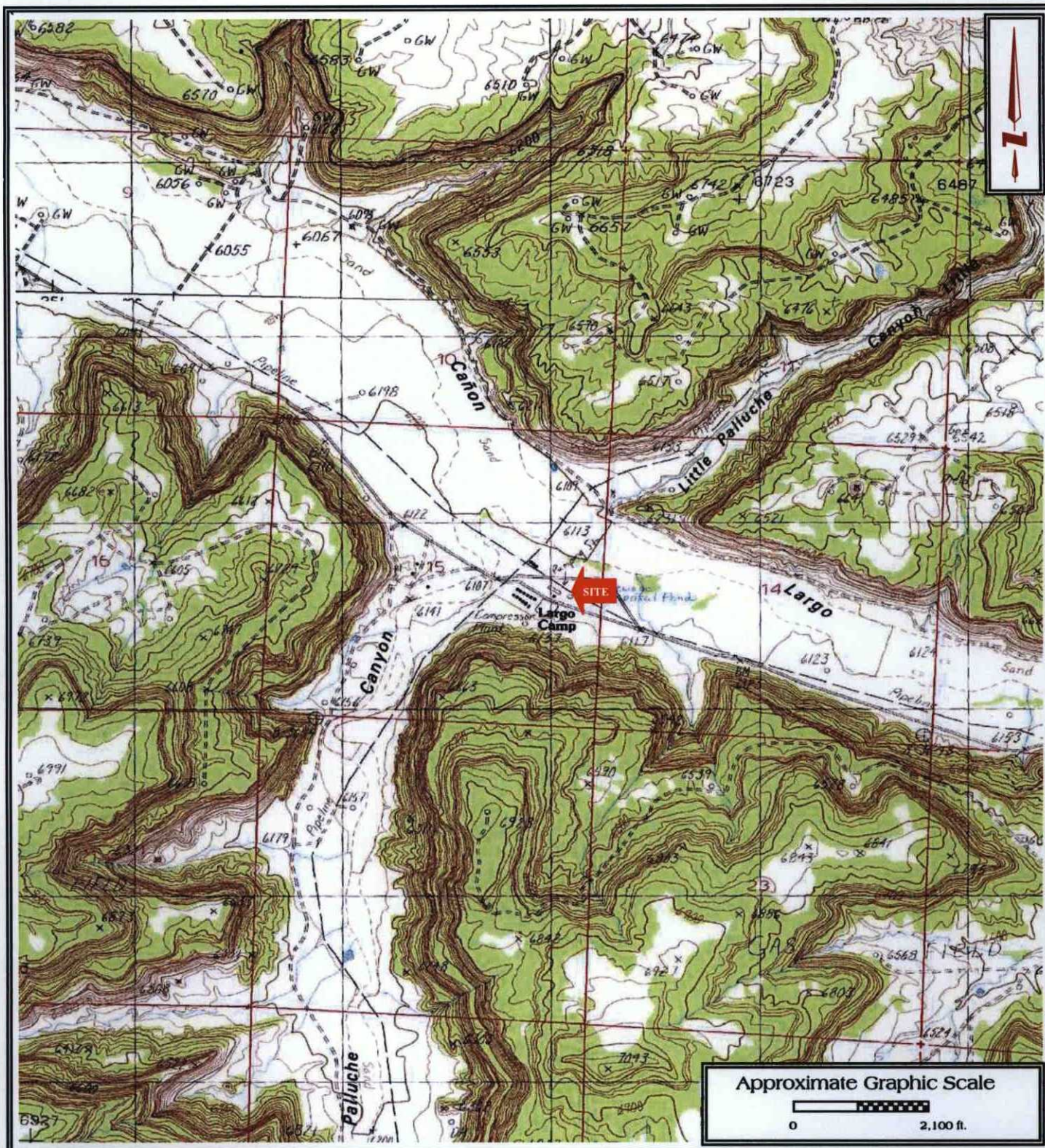


ATTACHMENT A

Figures

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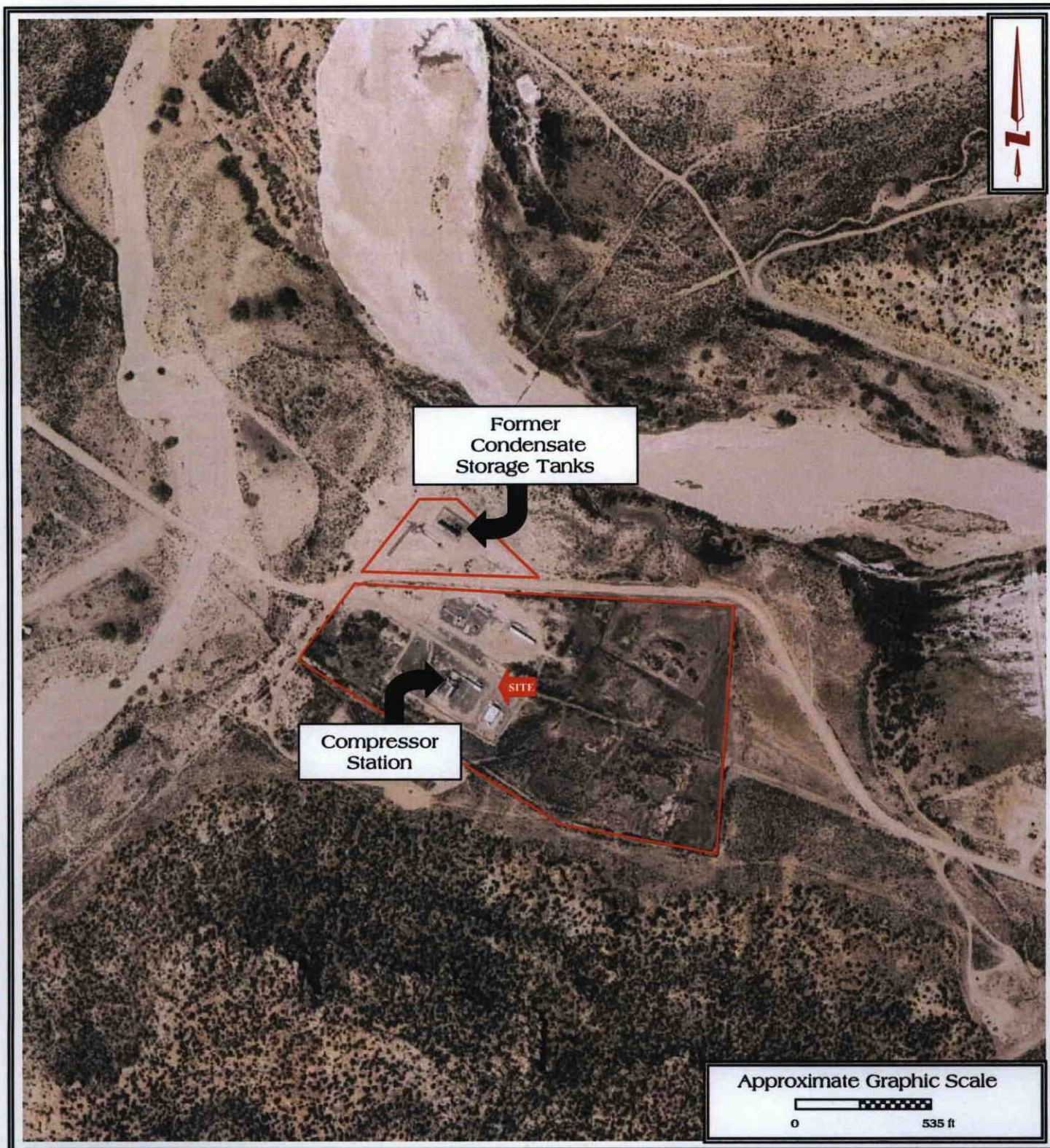
Largo Compressor Station  
 SE1/4 of NE1/4, S15 T26N R7W  
 Rio Arriba Co., New Mexico  
 N36° 29' 12.63"; W107° 33' 27.79"

SWG Project No. 0410002

**Southwest**  
 GEOSCIENCE

**FIGURE 1**  
 Topographic Map  
 Smouse Mesa & Gould Pass,  
 NM Quadrangle  
 Contour Interval - 20 Feet  
 1985





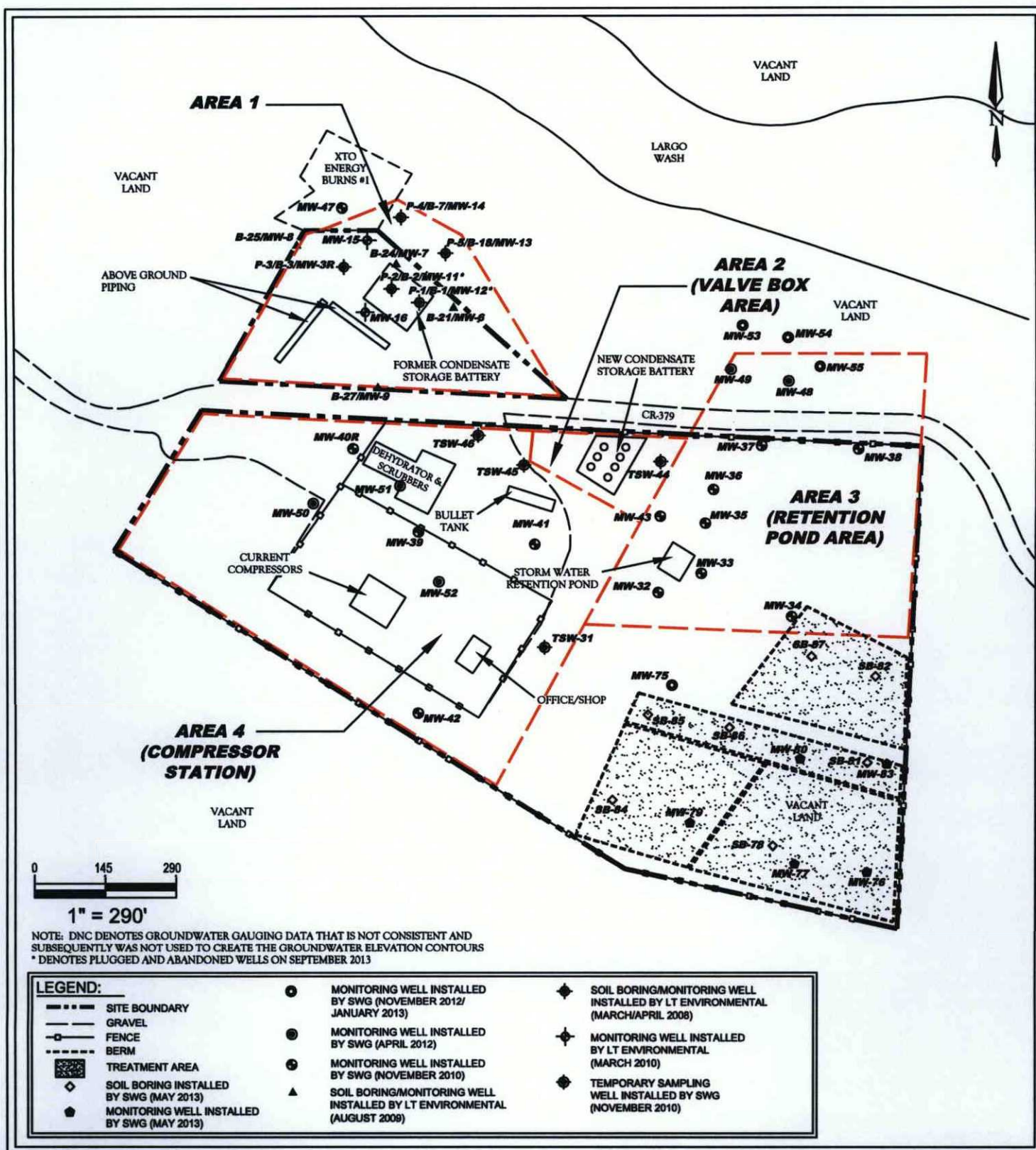
Largo Compressor Station  
SE1/4 of NE1/4, S15 T26N R7W  
Rio Arriba Co., New Mexico  
N36° 29' 12.63"; W107° 33' 27.79"

