

**GW - 51**

**Release Report/ C-141**

**Val Verde/ Blanco D  
Turbine**

**Date: 2016**

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

State of New Mexico  
Energy Minerals and Natural Resources

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

Form C-141  
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

Initial Report  Final Report

Name of Company: Enterprise Field Services LLC	Contact: Thomas Long
Address: 614 Reilly Ave, Farmington, NM 87401	Telephone No. 505-599-2286
Facility Name: Blanco Plant D-Turbine	Facility Type: Natural Gas Processing Plant

Surface Owner: BLM	Mineral Owner: BLM	Serial Number: NM 0 014706
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LOCATION OF RELEASE

Unit Letter O	Section 11	Township 29N	Range 11W	Feet from the 620	North/South Line <u>North</u>	Feet from the 152	East/West Line <u>West</u>	County San Juan
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OIL CONSERVATION DIV DIST. 3

Latitude 36.734617 Longitude -107.960433

MAY 20 2016

NATURE OF RELEASE

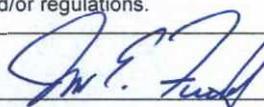
Type of Release: Lubrication Oil	Volume of Release Approximately 42 barrels	Volume Recovered: None
Source of Release: Facility Blowdown Vent Pipe	Date and Hour of Occurrence: 5/3/2016 @ 10:01 a.m.	Date and Hour of Discovery: 5/3/2016 @ 10:02 a.m.
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Vanessa Fields - NMOCD and Katherina Diemer - BLM	
By Whom? Thomas Long	Date and Time May 4, 2016 @ 10:46 a.m. Follow up notification on May 5, 2016 @ 9:00 a.m.	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume	

If a Watercourse was Impacted, Describe Fully.\*

Describe Cause of Problem and Remedial Action: The initial release occurred on May 3, 2016. A subsequent release occurred on May 4, 2016. Both releases were a result of lubrication seal oil being ejected from the blowdown vent pipe during annual testing of the Emergency Shutdown System and from equipment maintenance activities being performed at the Blanco Plant facility. The blowdown vent pipe is used when the station is being depressurized due to either an emergency event or during maintenance activities. The lubrication oil releases were a result of a failed level control system on the compressor oil seal system. Lubricating seal oil accumulated in the gas compressor and associated piping and was emitted through the blowdown vent stack during the depressurization events.

Describe Area Affected and Cleanup Action: An area of approximate 408 feet long by 140 feet wide was saturated with lubrication oil. An overspray area of approximately 700 feet long and 150 feet wide was impacted. An area of approximately 0.5 miles long by 200 feet wide was misted with the lubrication oil. Residents located to west of the facility were impacted. Mobile homes and vehicles were impacted with a mist of lubrication oil. Enterprise provided cleaning services for impacted property owner's vehicles. Seventeen vehicles were cleaned by Donny's Power Wash Company. Enterprise has developed a remediation plan which has been approved by BLM and NMOCD. Enterprise will implement this plan as soon as all contractors are available and a job plan safety analysis has been completed. A third party corrective action report will be included with the "Final." C-141.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: 	OIL CONSERVATION DIVISION	
Printed Name: Jon E. Fields	Approved by Environmental Specialist: 	
Title: Director, Environmental	Approval Date: <u>6/30/2016</u>	Expiration Date:
E-mail Address: jefields@eprod.com	Conditions of Approval: <u>NVF 1618241350</u>	Attached <input type="checkbox"/>
Date: <u>5/16/2016</u> Phone: (713)381-6684		

\* Attach Additional Sheets If Necessary

Sample Area BTEX, TPH with MRO  
Revegetation to occur / inspect Area in 6 months

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

ENTERPRISE PRODUCTS OPERATING LLC

**Response/Remediation Plan  
Enterprise Field Services, LLC  
Blanco Plant D-Turbine Lube Oil Release Site  
Unit Letter O Section 11 Township 29 North  
Range 11 West**

**May 12, 2016**

Enterprise Field Services, LLC (Enterprise) is submitting this response/remediation plan to the Bureau of Land Management (BLM) to mitigate a release of lubrication oil associated with a turbine vent pipe located at Enterprise Products Operating, LLC Blanco Plant D facility (the Site). The initial release occurred on May 3, 2016. A subsequent release occurred on May 4, 2016. The release site is located in Unit Letter K Section 23 Township 26 North Range 6 West. The GPS coordinates for these releases are 36.734617, -107.960433. The attached Vicinity Map (Figure 1) illustrates the location of the release and downwind impacts.

**Site History**

The initial release occurred on May 3, 2016. A subsequent release occurred on May 4, 2016. Both releases were a result of lubrication seal oil being ejected from the blowdown vent pipe during annual testing of the Emergency Shutdown System and from equipment maintenance activities being performed at the Blanco Plant facility. The blowdown vent pipe is used when the station is being depressurized due to either an emergency event or during maintenance activities. The lubrication oil releases were a result of a failed level control system on the compressor oil seal system. Lubricating seal oil accumulated in the gas compressor and associated piping and was emitted through the blowdown vent stack during the depressurization events.

On the evening of May 4, 2016, Enterprise was notified that residents located to west of the facility were impacted. Mobile homes and vehicles were impacted with a mist of lubrication oil. On May 5, 2016, Enterprise provided cleaning services for impacted property owner's vehicles. Seventeen vehicles were cleaned by Donny's Power Wash Company. Property owners declined cleaning of the exterior of their homes. Impacted bales of hay for feeding livestock has also been replaced.

