By OCD; Dr. Oberding at 7:42 am, May 18, 2016

Byrd Pump Site Site Investigation / Quarterly Monitoring Report

REVIEWED

By OCD; Dr. Oberding at 1:45 pm, Aug 02, 2016

Byrd Pump Site Monument, New Mexico OCD Case No: 1R0034

OCD- Permission to backfill with landfarm soils approved. 08/02/2016



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May 17, 2016



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1.0 INTRODUCTION

On behalf of the Atlantic Richfield Company (ARC), Stantec Consulting Services, Inc. (Stantec) is submitting this *Site Investigation / Quarterly Monitoring Report* (Report) for the Byrd Pump Site (Site) located 3 miles west of the town of Monument, New Mexico on Highway 322 and 2.5 miles south of the El Paso Natural Gas Monument Station (32.35.01N and 103.18.32W). The Site Location Map is presented as **Figure 1**. This Report presents the well installation, soil excavation stockpile sampling, and groundwater monitoring activities undertaken in January and March of 2016.

The field investigation conducted during January and March 2016 followed the scope of work outlined in the Byrd Pump Site Sampling and Analysis Work Plan – Monument, New Mexico submitted by Anderson Engineering Company Inc. to ARC on May 6, 2014. The work plan was based on the Work Plan for Excavation Backfilling and Quarterly Groundwater Monitoring, Byrd Pump Site – Monument, New Mexico submitted by URS on March 12, 2002 and approved by the New Mexico Oil Conservation Division (NMOCD) on October 11, 2002

1.1 SITE BACKGROUND

ARCO Pipe Line Company (APL) now BP Pipelines, Inc. formerly operated a 4-inch crude oil pipeline that runs east-west through Lea County, NM. Line pressure is increased by a booster pump located at the Site. In 1999, APL conducted a routine inspection of the pump area and observed stained soil around the pump apparently related to crude oil that had leaked from the booster pump. The following investigation activities have been completed to date:

- In April 1999, APL contracted CJR Contractors to remove stained soil from around the pump and pipeline and observed impacted soil extending to at least 2 feet below ground surface (ft bgs).
- In November 1999, URS Greniner Woodward Clyde (URS) conducted a soil and groundwater investigation at the Site that included borehole sampling, and the installation of one groundwater monitoring well (MW-1). The investigation identified Total Petroleum Hydrocarbons (TPH) and benzene, toluene, ethyl benzene, and xylenes (BTEX) as the constituents of concern (COC). Soil impacts were observed as deep as 38 feet bgs and the groundwater sample collected showed constituents of concern above the New Mexico Water Quality Control Commission (WQCC) standards.
- In April 2000, APL began excavation activities following the re-routing of the pipeline and relocation of the pump. Stained soil had been observed on the ground surface around the pump for approximately 25 feet in all directions and at approximately 30 feet bgs. At 30 feet depth the impacted soil appeared to spread radially on the water table. Due to groundwater fluctuations, an 8 foot think section of soil, 200 feet in diameter, was impacted



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between 30 – 38 feet bgs. Approximately 30,600 cubic yards of clean soil and approximately 8,000 cubic yards of impacted soils were excavated from the Site. Impacted soils were excavated and landfarmed on the Site through spreading, drying, and mixing of the soils. The clean soils that were excavated in order to reach areas of impacted soils were stockpiled in a separate area on the Site. The excavated area, clean stockpile, and land farm stockpile are presented in **Figure 2**.

• In October 2000, the NMOCD accepted the Soil Remediation Report for the Site requiring the excavated area to be backfilled and groundwater quality monitoring to be conducted for 4 consecutive quarters before final closure could be obtained (Anderson, April 2014).

1.2 GENERAL SITE GEOLOGY

The Site is located in the Southern High Plains of eastern New Mexico, the southernmost part of what is known as the Great Plains. The area is generally flat with few areas of mildly undulating topography (Cronin, 1969). At the site, the outcropping geology consists of Holocene to middle Pleistocene eolian (sand) and piedmont alluvial (alluvium) deposits (Scholle, 2003). The sand deposits range in thickness from 0 to 30 ft and is generally underlain by the alluvium which can range in thickness from 0 to 400 ft (Nicholson, et al., 1961). The Ogallala Formation underlies the sand and alluvium and can range from 0 to 350 ft in thickness (Tillery, 2008). Underlying the Ogallala Formation are older sequences that include Permian and older Paleozoic formations that yield saline water, oil and gas. Oil and gas have historically and are presently being extracted from the subsurface throughout the general area (Cronin, 1969).

The Site's general subsurface geology has been characterized through the installation and logging of monitoring wells MW-PS1 through MW-PS4 on January 11 through January 12, 2016. A generalized subsurface lithology may be divided into three stratigraphic layers which include:

- 0 ft bgs to about 8 ft bgs Unconsolidated sands and clayey sands;
- 8 ft bgs to 16 ft bgs hard, dry Caliche with occasional sand layers; and
- 16 ft bgs to 45 ft bgs consolidated to unconsolidated sands, clayey sands and silty sands.

Boring logs, well construction details and the well permitting package for MW-PS1 through MW-PS4 are included in **Appendix A**.

1.3 GENERAL SITE HYDROGEOLOGY

The Ogallala Formation was deposited during the Pliocene age and contains the principle aquifer in the eastern New Mexico and western Texas (Cronin, 1969). The Ogallala Formation consists of mostly unconsolidated clay, silt, fine- to coarse-grained sand, gravel, and caliche. The Ogallala Aquifer is unconfined and generally underlain by impermeable clays and shales. Saturation thickness within the aquifer was found to range from 0 feet to 200 feet in 2007 and depth to water ranges from 25 feet to greater than 300 feet. The general groundwater flow



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gradient observed in Lea County is towards the southeast (Tillery, 2008). Several hydraulic conductivity estimates have been observed in Lea County, New Mexico and range from 2 to 48 feet/day (ft/d) (Musharrafieh, et. al., 1999).



Monitoring Well Installation May 17, 2016

2.0 MONITORING WELL INSTALLATION

On January 11 and January 12, 2016 four monitoring wells (MW-PS1 through MW-PS4) were installed at the site to facilitate compliance with NMOCD directives in order to achieve Site closure. The monitoring wells were installed to further delineate groundwater quality data and groundwater flow direction. One monitoring well (MW-PS1) was installed up-gradient of the release and 3 monitoring wells (MW-PS2 through MW-PS4) were installed cross-gradient and down-gradient to delineate groundwater in the vicinity of the release site. The monitoring wells locations are illustrated on **Figure 3**.

The following procedures were followed during the monitoring well installation:

- Public utility locate and private utility locate were conducted prior to ground disturbance;
- Monitoring wells were installed using air rotary technology;
- The first 6.5 ft of MW-PS2, MW-PS3 and MW-PS4 were cleared using an air-knife excavation. MW-PS1, air-knife excavation was refused at 2.5 ft bgs so a hand auger was used to clear the borehole until refusal occurred at 4 ft bgs. Soil samples were collected with a hand auger in 1 ft intervals prior to air-knife excavation for field screening using a Photoionization Detector (PID) equipped with a 10.6 eV lamp;
- An Atlas Copco TH60 air-rotary drilling rig operated by Harrison & Cooper, Inc. was used to advance borings from a depth of 6.5 ft bgs or 4 ft bgs to their terminus;
- Each monitoring well was constructed following the New Mexico Department Ground Water Quality Bureau Monitoring Well Construction and Abandonment Guidelines: Revision 1.1, March 2011 guideline:
 - o 2-inch diameter schedule 40 PVC well casing and 20 feet of 0.01-inch slotted screen;
 - Each well screen was installed with at least 5 ft of screen above the water table;
 - 20/40 silica sand filter pack from the bottom of the well to 2-feet above the screened interval;
 - A seal of hydrated bentonite from the top of the filter pack up to 2 ft bgs;
 - Cement grout from 2 ft bgs to 0 ft bgs;
 - o Stick-up with steel shroud well cove and bollards; and
 - A concrete pad (2 ft x 2 ft x 4 inches thick).
- Soil was continuously logged and prescreened for total Volatile Organic Compounds (VOCs) using a PID in the field;
- Soil samples were collected at each well using a 2-ft split spoon sampler, at approximately 29 ft bgs; and
- Soil cuttings generated during the drilling activities were screened with a PID and based on the PID measurement (less than 100 parts per million (PPM)) the soils were placed on the clean stockpile. All soils measured during the drilling activities were below the 100 ppm TPH criteria.



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2.1 MONITORING WELL INSTALLATION FIELD SCREENING

Continuous soil logging was performed using a 2-ft split-spoon sampler. Each 2-ft interval was field screened for the presence of VOCs using a PID equipped with a 10.6 eV lamp. The PID readings were collected according to the following procedures:

- New disposable nitrile gloves were used to collect the sample;
- A quart-sized plastic bag was filled approximately half full and sealed;
- The bag was allowed to equilibrate and develop headspace vapors over approximately 5 to 10 minutes (bag was shaken about 1 minute during this period);
- The PID probe was inserted into the bag which was re-sealed around the probe; and
- The highest headspace measurement observed was recorded.

Field screening results for monitoring well installation soil samples are included in the bore logs in **Appendix A**.

2.2 WELL INSTALLATION SOIL SAMPLING RESULTS

Soil samples were collected from each monitoring well location during installation at subsurface locations above first encountered groundwater. A soil sample for Total TPH Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) was collected from a split spoon sampler using a decontaminated 4-inch stainless steel scraper and then packed into a laboratory provided 4-ounce glass sampling jar, using new disposable gloves for each sample collected. A separate soil sample was collected from each location for Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) by SW-846 Method 5035. The soil sample was field screened using a PID and based on the field screening (>100 ppm) the sample would be analyzed for BTEX constituents. The sample was submitted to the laboratory and placed on hold pending the TPH results. All soil samples collected were maintained on ice post collection and submitted to Pace Analytical Services, Inc. (Pace) in Lenexa, Kansas an US EPA NELAC accredited laboratory.