SWG Project No. 0410002

Southwest  
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**FIGURE 2**  
Site Vicinity Map  
2010 Google Earth





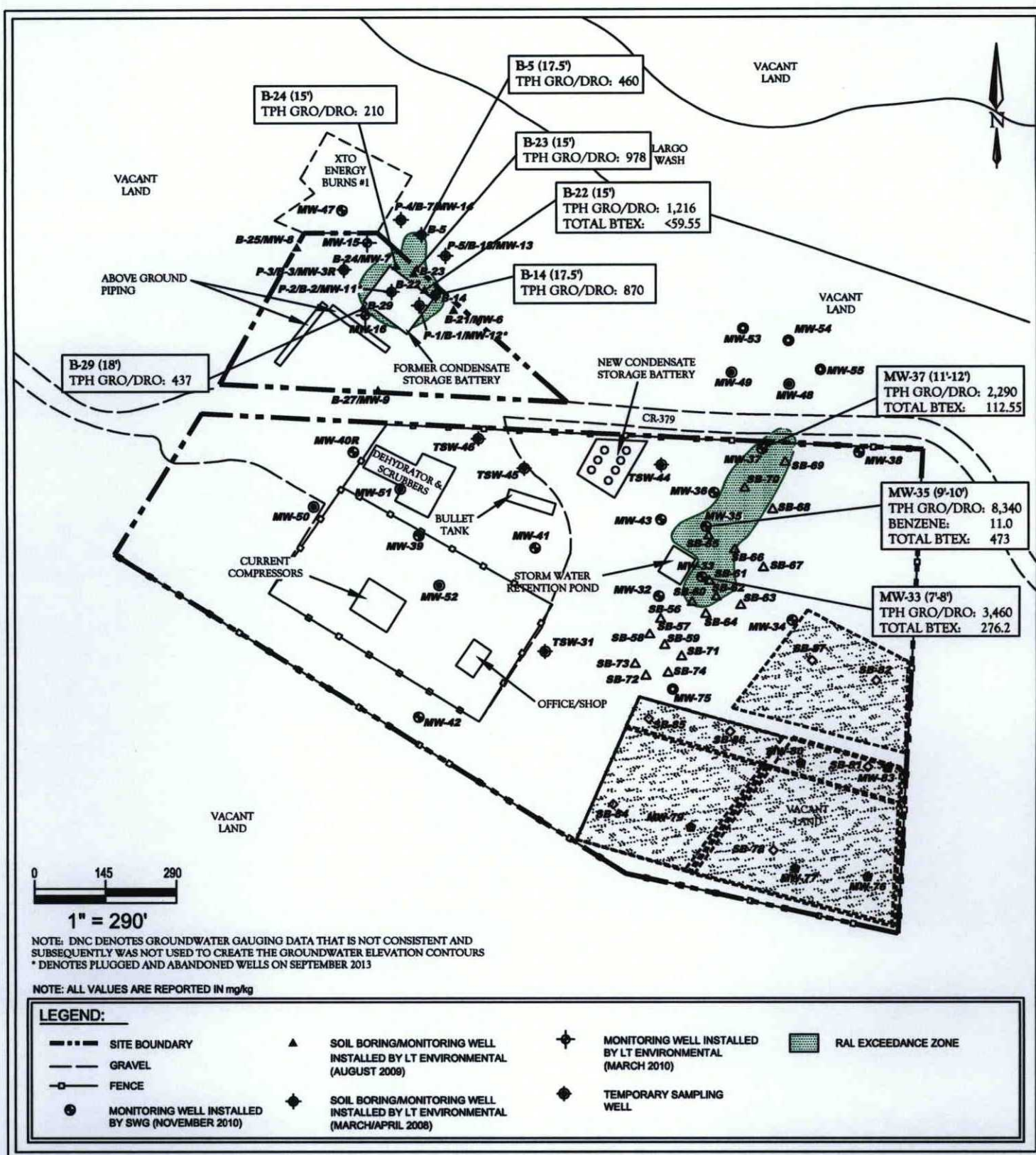
Largo Compressor Station  
 SE1/4 of NE1/4, S15 T26N R7W  
 Rio Arriba Co., New Mexico  
 N36° 29' 12.63"; W107° 33' 27.79"

SWG Project No. 0410002

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FIGURE 3  
 SITE MAP





Largo Compressor Station  
SE1/4 of NE1/4, S15 T26N R7W  
Rio Arriba Co., New Mexico  
N36° 29' 12.63"; W107° 33' 27.79"

SWG Project No. 0410002

**Southwest**  
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**FIGURE 4**  
**REMEDIAL ACTION**  
**LEVEL (RAL) EXCEEDANCE**  
**ZONE IN SOIL**



ATTACHMENT B

Photographic Documentation

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1.) General view of the construction of the treatment cells and surrounding silt fence.



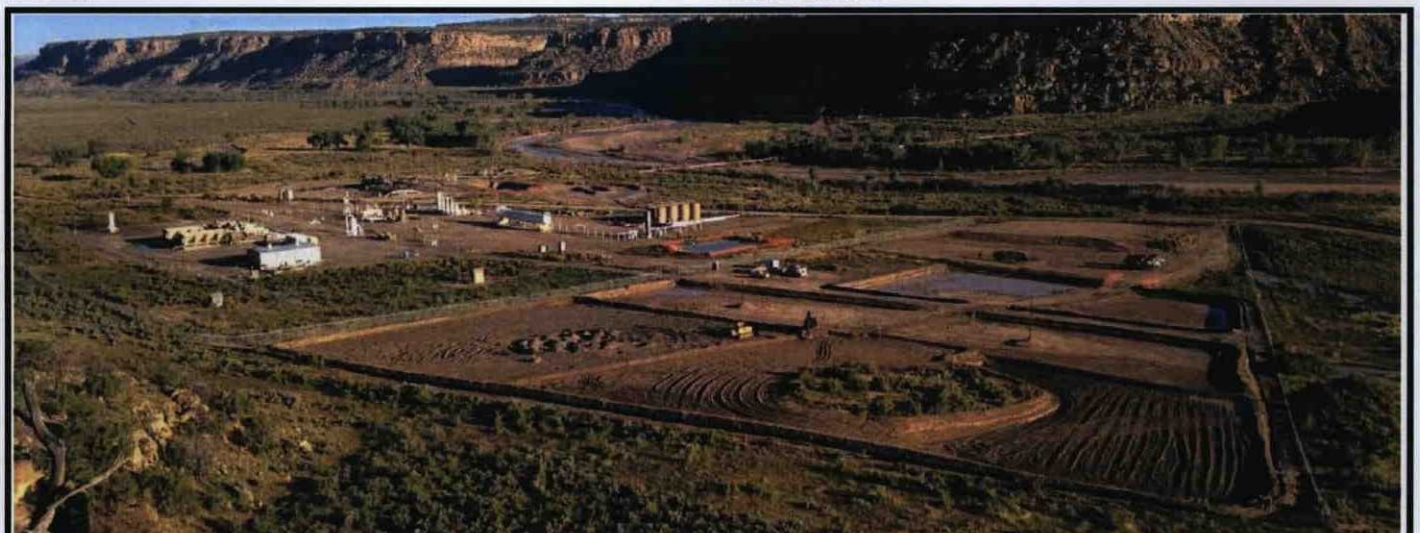
2.) Representative view of the excavation of affected soils from Area 1.



3.) Representative view of the excavation of affected soils from Area 1.



4.) Representative view of the backfilling of Area 1 with unaffected soil.



5.) Representative view of the excavated soils being spread in the treatment cells.



ATTACHMENT C

Tables

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TABLE 1  
Area 1 Confirmation Samples  
SOIL ANALYTICAL SUMMARY

| Sample I.D.   | Date       | Sample Type<br>C- Composite<br>G - Grab | Sample Depth<br>(feet) | Benzene<br>(mg/kg) | Toluene<br>(mg/kg) | Ethylbenzene<br>(mg/kg) | Xylenes<br>(mg/kg) | Total BTEX<br>(mg/kg) | TPH<br>GRO<br>(mg/kg) | TPH<br>DRO<br>(mg/kg) |
|---|------------|---|------------------------|--------------------|--------------------|-------------------------|--------------------|-----------------------|-----------------------|-----------------------|
| New Mexico Energy, Mineral & Natural Resources Department, Oil<br>Conservation Division, Remediation Action Level |            |   |                        | 10                 | NE                 | NE                      | NE                 | 50                    | 100                   |                       |
| A1 Floor 1  | 9.26.2013  | G                                       | 19                     | <0.049             | <0.049             | <0.049                  | <0.049             | ND                    | <4.9                  | <10                   |
| A-1 Floor 2   | 10.31.2013 | G                                       | 19                     | <0.047             | <0.047             | <0.047                  | <0.047             | ND                    | <4.7                  | <10                   |
| A1-NW   | 10.2.2013  | G                                       | 10                     | <0.050             | <0.050             | <0.050                  | <0.099             | ND                    | <5.0                  | <10                   |
| A1-NE   | 10.2.2013  | G                                       | 10                     | <0.050             | <0.050             | <0.050                  | <0.10              | ND                    | <5.0                  | <10                   |
| A1-W  | 10.2.2013  | G                                       | 10                     | <0.049             | <0.049             | <0.049                  | <0.099             | ND                    | <4.9                  | <10                   |
| A1-E  | 10.2.2013  | G                                       | 10                     | <0.050             | <0.050             | <0.050                  | <0.099             | ND                    | <5.0                  | <10                   |
| A1-SW   | 11.4.2013  | G                                       | 12                     | <0.049             | <0.049             | <0.049                  | <0.098             | ND                    | <4.9                  | <10                   |
| A1-SE   | 11.4.2013  | G                                       | 12                     | <0.047             | <0.047             | <0.047                  | <0.094             | ND                    | <4.7                  | 52                    |

Note: Concentrations in bold and yellow exceed the applicable OCD Remediation Action Level  
NE = Not Established



TABLE 2  
Treatment Area Interim Evaluation Samples  
SOIL ANALYTICAL SUMMARY

| Sample I.D.  | Date      | Sample Type<br>C- Composite<br>G - Grab | Sample Depth<br>(feet) | Benzene<br>(mg/kg) | Toluene<br>(mg/kg) | Ethylbenzene<br>(mg/kg) | Xylenes<br>(mg/kg) | Total BTEX<br>(mg/kg) | TPH<br>GRO<br>(mg/kg) | TPH<br>DRO<br>(mg/kg) | TPH<br>mg/kg | Chlorides<br>mg/kg |
|--|-----------|---|------------------------|--------------------|--------------------|-------------------------|--------------------|-----------------------|-----------------------|-----------------------|--------------|--------------------|
| New Mexico Energy, Mineral & Natural Resources<br>Department, Oil Conservation Division, Remediation<br>Action Level |           |   |                        | 10                 | NE                 | NE                      | NE                 | 50                    | 100                   | 100                   | NE           | NE                 |
| Eval-1   | 1.21.2014 | G                                       | 2                      | <0.050             | <0.050             | <0.050                  | 1.3                | 1.3                   | 86                    | 57                    | 290          | 98                 |
| Eval-2   | 1.21.2014 | G                                       | 2                      | <0.49              | <0.98              | <0.98                   | 50                 | 50                    | 980                   | 440                   | 1400         | 180                |