On May 6, 2016, Enterprise had an onsite meeting with the BLM and New Mexico Oil Conservation Division (NMOCD) personnel to discuss remediation approaches. At the instruction of BLM and NMOCD, Enterprise began cleaning the impacted vegetation with a Simple Green® solution utilizing pressure washing equipment on May 6, 2016 at approximately 12:00 p.m. and finished cleaning the vegetation on May 7, 2016. The attached Site Map (Figure 2) illustrates the impacted areas and the areas where the vegetation was treated with the Simple Green® solution.

## **Site Ranking**

The ranking for this release site has been determined by site specific criteria outlined in the NMOCD/BLM Guidelines for Remediation of Leaks, Spills and Releases (1993). This release location has been assigned NMOCD/BLM ranking of 30 which requires a soil remediation standard of 10 parts per million (ppm) benzene, 50 ppm combined benzene, Toluene, ethylbenzene, and total xylenes (BTEX), and 100 ppm total petroleum hydrocarbons (TPH).

## **Assessment and Field Work**

Enterprise proposes to remove the impacted soil in the untreated saturated area by mechanical excavation including the removal of all existing vegetation. In addition, Enterprise proposes to remove the impacted soil by mechanical excavation in the treated saturated area while preserving the larger vegetation and shrubbery. Large vegetation and shrubbery can be defined by anything greater than 12 inches tall. The attached Site Map (Figure 2) illustrates the different excavation areas. The total saturated area is approximately 408 feet long by 140 feet wide and currently is surrounded by orange caution fencing and divided by a cattle fence. All excavation activities will be overseen by a third party environmental contractor.

The third party environmental contractor will conduct field screening in accordance with the United States Environmental Protection Agency (USEPA) analytical Method 418.1 utilizing a Buck (model HC-404) Total Hydrocarbon Analyzer manufactured by Buck Scientific. This is a fixed wavelength (2930  $\text{cm}^{-1}$ ) infrared analyzer designed for analysis of total petroleum hydrocarbons in water, soil, and sludge samples. Rule Engineering's standard operation procedure for the Buck HC-404 Total Hydrocarbon Analyzer is included in Appendix A. In addition, volatile organic compounds (VOCs), field screening (headspace analysis) will be conducted with a calibrated photo ionization detector.

When field screening results for a specific field sample indicate contaminant concentrations are compliant with the NMOCD/BLM site-specific remediation standards, a confirmation soil sample will be collected for laboratory analysis. When field screening results for a specific field sample indicate that contaminant concentrations are not compliant, additional soil will be excavated and resampled. Enterprise proposes a final sampling regime that will consist of collecting one (1) five-point composite sample every 2,500 square feet or dimensions measuring approximately 50 feet long by 50 feet wide. The attached Proposed Sample Location Map (Figure 3), illustrates the sample frequency. Enterprise will notify NMOCD/BLM at least forty-eight (48) hours prior to the collection of final confirmation (closure) soil samples.

Soil samples will be analyzed per the following USEPA Methods:

- **Method 8021 BTEX**

- **Method 8015B DRO/GRO/MRO**(Diesel Range Organics/Gasoline Range Organics/Motor Range Organics)

The excavation will remain open until receipt of laboratory analysis confirming that residual contaminants are below the site-specific NMOCD/BLM remediation standards. Upon confirmation that contaminant concentrations comply with the applicable NMOCD/BLM remediation standards, the laboratory analytical reports will be emailed to the NMOCD/BLM for prompt review. After approval from NMOCD/BLM, the excavation will then be backfilled with clean, non-land-farmed soil.

### **Waste Management**

On May 3, 2016, Enterprise collected a soil sample from the base of the blowdown vent pipe within the saturated zone for hazardous waste characterization profiling and land-farm acceptance. Laboratory results indicate no hazardous waste constituents were identified in the impacted soil. The laboratory report is included in Appendix B. All hydrocarbon impacted soils generated during excavation activities will be loaded onto tandem trucks for transport to a NMOCD-approved land-farm facility for proper disposal (NM OCD Form C-138 will be executed and approved prior to hauling any waste).

### **Site Reclamation**

As a result of the remediation activities, any temporary roads and disturbed existing right-of-ways shall be repaired and rehabilitated. Repairs and rehabilitation shall include returning the disturbed areas to the pre-existing grade and topography, as practicable. Re-contouring, topsoil redistribution, and preparation for seeding will be conducted by the Enterprise contractor. Upon completion of re-contouring activities, the ripping, disking, and seeding of the site will be completed by an Enterprise contractor using the BLM-approved seed mixture