The soil samples collected during monitoring well installation were analyzed for TPH GRO and DRCO using US EPA SW-846 method 8015B. The following summarizes soil sample results from monitoring well installation:

- TPH GRO laboratory results were below reporting limits (non-detected concentrations) for all soil samples collected;
- TPH DRO was detected in one sample taken at 29 ft bgs in MW-PS2 with a concentration of 6.6 milligrams per kilogram (mg/kg), but was flagged as an estimated concentration above the adjusted method detection limit and below the adjusted reporting limit; and
- Both TPH GRO and DRO results are below NMOCD Remedial Action Level of 100 mg/kg (NMED, July 2015).



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• Based on the results of the TPH analysis, BTEX was not analyzed.

Soil analytical results are summarized in **Table 1**. The laboratory reports are included in **Appendix B**.

2.3 WELL DEVELOPMENT

The purpose of well development is to improve hydraulic communication between the well screen and the surrounded saturated horizon. After installation, the monitoring wells were allowed to stabilize for greater than 12-hours before development was initiated. Monitoring well MW-PS2 was developed on January 12, 2016 and Monitoring wells MW-PS1, MW-PS3 and MW-PS4 were developed on January 13, 2016. The monitoring wells were developed by pumping groundwater out of the well with a submersible Proactive™ Monsoon stainless steel pump. Groundwater was pumped out of each well until the water flowed freely through the well screen and the water was no longer turbid. The following summarizes development details for each well:

- MW-PS1: Volume of groundwater removed during development = 7.2 gallons (approximately four well volumes purged).
- MW-PS2: Volume of groundwater removed during development = 15.3 gallons (approximately seven well volumes purged).
- MW-PS3: Volume of groundwater removed during development = 17.1 gallons (approximately seven well volumes purged).
- MW-PS4: Volume of groundwater removed during development = 15.7 gallons (approximately seven well volumes purged).

The pump used to purge each well was decontaminated between each well. Purged groundwater was contained in one labeled 55-gallon drum per well and each remains at the Site pending appropriate disposal.



Stockpile Soil Characterization Sampling May 17, 2016

3.0 STOCKPILE SOIL CHARACTERIZATION SAMPLING

The NMOCD correspondence dated December 10, 2001 requested further soil excavation stockpile characterization to determine if the soils stockpiled on Site could be used as backfill for the excavation pit. On January 12 and January 13, 2016 discrete soil samples were collected from existing excavation stockpiles for chemical analysis to characterize the soil quality. Two soil excavation stockpiles are located on the Site and are identified as the Clean Stockpile (CS) and Landfarm Stockpile (LFS) (Refer to Figure 2).

3.1 STOCKPILE SAMPLING

The NMOCD requires soil used for backfill meet specific TPH requirements of less than 100 ppm for this area. On October 11, 2002, the NMOCD issued an approval letter (NMOCD, 2002) for the March, 2002 Work Plan for Excavation and Backfilling and Quarterly Groundwater Monitoring. On October 15, 2002 ARC documented a telephone conversation with the NMOCD, clarifying requirements found in the NMOCD approval letter. The following action items were approved:

- LFS samples will be analyzed for TPH (GRO and DRO) and from light fraction hydrocarbons (i.e., BTEX) if an in-field PID reading for Total VOC concentration in soil gas is greater than 100 ppm;
- In the LFS treatment area one soil sample will be collected for every 500 cubic yards of soil to confirm compliance of 100 ppm or less for TPH concentrations in soil; and
- The CS, one soil sample will to be collected from every 5,000 cubic yards to confirm compliance of 100 ppm or less of TPH concentrations in soil.

The stockpile soil sample locations were predetermined prior to mobilizing to the field. Once on Site the locations were verified using a Trimble® GeoXT Handheld Global Positioning System (GPS) receiver. The field GPS coordinates were documented and the sample locations were clearly marked on the surface of the stockpiles using a florescent colored spray paint. Soil sample locations on the CS and LFS are presented on **Figure 4**.

The following is a summary of the stockpile sampling conducted on January 12 and January 13, 2016:

- Six sample locations (Sample-1 through Sample-6) were identified for soil sample collection on the CS.
 - Four individual soil samples were collected at each sample location at descending depths (approximately 0-2', 4-6', 7-9', and 10-12').
- Fifteen sample locations (Sample-7 through Sample-21) were identified for composite soil sampling on the LFS:



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- Four individual soil samples were collected at each sample location. First interval was 0-2' and then at equally spaced depending on the height of the stockpile.
- All soil samples were field-screened using a PID with a 10.6 eV lamp (refer to Section 3.2 for field screening procedure).
- One geotechnical sample was collected from the Sample-2 location on the CS. Soil was collected from 0-14 ft bgs and consolidated into a clean 5-gallon plastic bucket.

The soil samples were collected using a backhoe excavator and a clean shovel. The following procedures were followed for each soil sample location on the CS and LFS:

- Soil samples were collected using a backhoe excavator and a clean stainless steel shovel;
- The backhoe was positioned in a safe location to conduct excavation;
- The operator excavated the first sample interval and shut down backhoe excavator to allow soil sample to be collected from the backhoe's bucket using a decontaminated stainless steel shovel. The geologist collected soil for the sample that had not been in contact with the backhoe bucket or stainless steel shovel and placed the soil in a laboratory provided 4 ounce glass jar;
- Excavation and sample collection continued at the designated sample location as above with three subsequent soil samples collected at increasing depths and approximately equal intervals beneath the subsurface;
- Soil Samples jars were labeled and placed into a cooler with ice;
 - Samples were identified by the location number (i.e., SS-1), followed by a letter indicating relative depth. A represents the surface sample and D represents the sample taken from the greatest depth in the stockpile (i.e. Sample-1 consists of SS-1A, SS-1B, SS-1C and SS-1D).
- At each sample interval, soil was placed into a plastic bag and subsequently screened with a PID sensor as described in Section 3.2;
- Operator placed excavated soil back into the excavated column at the designated sample location;
- Operator moved backhoe to the next sample location, repeating the noted procedures until stockpile sampling was complete; and
 - All excavated sample locations were backfilled with their original soil material and compacted to reduce unconsolidated ground or open holes.
 - Decontamination water was staged in a labeled 55-gallon drum for off-site disposal.
 - Soil samples were maintained on ice post collection and submitted to Pace in Lenexa, Kansas for TPH DRO and GRO analysis DRO by US EPA SW-846 method 8015B.
 - The geotechnical soil sample was submitted to the Stantec Geotechnical Laboratory (AASHTO accreditation) in Lexington, Kentucky.



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Field notes are included in Appendix C.

3.2 STOCKPILE SOIL SAMPLE FIELD SCREENING

The soil samples collected were field screened for the presence of VOCs using a PID equipped with a 10.6 eV lamp. The PID readings were collected according to the following procedures:

- New disposable nitrile gloves were used to collect the soil;
- A quart-sized plastic bag was filled approximately half full and sealed;
- The bag was allowed to equilibrate and develop headspace vapors over approximately 5 to 10 minutes (bag was shaken about 1 minute during this period);
- The PID probe was inserted into the bag which was re-sealed around the probe; and
- The highest headspace measurement observed was recorded.

No additional soil samples were collected for laboratory analysis because PID readings observed in the field did not exceed the 100 ppm threshold. Field screening results for CS and LFS sampling are summarized in **Table 2** and **Table 3**, respectively.

3.3 STOCKPILE SOIL SAMPLING RESULTS

The following Sections discuss the results of the stockpile sampling. One geotechnical soil sample was collected at Sample-2 and analyzed for Standard Proctor by ASTM D698, Gradation by ASTM D422, and Liquid and Plastic Limits by ASTM D4318 by Stantec's Lexington, Kentucky laboratory to better characterize the physical properties of soil in the CS. CS and LFS sample locations are presented on **Figure 3** and **Figure 4**, respectively.

Clean Stockpile Soil Sampling Results

A total of 24 samples were collected from the 6 locations. The following summarizes soil sampling results collected from the CS:

- TPH GRO was not detected in any of the analyzed soil samples collected.
- TPH DRO concentrations were detected at Sample-1, Sample-4, Sample-5 and Sample-6:
 - TPH DRO was detected in the following individual samples below the NMOCD guidance criteria of 100 mg/kg:
 - SS-1B, SS-4B, SS-4C, SS-5A through SS-5D, SS-6A and SS-6B.
 - TPH DRO was detected in sample SS-4A and SS-6B slightly above the than the NMOCD's guidance criteria of 100mg/kg at 107 mg/kg and 121 mg/kg, respectively. However, the average concentration of samples collected at these locations was well below the guidance criteria of 64.6 mg/kg at Sample-4 and 53 mg/kg at Sample-6.

Geotechnical soil data collected at Sample-2 is summarized below:



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- Standard Procter by ASTM D698:
 - Maximum Dry Density is 113 pound per cubic foot (lb/ft3);
 - Optimum Moisture Content is 14.3%; and
 - Over Size Correction is 21.1%.
- Gradation by ASTM D422:
 - Soil consists of 40.5% fine sand, 27% gravel, 10.4% coarse sand, 9.2% Clay, 6.8% silt, and 6.1% medium sand.
- Liquid and Plastic Limits by ASTM D4318:
 - Liquid Limit is 36;
 - o Plastic Limit is 13;
 - Plasticity Index is 23; and
 - Activity Index is 2.88.
- The estimated specific gravity is at 20° Celsius is 2.70.
- The Unified Soil Classified System (USCS) group name is clayey sand with gravel (SC).

The CS sampling results are summarized in **Table 2** and further discussed in Section 5.0. The laboratory analytical reports for CS samples and the geotechnical sample from Pace and Stantec are included in **Appendix B**.