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

NE = Not Established



ATTACHMENT D

Laboratory Data Reports  
& Chain-of-Custody Documentation

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*Hall Environmental Analysis Laboratory*  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: [www.hallenvironmental.com](http://www.hallenvironmental.com)

October 07, 2013

Kyle Summers  
Southwest Geoscience  
606 S. Rio Grande Unit A  
Aztec, NM 87410  
TEL: (903) 821-5603  
FAX

RE: Largo CS

OrderNo.: 1309E34

Dear Kyle Summers:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/28/2013 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to [www.hallenvironmental.com](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1309E34

Date Reported: 10/7/2013

CLIENT: Southwest Geoscience

Client Sample ID: A1 Floor 1

Project: Largo CS

Collection Date: 9/26/2013 3:00:00 PM

Lab ID: 1309E34-001

Matrix: SOIL

Received Date: 9/28/2013 11:10:00 AM

| Analyses                                       | Result | RL     | Qual | Units | DF | Date Analyzed         | Batch        |
|--|--------|--------|------|-------|----|-----------------------|--------------|
| <b>EPA METHOD 8015D: DIESEL RANGE ORGANICS</b> |        |        |      |       |    |                       | Analyst: BCN |
| Diesel Range Organics (DRO)                    | ND     | 10     |      | mg/Kg | 1  | 10/4/2013 7:25:01 PM  | 9604         |
| Surr: DNOP                                     | 94.0   | 63-147 |      | %REC  | 1  | 10/4/2013 7:25:01 PM  | 9604         |
| <b>EPA METHOD 8015D: GASOLINE RANGE</b>        |        |        |      |       |    |                       | Analyst: NSB |
| Gasoline Range Organics (GRO)                  | ND     | 4.9    |      | mg/Kg | 1  | 10/2/2013 11:12:32 AM | 9584         |
| Surr: BFB                                      | 99.8   | 80-120 |      | %REC  | 1  | 10/2/2013 11:12:32 AM | 9584         |
| <b>EPA METHOD 8021B: VOLATILES</b>             |        |        |      |       |    |                       | Analyst: NSB |
| Benzene  | ND     | 0.049  |      | mg/Kg | 1  | 10/2/2013 11:12:32 AM | 9584         |
| Toluene  | ND     | 0.049  |      | mg/Kg | 1  | 10/2/2013 11:12:32 AM | 9584         |
| Ethylbenzene                                   | ND     | 0.049  |      | mg/Kg | 1  | 10/2/2013 11:12:32 AM | 9584         |
| Xylenes, Total                                 | ND     | 0.097  |      | mg/Kg | 1  | 10/2/2013 11:12:32 AM | 9584         |
| Surr: 4-Bromofluorobenzene                     | 114    | 80-120 |      | %REC  | 1  | 10/2/2013 11:12:32 AM | 9584         |

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 for VOA and TOC only.
- RL Reporting Detection Limit



# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1309E34

07-Oct-13

Client: Southwest Geoscience

Project: Largo CS

|                             |           |                |           |             |   |          |           |      |          |      |
|-----------------------------|-----------|----------------|-----------|-------------|---|----------|-----------|------|----------|------|
| Sample ID                   | MB-9604   | SampType:      | MBLK      | TestCode:   | EPA Method 8015D: Diesel Range Organics |          |           |      |          |      |
| Client ID:                  | PBS       | Batch ID:      | 9604      | RunNo:      | 13768                                   |          |           |      |          |      |
| Prep Date:                  | 10/2/2013 | Analysis Date: | 10/2/2013 | SeqNo:      | 392849                                  | 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                  | 9.3       |                | 10.00     |             | 92.6                                    | 63       | 147       |      |          |      |

|                             |           |                |           |             |   |          |           |      |          |      |
|-----------------------------|-----------|----------------|-----------|-------------|---|----------|-----------|------|----------|------|
| Sample ID                   | LCS-9604  | SampType:      | LCS       | TestCode:   | EPA Method 8015D: Diesel Range Organics |          |           |      |          |      |
| Client ID:                  | LCSS      | Batch ID:      | 9604      | RunNo:      | 13768                                   |          |           |      |          |      |
| Prep Date:                  | 10/2/2013 | Analysis Date: | 10/2/2013 | SeqNo:      | 392992                                  | Units:   | mg/Kg     |      |          |      |
| Analyte                     | Result    | PQL            | SPK value | SPK Ref Val | %REC                                    | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Diesel Range Organics (DRO) | 39        | 10             | 50.00     | 0           | 79.0                                    | 77.1     | 128       |      |          |      |
| Surr: DNOP                  | 4.9       |                | 5.000     |             | 98.3                                    | 63       | 147       |      |          |      |

## Qualifiers:

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- E Value above quantitation range
- J Analyte detected below quantitation limits
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- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
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# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1309E34

07-Oct-13

Client: Southwest Geoscience

Project: Largo CS

|                               |           |     |                          |             |  |          |              |      |          |      |
|-------------------------------|-----------|-----|--------------------------|-------------|--|----------|--------------|------|----------|------|
| Sample ID                     | MB-9584   |     | SampType: MBLK           |             | TestCode: EPA Method 8015D: Gasoline Range |          |              |      |          |      |
| Client ID:                    | PBS       |     | Batch ID: 9584           |             | RunNo: 13779                               |          |              |      |          |      |
| Prep Date:                    | 10/1/2013 |     | Analysis Date: 10/2/2013 |             | SeqNo: 393846                              |          | 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                     | 1000      |     | 1000                     |             | 100  | 80       | 120          |      |          |      |

|                               |           |     |                          |             |  |          |              |      |          |      |
|-------------------------------|-----------|-----|--------------------------|-------------|--|----------|--------------|------|----------|------|
| Sample ID                     | LCS-9584  |     | SampType: LCS            |             | TestCode: EPA Method 8015D: Gasoline Range |          |              |      |          |      |
| Client ID:                    | LCSS      |     | Batch ID: 9584           |             | RunNo: 13779                               |          |              |      |          |      |
| Prep Date:                    | 10/1/2013 |     | Analysis Date: 10/2/2013 |             | SeqNo: 393847                              |          | Units: mg/Kg |      |          |      |
| Analyte                       | Result    | PQL | SPK value                | SPK Ref Val | %REC                                       | LowLimit | HighLimit    | %RPD | RPDLimit | Qual |
| Gasoline Range Organics (GRO) | 23        | 5.0 | 25.00                    | 0           | 90.1                                       | 74.5     | 126          |      |          |      |
| Surr: BFB                     | 1100      |     | 1000                     |             | 108  | 80       | 120          |      |          |      |

## Qualifiers:

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S Spike Recovery outside accepted recovery limits

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ND Not Detected at the Reporting Limit  
P Sample pH greater than 2 for VOA and TOC only.  
RL Reporting Detection Limit



# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1309E34

07-Oct-13

Client: Southwest Geoscience

Project: Largo CS

|                            |           |       |                          |             |                                       |          |              |      |          |      |
|----------------------------|-----------|-------|--------------------------|-------------|---------------------------------------|----------|--------------|------|----------|------|
| Sample ID                  | MB-9584   |       | SampType: MBLK           |             | TestCode: EPA Method 8021B: Volatiles |          |              |      |          |      |
| Client ID:                 | PBS       |       | Batch ID: 9584           |             | RunNo: 13779                          |          |              |      |          |      |
| Prep Date:                 | 10/1/2013 |       | Analysis Date: 10/2/2013 |             | SeqNo: 393969                         |          | Units: mg/Kg |      |          |      |
| Analyte                    | Result    | PQL   | SPK value                | SPK Ref Val | %REC                                  | LowLimit | HighLimit    | %RPD | RPDLimit | Qual |
| Benzene                    | ND        | 0.050 |                          |             |                                       |          |              |      |          |      |
| Toluene                    | ND        | 0.050 |                          |             |                                       |          |              |      |          |      |
| Ethylbenzene               | ND        | 0.050 |                          |             |                                       |          |              |      |          |      |
| Xylenes, Total             | ND        | 0.10  |                          |             |                                       |          |              |      |          |      |
| Surr: 4-Bromofluorobenzene | 1.1       |       | 1.000                    |             | 114                                   | 80       | 120          |      |          |      |

|                            |           |       |                          |             |                                       |          |              |      |          |      |
|----------------------------|-----------|-------|--------------------------|-------------|---------------------------------------|----------|--------------|------|----------|------|
| Sample ID                  | LCS-9584  |       | SampType: LCS            |             | TestCode: EPA Method 8021B: Volatiles |          |              |      |          |      |
| Client ID:                 | LCSS      |       | Batch ID: 9584           |             | RunNo: 13779                          |          |              |      |          |      |
| Prep Date:                 | 10/1/2013 |       | Analysis Date: 10/2/2013 |             | SeqNo: 393970                         |          | Units: mg/Kg |      |          |      |
| Analyte                    | Result    | PQL   | SPK value                | SPK Ref Val | %REC                                  | LowLimit | HighLimit    | %RPD | RPDLimit | Qual |
| Benzene                    | 0.94      | 0.050 | 1.000                    | 0           | 94.4                                  | 80       | 120          |      |          |      |
| Toluene                    | 0.95      | 0.050 | 1.000                    | 0           | 94.9                                  | 80       | 120          |      |          |      |
| Ethylbenzene               | 0.98      | 0.050 | 1.000                    | 0           | 97.9                                  | 80       | 120          |      |          |      |
| Xylenes, Total             | 3.0       | 0.10  | 3.000                    | 0           | 101                                   | 80       | 120          |      |          |      |
| Surr: 4-Bromofluorobenzene | 1.2       |       | 1.000                    |             | 116                                   | 80       | 120          |      |          |      |

## Qualifiers:

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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 for VOA and TOC only.  
RL Reporting Detection Limit



# Sample Log-In Check List

Client Name: Southwest Geoscience A

Work Order Number: 1309E34

RcptNo: 1

Received by/date: AF 09/28/13

Logged By: Anne Thorne 9/28/2013 11:10:00 AM

Completed By: Anne Thorne 10/1/2013

Reviewed By: clm 10/1/13

## 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? Courier

## 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:     | _____ | Date: | _____   |
| By Whom:             | _____ | Via:  | <input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person |
| Regarding:           | _____ |       |   |
| Client Instructions: | _____ |       |   |

17. Additional remarks:

## 18. Cooler Information

| Cooler No | Temp °C | Condition | Seal Intact | Seal No | Seal Date | Signed By |
|-----------|---------|-----------|-------------|---------|-----------|-----------|
| 1         | 4.1     | Good      | Yes         |         |           |           |