### **Documentation**

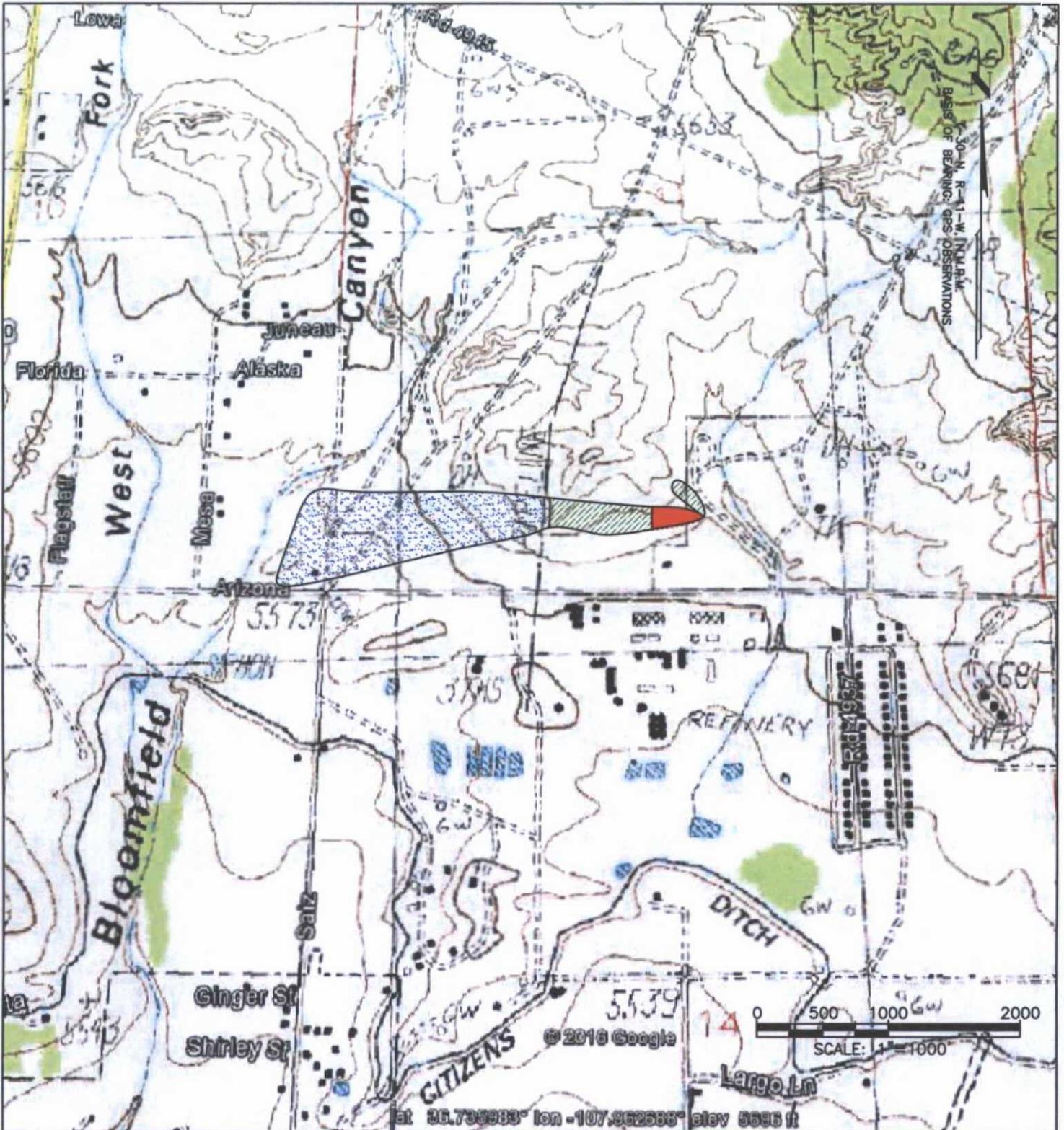
Upon completion of remediation activities, the third-party environmental contractor will prepare and submit a Corrective Action Report (CAR) documenting the field work. The CAR will include the following information:

- Description of the field activities
- Site Map(s) illustrating sample locations (as applicable)
- Laboratory Analytical Reports for all samples collected for laboratory analysis
- Executed C-138 Certificate of Waste
- Photographic documentation

## Figures

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

1100 LOUISIANA STREET  
HOUSTON, TEXAS 77002-5227  
[www.enterpriseproducts.com](http://www.enterpriseproducts.com)



LEGEND:

-  - SATURATED ZONE
-  - OVERSPRAY ZONE
-  - MIST ZONE

FIGURE 1: VICINITY MAP

ENTERPRISE PRODUCTS, LLC  
 BLANCO PLANT D TURBINE LUBRICATION OIL RELEASE  
 BLOOMFIELD, NEW MEXICO



DRAWN BY: T.J.LONG	DATE: 5-9-2016
CHECKED BY: B.STONE	DATE: 5-9-2016
APPROVED BY: B.STONE	DATE: 5-9-2016

PROJ. ID:	SCALE:	DRAWING NUMBER:
BLANCO TURBINE	1"=1000'	1



**LEGEND:**

- SATURATED ZONE
- OVERSPRAY ZONE
- SATURATED ZONE/UNTREATED

**FIGURE 2: SITE MAP**  
 ENTERPRISE PRODUCTS, LLC  
 BLANCO PLANT D TURBINE LUBRICATION OIL RELEASE  
 BLOOMFIELD, NEW MEXICO

NO.	DATE	REVISION	BY	CHK'D	APP'D

DATE OF ISSUE	NOV 5/16/2014
DESIGNED BY	NOV 5/16/2014
APPROVED BY	NOV 5/16/2014
SCALE	APPROXIMATE SCALE
PROJECT NO.	1"=100'



Enterprise Products

PROJECT NUMBER: [ ]  
 SHEET NUMBER: [ ]  
 DATE: [ ]



1-20-N-141-W, 141-1-W  
 BASIS OF GEOMETRY: GRS DISCONTINUOUS

**LEGEND:**

- SATURATED ZONE
- OVERSPRAY ZONE
- COMPOSITE SAMPLING ZONE
- SATURATED ZONE/UNTREATED

**FIGURE 3: PROPOSED SAMPLE LOCATION MAP**

ENTERPRISE PRODUCTS, LLC  
 BLANCO PLANT D TURBINE LUBRICATION OIL RELEASE  
 BLOOMFIELD, NEW MEXICO

NO.	DATE	REVISION	BY	CHK'D	APP'D	DATE	DESCRIPTION

0 50 100 200  
 APPROXIMATE SCALE: 1"=100'

  
 DATE: 5/16/2016  
 TIME: 1:10P  
 SHEET: 1 OF 1  
 PROJECT: BLANCO PLANT D TURBINE LUBRICATION OIL RELEASE  
 DRAWING: SITEMAP

## Appendix A

P.O. BOX 4324  
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HOUSTON, TEXAS 77002-5227  
[www.enterpriseproducts.com](http://www.enterpriseproducts.com)

**Rule Engineering, LLC  
Standard Operating Procedures  
U.S. EPA Method 418.1  
Total Petroleum Hydrocarbons**

**Scope and Application**

Method 418.1 is for the measurement of Freon-113 extractable petroleum hydrocarbons from soil or sludge.