Landfarm Stockpile Soil Sampling Results

LFS soil samples were collected on January 13, 2016 and sent to Pace for laboratory analysis. A total of 60 samples were collected from the LFS at Sample-7 through Sample-21: 4 samples were collected per location and are subsequently identified by their location number followed by a letter indicating relative depth where A represents the surface sample and D represents the sample taken from the greatest depth in the stockpile (i.e. Sample-6 consists of SS-6A, SS-6C and SS-6D).

The following summarizes soil sampling results collected from the LFS:

- TPH GRO was detected in one sample at Sample-8, SS-8D with a concentration of 13.6 mg/kg. All other samples collected at Sample-7 through Sample-21 did not have detectable concentrations of TPH GRO.
- TPH DRO as detected at all sample locations, Sample-7 through Sample-21. The highest concentration of TPH DRO detected was at Sample-19, SS-19B with a concentration of 48.1 mg/kg.
- All sample locations with detectable concentrations for TPH GRO and/or DRO have concentrations well under the NMOCD Remediation Action Level of 100 mg/kg.

The LFS sampling results are summarized in **Table 3**. The laboratory analytical reports are included in **Appendix B**.



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4.0 GROUNDWATER MONITORING

The following sections will detail the activities and summarize groundwater monitoring results conducted on January 14, 2016 and March 3, 2016.

4.1 GROUNDWATER ELEVATION ANALYSIS

On March 3, 2016 the groundwater water monitoring wells were surveyed by a licensed New Mexico surveyor. The survey measured the top-of-casing (TOC), ground surface elevation, and the X, Y coordinates. Groundwater levels were measured at MW-PS1 through MW-PS4 with an accuracy of ±0.01 feet using an electronic water level indicator. Depth to water was measured from the surveyed point on the TOC. The depth to groundwater measurements are summarized in **Table 4**.

Groundwater elevations ranged from 3523.06 ft above mean sea level (amsl) to 3522.68 ft amsl across the Site. A potentiometric surface was created using the groundwater elevation data collected and is presented in **Figure 5**. The potentiometric surface and groundwater elevations indicate groundwater flow is towards the southeast. The hydraulic gradient at the Site is approximately 0.0011 ft/ft towards the southeast.

4.2 GROUNDWATER SAMPLING

Groundwater sampling was conducted on January 14, 2016 and March 3, 2016 at monitoring wells MW-PS1 through MW-PS4. The following procedures describe how the groundwater samples were collected:

- The water level and total depth at each well were measured and recorded.
- Wells were purged using a decontaminated submersible pump connected to the new polyethylene tubing for each well.
- Groundwater quality measurements were collected during purging using a Horiba U-22 water quality meter equipped with a flow cell. The following groundwater quality parameters were measured s every 3 minutes:
 - o Temperature;
 - o pH;
 - Specific conductance;
 - Dissolved oxygen (DO);
 - Reduction-oxidation potential (ORP); and
 - o Turbidity.
- Purging was continued at a rate of approximately 100 to 500 milliliter per minute (ml/min) until water quality parameters were stable or 3 well volumes had been extracted from the well (whichever was reached first).



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- Once parameter stabilization was reached, the tubing was disconnected from the flow cell and groundwater samples were collected directly from the discharging tube into laboratory supplied containers. Groundwater samples were collected for:
 - TPH GRO and DRO by US EPA SW-846 method 8015B;
 - o BTEX by US EPA SW-846 method 8260C;
 - Polynuclear Aromatic Hydrocarbons (PAHs) by US EPA SW-846 method 8270C SIM;
 - Resource Conservation and Recovery Act (RCRA) metals (total) by US EP SW-846 method 6010C and 7470;
 - Anions: Bromide, Chloride, Fluoride, Sulfate US EPA SW-846 method 300.0 IC
 - Cations: Calcium, Magnesium, Potassium, Sodium US EPA SW-846 method 6010
 - Nitrate / Nitrite US EPA SW-846 method 353.2
 - Total Dissolved Solids (TDS)- SM 2540C
- Sample containers were sealed, labeled, and placed in a cooler with ice for transport to Pace in Lenexa, Kansas.
- Once samples had been collected and stored, all equipment used was decontaminated accordingly before continuing to sample the next well.
- Purge water and decontamination water were disposed in a labeled 55-gallon drum that will remain on the Site pending appropriate disposal.

Groundwater quality parameters and purging details for January and March 2016 were recorded on Stantec's ESPA-305 Groundwater Development, Monitoring & Sampling Form and are included in **Appendix D**. The groundwater quality parameters are summarized in **Table 5**.

4.3 GROUNDWATER SAMPLING RESULTS

On January 14, 2016 and March 3, 2016, groundwater sampling was conducted at the Site. The groundwater analytical results are discussed below and presented in Tables 6 through 9.

- TPH GROs were not detected in the groundwater samples.
- TPH DROs were detected in the groundwater at all wells with the highest concentration at MW-PS4 with a concentration of 0.61 milligrams per liter (mg/l).
- Benzene was the only BTEX constituent detected in the groundwater samples. Benzene was reported at estimated concentrations by the laboratory in the MW-PS2, MW-PS3, and MW-PS4 sample. The highest concentration was measured at MW-PS1 with a concentration of 0.001 mg/l. This measurement is an order of magnitude lower than the NMWQCC Human Health Standard of 0.01 mg/l.
- PAHs were not detected in any wells with the exception of naphthalene and phenanthrene. These constituents were reported by the laboratory at estimated concentrations and below the NMWQCC Human Health Standards for Naphthalene. The NMWQCC currently does not have a human health standard for phenathrene.
 - The following is a summary RCRA metals of the results:
 - Lead, Selenium, Silver and Mercury were not detected at any well.



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- Arsenic concentrations ranged from 0.0081J mg/l in MW-PS1 to 0.0134 mg/l in MW-PS3, below the NMWQCC Human Health Standard of 0.1 mg/l.
- Barium concentrations ranged from 0.154 mg/l in MW-PS3 to 0.255 mg/l MW-PS1, below the NMWQCC Human Health Standard of 1.0 mg/l.
- Detectable concentrations of cadmium were reported by the laboratory in three of the four samples (MW-PS1, MW-PS3 and MW-PS4 duplicate). The highest concentration reported was 0.00092 J mg/l in MW-PS4 duplicate sample. All detected concentrations are below the NMWQCC Human Health Standard of 0.01 mg/l.
- Chromium concentrations were reported by the laboratory in the following groundwater samples MW-PS1, MW-PS2 and MW-PS3 with the highest concentration at MW-PS3 measuring 0.0018 mg/l. The detected concentrations were reported as estimated by the laboratory and are below the NMWQCC Human Health Standard of 0.05 mg/l.
- Anions, Cations and TDS were detected in all wells and are summarized in **Table 9** and below:
 - Anions bromide, chloride, fluoride and sulfate were detected at all wells.
 - Chloride, fluoride and sulfate concentrations were reported above the NMWQCC Human Health Standards. The highest concentrations were measured at MW-PS4 for chloride, fluoride and sulfate with concentrations of 5,330 mg/l, 4.0 mg/l and 613 mg/l, respectively. All fluoride concentrations are estimated concentrations above the adjusted method detection limit and below the laboratory reporting limit.
 - Nitrate and Nitrite were not detected at any well.
 - Cations were detected at all wells; however, there are no NMWQCC Human Health Standards for cations.
 - TDS was detected above the NMWQCC Human Health Standard of 10,000 mg/l at all wells. The highest concentration of TDS was measured in MW-PS3 with a concentration of 19,000 mg/l.

The laboratory analytical reports are included in Appendix B.



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5.0 CONCLUSIONS

Monitoring well installation, stockpile soil sampling, and groundwater sampling were completed by Stantec in January and March 2016 at the Site.

Field activities conducted included:

- Installation of four monitoring wells: one up-gradient and three cross-gradient or downgradient of the 1999 release location;
- Soil samples were collected from each monitoring well during installation;
- Twenty-four discrete characterization soil samples were collected from six sample locations on the CS;
- Sixty discrete characterization soil samples were collected from fifteen sample locations on the LFS;
- All groundwater monitoring wells were survey by a licensed State of New Mexico surveyor; and
- Groundwater monitoring was conducted on January 14, 2015 and March 3, 2016.

Soil Sampling Summary

The following summarizes soil sampling results during the investigation:

- All field screened soils during monitoring well installation and stockpile soil sampling were below NMOCD guidance criteria of 100 ppm;
- Monitoring well installation soil samples collected from MW-PS1 through MW-PS4 did not have any concentrations exceeding the NMOCD guidance criteria (100 mg/kg) for TPH DRO or GRO;
- CS soil samples collected did not have any detected concentrations of TPH GRO. TPH DRO was detected slightly above the NMOCD Remedial guidance level (100 mg/kg) in two individual samples SS-4A (Sample-4) and SS-6B (Sample-6) with concentrations of 107 mg/kg and 121 mg/kg, respectively. However, the average concentration at the sample location was well below the NMOCD guidance criteria of 64.6 mg/kg at Sample-4 and 53 mg/kg at Sample-6; and
- LFS soil samples collected did not exceed the NMOCD guidance criteria (100 mg/kg) at any sample location for both TPH GRO and TPH DRO.

Groundwater Sampling Summary

The following summarizes groundwater sampling results collected at the Site on January 14, 2016 and March 3, 2016:

• TPH DRO and GRO results do not exceed NM WQCC Human Health Standards at any well;



Conclusions May 17, 2016

- BTEX concentrations do not exceed NM WQCC Human Health Standards at any well;
- PAH concentrations do not exceed NM WQCC Human Health Standards at any well;
- RCRA metals do not exceed NM WQCC Human Health Standards at any well;
- Anion Chloride and Fluoride concentrations exceed NM WQCC Human Health Standards (250 mg/l and 1.6 mg/l, respectively) at all wells. Sulfate concentrations exceed the NM WQCC Human Health Standard (600 mg/l) at MW-PS4;
- Nitrate and Nitrite concentrations were not detected at any well;
- Cations do not exceed NM WQCC Human Health Standards at any well; and
- TDS concentrations exceed the NM WQCC Human Health Standard (10,000 mg/kg) at all wells.