## CHAIN OF CUSTODY RECORD

|  |         |   |      |   |                                |   |           |   |           |                    |     |   |              |   |  |                           |  |  |  |  |  |  |
|--|---------|---|------|---|--------------------------------|---|-----------|---|-----------|--------------------|-----|---|--------------|---|--|---------------------------|--|--|--|--|--|--|
| <h1 style="margin: 0;">Southwest</h1> <h2 style="margin: 0;">GEOSCIENCE</h2> <p style="margin: 0;">Environmental &amp; Hydrogeologic Consultants</p>   |         | Laboratory: <u>Hall</u>                 |      | ANALYSIS REQUESTED<br><div style="transform: rotate(-45deg); display: inline-block; border: 1px solid black; padding: 5px;"> BTEX 8021<br/> TPH GAO DRD 8011 </div> |                                |   |           |   |           |                    |     |   |              | Lab use only<br>Due Date:                       |  |                           |  |  |  |  |  |  |
|  |         | Address: <u>ABB</u>                     |      |   |                                |   |           |   |           |                    |     |   |              | Temp. of coolers when received (C°): <u>4.1</u> |  |                           |  |  |  |  |  |  |
| Office Location: <u>Aztec</u>  |         | Contact: <u>Freeman</u>                 |      | Phone:  |                                | 1   |           | 2                                       |           | 3                  |     | 4   |              | 5   |  | Page <u>1</u> of <u>1</u> |  |  |  |  |  |  |
| Project Manager: <u>Mr. Summers</u>  |         | PO/SO #: <u>0410G002</u>                |      |   |                                |   |           |   |           |                    |     |   |              |   |  |                           |  |  |  |  |  |  |
| Sampler's Name: <u>Kyle Summers</u>  |         | Sampler's Signature: <u>[Signature]</u> |      |   |                                |   |           |   |           |                    |     |   |              |   |  |                           |  |  |  |  |  |  |
| Proj. No. <u>0410G002</u>  |         | Project Name: <u>Largo CS</u>           |      |   |                                | No/Type of Containers                       |           |   |           |                    |     |   |              |   |  |                           |  |  |  |  |  |  |
| 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  | 9/26/13 | 1500                                    |      | X   | A1-Floor-1                     |   |           |   |           |                    | 1   | XX  | 1309 E34-001 |   |  |                           |  |  |  |  |  |  |
| <div style="position: relative;"> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; border: 1px solid black; transform: rotate(-15deg);"></div> <div style="position: absolute; top: 50%; left: 50%; transform: translate(-50%, -50%); font-size: 2em;"> NFS<br/> RJ </div> </div> |         |   |      |   |                                |   |           |   |           |                    |     |   |              |   |  |                           |  |  |  |  |  |  |
| Turn around time <input checked="" type="checkbox"/> Normal <input type="checkbox"/> 25% Rush <input type="checkbox"/> 50% Rush <input type="checkbox"/> 100% Rush   |         |   |      |   |                                |   |           |   |           |                    |     |   |              |   |  |                           |  |  |  |  |  |  |
| Relinquished by (Signature): <u>[Signature]</u>  |         | Date: <u>9/27/13</u>                    |      | Time: <u>1515</u>   |                                | Received by (Signature): <u>[Signature]</u> |           | Date: <u>9/27/13</u>                    |           | Time: <u>1515</u>  |     | NOTES:                                      |              |   |  |                           |  |  |  |  |  |  |
| Relinquished by (Signature): <u>[Signature]</u>  |         | Date: <u>9/27/13</u>                    |      | Time: <u>1724</u>   |                                | Received by (Signature): <u>[Signature]</u> |           | Date: <u>9/28/13</u>                    |           | Time: <u>18:10</u> |     |   |              |   |  |                           |  |  |  |  |  |  |
| Relinquished by (Signature):   |         | Date:                                   |      | Time:   |                                | Received by (Signature):                    |           | Date:                                   |           | Time:              |     |   |              |   |  |                           |  |  |  |  |  |  |
| Relinquished by (Signature):   |         | Date:                                   |      | Time:   |                                | Received by (Signature):                    |           | Date:                                   |           | Time:              |     |   |              |   |  |                           |  |  |  |  |  |  |
| Matrix Container   |         | WW - Wastewater<br>VOA - 40 ml vial     |      | W - Water<br>A/G - Amber / Or Glass 1 Liter   |                                | S - Soil<br>SD - Solid                      |           | L - Liquid<br>250 ml - Glass wide mouth |           | A - Air Bag        |     | C - Charcoal tube<br>P/O - Plastic or other |              | SL - sludge                                     |  | O - Oil                   |  |  |  |  |  |  |





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

October 07, 2013

Kyle Summers  
Southwest Geoscience  
606 S. Rio Grande Unit A  
Aztec, NM 87410  
TEL: (903) 821-5603  
FAX: (214) 350-2914

RE: Largo CS

OrderNo.: 1310195

Dear Kyle Summers:

Hall Environmental Analysis Laboratory received 4 sample(s) on 10/3/2013 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to [www.hallenvironmental.com](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

**Hall Environmental Analysis Laboratory, Inc.**

Analytical Report

Lab Order 1310195

Date Reported: 10/7/2013

CLIENT: Southwest Geoscience

Client Sample ID: A1-NW

Project: Largo CS

Collection Date: 10/2/2013 2:10:00 PM

Lab ID: 1310195-001

Matrix: SOIL

Received Date: 10/3/2013 10:00:00 AM

| Analyses                                       | Result | RL     | Qual | Units | DF | Date Analyzed         | Batch               |
|--|--------|--------|------|-------|----|-----------------------|---------------------|
| <b>EPA METHOD 8015D: DIESEL RANGE ORGANICS</b> |        |        |      |       |    |                       | Analyst: <b>BCN</b> |
| Diesel Range Organics (DRO)                    | ND     | 10     |      | mg/Kg | 1  | 10/7/2013 12:38:40 PM | 9653                |
| Surr: DNOP                                     | 106    | 63-147 |      | %REC  | 1  | 10/7/2013 12:38:40 PM | 9653                |
| <b>EPA METHOD 8015D: GASOLINE RANGE</b>        |        |        |      |       |    |                       | Analyst: <b>NSB</b> |
| Gasoline Range Organics (GRO)                  | ND     | 5.0    |      | mg/Kg | 1  | 10/5/2013 3:21:29 AM  | 9636                |
| Surr: BFB                                      | 101    | 80-120 |      | %REC  | 1  | 10/5/2013 3:21:29 AM  | 9636                |
| <b>EPA METHOD 8021B: VOLATILES</b>             |        |        |      |       |    |                       | Analyst: <b>NSB</b> |
| Benzene  | ND     | 0.050  |      | mg/Kg | 1  | 10/5/2013 3:21:29 AM  | 9636                |
| Toluene  | ND     | 0.050  |      | mg/Kg | 1  | 10/5/2013 3:21:29 AM  | 9636                |
| Ethylbenzene                                   | ND     | 0.050  |      | mg/Kg | 1  | 10/5/2013 3:21:29 AM  | 9636                |
| Xylenes, Total                                 | ND     | 0.099  |      | mg/Kg | 1  | 10/5/2013 3:21:29 AM  | 9636                |
| Surr: 4-Bromofluorobenzene                     | 113    | 80-120 |      | %REC  | 1  | 10/5/2013 3:21:29 AM  | 9636                |

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 for VOA and TOC only.
- RL Reporting Detection Limit



**Hall Environmental Analysis Laboratory, Inc.****Analytical Report**

Lab Order 1310195

Date Reported: 10/7/2013

**CLIENT:** Southwest Geoscience**Client Sample ID:** A1-NE**Project:** Largo CS**Collection Date:** 10/2/2013 2:05:00 PM**Lab ID:** 1310195-002**Matrix:** SOIL**Received Date:** 10/3/2013 10:00:00 AM

| Analyses                                       | Result | RL     | Qual | Units | DF | Date Analyzed        | Batch               |
|--|--------|--------|------|-------|----|----------------------|---------------------|
| <b>EPA METHOD 8015D: DIESEL RANGE ORGANICS</b> |        |        |      |       |    |                      | Analyst: <b>BCN</b> |
| Diesel Range Organics (DRO)                    | ND     | 10     |      | mg/Kg | 1  | 10/7/2013 1:09:51 PM | 9653                |
| Surr: DNOP                                     | 102    | 63-147 |      | %REC  | 1  | 10/7/2013 1:09:51 PM | 9653                |
| <b>EPA METHOD 8015D: GASOLINE RANGE</b>        |        |        |      |       |    |                      | Analyst: <b>NSB</b> |
| Gasoline Range Organics (GRO)                  | ND     | 5.0    |      | mg/Kg | 1  | 10/5/2013 3:51:53 AM | 9636                |
| Surr: BFB                                      | 101    | 80-120 |      | %REC  | 1  | 10/5/2013 3:51:53 AM | 9636                |
| <b>EPA METHOD 8021B: VOLATILES</b>             |        |        |      |       |    |                      | Analyst: <b>NSB</b> |
| Benzene  | ND     | 0.050  |      | mg/Kg | 1  | 10/5/2013 3:51:53 AM | 9636                |
| Toluene  | ND     | 0.050  |      | mg/Kg | 1  | 10/5/2013 3:51:53 AM | 9636                |
| Ethylbenzene                                   | ND     | 0.050  |      | mg/Kg | 1  | 10/5/2013 3:51:53 AM | 9636                |
| Xylenes, Total                                 | ND     | 0.10   |      | mg/Kg | 1  | 10/5/2013 3:51:53 AM | 9636                |
| Surr: 4-Bromofluorobenzene                     | 110    | 80-120 |      | %REC  | 1  | 10/5/2013 3:51:53 AM | 9636                |

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 for VOA and TOC only.
- RL Reporting Detection Limit

**Hall Environmental Analysis Laboratory, Inc.****Analytical Report**

Lab Order 1310195

Date Reported: 10/7/2013

**CLIENT:** Southwest Geoscience**Client Sample ID:** A1-W**Project:** Largo CS**Collection Date:** 10/2/2013 2:15:00 PM**Lab ID:** 1310195-003**Matrix:** SOIL**Received Date:** 10/3/2013 10:00:00 AM

| Analyses                                       | Result | RL     | Qual | Units | DF | Date Analyzed        | Batch               |
|--|--------|--------|------|-------|----|----------------------|---------------------|
| <b>EPA METHOD 8015D: DIESEL RANGE ORGANICS</b> |        |        |      |       |    |                      | Analyst: <b>BCN</b> |
| Diesel Range Organics (DRO)                    | ND     | 10     |      | mg/Kg | 1  | 10/7/2013 1:41:02 PM | 9653                |
| Surr: DNOP                                     | 93.6   | 63-147 |      | %REC  | 1  | 10/7/2013 1:41:02 PM | 9653                |
| <b>EPA METHOD 8015D: GASOLINE RANGE</b>        |        |        |      |       |    |                      | Analyst: <b>NSB</b> |
| Gasoline Range Organics (GRO)                  | ND     | 4.9    |      | mg/Kg | 1  | 10/5/2013 4:22:02 AM | 9636                |
| Surr: BFB                                      | 101    | 80-120 |      | %REC  | 1  | 10/5/2013 4:22:02 AM | 9636                |
| <b>EPA METHOD 8021B: VOLATILES</b>             |        |        |      |       |    |                      | Analyst: <b>NSB</b> |
| Benzene  | ND     | 0.049  |      | mg/Kg | 1  | 10/5/2013 4:22:02 AM | 9636                |
| Toluene  | ND     | 0.049  |      | mg/Kg | 1  | 10/5/2013 4:22:02 AM | 9636                |
| Ethylbenzene                                   | ND     | 0.049  |      | mg/Kg | 1  | 10/5/2013 4:22:02 AM | 9636                |
| Xylenes, Total                                 | ND     | 0.099  |      | mg/Kg | 1  | 10/5/2013 4:22:02 AM | 9636                |
| Surr: 4-Bromofluorobenzene                     | 112    | 80-120 |      | %REC  | 1  | 10/5/2013 4:22:02 AM | 9636                |