**Summary of Method**

The non-aqueous sample is measured into a clean and dry VOA vial. Granular sodium sulfate is added to the sample to remove water. Freon-113 is added as the extracting solvent and interferences are removed with the addition of silica gel. Infrared analysis of the extract is performed by direct comparison with calibration standards.

**Definitions**

**Method Detection Limit (MDL)** –The constituent concentration when processed through the complete method, produces a signal with a 99 percent probability that it is different than the blank.

**Practical Quantitation Limit (PQL)/Reporting Limit** – The minimum limit to which an analyte can be routinely reported.

**Continuing Calibration Verification (CCV)**–A standard from the curve used to verify instrument calibration.

**Detection Limits**

The current PQL is 20.0 ppm for soils and sludge.

**Safety**

The toxicity or carcinogenicity of each reagent used in this method has not been precisely defined. However, each chemical compound should be treated as a potential health hazard. Therefore, care must be taken to avoid unnecessary exposure by following the regulations regarding the safe handling of the chemicals specified in this method according to Occupational Safety and Health Administration (OSHA). A reference file of Material Safety Data Sheets (MSDS) should also be available to all personnel involved in the chemical analysis.

Precautions should be taken when working with organic solvents. Personal Protective Equipment (PPE) such as safety glasses and gloves should be used when handling solvents. Always prepare standards and dilutions under adequate ventilation conditions.

When the analysts are done with standard vials they need to be disposed of in an appropriate manner. All standards, analytical vials, samples, and other laboratory-generated waste will be disposed of in accordance with our Chemical Hygiene Plan.

### **Sampling and Hold Times**

Soils- A representative sample of at least 4 ounces should be collected in a chemically certified-clean glass 4-ounce soil jar with a Teflon-lined with minimum headspace.

The holding time for method 418.1 is 14 days.

### **Supply List:**

- Teflon-lined VOA vials, 40 or 60 mL equivalent
- Disposable Beakers (30 mL)
- Scales (measurements to one-tenth and one-hundredth of gram)
- Buck Scientific Model HC-404 Total Hydrocarbon Analyzer Infrared Spectrometer, scanning or fixed wavelength for measurement 2950 cm<sup>-1</sup>, or equivalent
- Cuvette: Infrared quartz glass grade
- Volumetric Flask: 10 mL and 25 mL
- Graduated Cylinders (25 mL)
- Gas-Tight Syringes (1.0 mL and 10 mL)
- Syringe Filters (30 mm diameter, 45µm)
- Stainless steel spatulas
- Kimwipe (delicate task wipers)
- Seripettor

### **Reagents**

- Freon-113 (American Refrigerants 1,1,2-trichloro-1,2,2,-trifluoroethane)
- Sodium sulfate, anhydrous crystal
- Silica gel 60-200 mesh, Davidson grade 950 or equivalent, should contain 1 to 2 percent water
- Liquidnox (for cleaning)

### **Calibration Mixtures**

Reference Oil-Neat- EPA Reference Oil 100% TPH. To maintain the integrity of the mixture, please keep the screw top on except when withdrawing the oil. Store reference-oil in the freezer.

Stock Standard- Make up the stock standard to 10,000 ppm by adding 0.25 grams reference oil into a dry Freon-113 rinsed 25 mL volumetric flask. Dilute to volume with Freon-113 and stopper immediately!!! Note the actual concentration. This will be used to make up the working standards.

Working Standards- Measure appropriate volumes of stock standard into 25 mL volumetric flasks (see Table 1 below). Dilute to volume with Freon-113. Calculate concentration of standards from stock standard concentration. Prepare working standards according to instrument range (5 to 500 ppm). Usually the working standards are 50, 100, and 500 ppm for soil and product samples.

All standards can be used for up to three months. Both stock standards and all working standards may be stored at room temperature.

When the working standards are prepared be sure to include the concentration on each bottle and the date they were prepared and the date they expire.

Table 1. Working Standards

Concentration (ppm)	Amount of Stock Solution ( $\mu\text{L}$ )
5	12.5
10	25
20	50
50	125
80	200
100	250
250	625
500	1250

**Calibration:**

The Buck IR should be turned on about 15 minutes prior to the calibration.

Set the wavelength to 2924  $\text{cm}^{-1}$ . Clean the quartz cuvette by rinsing three times with Freon-113. Fill the cuvette to fill line with Freon-113. Place in instrument cell holder and adjust absorbance reading to zero.

Analyze a series of working standards (50 ppm, 100 ppm, and 500 ppm). Three points are required. Always calibrate with the weakest concentration first—50 ppm!

Plot the resulting absorbance against the calculated concentrations using Microsoft Excel. The equation for the curve will be:

Calibration can be performed using a quadratic regression  
 $y = ax^2 + bx + c$

Where:  $y$  = Response (Area) Ratio  $A_x/A_{is}$   
 $x$  = Concentration Ratio  $C_x/X_{is}$   
 $a$  =  $x^2$  coefficient  
 $b$  =  $x$  coefficient  
 $c$  = intercept

The correlation coefficient for the calibration data must be greater than or equal to 0.995.