Conclusions

Soil and groundwater quality at the Site has been further delineated through the installation of 4 groundwater monitoring wells, characteristic soil samples collected during monitoring well installation, from on-site stockpiles, and groundwater sampling. Using data collected during January and March 2016 field activities, the following conclusions were developed:

- The monitoring well soil sample results and the PID headspace readings do not exceed NMOCD guidance criteria indicating impacts from the booster pump leak of crude oil are not observed in the outer boundaries of the excavation pit. This suggests impacted soil was removed during historical excavation efforts.
- Stockpile soil sample results and PID headspace readings do not exceed the NMOCD guidance criteria with the exception of 2 samples taken in the CS. These two samples (SS-4A and SS-6B) slightly exceed the guidance criteria for TPH DRO. However, the average concentration at these sample location was well below the NMOCD guidance criteria of 64.6 mg/kg at Sample-4 and 53 mg/kg at Sample-6. The bulk of the results collected indicate both CS and LFS have reduced contaminant concentrations likely resulting from a combination of natural degradation and exposure to the area's elements (i.e. wind and precipitation) over time. No further evaluation of TPH related to the stock piles is proposed.
- Groundwater monitoring results indicate minimal to no groundwater impacts related to the crude oil that was released in 1999. The COCs (TPH DRO, GRO, BTEX, and PAHs) were either detected at low concentrations or were not present in the groundwater sampled at the Site. The detectable concentrations of the COCs did not exceed NMWQCC Human Health Standards. Based on these results the monitoring wells installed delineate the groundwater associated with the 1999 crude oil release.
- The anions and TDS groundwater results indicate concentrations of chloride and fluoride in the groundwater at the Site that exceed their respective NM WQCC Human Health Standard. Chloride concentrations ranged from 3,720 mg/l to 5,330 mg/l above the NMWQCC Human Health Standard of 250 mg/l. The area is known to have high chloride and TDS concentrations in the groundwater. The Site is located within a major petroleumproducing region that has been active since the early 1900s. Large quantities of saline water



Conclusions May 17, 2016

(commonly extracted alongside petroleum) were extracted and the resulting brine was discharged back into the ground prior to 1960 (McQuillen and Keller, 1987). The Site is located within a regional chloride plume and down-gradient (approximately 2,800 feet) of an area of the chloride plume with concentrations that can exceed 6,000 mg/kg (Rice Operating Company, 2012 and Geo Monitoring Services, 2012). Additionally, the chloride concentrations in groundwater collected from MW-01 (former Site monitoring well) on November 11, 1999 and from the excavation pit on September 21, 2000 were 300 and 3,300 mg/l, respectively. Indicating that up-gradient sources have migrated to the Site since 1999 and 2000 resulting in higher chloride and TDS. Therefore, high concentrations of anions, cations and TDS observed at the Site are attributed to regional chloride plume and other up-gradient sources rather than the booster pump of crude oil leak. Based on the foregoing, no further evaluation of chlorides and TDS are proposed.

As requested by the NMOCD, groundwater monitoring will be conducted during three more quarterly events in 2016 to better establish groundwater conditions at the Site and meet the NMOCD's site closure directives. The COCs in soil and ground water along with PID readings and field observations at the Site during January and March 2016 indicate crude oil impacts from the booster pump leak have been minimized through historical site activities and natural attenuation of chemicals in the subsurface, CS and LFS stockpile soil, or groundwater. As a result, it can be inferred that historical excavation efforts were successful in isolating the impacted soil resulting in minimal residual contamination that is below New Mexico health standards.



Statement of Limitations May 17, 2016

6.0 STATEMENT OF LIMITATIONS

This report was prepared in accordance with the scope of work outlined in the Stantec Consulting Services Inc. (Stantec) contract and with generally accepted professional engineering and environmental consulting practices existing at the time this report was prepared and applicable to the location of the Site. It was prepared for the exclusive use of Atlantic Richfield Company. Any re-use of this report for a different purpose or by others not identified above shall be at the user's sole risk without liability to Stantec. To the extent that this report is based on information provided to Stantec by third parties, Stantec may have made efforts to verify this third party information, but Stantec cannot guarantee the completeness or accuracy of this information. The opinions expressed and data collected are based on the conditions of the Site existing at the time of the field investigation. No other warranties, expressed or implied are made by Stantec.

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References May 17, 2016

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Figures May 17, 2016

FIGURES











SAMPLE-7 0 SAMPLE-21 SAMPLE-8 SAMPLE-20 SAMPLE-9 SAMPLE-19 SAMPLE-10 LANDFARM SAMPLE-18 STOCKPILE SAMPLE-11 SAMPLE-17

SAMPLE-12

SAMPLE-1 SAMPLE-2 SAMPLE-3

CLEAN

SAMPLE-5

SAMPLE-6

SAMPLE-4









Tables May 17, 2016

TABLES



TABLE 1 MONITORING WELL INSTALLATION SOIL ANALYTICAL RESULTS

Anglysis	Data	Donth		TPH 8015B		
Andrysis	Dale	Depin	rib (ppili)	DRO	GRO	
BPS-MWPS1-20160112-29'	1/12/2016	29'	1.0	<11.7	<11.9	
BPS-MWPS1-20160112-29.5'	1/12/2016	29.5'	0.6	<16.0	<11.6	
BPS-MWPS2-20160111-29'	1/11/2016	29'	1.0	6.6 J	<16.7	
BPS-MWPS2-20160111-29.5'	1/11/2016	29.5'	0.2	<11.2	<10.4	
BPS-MWPS3-20160112-29'	1/12/2016	29'	0.8	<11.4	<11.1	
BPS-MWPS3-20160112-29.5	1/12/2016	29.5'	0.4	<11.6	<10.3	
BPS-MWPS4-20160112-29'	1/12/2016	29'	0.4	<12.3	<36.9	
BPS-MWPS4-20160112-29.5'	1/12/2016	29.5'	0.0	<11.4	<10.9	
BPS-DUP1-20160112	1/12/2016			<26.8	<11.6	
New Mexico OCD	Guidance C	riteria (mg/k	(g)	100	100	

Byrd Pump Site - Monument, NM OCD #1R0034

Notes:

New Mexico OCD = New Mexico Oil Conservation Division

mg/kg = milligram/kilogram or ppm (parts per million)

J = Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit

BPS-DUP1-20160112 = Field duplicate of BPS-MWPS4-20160112-29.5'



TABLE 2 SOIL ANALYTICAL RESULTS - CLEAN STOCKPILE

TPH 8015B Sample ID Date Sample Label PID DRO GRO SS-1A <12.3 <12.6 0.0 <13.2 SS-1B 0.0 6.8 J <13.5 <13.6 Sample -1 1/13/2016 SS-1C 0.6 <13.8 <13.8 SS-1D 0.0 6.8 13.3 Average SS-2A 0.4 <12.5 <12.4 <12.5 <12.7 SS-2B 0.0 <13.8 <13.8 Sample -2 1/13/2016 SS-2C 0.2 SS-2D <12.3 <12.5 0.0 12.8 12.9 Average <13.7 <13.6 SS-3A 2.3 <13.9 SS-3B <13.9 5.1 Sample -3 1/12/2016 SS-3C 4.7 <12.2 <12.2 <13.3 <13.3 SS-3D 5.6 13.3 13.3 Average 107 <13.2 SS-4A 2.5 77.9 <14.3 SS-4B 1.2 Sample -4 1/12/2016 SS-4C 2.3 59.5 <13.8 <14.0 <14.1 2.5 SS-4D 64.6 13.9 Average 68.9 <13.3 SS-5A 0.0 1.7 16.1 <13.1 SS-5B 12.2 J <13.2 Sample -5 1/12/2016 SS-5C 1.4 12.7 J 1.9 <13.8 SS-5D 27.5 13.4 Average 62.5 <13.9 SS-6A 0.0 1.2 121 <14.3 SS-6B <14.9 Sample -6 1/12/2016 SS-6C 0.2 <15.0 <13.6 <13.7 SS-6D 0.0 53.0 14.2 Average New Mexico OCD Guidance Criteria (mg/kg) 100 100

Byrd Pump Site - Monument, NM OCD #1R0034

Notes:

All results reported in mg/kg

New Mexico OCD = New Mexico Oil Conservation Division

mg/kg = milligram/kilogram or ppm (parts per million)

N/A = Not analyzed, field screening levels less than 100ppm

J = Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit

Sample results detected below reporting limits were used in average calculations using the reporting limit concentration