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 for VOA and TOC only.
- RL Reporting Detection Limit



**Hall Environmental Analysis Laboratory, Inc.****Analytical Report**

Lab Order 1310195

Date Reported: 10/7/2013

**CLIENT:** Southwest Geoscience**Client Sample ID:** A1-E**Project:** Largo CS**Collection Date:** 10/2/2013 2:20:00 PM**Lab ID:** 1310195-004**Matrix:** SOIL**Received Date:** 10/3/2013 10:00:00 AM

| Analyses                                       | Result | RL     | Qual | Units | DF | Date Analyzed        | Batch               |
|--|--------|--------|------|-------|----|----------------------|---------------------|
| <b>EPA METHOD 8015D: DIESEL RANGE ORGANICS</b> |        |        |      |       |    |                      | Analyst: <b>BCN</b> |
| Diesel Range Organics (DRO)                    | ND     | 10     |      | mg/Kg | 1  | 10/7/2013 2:12:13 PM | 9653                |
| Surr: DNOP                                     | 94.5   | 63-147 |      | %REC  | 1  | 10/7/2013 2:12:13 PM | 9653                |
| <b>EPA METHOD 8015D: GASOLINE RANGE</b>        |        |        |      |       |    |                      | Analyst: <b>NSB</b> |
| Gasoline Range Organics (GRO)                  | ND     | 5.0    |      | mg/Kg | 1  | 10/5/2013 4:52:06 AM | 9636                |
| Surr: BFB                                      | 101    | 80-120 |      | %REC  | 1  | 10/5/2013 4:52:06 AM | 9636                |
| <b>EPA METHOD 8021B: VOLATILES</b>             |        |        |      |       |    |                      | Analyst: <b>NSB</b> |
| Benzene  | ND     | 0.050  |      | mg/Kg | 1  | 10/5/2013 4:52:06 AM | 9636                |
| Toluene  | ND     | 0.050  |      | mg/Kg | 1  | 10/5/2013 4:52:06 AM | 9636                |
| Ethylbenzene                                   | ND     | 0.050  |      | mg/Kg | 1  | 10/5/2013 4:52:06 AM | 9636                |
| Xylenes, Total                                 | ND     | 0.099  |      | mg/Kg | 1  | 10/5/2013 4:52:06 AM | 9636                |
| Surr: 4-Bromofluorobenzene                     | 111    | 80-120 |      | %REC  | 1  | 10/5/2013 4:52:06 AM | 9636                |

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 for VOA and TOC only.
- RL Reporting Detection Limit

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1310195

07-Oct-13

Client: Southwest Geoscience

Project: Largo CS

|                             |                          |   |           |             |              |          |           |      |          |      |
|-----------------------------|--------------------------|---|-----------|-------------|--------------|----------|-----------|------|----------|------|
| Sample ID: MB-9653          | SampType: MBLK           | TestCode: EPA Method 8015D: Diesel Range Organics |           |             |              |          |           |      |          |      |
| Client ID: PBS              | Batch ID: 9653           | RunNo: 13829                                      |           |             |              |          |           |      |          |      |
| Prep Date: 10/4/2013        | Analysis Date: 10/4/2013 | SeqNo: 395809                                     |           |             | 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                  | 9.4                      |   | 10.00     |             | 93.6         | 63       | 147       |      |          |      |

|                             |                          |   |           |             |              |          |           |      |          |      |
|-----------------------------|--------------------------|---|-----------|-------------|--------------|----------|-----------|------|----------|------|
| Sample ID: LCS-9653         | SampType: LCS            | TestCode: EPA Method 8015D: Diesel Range Organics |           |             |              |          |           |      |          |      |
| Client ID: LCSS             | Batch ID: 9653           | RunNo: 13829                                      |           |             |              |          |           |      |          |      |
| Prep Date: 10/4/2013        | Analysis Date: 10/4/2013 | SeqNo: 395810                                     |           |             | Units: mg/Kg |          |           |      |          |      |
| Analyte                     | Result                   | PQL   | SPK value | SPK Ref Val | %REC         | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Diesel Range Organics (DRO) | 52                       | 10  | 50.00     | 0           | 103          | 77.1     | 128       |      |          |      |
| Surr: DNOP                  | 5.1                      |   | 5.000     |             | 102          | 63       | 147       |      |          |      |

## 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 for VOA and TOC only.  
RL Reporting Detection Limit



# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1310195

07-Oct-13

Client: Southwest Geoscience

Project: Largo CS

|                               |                          |  |           |             |              |          |           |      |          |      |
|-------------------------------|--------------------------|--|-----------|-------------|--------------|----------|-----------|------|----------|------|
| Sample ID: MB-9636            | SampType: MBLK           | TestCode: EPA Method 8015D: Gasoline Range |           |             |              |          |           |      |          |      |
| Client ID: PBS                | Batch ID: 9636           | RunNo: 13860                               |           |             |              |          |           |      |          |      |
| Prep Date: 10/3/2013          | Analysis Date: 10/4/2013 | SeqNo: 396249                              |           |             | 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                     | 1000                     |  | 1000      |             | 102          | 80       | 120       |      |          |      |

|                               |                          |  |           |             |              |          |           |      |          |      |
|-------------------------------|--------------------------|--|-----------|-------------|--------------|----------|-----------|------|----------|------|
| Sample ID: LCS-9636           | SampType: LCS            | TestCode: EPA Method 8015D: Gasoline Range |           |             |              |          |           |      |          |      |
| Client ID: LCSS               | Batch ID: 9636           | RunNo: 13860                               |           |             |              |          |           |      |          |      |
| Prep Date: 10/3/2013          | Analysis Date: 10/4/2013 | SeqNo: 396250                              |           |             | Units: mg/Kg |          |           |      |          |      |
| Analyte                       | Result                   | PQL  | SPK value | SPK Ref Val | %REC         | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Gasoline Range Organics (GRO) | 23                       | 5.0  | 25.00     | 0           | 91.5         | 74.5     | 126       |      |          |      |
| Surr: BFB                     | 1100                     |  | 1000      |             | 106          | 80       | 120       |      |          |      |

## 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 for VOA and TOC only.  
RL Reporting Detection Limit

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1310195

07-Oct-13

Client: Southwest Geoscience

Project: Largo CS

|                            |                          |                                       |           |              |      |          |           |      |          |      |
|----------------------------|--------------------------|---------------------------------------|-----------|--------------|------|----------|-----------|------|----------|------|
| Sample ID: MB-9636         | SampType: MBLK           | TestCode: EPA Method 8021B: Volatiles |           |              |      |          |           |      |          |      |
| Client ID: PBS             | Batch ID: 9636           | RunNo: 13860                          |           |              |      |          |           |      |          |      |
| Prep Date: 10/3/2013       | Analysis Date: 10/4/2013 | SeqNo: 396276                         |           | Units: mg/Kg |      |          |           |      |          |      |
| Analyte                    | Result                   | PQL                                   | SPK value | SPK Ref Val  | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Benzene                    | ND                       | 0.050                                 |           |              |      |          |           |      |          |      |
| Toluene                    | ND                       | 0.050                                 |           |              |      |          |           |      |          |      |
| Ethylbenzene               | ND                       | 0.050                                 |           |              |      |          |           |      |          |      |
| Xylenes, Total             | ND                       | 0.10                                  |           |              |      |          |           |      |          |      |
| Surr: 4-Bromofluorobenzene | 1.1                      |                                       | 1.000     |              | 115  | 80       | 120       |      |          |      |

|                            |                          |                                       |           |              |      |          |           |      |          |      |
|----------------------------|--------------------------|---------------------------------------|-----------|--------------|------|----------|-----------|------|----------|------|
| Sample ID: LCS-9636        | SampType: LCS            | TestCode: EPA Method 8021B: Volatiles |           |              |      |          |           |      |          |      |
| Client ID: LCSS            | Batch ID: 9636           | RunNo: 13860                          |           |              |      |          |           |      |          |      |
| Prep Date: 10/3/2013       | Analysis Date: 10/4/2013 | SeqNo: 396277                         |           | Units: mg/Kg |      |          |           |      |          |      |
| Analyte                    | Result                   | PQL                                   | SPK value | SPK Ref Val  | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Benzene                    | 0.96                     | 0.050                                 | 1.000     | 0            | 96.4 | 80       | 120       |      |          |      |
| Toluene                    | 0.97                     | 0.050                                 | 1.000     | 0            | 96.6 | 80       | 120       |      |          |      |
| Ethylbenzene               | 0.99                     | 0.050                                 | 1.000     | 0            | 98.9 | 80       | 120       |      |          |      |
| Xylenes, Total             | 3.1                      | 0.10                                  | 3.000     | 0            | 102  | 80       | 120       |      |          |      |
| Surr: 4-Bromofluorobenzene | 1.2                      |                                       | 1.000     |              | 116  | 80       | 120       |      |          |      |

## 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 for VOA and TOC only.  
RL Reporting Detection Limit





Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87106  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: www.hallenvironmental.com

## Sample Log-In Check List

Client Name: Southwest Geoscience

Work Order Number: 1310195

RcptNo: 1

Received by/date: LM 10/03/13

Logged By: Michelle Garcia 10/3/2013 10:00:00 AM

*Michelle Garcia*

Completed By: Michelle Garcia 10/3/2013 11:51:42 AM

*Michelle Garcia*

Reviewed By: AT 10/03/13

### 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? Courier

### Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐  
5. Were all samples received at a temperature of  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$ ? 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: \_\_\_\_\_

Date: \_\_\_\_\_

By Whom: \_\_\_\_\_

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: \_\_\_\_\_

Client Instructions: \_\_\_\_\_

17. Additional remarks:

### 18. Cooler Information

| Cooler No | Temp $^{\circ}\text{C}$ | Condition | Seal Intact | Seal No | Seal Date | Signed By |
|-----------|-------------------------|-----------|-------------|---------|-----------|-----------|
| 1         | 1.0                     | Good      | Yes         |         |           |           |