In the event that calibration curve fails, clean the cuvette and begin calibration over. The instrument must be calibrated on each day of use.

For every 10 samples, a CCV must be analyzed. A CCV can be any curve point excluding the end points (recommend using 100 ppm working standard).

### **Analyzing the Sample**

**CLEAN= RINSED THREE TIMES USING FREON-113!**

#### **Machine Preparation/Zeroing Machine**

Zeroing of the machine takes place at the start of each sample set. It does not take place before each sample. Zeroing the machine may be necessary during the course of a sample set based on machine and site conditions. (For example: if it is dusty-may need to clean both cuvette and machine-then rezero)

Turn on Buck IR and let the machine warm up for approximately 10 to 15 minutes.

Fill a CLEAN cuvette with Freon-113. (CLEAN = Rinse three times with Freon) Dry and clean the outside of the cuvette with a kimwipe removing any dust, dirt or fingerprints. If the cuvette sides are not clear, they are not clean. Rewipe the cuvette. If this does not solve the problem, discard Freon and clean the inside of the cuvette using methanol and a Q-tip. Do not clean cuvette with soap and water.

Place cuvette (notched or marked side facing the left side of the machine) in the Buck IR and adjust the absorbance reading to zero using only the coarse knob. Do not adjust any of the other knobs.

#### **Method Blank (MB)**

A method blank sample is prepared at the start of each sampling day, not before each sample.

- Measure out approximately 3 grams of sodium sulfate into a clean 40-mL VOA vial. Add 20 mL of Freon-113 into the VOA containing the sodium sulfate. Swirl the sodium sulfate and Freon for approximately two minutes. Let stand for five to 10 minutes.
- Carefully pour the Freon-113 from the VOA into the cuvette. Do not pour any of the sodium sulfate into the vial.
- Dry and clean the outside of the cuvette with a kimwipe, removing any dust, dirt and fingerprints.
- Place cuvette (notched side towards the beam or to the left) in the Buck IR. Record the absorbance (ABS) value.
- Enter the value into the Microsoft excel sheet, calculating the TPH concentration.
- If the concentration of the method blank exceeds 20 mg/kg of TPH, reclean the cuvette and create another MB sample until the concentration of TPH is less than 20 mg/kg. Troubleshooting: if MB is not working correctly—be sure cuvette is clean. Also may need to rezero the machine.

### **Sample Preparation and Analysis**

- Weigh out 10 grams of sample into VOA vials (40 mL or 60 mL). Add sodium sulfate to soil sample. Add approximately 3 grams of sodium sulfate using small spatula and funnel. If sodium sulfate spills, clean up immediately. Do not leave sodium sulfate on ground. Stir and/or shake the sample and sodium sulfate to dry the sample. A properly dried sample will resemble dry sand. If sample is not dry, add a little bit more sodium sulfate and stir/shake until dried.
- Add 20 mL of Freon-113 to the sample vial. Shake the sample and Freon for approximately two minutes.
- Let sample stand for approximately 5 to 10 minutes.
- Sprinkle a small amount of silica gel into a clean disposable 30 mL beaker.
- Pour the freon extraction into the disposable beaker, gently swirl the liquid and silica gel.
- Using a CLEAN 10 mL syringe with attached filter (turn filter to attach) carefully filter the extraction from the beaker. Insert the filter to the bottom of the beaker in order to extract the sample. Keep filtering the sample until the syringe contains approximately 4 to 5 mL of the extraction. Turn the syringe so the tip is pointing upward. REMOVE THE FILTER.
- Fill the CLEAN cuvette with the extraction to the fill line. Quickly turn the syringe point upwards and keep the remaining extraction in the syringe until analysis has been completed.
- Wipe the cuvette clean using a kimwipe. No fingerprints on clear portion of the cuvette. Place the cuvette in the cuvette holder in the machine. Analyze the sample and record the ABS value on the field sheet and enter into the excel worksheet. Report the TPH concentration on the field sheet.
- If the TPH value exceeds the machine's range, dilute the sample. Following procedure outlined below.

### **Dilution**

- If the TPH value exceeds the machine's range, begin with a 10x dilution.
- Carefully, measure 1 mL from the cuvette using a CLEAN 1 mL syringe. Be careful not to scratch the cuvette with the syringe.
- Place the 1 mL sample into a CLEAN 10 mL volumetric flask. Fill the flask with Freon-113 to 10 mL line. Swirl to combine. Pour solution into a rinsed cuvette.
- Analyze the sample. Record the ABS value in the spreadsheet. Adjust the dilution factor to 10 in the spreadsheet. Note the PQL will also increase by a factor of 10.
- If the TPH value exceeds the machine's range, proceed with a 100 x dilution. Carefully, measure 1 mL from the cuvette of the just analyzed dilution using a CLEAN 1 mL syringe. Be careful not to scratch the cuvette with the syringe. Place the 1 mL sample into a CLEAN 10 mL volumetric flask. Fill the flask with Freon-113 to the 10 mL line. Analyze the sample. Record the ABS value in the spreadsheet. Adjust the dilution factor to 100. Note the PQL will also increase by a factor or 100.

### Quality Control

- Check the operating stability of the instrument every 10 samples, by analyzing a CCV (one point). The calibration curve points: 50, 100, and 500 ppm can be used for CCVs for soils or product samples.

Acceptable passing criteria for CCV are +/- 15 % of the actual concentration.

If the CCV is higher than 15%, and none of the samples have hits, the data may be reported without qualifying the limits.