TABLE 3 SOIL ANALYTICAL RESULTS - LANDFARM STOCKPILE

Byrd Pump Site - Monument, NM OCD #1R0034

Semente ID	Data	Semale Lebel	РІП	TPH 8015B		
sample ib	Dale	Sample Label	FID	DRO	GRO	
		SS-7A	0.0	26.1	<10.5	
		SS-7B	0.2	<11.7	<12.1	
Sample -7	1/13/2016	SS-7C	0.6	19.7	<10.9	
		SS-7D	0.2	35.1	<10.3	
		Average)	23.2	11.0	
		SS-8A	0.0	9.9 J	<11.8	
		SS-8B	0.4	17.5	<11.6	
Sample -8	1/13/2016	SS-8C	0.0	24.6	<10.4	
		SS-8D	0.0	33.7	13.6	
		Average	9	21.4	11.9	
		SS-9A	0.0	11.2	<10.8	
		SS-9B	0.2	<11.7	<12.0	
Sample -9	1/13/2016	SS-9C	0.0	6.5 J	<11.8	
		SS-9D	0.4	27.2	<10.5	
		Average	9	14.2	11.3	
		SS-10A	0.2	12.9	<10.3	
		SS-10B	0.0	17.9	<10.3	
Sample -10	1/13/2016	SS-10C	0.0	10.7 J	<11.0	
		SS-10D	0.2	<12.3	<12.8	
		Average	9	13.5	11.1	
		SS-11A	0.8	<12.5	<12.8	
		SS-11B	0.8	30.6	<10.3	
Sample -11	1/13/2016	SS-11C	0.0	25.4	<10.4	
		SS-11D	0.0	27.3	<10.5	
		Average)	24.0	11.0	
		SS-12A	0.2	<11.5	<11.6	
		SS-12B	0.6	<12.8	<13.1	
Sample -12	1/13/2016	SS-12C	0.0	7.2 J	<11.8	
		SS-12D	0.0	<11.8	<12.2	
		Average	è	10.8	12.2	
		SS-13A	0.0	9.8 J	<11.3	
		SS-13B	0.0	23.1	<10.3	
Sample -13	1/13/2016	SS-13C	0.0	11.9	<10.9	
		SS-13D	0.0	8.1 J	<12.1	
		Average)	13.2	11.2	
		SS-14A	0.0	13	<10.7	
		SS-14B	0.0	11.4	<11.2	
Sample -14	1/13/2016	SS-14C	0.0	<12.2	<12.9	
		SS-14D	0.0	<11.8	<11.8	
		Average	<u> </u>	12.1	11.7	



TABLE 3 SOIL ANALYTICAL RESULTS - LANDFARM STOCKPILE

Byrd Pump Site - Monument, NM OCD #1R0034

Sample ID	Data	Sample Label	רופ	TPH 8015B		
Sample ID	Dale	Sample Label	שויז	DRO	GRO	
		SS-15A	0.0	10.9 J	<12.3	
		SS-15B	0.0	<11.1	<11.2	
Sample -15	1/13/2016	SS-15C	0.0	27.2	<10.2	
		SS-15D	0.0	22.7	<10.3	
		Average)	18.0	11.0	
		SS-16A	0.0	16.6	<11.5	
		SS-16B	0.0	17.7	<10.5	
Sample -16	1/13/2016	SS-16C	0.0	37.7	<11.1	
		SS-16D	0.0	12.0	<10.4	
		Average	9	21.0	10.9	
		SS-17A	0.0	6.0 J	<11.6	
		SS-17B	0.0	13	<11.7	
Sample -17	1/13/2016	SS-17C	0.2	11.8	<10.5	
		SS-17D	0.0	10.4 J	<11.9	
		Average	;	10.3	11.4	
		SS-18A	0.0	15.3	<11.2	
		SS-18B	0.2	6.0 J	<11.9	
Sample -18	1/13/2016	SS-18C	0.0	0.0 43.7	<10.7	
		SS-18D	0.0	16.1	<12.0	
		Average	<i>;</i>	20.3	11.5	
		SS-19A	0.0	13	<11.5	
		SS-19B	0.0	48.1	<11.0	
Sample -19	1/13/2016	SS-19C	0.0	22.7	<11.4	
		SS-19D	0.0	14.4	<12.3	
		Average	<i>;</i>	24.6	11.6	
		SS-20A	0.0	38.1	<10.1	
		SS-20B	0.0	10.2 J	<11.9	
Sample -20	1/13/2016	SS-20C	0.0	11.8	<10.4	
		SS-20D	0.0	10.2 J	<11.9	
		Average	;	17.6	11.1	
		SS-21A	0.0	8.7 J	<11.6	
		SS-21B	0.0	36.4	<10.3	
Sample -21	1/13/2016	SS-21C	0.0	16.3	<10.8	
		SS-21D	0.0	13.9	<12.2	
		Average	;	18.8	11.2	
New Me	exico OCD Guio	dance Criteria (mg,	/kg)	100	100	

Notes:

All results are in mg/kg

New Mexico OCD = New Mexico Oil Conservation Division

mg/kg = milligram/kilogram or ppm (parts per million)

J = Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit

Sample results detected below reporting limits were used in average calculations using the reporting limit concentratic



TABLE 4 GROUNDWATER ELEVATION DATA March 3, 2016

Byrd Pump Site - Monument, NM OCD #1R0034

Well ID	Sample Date	Top of Casing Elevation (ft)	Depth to Water (ft)	GW Elevation (ft)	Measured Total Well Depth (from TOC)	Ground Elevation (ft)	Screen Elevation (ft)
MW-PS1	3/3/2016	3557.01	33.95	3523.06	44.91	3554.09	22 - 42
MW-PS2	3/3/2016	3557.60	34.62	3522.98	48.20	3554.69	25 - 45
MW-PS3	3/3/2016	3556.10	33.30	3522.80	48.41	3553.43	25 - 45
MW-PS4	3/3/2016	3554.63	31.95	3522.68	46.13	3551.97	23 - 43

Notes:

ft = Feet

TOC = Top of Casing



TABLE 5 GROUNDWATER LOW-FLOW PARAMETERS AND GEOCHEMICAL RESULTS

Byrd Pump Site - Monument, NM OCD #1R0034

Well ID	Date	Total Vol. (gal)	DTW (ft)	рН	Conductivity (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temperature (°C)	ORP (mg/L)	Color (visual)
MW-PS1	1/14/2016	1.79	34.01	6.72	14.5	63.1	6.61	16.85	83	cloudy
MW-PS2	1/14/2016	2.23	34.60	6.90	10.3	0.0	8.05	19.06	56	cloudy/reddish-brown
MW-PS3	1/14/2016	1.64	33.28	6.79	15.5	153	6.41	18.78	65	cloudy
MW-PS4	1/14/2016	1.44	31.95	6.97	15.0	49.2	10.31	18.64	62	cloudy
MW-PS1	3/3/2016	3.5	34.01	6.45	13.9	139	2.94	20.27	474	clear
MW-PS2	3/3/2016	3.0	34.72	6.51	12.4	16.8	2.17	19.47	383	clear
MW-PS3	3/3/2016	3.5	33.4	6.41	20.8	20.9	4.77	20.80	455	clear
MW-PS4	3/3/2016	3.50	32.08	6.74	15.9	13.8	6.13	19.79	457	clear

Notes:

Vol. = volume

gal = gallons

ft = feet

mg/L = milligrams / liter

ORP = Oxidation Reduction Potential



TABLE 6 GROUNDWATER ANALYTICAL RESULTS - TPH/BTEX

Byrd Pump Site - Monument, NM OCD #1R0034

Analysis	Data	TPH 8015B		BTEX 8260B				
Analysis	Dule	DRO	GRO	Benzene	Toluene	Ethylbenzene	Xylene (Total)	
MW-PS1	1/14/2016	0.59	<0.50	0.001	<0.0010	<0.0010	<0.0030	
MW-PS2	1/14/2016	0.60	<0.50	0.00029 J	<0.0010	<0.0010	<0.0030	
MW-PS3	1/14/2016	0.42 J	<0.50	0.00071 J	<0.0010	<0.0010	<0.0030	
MW-PS4	1/14/2016	0.61	<0.50	0.00013 J	<0.0010	<0.0010	<0.0030	
DUP-1-GW	1/14/2016	0.46	<0.50	0.00012 J	<0.0010	<0.0010	<0.0030	
NM WQCC Human Health Standards (mg/L)				0.01	0.75	0.75	0.62	

Notes:

NM WQCC = New Mexico Water Quality Control Commission

All results reported in mg/L

mg/L = milligram/Liter or ppm (parts per million)

DRO = Diesel Range Organics

GRO = Gasoline Range Organics

J = Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit

DUP-1-GW = Field Duplicate sample of MW-PS4


TABLE 7 GROUNDWATER ANALYTICAL RESULTS - PAHs

Byrd Pump Site - Monument, NM OCD #1R0034

									PAH	s 8310							
Analysis	Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
MW-PS1	1/14/2016	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.00045	<0.000091	<0.000091	0.00033 J	0.00012 J	<0.000091
MW-PS2	1/14/2016	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.00045	<0.000091	<0.000091	0.000064 J	0.000047 J	<0.000091
MW-PS3	1/14/2016	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.00045	<0.000091	<0.000091	0.00032 J	<0.00045	<0.000091
MW-PS4	1/14/2016	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.00045	<0.000091	<0.000091	0.00022 J	0.000062 J	<0.000091
DUP-1-GW	1/14/2016	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.000091	<0.00045	<0.000091	<0.000091	0.00029 J	0.000053 J	<0.000091
NM WQCC Hu Standards	man Health ; (mg/L)					0.00007									0.03		

Notes:

NM WQCC = New Mexico Water Quality Control Commission

All results reported inmg/L

PAHS = Polynuclear aromatic hydrocarbons

mg/L = milligram/Liter or ppm (parts per million)

DUP-1-GW = Field Duplicate sample of MW-PS4

J = Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit



TABLE 8 GROUNDWATER ANALYTICAL RESULTS - RCRA METALS

Byrd Pump Site - Monument, NM OCD #1R0034

Anglysis		RCRA Metals 6010C/245.7									
Andrysis	Date	Arsenic	Barium	Cadmium	Chromium	Lead	Selenium	Silver	Mercury		
MW-PS1	1/14/2016	0.0081 J	0.255	0.00076 J	0.0017 J	< 0.0050	<0.0150	< 0.0070	<0.00020		
MW-PS2	1/14/2016	0.0097 J	0.212	<0.0050	0.0013 J	< 0.0050	<0.0150	< 0.0070	<0.00020		
MW-PS3	1/14/2016	0.0134	0.154	0.00075 J	0.0018 J	< 0.0050	<0.0150	< 0.0070	<0.00020		
MW-PS4	1/14/2016	0.0118	0.171	<0.0050	<0.0050	< 0.0050	<0.0150	< 0.0070	<0.00020		
DUP-1-GW	1/14/2016	0.0124	0.181	0.00092 J	<0.0050	< 0.0050	<0.0150	< 0.0070	<0.00020		
NM WQCC Hur Standards	man Health (mg/L)	0.1	1.0	0.01	0.05	0.05	0.05	0.05	0.002		