## CHAIN OF CUSTODY RECORD

|  |  |  |   |  |  |   |   |   |   |   |   |   |                           |  |  |  |  |
|--|--|--|---|--|--|---|---|---|---|---|---|---|---------------------------|--|--|--|--|
| <h1 style="margin: 0;">Southwest</h1> <h2 style="margin: 0;">GEOSCIENCE</h2> <p style="margin: 0;">Environmental &amp; Hydrogeologic Consultants</p> |  | Laboratory: <u>HALL</u><br>Address: <u>ABQ</u><br>Contact: <u>FREEMAN</u><br>Phone: _____<br>PO/SO #: <u>041067002</u>                 |   | ANALYSIS REQUESTED<br><br><div style="transform: rotate(-45deg); transform-origin: center;">           BTX 5021<br/>           TPH (GRY) DRG 5015         </div> |  | Lab use only<br>Due Date: _____<br><br>Temp. of coolers when received (C°): <u>1.0</u><br><table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">1</td> <td style="width: 20%;">2</td> <td style="width: 20%;">3</td> <td style="width: 20%;">4</td> <td style="width: 20%;">5</td> </tr> <tr> <td colspan="5" style="text-align: center;">Page <u>1</u> of <u>1</u></td> </tr> </table> |   | 1 | 2 | 3 | 4 | 5 | Page <u>1</u> of <u>1</u> |  |  |  |  |
|  |  | 1  | 2 |  |  | 3   | 4 | 5 |   |   |   |   |                           |  |  |  |  |
| Page <u>1</u> of <u>1</u>  |  |  |   |  |  |   |   |   |   |   |   |   |                           |  |  |  |  |
| Office Location <u>AZTEC NM</u><br><br>Project Manager <u>KYLE SUMMERS</u><br>Sampler's Name <u>AARON BRYANT</u>                                     |  | Sampler's Signature <u>[Signature]</u><br>Project No. <u>041067002</u><br>Project Name <u>LARINO CS</u><br>No/Type of Containers _____ |   |  |  |   |   |   |   |   |   |   |                           |  |  |  |  |

| 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  | 10-2-13 | 1410 |      | X    | A1-NW                          |             | 10ft      |     |          |        | 1 XX  | 1310195-001                  |
| S  | ↓       | 1405 |      | X    | A1-NE                          |             | 10ft      |     |          |        | ↓ ↓ ↓ | -002                         |
| S  | ↓       | 1415 |      | X    | A1-W                           |             | 10ft      |     |          |        | ↓ ↓ ↓ | -003                         |
| S  | ↓       | 1420 |      | X    | A1-E                           |             | 10ft      |     |          |        | ↓ ↓ ↓ | -004                         |
| <div style="position: relative; width: 100%; height: 100%;"> <span style="position: absolute; top: 50%; left: 50%; transform: translate(-50%, -50%); font-size: 2em; font-weight: bold;">NFS</span> <span style="position: absolute; bottom: 10%; left: 10%;">AB</span> </div> |         |      |      |      |                                |             |           |     |          |        |       |                              |

|  |                      |                   |   |
|--|----------------------|-------------------|---|
| Turn around time <input checked="" type="checkbox"/> Normal <input type="checkbox"/> 25% Rush <input type="checkbox"/> 50% Rush <input type="checkbox"/> 100% Rush |                      |                   |   |
| Relinquished by (Signature) <u>[Signature]</u>   | Date: <u>10-2-13</u> | Time: <u>1420</u> | Received by: (Signature) <u>[Signature]</u> |
| Relinquished by (Signature) <u>[Signature]</u>   | Date: <u>10-2-13</u> | Time: <u>1800</u> | Received by: (Signature) <u>[Signature]</u> |
| Relinquished by (Signature) _____  | Date: _____          | Time: _____       | Received by: (Signature) _____              |
| Relinquished by (Signature) _____  | Date: _____          | Time: _____       | Received by: (Signature) _____              |

|           |                  |                                |          |            |                           |             |                        |             |         |
|-----------|------------------|--------------------------------|----------|------------|---------------------------|-------------|------------------------|-------------|---------|
| 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 |             |         |





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

November 08, 2013

Kyle Summers  
Southwest Geoscience  
606 S. Rio Grande Unit A  
Aztec, NM 87410  
TEL: (903) 821-5603  
FAX (214) 350-2914

RE: Largo CS

OrderNo.: 1311052

Dear Kyle Summers:

Hall Environmental Analysis Laboratory received 1 sample(s) on 11/2/2013 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to [www.hallenvironmental.com](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

**Hall Environmental Analysis Laboratory, Inc.****Analytical Report**

Lab Order 1311052

Date Reported: 11/8/2013

**CLIENT:** Southwest Geoscience**Client Sample ID:** A-1 Floor 2**Project:** Largo CS**Collection Date:** 10/31/2013 12:30:00 PM**Lab ID:** 1311052-001**Matrix:** SOIL**Received Date:** 11/2/2013 10:00:00 AM

| Analyses                                       | Result | RL       | Qual | Units | DF | Date Analyzed         | Batch               |
|--|--------|----------|------|-------|----|-----------------------|---------------------|
| <b>EPA METHOD 8015D: DIESEL RANGE ORGANICS</b> |        |          |      |       |    |                       | Analyst: <b>BCN</b> |
| Diesel Range Organics (DRO)                    | ND     | 10       |      | mg/Kg | 1  | 11/6/2013 11:46:33 AM | 10163               |
| Surr: DNOP                                     | 83.7   | 66-131   |      | %REC  | 1  | 11/6/2013 11:46:33 AM | 10163               |
| <b>EPA METHOD 8015D: GASOLINE RANGE</b>        |        |          |      |       |    |                       | Analyst: <b>NSB</b> |
| Gasoline Range Organics (GRO)                  | ND     | 4.7      |      | mg/Kg | 1  | 11/5/2013 2:38:56 PM  | 10164               |
| Surr: BFB                                      | 91.9   | 74.5-129 |      | %REC  | 1  | 11/5/2013 2:38:56 PM  | 10164               |
| <b>EPA METHOD 8021B: VOLATILES</b>             |        |          |      |       |    |                       | Analyst: <b>NSB</b> |
| Benzene  | ND     | 0.047    |      | mg/Kg | 1  | 11/5/2013 2:38:56 PM  | 10164               |
| Toluene  | ND     | 0.047    |      | mg/Kg | 1  | 11/5/2013 2:38:56 PM  | 10164               |
| Ethylbenzene                                   | ND     | 0.047    |      | mg/Kg | 1  | 11/5/2013 2:38:56 PM  | 10164               |
| Xylenes, Total                                 | ND     | 0.094    |      | mg/Kg | 1  | 11/5/2013 2:38:56 PM  | 10164               |
| Surr: 4-Bromofluorobenzene                     | 109    | 80-120   |      | %REC  | 1  | 11/5/2013 2:38:56 PM  | 10164               |

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 for VOA and TOC only.
- RL Reporting Detection Limit



# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1311052

08-Nov-13

Client: Southwest Geoscience

Project: Largo CS

|                             |           |                |           |             |   |          |           |      |          |      |
|-----------------------------|-----------|----------------|-----------|-------------|---|----------|-----------|------|----------|------|
| Sample ID                   | MB-10163  | SampType:      | MBLK      | TestCode:   | EPA Method 8015D: Diesel Range Organics |          |           |      |          |      |
| Client ID:                  | PBS       | Batch ID:      | 10163     | RunNo:      | 14582                                   |          |           |      |          |      |
| Prep Date:                  | 11/4/2013 | Analysis Date: | 11/6/2013 | SeqNo:      | 420234                                  | 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     |             | 96.0                                    | 66       | 131       |      |          |      |

|                             |           |                |           |             |   |          |           |      |          |      |
|-----------------------------|-----------|----------------|-----------|-------------|---|----------|-----------|------|----------|------|
| Sample ID                   | LCS-10163 | SampType:      | LCS       | TestCode:   | EPA Method 8015D: Diesel Range Organics |          |           |      |          |      |
| Client ID:                  | LCSS      | Batch ID:      | 10163     | RunNo:      | 14582                                   |          |           |      |          |      |
| Prep Date:                  | 11/4/2013 | Analysis Date: | 11/6/2013 | SeqNo:      | 420235                                  | Units:   | mg/Kg     |      |          |      |
| Analyte                     | Result    | PQL            | SPK value | SPK Ref Val | %REC                                    | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Diesel Range Organics (DRO) | 46        | 10             | 50.00     | 0           | 91.2                                    | 62.1     | 127       |      |          |      |
| Surr: DNOP                  | 4.8       |                | 5.000     |             | 97.0                                    | 66       | 131       |      |          |      |

## 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 for VOA and TOC only.
- RL Reporting Detection Limit

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1311052

08-Nov-13

Client: Southwest Geoscience

Project: Largo CS

|                               |           |                |           |             |                                  |          |           |      |          |      |
|-------------------------------|-----------|----------------|-----------|-------------|----------------------------------|----------|-----------|------|----------|------|
| Sample ID                     | MB-10164  | SampType:      | MBLK      | TestCode:   | EPA Method 8015D: Gasoline Range |          |           |      |          |      |
| Client ID:                    | PBS       | Batch ID:      | 10164     | RunNo:      | 14590                            |          |           |      |          |      |
| Prep Date:                    | 11/4/2013 | Analysis Date: | 11/5/2013 | SeqNo:      | 419236                           | 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                     | 930       |                | 1000      |             | 93.3                             | 74.5     | 129       |      |          |      |

|                               |           |                |           |             |                                  |          |           |      |          |      |
|-------------------------------|-----------|----------------|-----------|-------------|----------------------------------|----------|-----------|------|----------|------|
| Sample ID                     | LCS-10164 | SampType:      | LCS       | TestCode:   | EPA Method 8015D: Gasoline Range |          |           |      |          |      |
| Client ID:                    | LCSS      | Batch ID:      | 10164     | RunNo:      | 14590                            |          |           |      |          |      |
| Prep Date:                    | 11/4/2013 | Analysis Date: | 11/5/2013 | SeqNo:      | 419237                           | Units:   | mg/Kg     |      |          |      |
| Analyte                       | Result    | PQL            | SPK value | SPK Ref Val | %REC                             | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Gasoline Range Organics (GRO) | 25        | 5.0            | 25.00     | 0           | 99.4                             | 74.5     | 126       |      |          |      |
| Surr: BFB                     | 990       |                | 1000      |             | 98.7                             | 74.5     | 129       |      |          |      |

## 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 for VOA and TOC only.     |
| 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#: 1311052

08-Nov-13

Client: Southwest Geoscience

Project: Largo CS

|                            |           |       |                |             |      |           |                             |      |              |      |  |
|----------------------------|-----------|-------|----------------|-------------|------|-----------|-----------------------------|------|--------------|------|--|
| Sample ID                  | MB-10164  |       | SampType:      | MBLK        |      | TestCode: | EPA Method 8021B: Volatiles |      |              |      |  |
| Client ID:                 | PBS       |       | Batch ID:      | 10164       |      | RunNo:    | 14590                       |      |              |      |  |
| Prep Date:                 | 11/4/2013 |       | Analysis Date: | 11/5/2013   |      | SeqNo:    | 419305                      |      | Units: mg/Kg |      |  |
| Analyte                    | Result    | PQL   | SPK value      | SPK Ref Val | %REC | LowLimit  | HighLimit                   | %RPD | RPDLimit     | Qual |  |
| Benzene                    | ND        | 0.050 |                |             |      |           |                             |      |              |      |  |
| Toluene                    | ND        | 0.050 |                |             |      |           |                             |      |              |      |  |
| Ethylbenzene               | ND        | 0.050 |                |             |      |           |                             |      |              |      |  |
| Xylenes, Total             | ND        | 0.10  |                |             |      |           |                             |      |              |      |  |
| Surr: 4-Bromofluorobenzene | 1.1       |       | 1.000          |             | 111  | 80        | 120                         |      |              |      |  |

|                            |           |       |                          |             |                                       |          |              |      |          |      |
|----------------------------|-----------|-------|--------------------------|-------------|---------------------------------------|----------|--------------|------|----------|------|
| Sample ID                  | LCS-10164 |       | SampType: LCS            |             | TestCode: EPA Method 8021B: Volatiles |          |              |      |          |      |
| Client ID:                 | LCSS      |       | Batch ID: 10164          |             | RunNo: 14590                          |          |              |      |          |      |
| Prep Date:                 | 11/4/2013 |       | Analysis Date: 11/5/2013 |             | SeqNo: 419311                         |          | Units: mg/Kg |      |          |      |
| Analyte                    | Result    | PQL   | SPK value                | SPK Ref Val | %REC                                  | LowLimit | HighLimit    | %RPD | RPDLimit | Qual |
| Benzene                    | 0.99      | 0.050 | 1.000                    | 0           | 99.0                                  | 80       | 120          |      |          |      |
| Toluene                    | 1.0       | 0.050 | 1.000                    | 0           | 102                                   | 80       | 120          |      |          |      |
| Ethylbenzene               | 1.0       | 0.050 | 1.000                    | 0           | 102                                   | 80       | 120          |      |          |      |
| Xylenes, Total             | 3.1       | 0.10  | 3.000                    | 0           | 103                                   | 80       | 120          |      |          |      |
| Surr: 4-Bromofluorobenzene | 1.2       |       | 1.000                    |             | 115                                   | 80       | 120          |      |          |      |