### Calculations

- After an absorbance reading is obtained, use the calibration curve to assign the concentration. Calculate the concentration of TPH in all matrices using the following equation:

$$\text{Oil and Grease or TPH } (\mu\text{g/mL or mg/kg}) = (R \cdot D \cdot FV) / G$$

Where:

R =  $\mu\text{g/mL}$  Petroleum Hydrocarbons as determined by the calibration plot

D = Dilution factor

FV = Final Volume of Extract (mL)

G = Initial weight or volume of sample (g or mL)

Soil samples will be reported in mg/kg, and product samples will be reported as a percent.

#### Example Soil 1

Concentration ( $\mu\text{g/mL}$ )	Absorbance
10	0.014
20	0.028
50	0.073
100	0.145
250	0.354
500	0.664

If 20 mL of Freon-113 was the final volume of the extract and 10.0 g of sample was extracted, what is the Total Petroleum Hydrocarbon concentration? Assuming the absorbance reading is 0.156 when a 1/5 dilution is used:

Result:

From the calibration plot the concentration is 110.9  $\mu\text{g/mL}$

TPH =  $110.9 \mu\text{g/mL} * 20 \text{ mL/1} * 5 \text{ x dilution/1} * 1/10\text{g} * 1 \text{ mg/1.0 x } 10^3 \mu\text{g} * 1.0 \text{ x } 10^3 \text{ g/1.0 Kg} = 1,109 \text{ mg/kg}$

Reported at 1,100 mg/kg

#### **Waste Management**

- After analysis, all sample vials, soil jars, VOA vials, and amber bottles will be disposed in the correct receptacle.
- All samples, working standards, and stock standards when finished or expired within an amber bottle for recycling at American Refrigerants.

#### **Pollution Prevention**

- All Freon must be contained. All care will be taken to make sure that Freon does not evaporate from the samples.
- Used Freon is recycled at American Refrigerants.

#### **References**

Hall Environmental Analysis Laboratory, Albuquerque and Farmington, New Mexico  
EPA Method 418.1 Petroleum Hydrocarbons (Spectrophotometric, Infrared)

## Appendix B

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

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HOUSTON, TEXAS 77002-5227  
[www.enterpriseproducts.com](http://www.enterpriseproducts.com)



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)

May 09, 2016

Thomas Long  
Enterprise Field Services  
614 Reilly Ave.  
Farmington, NM 87401  
TEL: (505) 599-2141  
FAX

RE: Blanco Plant ESD Flare

OrderNo.: 1605106

Dear Thomas Long:

Hall Environmental Analysis Laboratory received 1 sample(s) on 5/4/2016 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,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a light blue horizontal line.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report  
 Lab Order 1605106  
 Date Reported: 5/9/2016

**CLIENT:** Enterprise Field Services

**Client Sample ID:** SC-1

**Project:** Blanco Plant ESD Flare

**Collection Date:** 5/3/2016 3:15:00 PM

**Lab ID:** 1605106-001

**Matrix:** SOIL

**Received Date:** 5/4/2016 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>MERCURY, TCLP</b>							Analyst: <b>pmf</b>
Mercury	ND	0.020		mg/L	1	5/6/2016 10:28:38 AM	25175
<b>EPA METHOD 6010B: TCLP METALS</b>							Analyst: <b>MED</b>
Arsenic	ND	5.0		mg/L	1	5/6/2016 10:28:04 AM	25174
Barium	ND	100		mg/L	1	5/6/2016 10:28:04 AM	25174
Cadmium	ND	1.0		mg/L	1	5/6/2016 10:28:04 AM	25174
Chromium	ND	5.0		mg/L	1	5/6/2016 10:28:04 AM	25174
Lead	ND	5.0		mg/L	1	5/6/2016 10:28:04 AM	25174
Selenium	ND	1.0		mg/L	1	5/6/2016 10:28:04 AM	25174
Silver	ND	5.0		mg/L	1	5/6/2016 10:28:04 AM	25174
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>KJH</b>
Diesel Range Organics (DRO)	13000	990		mg/Kg	100	5/5/2016 4:39:02 PM	25146
Motor Oil Range Organics (MRO)	56000	4900		mg/Kg	100	5/5/2016 4:39:02 PM	25146
Surr: DNOP	0	70-130	S	%Rec	100	5/5/2016 4:39:02 PM	25146
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	79	4.8		mg/Kg	1	5/5/2016 9:09:41 AM	25141
Surr: BFB	112	80-120		%Rec	1	5/5/2016 9:09:41 AM	25141
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	1.4	0.024		mg/Kg	1	5/5/2016 9:09:41 AM	25141
Toluene	3.2	0.048		mg/Kg	1	5/5/2016 9:09:41 AM	25141
Ethylbenzene	0.18	0.048		mg/Kg	1	5/5/2016 9:09:41 AM	25141
Xylenes, Total	1.9	0.096		mg/Kg	1	5/5/2016 9:09:41 AM	25141
Surr: 4-Bromofluorobenzene	125	80-120	S	%Rec	1	5/5/2016 9:09:41 AM	25141

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

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	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	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605106

09-May-16

Client: Enterprise Field Services

Project: Blanco Plant ESD Flare

Sample ID	<b>MB-25139</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 8015M/D: Diesel Range Organics</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>25139</b>	RunNo:	<b>34001</b>					
Prep Date:	<b>5/4/2016</b>	Analysis Date:	<b>5/5/2016</b>	SeqNo:	<b>1047876</b>	Units:	<b>%Rec</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	7.4		10.00		74.0	70	130			