Notes:

NM WQCC = New Mexico Water Quality Control Commission

All results reported in mg/L

RCRA Metals = Resource Conservation and Recover Act Metals

mg/L = milligram/Liter or ppm (parts per million)

J = Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit

DUP-1-GW = Field Duplicate sample of MW-PS4



TABLE 9 GROUNDWATER ANALYTICAL RESULTS - ANIONS / CATIONS / TDS

Byrd Pump Site - Monument, NM OCD #1R0034

Anglysis	Data		Anions	300.0		Nitrate/Ni	trite 9056A					
Andrysis	Dule	Bromide	Chloride	Fluoride	Sulfate	Nitrate	Nitrite	Calcium	Magnesium	Sodium	Potassium	105
MW-PS1	1/14/2016	38.8	5,060	2.1 J	182	<0.10	<0.10	1,100	468	980	11.1	11,100
MW-PS2	1/14/2016	25.7	3,720	1.9 J	193	<0.10	<0.10	1,120	456	758	11.3	10,900
MW-PS3	1/14/2016	38.8	4,980	2.5 J	240	<0.10	<0.10	1,670	828	1,880	17.4	19,000
MW-PS4	1/14/2016	106	5,270	3.9 J	603	<0.10	<0.10	978	520	1,320	11.5	10,800
DUP-1-GW	1/14/2016	92.1	5,330	4.0 J	613							
NM WQCC Hu Standard:	uman Health s (mg/L)		250.0	1.6	600.0	10.0						10,000

Notes:

NM WQCC = New Mexico Water Quality Control Commission

All results repored in mg/L

mg/L = milligram/Liter or ppm (parts per million)

J = Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit

Bold - above NM WQCC Human Health Standard

DUP-1-GW = Field Duplicate sample of MW-PS4

TDS = Total Dissolved Solids



BYRD PUMP SITE OCD #1R0034

Appendix A Boring logs and Well Installation Details May 17, 2016

Appendix A BORING LOGS AND WELL INSTALLATION DETAILS



ſ	PROJECT	: BP -	Byro	d Pump Site	WELL / PROBEHOLE / BOREHOLE NO:							Chanter	
		N: Moi ' NILIME		ent, New Mexico 182630008	PA	GE	E 1 OF 2		M٧	N-PS	S1		
ł	DRILLING:	NOIVIL	STAF	RTED 1/11/15 COMPLETED: 1/12/15	NC	R	THING (ft):				EASTIN	G (ft):	
	INSTALLA	TION:	STAF	RTED 1/12/15 COMPLETED: 1/12/15	LA	TIT	TUDE:				LONGIT	UDE:	
	DRILLING	COMP	ANY:	Harrison & Cooper	GF	20	UND ELEV (f	t):		_	TOC EL	EV (ft):	
	DRILLING	EQUIF	MEN	⊺: Altas Copco TH60	INI ST	ТІ/ лт	AL DTW (ft): I	NOT Er 31.05	ICOUN	ered			PTH (ft): 42
	DRILLING	METH	OD: A	ir Rotary	WE		L CASING DI	A. (in):	2		BOREH	OLE DIA.	.(in): 61/8
	SAMPLING	G EQUI	PME	NT: Split Spoon	LO	G	GED BY: A. H	larkin	5		CHECK	ED BY:	< <i>i</i>
ſ	<u>م</u> د م	ic	6		le			ed	t '	ace	50		
	ept! feet	aph Log	sce	Description	dme		Time Sample ID	asul eco	slow	PID	feet		Well Construction
	μuς	Ū			လိ		Campio ID	A Revenue of the second	шО	Hea (Conclucion
				Air-knife Excavation to 2.5' then Hand Auger		Π							
	-	-		10 4] [- Cement
										0.2		y 🕅	Surface Seal
	-	-											
	-			Refusal at 4'.	-					0.2	-		
	5-										5-		
	-									10	_		
				to fine-grained; dry									
	-										-		
				SAND : 7 5YP 7/4 pink: medium to									
	=			coarse-grained; loose	Λ						_		
	-			SILT ; 2.5Y 9/2 very pale yellow; hard; moist: friable (Caliche)	X			2/2		0.8	-		
					$ / \setminus$								
	10-			Dry to moist; friable; as above	(10-		
3/16	-										_		 Bentonite
T 4/6													201101110
9.GD	-			CALICHE ; 2.5Y 9/2 very pale yellow; hard;						0.0	-		
1050				moist									
ATE 0	-												
MPL	-			Loss than 0.5' Deservored, Calieba auttings						0.8	_		
Щ				collected; as above	\vdash								
NVIR	15-				$\left \bigcirc \right $			0.5/2			15-		
ЦЦ	_										_		
TAN				SAND ; 7.5YR 8/3 pink; fine-grained; loose; moist									
ЪS	-										-		
S4.G													
MWP	-			SAND ; 7.5YR 6/4 light brown; fine-grained;						0.0	-		
PS1-	-			moist; some Caliche in cuttings (cobbled)							_		
₹													
OGS	20-									0.6	20-		
ЫN													
BORI	=												
112	-									0.6			
0160													
304 2	-												
S MN	-									0.2			
O FC				As above						0.2			
Ю													



PROJECT: BP - By	rd Pump Site	WELL / PROBEHOLE / BOREHOLE NO:						
LOCATION: Monun	182630008	PAG	E 1 OF 2	MW-P	S2			
DRILLING: ST INSTALLATION: ST DRILLING COMPAN DRILLING EQUIPME DRILLING METHOD: SAMPLING EQUIPM	ARTED 1/11/15 COMPLETED: 1/11/15 ARTE Altas Cooper Altas AIT Altas Copco TH60 Air Rotary ENT: Split Spoon	NORTHING (ft):EASTING (ft):LATITUDE:LONGITUDE:GROUND ELEV (ft):TOC ELEV (ft):INITIAL DTW (ft): Not EncounteredBOREHOLE DEPTH (ft): 4STATIC DTW (ft): 31.61WELL DEPTH (ft): 45WELL CASING DIA. (in): 2BOREHOLE DIA.(in): 61LOGGED BY: A. HarkinsCHECKED BY:						
Time & Depth (feet) Graphic Log USCS	Description	Sample	Time Samued Measured	Blow Blow Count Headspace PID	Well Construction			
-					- Cement Surface Seal			
5					_ 5 — _			
10	SAND ; 2.5YR 7/3 light reddish brown; fine-grained; moist SAND TRACE CLAY ; 10YR 5/4 yellowish brown; medium to coarse-grained; loose; moist; subangular to rounded CALICHE ; 2.5Y 9/2 very pale yellow; fine-grained; hard; dry; highly consolidated; friable		2/2	0.2	 10 			
APLATE 010509.GDT	SAND ; 10YR 7/2 light gray; fine-grained; loose; dry	-		1.2	- − -			
	SILTY SAND ; medium to coarse-grained; dry to slightly moist CALICHE ; 2.5Y 9/2 very pale yellow; fine-grained; hard; dry; consolidated; friable		2/2	0.4	15			
WPS1-MWPS4.GPJ STANT	SILTY SAND ; 5YR 7/3 pink; fine-grained; moist			0.0				
W 20	As above; trace hard consolidated gravel			0.2	20-			
304 20160112_E	Increased gravel and grain size			0.0				
GEO FORM	7.5YR 7/3 pink; medium to coarse-grained; moist; some gravel-sized caliche clasts			0.8				



GEO FORM 304 20160112 BORING LOGS_MWPS1-MWPS4.GPJ STANTEC ENVIRO TEMPLATE 010509.GDT 4/6/16

PROJEC	T: BP -	- Byro	d Pump Site	W	LL / PROBEH	HOLE /	BORE	HOLE N	10:	
LOCATIC) T NUM	nume BER: 1	ent, New Mexico 182630008	PAC	GE 1 OF 2		M	N-PS	S3	Stantec
DRILLING	G:	STAF	RTED 1/11/15 COMPLETED: 1/12/15	NORTHING (ft): EASTING (ft):						
INSTALL	ATION:	STAF	RTED 1/12/15 COMPLETED: 1/12/15	LAT	ITUDE:				LONGITUD	E:
	G COMF	PANY	Harrison & Cooper	GR	DUND ELEV (1	ft):			TOC ELEV	(ft):
			T: Altas Conco TH60	INIT	IAL DTW (ft):	Not Er	ncount	ered	BOREHOLE	E DEPTH (ft): 45
			Air Botony	STA	TIC DTW (ft):	30.07	_		WELL DEP	TH (ft): 45
			All Rolaly	WE		IA. (in):	2		BOREHOLE	E DIA.(in): 6 1/8
SAMPLIN				LOC	GED BY: A. I		5	0		BT:
Time & Depth (feet)	Graphic Log	nscs	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	leadspace PID (units)	Depth (feet)	Well Construction
			Air-knife Excavation to 6 5'			F		<u> </u>		
										\bigotimes
	-									Cement
										Surface Seal
	-									
	-									
	-									
5	-								5-	
	-							0.4		
			CLAYEY SAND : 7.5YR 3/2 dark brown							
			fine to coarse-grained; wet; few gravel						-	
	-///		SAND : fine to medium-grained: some 5YR	\vdash				0.0	-	
		1	6/6 reddish yellow clay	1\/						
			SILT ; 10YR 7/2 light gray; fine-grained;	IXI		2/2		1.2	-	
			hard; dry; friable (Caliche)	$ / \rangle $						
10	┥┸╥┚	-		\vdash					10-	
(C)		1								
/6/16	+ 1								-	
4										
9.GD			CALICHE : 7.5YB 8/3 pink: dry					1.2	-	
0509	<u> </u>	-								 Bentonite
Е 01		1								
LAT		Ì								
M			CLAYEY SAND : 7 5YR 5/3 brown:					0.8		
FO			\medium-grained; moist /	$\left \right\rangle / \right $						
15	╶┤ॻ╴่	1	CALICHE ; 10YR 7/2 light gray;	X		2/2			15-	
Ш О			tine-grained; hard; dry; highly consolidated;	$ / \rangle $						
Ŭ L			SAND : 5YR 7/3 pink: very fine-grained:	\vdash				0.4		
STAI			moist							
G	-									
2.G										
WPG	-									
N N										
NPS	-									
M .										
່ຫຼິ 20	-								20-	
U U										
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14 2	-									
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FOR	-									
EO										
0										