## 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 for VOA and TOC only.  
RL Reporting Detection Limit



Hall 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

Work Order Number: 1311052

RcptNo: 1

Received by/date:

AF

11/02/13

Logged By: Lindsay Mangin

11/2/2013 10:00:00 AM

*Lindsay Mangin*

Completed By: Lindsay Mangin

11/4/2013 10:10:39 AM

*Lindsay Mangin*

Reviewed By:

AF 11/04/13

### 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? Courier

### Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$ ? 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 ☐ # of preserved bottles checked for pH:   
( $<2$  or  $>12$  unless noted)
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐ Adjusted? ☐
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 ☐ Checked by:

### Special Handling (If applicable)

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

Person Notified:

Date:

By Whom:

Via:

eMail

Phone

Fax

In Person

Regarding:

Client Instructions:

17. Additional remarks:

### 18. Cooler Information

| Cooler No | Temp $^{\circ}\text{C}$ | Condition | Seal Intact | Seal No | Seal Date | Signed By |
|-----------|-------------------------|-----------|-------------|---------|-----------|-----------|
| 1         | 2.6                     | Good      | Yes         |         |           |           |



## CHAIN OF CUSTODY RECORD

|  |          |                                     |      |   |                                |   |           |                       |          |                           |     |   |  |   |  |             |  |         |  |  |  |                              |   |
|--|----------|-------------------------------------|------|---|--------------------------------|---|-----------|-----------------------|----------|---------------------------|-----|---|--|---|--|-------------|--|---------|--|--|--|------------------------------|---|
| <h1 style="margin: 0;">Southwest</h1> <h2 style="margin: 0;">GEOSCIENCE</h2> <p style="margin: 0;">Environmental &amp; Hydrogeologic Consultants</p>               |          | Laboratory: <u>Hall</u>             |      | ANALYSIS REQUESTED<br><div style="transform: rotate(-90deg); position: absolute; left: 50%; top: 50%;">TPH GRAD/DRO 8015 BTX 8021</div> |                                |   |           |                       |          |                           |     |   |  | Lab use only<br>Due Date:                       |  |             |  |         |  |  |  |                              |   |
|  |          | Address: <u>ABQ</u>                 |      |   |                                |   |           |                       |          |                           |     |   |  | Temp. of coolers when received (C°): <u>36°</u> |  |             |  |         |  |  |  |                              |   |
| Office Location: <u>Aztec</u>  |          | Contact: <u>Freeman</u>             |      | Phone:  |                                | PO/SO #: <u>04106002</u>                    |           |                       |          |                           |     |   |  |   |  |             |  |         |  |  |  |                              |   |
| Project Manager: <u>Summers</u>  |          | Sampler's Name: <u>Kyle Summers</u> |      | Sampler's Signature: <u>[Signature]</u>   |                                |   |           |                       |          |                           |     |   |  |   |  |             |  |         |  |  |  |                              |   |
| Proj. No: <u>04106002</u>  |          | Project Name: <u>Largo CS</u>       |      |   |                                | No/Type of Containers                       |           |                       |          |                           |     |   |  |   |  |             |  |         |  |  |  |                              |   |
| Matrix   | Date     | Time                                | Comp | Grab  | Identifying Marks of Sample(s) | Start Depth                                 | End Depth | VOA                   | A/G 1Lt. | 250 ml                    | P/O | <div style="transform: rotate(-90deg); position: absolute; left: 50%; top: 50%;">TPH GRAD/DRO 8015 BTX 8021</div> |  |   |  |             |  |         |  |  |  | Lab Sample ID (Lab Use Only) |   |
| S  | 10/31/13 | 1230                                |      |   | X A-1 Floor 2                  |   |           |                       |          |                           | 1   |   |  |   |  |             |  |         |  |  |  | X                            | X |
| <div style="font-size: 2em; transform: rotate(-45deg); opacity: 0.5;">NFI K.S.</div>   |          |                                     |      |   |                                |   |           |                       |          |                           |     |   |  |   |  |             |  |         |  |  |  |                              |   |
| Turn around time <input checked="" type="checkbox"/> Normal <input type="checkbox"/> 25% Rush <input type="checkbox"/> 50% Rush <input type="checkbox"/> 100% Rush |          |                                     |      |   |                                |   |           |                       |          |                           |     |   |  |   |  |             |  |         |  |  |  |                              |   |
| Relinquished by (Signature): <u>[Signature]</u>  |          | Date: <u>10/31/13</u>               |      | Time: <u>1709</u>   |                                | Received by (Signature): <u>[Signature]</u> |           | Date: <u>10/31/13</u> |          | Time: <u>1709</u>         |     | NOTES:  |  |   |  |             |  |         |  |  |  |                              |   |
| Relinquished by (Signature): <u>[Signature]</u>  |          | Date: <u>11/1/13</u>                |      | Time: <u>1725</u>   |                                | Received by (Signature): <u>[Signature]</u> |           | Date: <u>11/2/13</u>  |          | Time: <u>10:00</u>        |     |   |  |   |  |             |  |         |  |  |  |                              |   |
| Relinquished by (Signature):   |          | Date:                               |      | Time:   |                                | Received by (Signature):                    |           | Date:                 |          | Time:                     |     |   |  |   |  |             |  |         |  |  |  |                              |   |
| Relinquished by (Signature):   |          | Date:                               |      | Time:   |                                | Received by (Signature):                    |           | Date:                 |          | Time:                     |     |   |  |   |  |             |  |         |  |  |  |                              |   |
| Matrix Container   |          | WW - Wastewater                     |      | W - Water   |                                | S - Soil                                    |           | SD - Solid            |          | L - Liquid                |     | A - Air Bag   |  | C - Charcoal tube                               |  | SL - sludge |  | O - Oil |  |  |  |                              |   |
|  |          | VOA - 40 ml vial                    |      | A/G - Amber / Or Glass 1 Liter  |                                |   |           |                       |          | 250 ml - Glass wide mouth |     |   |  | P/O - Plastic or other                          |  |             |  |         |  |  |  |                              |   |



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

November 13, 2013

Kyle Summers  
Southwest Geoscience  
606 S. Rio Grande Unit A  
Aztec, NM 87410  
TEL: (903) 821-5603  
FAX (214) 350-2914

RE: Largo CS

OrderNo.: 1311250

Dear Kyle Summers:

Hall Environmental Analysis Laboratory received 2 sample(s) on 11/6/2013 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to [www.hallenvironmental.com](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1311250

Date Reported: 11/13/2013

CLIENT: Southwest Geoscience

Client Sample ID: A1-SW

Project: Largo CS

Collection Date: 11/4/2013 11:00:00 AM

Lab ID: 1311250-001

Matrix: SOIL

Received Date: 11/6/2013 10:17:00 AM

| Analyses                                       | Result | RL       | Qual | Units | DF | Date Analyzed         | Batch               |
|--|--------|----------|------|-------|----|-----------------------|---------------------|
| <b>EPA METHOD 8015D: DIESEL RANGE ORGANICS</b> |        |          |      |       |    |                       | Analyst: <b>BCN</b> |
| Diesel Range Organics (DRO)                    | ND     | 10       |      | mg/Kg | 1  | 11/8/2013 1:39:43 PM  | 10226               |
| Surr: DNOP                                     | 94.6   | 66-131   |      | %REC  | 1  | 11/8/2013 1:39:43 PM  | 10226               |
| <b>EPA METHOD 8015D: GASOLINE RANGE</b>        |        |          |      |       |    |                       | Analyst: <b>NSB</b> |
| Gasoline Range Organics (GRO)                  | ND     | 4.9      |      | mg/Kg | 1  | 11/11/2013 3:30:29 PM | 10237               |
| Surr: BFB                                      | 92.3   | 74.5-129 |      | %REC  | 1  | 11/11/2013 3:30:29 PM | 10237               |
| <b>EPA METHOD 8021B: VOLATILES</b>             |        |          |      |       |    |                       | Analyst: <b>NSB</b> |
| Benzene  | ND     | 0.049    |      | mg/Kg | 1  | 11/11/2013 3:30:29 PM | 10237               |
| Toluene  | ND     | 0.049    |      | mg/Kg | 1  | 11/11/2013 3:30:29 PM | 10237               |
| Ethylbenzene                                   | ND     | 0.049    |      | mg/Kg | 1  | 11/11/2013 3:30:29 PM | 10237               |
| Xylenes, Total                                 | ND     | 0.098    |      | mg/Kg | 1  | 11/11/2013 3:30:29 PM | 10237               |
| Surr: 4-Bromofluorobenzene                     | 111    | 80-120   |      | %REC  | 1  | 11/11/2013 3:30:29 PM | 10237               |

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 for VOA and TOC only.
- RL Reporting Detection Limit

**Hall Environmental Analysis Laboratory, Inc.****Analytical Report**

Lab Order 1311250

Date Reported: 11/13/2013

**CLIENT:** Southwest Geoscience**Client Sample ID:** A1-SE**Project:** Largo CS**Collection Date:** 11/4/2013 11:15:00 AM**Lab ID:** 1311250-002**Matrix:** SOIL**Received Date:** 11/6/2013 10:17:00 AM

| Analyses                                       | Result | RL       | Qual | Units | DF | Date Analyzed        | Batch               |
|--|--------|----------|------|-------|----|----------------------|---------------------|
| <b>EPA METHOD 8015D: DIESEL RANGE ORGANICS</b> |        |          |      |       |    |                      | Analyst: <b>BCN</b> |
| Diesel Range Organics (DRO)                    | 52     | 10       |      | mg/Kg | 1  | 11/8/2013 3:43:38 PM | 10226               |
| Surr: DNOP                                     | 97.5   | 66-131   |      | %REC  | 1  | 11/8/2013 3:43:38 PM | 10226               |
| <b>EPA METHOD 8015D: GASOLINE RANGE</b>        |        |          |      |       |    |                      | Analyst: <b>NSB</b> |
| Gasoline Range Organics (GRO)                  | ND     | 4.7      |      | mg/Kg | 1  | 11/8/2013 5:13:23 PM | 10237               |
| Surr: BFB                                      | 93.2   | 74.5-129 |      | %REC  | 1  | 11/8/2013 5:13:23 PM | 10237               |
| <b>EPA METHOD 8021B: VOLATILES</b>             |        |          |      |       |    |                      | Analyst: <b>NSB</b> |
| Benzene  | ND     | 0.047    |      | mg/Kg | 1  | 11/8/2013 5:13:23 PM | 10237               |
| Toluene  | ND     | 0.047    |      | mg/Kg | 1  | 11/8/2013 5:13:23 PM | 10237               |
| Ethylbenzene                                   | ND     | 0.047    |      | mg/Kg | 1  | 11/8/2013 5:13:23 PM | 10237               |
| Xylenes, Total                                 | ND     | 0.094    |      | mg/Kg | 1  | 11/8/2013 5:13:23 PM | 10237               |
| Surr: 4-Bromofluorobenzene                     | 111    | 80-120   |      | %REC  | 1  | 11/8/2013 5:13:23 PM | 10237               |