Sample ID	<b>MB-25146</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 8015M/D: Diesel Range Organics</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>25146</b>	RunNo:	<b>34001</b>					
Prep Date:	<b>5/4/2016</b>	Analysis Date:	<b>5/5/2016</b>	SeqNo:	<b>1047877</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	7.6		10.00		76.5	70	130			

Sample ID	<b>LCS-25139</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 8015M/D: Diesel Range Organics</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>25139</b>	RunNo:	<b>34001</b>					
Prep Date:	<b>5/4/2016</b>	Analysis Date:	<b>5/5/2016</b>	SeqNo:	<b>1048346</b>	Units:	<b>%Rec</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	3.7		5.000		74.0	70	130			

Sample ID	<b>LCS-25146</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 8015M/D: Diesel Range Organics</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>25146</b>	RunNo:	<b>34001</b>					
Prep Date:	<b>5/4/2016</b>	Analysis Date:	<b>5/5/2016</b>	SeqNo:	<b>1048347</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	94.2	65.8	136			
Surr: DNOP	3.9		5.000		77.9	70	130			

Sample ID	<b>MB-25182</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 8015M/D: Diesel Range Organics</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>25182</b>	RunNo:	<b>34035</b>					
Prep Date:	<b>5/6/2016</b>	Analysis Date:	<b>5/6/2016</b>	SeqNo:	<b>1048881</b>	Units:	<b>%Rec</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	10		10.00		102	70	130			

Sample ID	<b>LCS-25182</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 8015M/D: Diesel Range Organics</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>25182</b>	RunNo:	<b>34035</b>					
Prep Date:	<b>5/6/2016</b>	Analysis Date:	<b>5/6/2016</b>	SeqNo:	<b>1049232</b>	Units:	<b>%Rec</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.5		5.000		89.4	70	130			

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

**QC SUMMARY REPORT**  
**Hall Environmental Analysis Laboratory, Inc.**

WO#: 1605106  
 09-May-16

**Client:** Enterprise Field Services  
**Project:** Blanco Plant ESD Flare

Sample ID <b>MB-25141</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBS</b>	Batch ID: <b>25141</b>		RunNo: <b>33991</b>							
Prep Date: <b>5/4/2016</b>	Analysis Date: <b>5/5/2016</b>		SeqNo: <b>1047349</b>	Units: <b>mg/Kg</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	880		1000		88.4	80	120			

Sample ID <b>LCS-25141</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>25141</b>		RunNo: <b>33991</b>							
Prep Date: <b>5/4/2016</b>	Analysis Date: <b>5/4/2016</b>		SeqNo: <b>1047350</b>	Units: <b>mg/Kg</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	97.7	80	120			
Surr: BFB	1000		1000		102	80	120			

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1605106

09-May-16

**Client:** Enterprise Field Services  
**Project:** Blanco Plant ESD Flare

Sample ID <b>MB-25141</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>
Client ID: <b>PBS</b>	Batch ID: <b>25141</b>	RunNo: <b>33991</b>
Prep Date: <b>5/4/2016</b>	Analysis Date: <b>5/5/2016</b>	SeqNo: <b>1047378</b> Units: <b>mg/Kg</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		107	80	120			

Sample ID <b>LCS-25141</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>
Client ID: <b>LCSS</b>	Batch ID: <b>25141</b>	RunNo: <b>33991</b>
Prep Date: <b>5/4/2016</b>	Analysis Date: <b>5/5/2016</b>	SeqNo: <b>1047379</b> Units: <b>mg/Kg</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	92.6	75.3	123			
Toluene	1.0	0.050	1.000	0	102	80	124			
Ethylbenzene	1.0	0.050	1.000	0	104	82.8	121			
Xylenes, Total	3.1	0.10	3.000	0	105	83.9	122			
Surr: 4-Bromofluorobenzene	1.2		1.000		119	80	120			

Sample ID <b>1605106-001AMS</b>	SampType: <b>MS</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>
Client ID: <b>SC-1</b>	Batch ID: <b>25141</b>	RunNo: <b>33991</b>
Prep Date: <b>5/4/2016</b>	Analysis Date: <b>5/5/2016</b>	SeqNo: <b>1047380</b> Units: <b>mg/Kg</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	2.4	0.025	0.9980	1.372	100	71.5	122			
Toluene	4.0	0.050	0.9980	3.212	75.3	71.2	123			
Ethylbenzene	1.3	0.050	0.9980	0.1799	115	75.2	130			
Xylenes, Total	5.1	0.10	2.994	1.862	107	72.4	131			
Surr: 4-Bromofluorobenzene	1.2		0.9980		120	80	120			S

Sample ID <b>1605106-001AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>
Client ID: <b>SC-1</b>	Batch ID: <b>25141</b>	RunNo: <b>33991</b>
Prep Date: <b>5/4/2016</b>	Analysis Date: <b>5/5/2016</b>	SeqNo: <b>1047381</b> Units: <b>mg/Kg</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	2.7	0.024	0.9718	1.372	140	71.5	122	14.2	20	S
Toluene	4.5	0.049	0.9718	3.212	133	71.2	123	12.7	20	S
Ethylbenzene	1.4	0.049	0.9718	0.1799	129	75.2	130	7.98	20	
Xylenes, Total	5.6	0.097	2.915	1.862	128	72.4	131	9.62	20	
Surr: 4-Bromofluorobenzene	1.2		0.9718		125	80	120	0	0	S