LOCATION: Monument, New Mexico PROJECT NUMBER: 182630008 PAGE 1 OF 2 MW-P	Stantec
	34
IDRILLING: STARTED 1/11/15 COMPLETED: $1/12/15$ NORTHING (II):	EASTING (ft):
INSTALLATION: STARTED 1/12/15 COMPLETED: 1/12/15	LONGITUDE:
DRILLING COMPANY: Harrison & Cooper GROUND ELEV (ft):	TOC ELEV (ft):
DRILLING EQUIPMENT: Altas Copco TH60	BOREHOLE DEPTH (ft): 43
DRILLING METHOD: Air Rotary WELL CASING DIA (in): 2	BOREHOLE DIA (in): 6 1/8
SAMPLING EQUIPMENT: Split Spoon LOGGED BY: A. Harkins	CHECKED BY:
Air-knife Excavation to 6.5'.	
	Comont
	Surface Seal
	-
	5-
	-
SAND ; 7.5YR 7/2 pinkish gray; 0.0	
fine-grained; loose; moist	
SAND ; 10YR 7/3 very pale brown; medium	
CALICHE ; 10YR 9/2 pale orange yellow; 2/2 0.8	-
	10
	10-
	_
	- Bentonite
Book SAND ; 5YR 6/6 reddish yellow; very 0.4	
fine-grained; moist; trace Caliche gravel	
	_
	15-
SAND ; 5YR 7/3 pink; fine to	
SAND ; 5YR 6/6 reddish yellow; very	_
b fine-grained; hard	
	-
	20-
Increasing grain size; increasing gravel 0.0	
Model As above 0.0	

	: BP - ⊮ Moi	Byrc	l Pump Site nt. New Mexico							🕥 Stante	Stantec	
PROJECT	NUME	BER: 1	82630008	PAG	GE 2 OF 2		M٧	N-P	S4			
DRILLING:		STAF	RTED 1/11/15 COMPLETED: 1/12/15	NOF	RTHING (ft):				EASTI	NG (ft):		
INSTALLA	FION:	STAF	RTED 1/12/15 COMPLETED: 1/12/15	GRO	TTUDE: DUND ELEV (f	ft):			TOC E	LEV (ft):		
DRILLING		PANY:	Harrison & Cooper	INIT	IAL DTW (ft):	Not Er	ncount	ered	BORE	HOLE DEPTH (ft): 43		
	LQUIF		ir Rotany	STA	TIC DTW (ft):	29.30	•		WELL	DEPTH (ft): 43		
SAMPLING	EQU	IPMEN	IT: Split Spoon	LOG	GED BY: A. I	A. (in): Harkin:	Z S		CHEC	HOLE DIA.(IN): 6 1/8 KED BY:		
× c -	ic			e		ed	t	ace	_			
ime bepth feet	raph Log	ISC:	Description	amp	Time Sample ID	asur ecov feet)	Blow	PID PID	bepth feet)	Well Construct	ion	
	G	ر		ű		A R R		Hea				
=			As above; trace Caliche cobbles					0.2	-			
_									_			
=				\square					-			
-					BPS-MWPS4	2/2						
			SAND ; 5YR 5/6 yellowish red; fine-grained; γ hard; moist; broken up chert pieces		-20160112-29' 1200			0.4	Y			
30-			Large Chert piece at 29.3'		-20160112-29.5' 1205			0.0	30-			
-			hard; friable						-			
-			Moist					0.0	-	- Sand		
-									-	0.010"		
										Slotted P	VC	
-			Very fine-grained; trace clay					0.0	-			
35-									35-			
-								0.2	-			
-									_			
-			As above					0.0	-			
-									_			
40-								0.0	40-			
-									-			
			Saturated; trace clay									
-								0.2	-			
-			Parabala terminated at 12 fact						-			
-										-		
45-									45-			
-									-	-		
. –									-	1		
-									-	1		
-									-	-		
L					1	1		L	1	1		

Tom Blaine, P.E. State Engineer



Roswell Office 1900 WEST SECOND STREET ROSWELL, NM 88201

STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER

Trn Nbr: 579275 File Nbr: L 14054

Nov. 24, 2015

SUSAN HALL STANTEC CONSULTING INC 8770 GUION ROAD SUITE B INDIANAPOLIS, IN 46268

Greetings:

Enclosed is your copy of the above numbered permit that has been approved subject to the conditions set forth on the approval page. In accordance with the conditions of approval, the well can only be tested for 10 cumulative days, and the well is to be plugged on or before 11/22/2016, unless a permit to use the water is acquired from this office.

A Well Record & Log (OSE Form wr-20) shall be filed in this office within twenty (20) days after completion of drilling, but no later than 11/22/2016.

Appropriate forms can be downloaded from the OSE website www.ose.state.nm.us or will be mailed upon request.

Sincerely, M

Andrew Dennis (575)622-6521

Enclosure

explore

File No. L 13752

nd the State Class	NEW MEXICO OFFICE OF	THE STATE ENGINE	R			
Interstate Stream Commission	APPLICATION FOR PERM WITH NO CONSUMPTION (check application)	MIT TO DRILL A WELL VE USE OF WATER able box):				
	For fees, see State Engineer websit	e: http://www.ose.state.nm.us/	2-36537			
Purpose:	Pollution Control And / Or Recovery	Geo-Thermal	Es Es			
Exploratory	Construction Site De-Watering	Other (Describe):	5 NO			
X Monitoring	Mineral De-Watering		U I O			
A separate permit will be	required to apply water to beneficial use.		PH 2			
Temporary Request -	Requested Start Date:	Requested End Date:	DO SIG			
Plugging Plan of Operations Submitted? Yes X No						

1. APPLICANT(S)

Name: Stantec Co	onsulting Inc.	Name: BP Products North America					
Contact or Agent:	check here if Agent	Contact or Agent: check here if Agent					
Contact		Contact					
Mailing Address:	8770 Guion Road, Suite B	Mailing Address: 4 Centerpointe Drive, Suite 200					
^{City:} Indianapo	lis	City: La Palma,					
State: IN	Zip Code: 46268	State: Zip Code: CA 90623					
Phone:	🗌 Home 📋 Cell	Phone:					
Phone (Work): 317	7-876-8375 ext 227	Phone (Work): 657-529-4506					
E-mail (optional):		E-mail (optional):					
Susan.Hall@sta	ntec.com	sergio.morescalchi@bp.com					

FOR OSE INTERNAL USE	Application for Permit, Form wr-07, Rev 4/12/12
File Number: 1-13752	Trn Number: 579275
Trans Description (optional):	
Sub-Basin:	
PCW/LOG Due Date:	

2. WELL(S) Describe the well(s) applicable to this application.

Location Required: Coordin (Lat/Long - WGS84). District II (Roswell) and Dist	ate location must be trict VII (Cimarron) c	e reported in NM ustomers, provid	State Plane (NAD 83), UTM (NAD 83), <u>or</u> Latitude/Longitude e a PLSS location in addition to above.						
 NM State Plane (NAD83) NM West Zone NM East Zone NM Central Zone 	(Feet)	JTM (NAD83) (Me]Zone 12N]Zone 13N	ters) Lat/Long (WGS84) (to the nearest 1/10 th of second)						
Well Number (if known):	X or Easting or Longitude:	Y or Northing or Latitude:	Provide if known: -Public Land Survey System (PLSS) (<i>Quarters or Halves , Section, Township, Range</i>) OR - Hydrographic Survey Map & Tract; OR - Lot, Block & Subdivision; OR - Land Grant Name						
L POD1 103, 18, 19.6 32, 35, 1.9 NW 1/4 of NE 1/4 of SW 1/4 of SE 1/4 of Section 12, Township 20S, Range 36E									
L POD2 103, 18, 16.7 32, 35, 0.8 NW 1/4 of NE 1/4 of SW 1/4 of SE 1/4 of Section Township 20S, Range 36E									
I. POD3	103, 18, 17.9	32, 34, 59.3	NW 1/4 of NE 1/4 of SW 1/4 of SE 1/4 of Section 12, Township 20S, Range 36E						
L POD4	103, 18, 14.2	32, 34, 57.9	NW 1/4 of NE 1/4 of SW 1/4 of SE 1/4 of Section 12, Township 20S, Range 36E						
NOTE: If more well location Additional well description	s need to be describs are attached:	<mark>oed, complete fo</mark> ı Yes	m WR-08 (Attachment 1 – POD Descriptions) If yes, how many						
Other description relating well to common landmarks, streets, or other: The Byrd Ranch Property is located off of Maddox									
Road, 3 miles southwest of the town of Monument, NM.									
Well is on land owned by: J.R. Byrd									
Well Information: NOTE: If more than one (1) well needs to be described, provide attachment. Attached? Yes No If yes, how many									
Approximate depth of well (feet): 50.00 Outside diameter of well casing (inches): 6									
Driller Name: HCI			Driller License Number: 1670 & 1731						

3. ADDITIONAL STATEMENTS OR EXPLANATIONS

Request for extension to permit L 13752 for the installation of four groundwater monitoring wells that were not installed and therefore not sampled in 2014 / 2015.