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 for VOA and TOC only.
- RL Reporting Detection Limit



# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1311250

13-Nov-13

Client: Southwest Geoscience

Project: Largo CS

|                             |           |                |           |             |   |          |           |      |          |      |
|-----------------------------|-----------|----------------|-----------|-------------|---|----------|-----------|------|----------|------|
| Sample ID                   | MB-10226  | SampType:      | MBLK      | TestCode:   | EPA Method 8015D: Diesel Range Organics |          |           |      |          |      |
| Client ID:                  | PBS       | Batch ID:      | 10226     | RunNo:      | 14634                                   |          |           |      |          |      |
| Prep Date:                  | 11/7/2013 | Analysis Date: | 11/8/2013 | SeqNo:      | 422737                                  | 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                  | 9.9       |                | 10.00     |             | 98.9                                    | 66       | 131       |      |          |      |

|                             |           |                |           |             |   |          |           |      |          |      |
|-----------------------------|-----------|----------------|-----------|-------------|---|----------|-----------|------|----------|------|
| Sample ID                   | LCS-10226 | SampType:      | LCS       | TestCode:   | EPA Method 8015D: Diesel Range Organics |          |           |      |          |      |
| Client ID:                  | LCSS      | Batch ID:      | 10226     | RunNo:      | 14634                                   |          |           |      |          |      |
| Prep Date:                  | 11/7/2013 | Analysis Date: | 11/8/2013 | SeqNo:      | 422738                                  | Units:   | mg/Kg     |      |          |      |
| Analyte                     | Result    | PQL            | SPK value | SPK Ref Val | %REC                                    | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Diesel Range Organics (DRO) | 36        | 10             | 50.00     | 0           | 71.3                                    | 62.1     | 127       |      |          |      |
| Surr: DNOP                  | 4.9       |                | 5.000     |             | 98.7                                    | 66       | 131       |      |          |      |

## 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 for VOA and TOC only.  
RL Reporting Detection Limit

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1311250

13-Nov-13

Client: Southwest Geoscience

Project: Largo CS

|                               |           |                |           |             |                                  |          |           |      |          |      |
|-------------------------------|-----------|----------------|-----------|-------------|----------------------------------|----------|-----------|------|----------|------|
| Sample ID                     | MB-10237  | SampType:      | MBLK      | TestCode:   | EPA Method 8015D: Gasoline Range |          |           |      |          |      |
| Client ID:                    | PBS       | Batch ID:      | 10237     | RunNo:      | 14664                            |          |           |      |          |      |
| Prep Date:                    | 11/7/2013 | Analysis Date: | 11/8/2013 | SeqNo:      | 422516                           | 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                     | 950       |                | 1000      |             | 94.8                             | 74.5     | 129       |      |          |      |

|                               |           |                |           |             |                                  |          |           |      |          |      |
|-------------------------------|-----------|----------------|-----------|-------------|----------------------------------|----------|-----------|------|----------|------|
| Sample ID                     | LCS-10237 | SampType:      | LCS       | TestCode:   | EPA Method 8015D: Gasoline Range |          |           |      |          |      |
| Client ID:                    | LCSS      | Batch ID:      | 10237     | RunNo:      | 14664                            |          |           |      |          |      |
| Prep Date:                    | 11/7/2013 | Analysis Date: | 11/8/2013 | SeqNo:      | 422517                           | Units:   | mg/Kg     |      |          |      |
| Analyte                       | Result    | PQL            | SPK value | SPK Ref Val | %REC                             | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Gasoline Range Organics (GRO) | 22        | 5.0            | 25.00     | 0           | 87.4                             | 74.5     | 126       |      |          |      |
| Surr: BFB                     | 1000      |                | 1000      |             | 102                              | 74.5     | 129       |      |          |      |

## Qualifiers:

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- 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 for VOA and TOC only.
- RL Reporting Detection Limit



# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1311250

13-Nov-13

Client: Southwest Geoscience

Project: Largo CS

|                            |           |                |           |             |                             |          |           |      |          |      |
|----------------------------|-----------|----------------|-----------|-------------|-----------------------------|----------|-----------|------|----------|------|
| Sample ID                  | MB-10237  | SampType:      | MBLK      | TestCode:   | EPA Method 8021B: Volatiles |          |           |      |          |      |
| Client ID:                 | PBS       | Batch ID:      | 10237     | RunNo:      | 14664                       |          |           |      |          |      |
| Prep Date:                 | 11/7/2013 | Analysis Date: | 11/8/2013 | SeqNo:      | 422537                      | Units:   | mg/Kg     |      |          |      |
| Analyte                    | Result    | PQL            | SPK value | SPK Ref Val | %REC                        | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Benzene                    | ND        | 0.050          |           |             |                             |          |           |      |          |      |
| Toluene                    | ND        | 0.050          |           |             |                             |          |           |      |          |      |
| Ethylbenzene               | ND        | 0.050          |           |             |                             |          |           |      |          |      |
| Xylenes, Total             | ND        | 0.10           |           |             |                             |          |           |      |          |      |
| Surr: 4-Bromofluorobenzene | 1.1       |                | 1.000     |             | 113                         | 80       | 120       |      |          |      |

|                            |           |       |                          |             |                                       |          |              |      |          |      |
|----------------------------|-----------|-------|--------------------------|-------------|---------------------------------------|----------|--------------|------|----------|------|
| Sample ID                  | LCS-10237 |       | SampType: LCS            |             | TestCode: EPA Method 8021B: Volatiles |          |              |      |          |      |
| Client ID:                 | LCSS      |       | Batch ID: 10237          |             | RunNo: 14664                          |          |              |      |          |      |
| Prep Date:                 | 11/7/2013 |       | Analysis Date: 11/8/2013 |             | SeqNo: 422538                         |          | 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           | 102                                   | 80       | 120          |      |          |      |
| Toluene                    | 1.0       | 0.050 | 1.000                    | 0           | 104                                   | 80       | 120          |      |          |      |
| Ethylbenzene               | 1.0       | 0.050 | 1.000                    | 0           | 105                                   | 80       | 120          |      |          |      |
| Xylenes, Total             | 3.2       | 0.10  | 3.000                    | 0           | 106                                   | 80       | 120          |      |          |      |
| Surr: 4-Bromofluorobenzene | 1.2       |       | 1.000                    |             | 118                                   | 80       | 120          |      |          |      |

## 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 for VOA and TOC only.     |
| R RPD outside accepted recovery limits            | RL Reporting Detection Limit                         |
| S Spike Recovery outside accepted recovery limits |  |



Hall 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

Work Order Number: 1311250

RcptNo: 1

Received by/date:

Logged By: Ashley Gallegos

11/6/2013 10:17:00 AM

Completed By: Ashley Gallegos

11/7/2013 9:17:51 AM

Reviewed By:

### 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? Courier

### Log In

4. Was an attempt made to cool the samples? Yes ☒ No NA
5. Were all samples received at a temperature of  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$ ? 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 # of preserved bottles checked for pH: (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No Adjusted?
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 Checked by:

### Special Handling (If applicable)

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

Person Notified:

Date:

By Whom:

Via:

eMail

Phone

Fax

In Person

Regarding:

Client Instructions:

17. Additional remarks:

### 18. Cooler Information

| Cooler No | Temp $^{\circ}\text{C}$ | Condition | Seal Intact | Seal No | Seal Date | Signed By |
|-----------|-------------------------|-----------|-------------|---------|-----------|-----------|
| 1         | 1.0                     | Good      | Yes         |         |           |           |



## CHAIN OF CUSTODY RECORD

| <h1 style="margin:0;">Southwest</h1> <h2 style="margin:0;">GEOSCIENCE</h2> <p style="margin:0;">Environmental &amp; Hydrogeologic Consultants</p>   |         |                              |                      | Laboratory: <u>Hall</u><br>Address: <u>ABA</u><br>Contact: <u>Freeman</u><br>Phone: _____<br>PO/SO #: <u>0410G002</u>                            |                                |                       |   | ANALYSIS REQUESTED<br><br><div style="transform: rotate(-45deg); display: inline-block;">           BTEX 8021<br/>           TPH GROBRO 8015         </div> |           |                       |     | Lab use only<br>Due Date: _____<br><br>Temp. of coolers when received (C°): <u>1</u> <u>0</u><br><div style="display: flex; justify-content: space-around;"> <span>1</span><span>2</span><span>3</span><span>4</span><span>5</span> </div> Page <u>1</u> of <u>1</u> |   |             |  |
|---|---------|------------------------------|----------------------|--|--------------------------------|-----------------------|---|---|-----------|-----------------------|-----|--|---|-------------|--|
|   |         |                              |                      | Office Location: <u>Aatec</u><br>Project Manager: <u>Summers</u><br>Sample's Name: <u>Ryle Summers</u><br>Sample's Signature: <u>[Signature]</u> |                                |                       |   |   |           |                       |     |  |   |             |  |
| Proj. No. <u>0410G002</u>   |         | Project Name <u>Largo CS</u> |                      |  |                                | No/Type of Containers |   |   |           |                       |     |  |   |             |  |
| 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   | 11/4/13 | 1100                         |                      | X  | A1-SW                          |                       |   |   |           |                       | 1   | X  | X | 1311250-001 |  |
| S   | 11/4/13 | 1115                         |                      | X  | A1-SE                          |                       |   |   |           |                       | 1   | X  | X | -002        |  |
| <div style="font-size: 4em; transform: rotate(-30deg); opacity: 0.5;">NFS</div>   |         |                              |                      |  |                                |                       |   |   |           |                       |     |  |   |             |  |
| Turn around time <input checked="" type="checkbox"/> Normal <input type="checkbox"/> 25% Rush <input type="checkbox"/> 50% Rush <input type="checkbox"/> 100% Rush  |         |                              |                      |  |                                |                       |   |   |           |                       |     |  |   |             |  |
| Relinquished by (Signature) <u>[Signature]</u>  |         |                              | Date: <u>11/5/13</u> |  | Time: <u>920</u>               |                       | Received by (Signature) <u>Christine Walker</u> |   |           | Date: <u>11/5/13</u>  |     | Time: <u>920</u>   |   | NOTES:      |  |
| Relinquished by (Signature) <u>Christine Walker</u>   |         |                              | Date: <u>11/5/13</u> |  | Time: <u>1719</u>              |                       | Received by (Signature) <u>[Signature]</u>      |   |           | Date: <u>10/06/13</u> |     | Time: <u>1017</u>  |   |             |  |
| Relinquished by (Signature) _____   |         |                              | Date: _____          |  | Time: _____                    |                       | Received by (Signature) _____                   |   |           | Date: _____           |     | Time: _____  |   |             |  |
| Relinquished by (Signature) _____   |         |                              | Date: _____          |  | Time: _____                    |                       | Received by (Signature) _____                   |   |           | Date: _____           |     | Time: _____  |   |             |  |
| <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> <div>Matrix Container</div> <div>WW - Wastewater<br/>VOA - 40 ml vial</div> <div>W - Water<br/>A/G - Amber / Or Glass 1 Liter</div> <div>S - Soil<br/>SD - Solid</div> <div>L - Liquid<br/>250 ml - Glass wide mouth</div> <div>A - Air Bag</div> <div>C - Charcoal tube<br/>P/O - Plastic or other</div> <div>SL - sludge</div> <div>O - Oil</div> </div> |         |                              |                      |  |                                |                       |   |   |           |                       |     |  |   |             |  |