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1605106

09-May-16

**Client:** Enterprise Field Services  
**Project:** Blanco Plant ESD Flare

Sample ID	<b>MB-25175</b>	SampType:	<b>MBLK</b>	TestCode:	<b>MERCURY, TCLP</b>					
Client ID:	<b>PBW</b>	Batch ID:	<b>25175</b>	RunNo:	<b>34030</b>					
Prep Date:	<b>5/5/2016</b>	Analysis Date:	<b>5/6/2016</b>	SeqNo:	<b>1048594</b>	Units:	<b>mg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	<b>LCS-25175</b>	SampType:	<b>LCS</b>	TestCode:	<b>MERCURY, TCLP</b>					
Client ID:	<b>LCSW</b>	Batch ID:	<b>25175</b>	RunNo:	<b>34030</b>					
Prep Date:	<b>5/5/2016</b>	Analysis Date:	<b>5/6/2016</b>	SeqNo:	<b>1048595</b>	Units:	<b>mg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	104	80	120			

Sample ID	<b>1605106-001AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>MERCURY, TCLP</b>					
Client ID:	<b>SC-1</b>	Batch ID:	<b>25175</b>	RunNo:	<b>34030</b>					
Prep Date:	<b>5/5/2016</b>	Analysis Date:	<b>5/6/2016</b>	SeqNo:	<b>1048597</b>	Units:	<b>mg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	100	75	125			

Sample ID	<b>1605106-001AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>MERCURY, TCLP</b>					
Client ID:	<b>SC-1</b>	Batch ID:	<b>25175</b>	RunNo:	<b>34030</b>					
Prep Date:	<b>5/5/2016</b>	Analysis Date:	<b>5/6/2016</b>	SeqNo:	<b>1048598</b>	Units:	<b>mg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	100	75	125	0	20	

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1605106  
09-May-16

**Client:** Enterprise Field Services  
**Project:** Blanco Plant ESD Flare

Sample ID	<b>MB-25174</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 6010B: TCLP Metals</b>					
Client ID:	<b>PBW</b>	Batch ID:	<b>25174</b>	RunNo:	<b>34027</b>					
Prep Date:	<b>5/5/2016</b>	Analysis Date:	<b>5/6/2016</b>	SeqNo:	<b>1048575</b>	Units:	<b>mg/L</b>			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID	<b>LCS-25174</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 6010B: TCLP Metals</b>					
Client ID:	<b>LCSW</b>	Batch ID:	<b>25174</b>	RunNo:	<b>34027</b>					
Prep Date:	<b>5/5/2016</b>	Analysis Date:	<b>5/6/2016</b>	SeqNo:	<b>1048576</b>	Units:	<b>mg/L</b>			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	102	80	120			
Barium	ND	100	0.5000	0	98.2	80	120			
Cadmium	ND	1.0	0.5000	0	101	80	120			
Chromium	ND	5.0	0.5000	0	95.3	80	120			
Lead	ND	5.0	0.5000	0	97.4	80	120			
Selenium	ND	1.0	0.5000	0	106	80	120			
Silver	ND	5.0	0.1000	0	103	80	120			

Sample ID	<b>1605106-001AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>EPA Method 6010B: TCLP Metals</b>					
Client ID:	<b>SC-1</b>	Batch ID:	<b>25174</b>	RunNo:	<b>34027</b>					
Prep Date:	<b>5/5/2016</b>	Analysis Date:	<b>5/6/2016</b>	SeqNo:	<b>1048583</b>	Units:	<b>mg/L</b>			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0.01700	97.3	75	125			
Barium	ND	100	0.5000	0.4336	105	75	125			
Cadmium	ND	1.0	0.5000	0	95.8	75	125			
Chromium	ND	5.0	0.5000	0	90.9	75	125			
Lead	ND	5.0	0.5000	0.001700	91.3	75	125			
Selenium	ND	1.0	0.5000	0.02035	93.9	75	125			
Silver	ND	5.0	0.1000	0	97.2	75	125			

Sample ID	<b>1605106-001AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>EPA Method 6010B: TCLP Metals</b>					
Client ID:	<b>SC-1</b>	Batch ID:	<b>25174</b>	RunNo:	<b>34027</b>					
Prep Date:	<b>5/5/2016</b>	Analysis Date:	<b>5/6/2016</b>	SeqNo:	<b>1048584</b>	Units:	<b>mg/L</b>			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0.01700	94.1	75	125	0	20	

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1605106  
09-May-16

**Client:** Enterprise Field Services  
**Project:** Blanco Plant ESD Flare

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0.4336	99.3	75	125	0	20	
Cadmium	ND	1.0	0.5000	0	93.1	75	125	0	20	
Chromium	ND	5.0	0.5000	0	88.3	75	125	0	20	
Lead	ND	5.0	0.5000	0.001700	88.6	75	125	0	20	
Selenium	ND	1.0	0.5000	0.02035	92.1	75	125	0	20	
Silver	ND	5.0	0.1000	0	93.4	75	125	0	20	

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
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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

# Sample Log-In Check List

Client Name: Enterprise

Work Order Number: 1605106

RcptNo: 1

Received by/date: *[Signature]* 05/04/16

Logged By: Lindsay Mangin 5/4/2016 7:55:00 AM *[Signature]*

Completed By: Lindsay Mangin 5/4/2016 8:18:33 AM *[Signature]*

Reviewed By: *[Signature]* 05/04/16

### Chain of Custody

- Custody seals intact on sample bottles? Yes  No  Not Present
- Is Chain of Custody complete? Yes  No  Not Present
- How was the sample delivered? Courier

### Log In

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

# of preserved bottles checked for pH: \_\_\_\_\_  
 (<2 or >12 unless noted)  
 Adjusted? \_\_\_\_\_  
 Checked by: \_\_\_\_\_

### Special Handling (if applicable)

- 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 °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.4	Good	Yes			