FOR OSE INTERNAL USE		Application for Permit, Form wr-07
	File Number: 14054	Trn Number: 579275

Page 2 of 3

4. SPECIFIC REQUIREMENTS: The applicant must include the following, as applicable to each well type. Please check the appropriate boxes, to indicate the information has been included and/or attached to this application:

Exploratory: Pollution Control and/or Recovery: Construction Mine De-watering:	
De-watering:	ution
description of control/recovery, that includes the I include a description of the control/recovery, that includes the	udes the following:
any proposed following: proposed dewatering A description of the ne	eed for mine
pump test, if D A description of the need for the operation, dewatering.	
applicable. pollution control or recovery operation. The estimated duration of The estimated maxim	um period of time
The estimated maximum period of the operation for completion of the ope	ration.
time for completion of the operation.	vater to be diverted
The annual diversion amount. Water to be diverted.	racteristics of the
The annual consumptive use	
amount	of water to be
The maximum amount of water to be and	
diverted and injected for the duration of I a A description of how the	of water to be
the operation	the energies
The method and place of displaces of displac	or the operation.
Manifesimery I the method and place of discharge.	yr.
	rement of water
□ Include the water produced and discharged.	
reason for the Line source of water to be injected. geothermal heat exchange Line recharge of water	to the aquifer.
monitoring L The method of measurement of project, L Description of the estir	nated area of
well, and, water injected.	roject.
│ 💢 The │ 🗋 The characteristics of the aquifer. │ diverted and re-injected for the │ □ The method and place	of discharge.
duration I The method of determining the project, I An estimation of the ef	fects on surface
of the planned resulting annual consumptive use of I The time frame for water rights and undergro	ound water rights
monitoring. water and depletion from any related constructing the geothermal from the mine dewatering	project.
stream system. heat exchange project, and	ethods employed to
Proof of any permit required from the The duration of the project. estimate effects on surface	ce water rights and
New Mexico Environment Department.	i.
An access agreement if the data and additional Information on existing	wells rivers
applicant is not the owner of the land on information shall be included to springs and wetlands with	thin the area of
which the nollution plume control or provide all essential facts build and we allow the second states and the	
which the point of plane of a of a provide an essential facts hydrologic effect.	

ACKNOWLEDGEMENT

I, We (name of applicant(s)), Susan. M. Hall

Print Name(s)

affirm that the foregoing statements are tr	rue to the best of (my, our) kno	wledge and belief.	112	
Sumaticall			UIT	POR 2015
Applicant Signature		Applicant Signal	ture	NO
	ACTION OF THE ST	ATE ENGINEER		A LONGI
	This opplier	ation in:		in m
		ation is.		
man field of the most encodered to the states		anually approved		N. MO
Mexico nor detrimental to the public well	ent of any others having existing fare and further subject to the	attached condition	ot contrary to the conservation o	t water in New
Mexico nor detimentar to the public wer	are and further subject to the	attached condition	s of approval.	o og
Witness my hand and seal this	day of November	20	, for the state Engine	
Tom Blaine, P.E.	, S ^r	tate Engineer		
By:				
Signature		Print	ALL STORES	1
Title:			1917	
Print Juan Hernandez, Engineerin	g Specialist Supervisor		2,000,000	
	FOR OSE INTERNAL	USE	Application for Pe	ermit, Form wr-07
	File Number:	3752	Trn Number: 5 >9 2	275
				Dogo 2 of 2

Page 3 of 3

NEW MEXICO STATE ENGINEER OFFICE PERMIT TO EXPLORE

SPECIFIC CONDITIONS OF APPROVAL

- 1B Depth of the well shall not exceed the thickness of the Ogallala formation.
- 4 No water shall be appropriated and beneficially used under this permit.
- 6 The well shall be plugged upon completion of the permitted use, and a plugging report shall be filed with the State Engineer within 10 days.
- 7 The Permittee shall utilize the highest and best technology available to ensure conservation of water to the maximum extent practical.
- B The well shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-12 New Mexico Statutes Annotated.
- C Driller's well record must be filed with the State Engineer within 20 days after the well is drilled or driven. Well record forms will be provided by the State Engineer upon request.
- C2 No water shall be diverted from this well except for testing purposes which shall not exceed ten (10) cumulative days, and well shall be plugged or capped on or before, unless a permit to use water from this well is acquired from the Office. of the State Engineer.
- P The well shall be constructed, maintained, and operated to prevent inter-aquifer exchange of water and to prevent loss of hydraulic head between geologic zones.

Trn Desc: L 14054 POD1-4

File Number: L 14054 Trn Number: 579275

NEW MEXICO STATE ENGINEER OFFICE PERMIT TO EXPLORE

SPECIFIC CONDITIONS OF APPROVAL (Continued)

- LOG The Point of Diversion L 14054 POD1 must be completed and the Well Log filed on or before 11/22/2016.
- LOG The Point of Diversion L 14054 POD2 must be completed and the Well Log filed on or before 11/22/2016.
- LOG The Point of Diversion L 14054 POD3 must be completed and the Well Log filed on or before 11/22/2016.
- LOG The Point of Diversion L 14054 POD4 must be completed and the Well Log filed on or before 11/22/2016.

ACTION OF STATE ENGINEER

Notice of Intention Rcvd:	Date Rcvd. Corrected:
Formal Application Rcvd: 11	10/2015 Pub. of Notice Ordered:
Date Returned - Correction:	Affidavit of Pub. Filed:

This application is approved provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare of the state; and further subject to the specific conditions listed previously.



Trn Desc: <u>L 14054 POD1-4</u>

File Number: L 14054 Trn Number: 579275



October 28, 2015 File: L 13752

Office of the State Engineer District II – Roswell 1900 West Second Street Roswell, NM 88201

To Whom it May Concern,

Reference: Byrd Ranch Monitoring Well Permit

Stantec Consulting Services, Inc (Stantec) on behalf of our client BP Products North is submitting an application to install four monitoring wells at the Byrd Pump Site for the following reason:

P

During a routine inspection of the Byrd Pump site booster pump, personnel noted that soil around the pump had been stained by crude oil due to historical operations at the pump. In April 1999 contractors removed stained soil from around the pump and line. Approximately 72,000 cubic yards of soil were excavated. The New Mexico Oil Conservancy District approved a Sampling and Analysis Work Plan that included one year of quarterly groundwater monitoring in order to characterize and demonstrate that groundwater at the site has not been impacted as a result of the original leak.

Monitoring well MW-PS1 will be installed up-gradient of the groundwater flow through the Byrd Pump site and will serve as the background well. Three down-gradient wells, MW-PS2, MW-PS3, and MW-PS4, are proposed for installation adjacent to the south, southeast, and east boundaries of the excavation to characterize groundwater down-gradient from the Byrd booster pump.

If you have any questions regarding this request or require additional information, please do not hesitate to contact Susan Hall at (317) 876-8375 ext. 227.

Regards,

Stantec Consulting Services Inc.

wattarr

Susan M. Hall Project Manager Phone: (317) 876-8375 Susan.hall@stantec.com

Attachment: Permit Application and Access Agreement

cc. Sergio Morescalchi, Atlantic Richfield Company Design with community in mind





2015 NOV 10 PM 2:00

•

Byrd Pump Site (Anderson Engineering) Byrd Pump Site (MM# IIeW notinom N*92.92*92*92*10 POD3

Byrd Pump Site (Anderson Engineering) Monitor Well #MW-PS4 103°18'14.22'W, 32°34'57.85''N POD4

T205 R36E 12

(grineenignE nozrebnA) ati2 qmu9 bry8 :129-WM# IIeW rotinoM N"68.1'22°32, W"62.91'81°501 1009

Byrd Pump Site (Anderson Engineering) Monitor Well #MW-PS2 103°18'16.67'W, 32°35'0.76''N 103°18'16.67'W, 22°35'0.76''N

STATE ENGINEER OFFICE POSWELL, NEW MEXICO

2015 NOV 10 PM 2: 01

2015 Access Agreement



ACCESS AGREEMENT

This access agreement is entered into between <u>BP Products North America Inc.</u> (BP) and the undersigned Owner. Owner is the current owner of the referenced property (Property) located at: Byrd Ranch, Lea County, New Mexico, legally described as W/2, W/2 E/2 of Section 12, Township 20 South, Range 36 East, also known as Assessor's Parcel Number 4000402920003.

<u>Grant of Access:</u> For good and valuable consideration of \$500 per installation of each monitoring well and \$500 per year for damages for each monitoring well, Owner hereby agrees to grant BP and/or its environmental consultants and/or subcontractors access to the Property in order to perform certain environmental activities which BP at its sole discretion chooses to perform (Activities). Activities may include sampling, assessment, visual inspection, monitoring, installation of monitoring wells, soil sample collection, and remediation. Owner will provide BP information regarding the location of subsurface utilities in the area of the proposed Activities to the extent Owner is aware of such information.

BP will perform this work at no cost to C wner.

BP shall use reasonable efforts during its Activities to minimize interruption to the business or use of the Property. BP will repair any damage to the Property that may occur as a result of its Activities at the Property, including but not limited to restoration of the surface areas of the Property to their pre-drilling conditions, removal of equipment, and proper well closure.

BP will indemnify Owner from third party claims that arise out of BP's negligence associated with the Activities performed by BP on the Property.

It is hereby agreed that the neither this Access Agreement nor the Activities on the Property are an admission against BP's interests or an assumption of liability or walver of any rights by BP.

<u>Notification:</u> Prior to first commencing Activities on the Property, BP and/or BP's environmental consultant will provide Owner with a Scope of Work developed in accordance with New Mexico Oil Conservation Division guidelines that describes the planned Activities. At least 48 hours prior to first commencing Activities on the Property, BP and/or BP's environmental consultant will notify Owner, either in writing or verbally, of the planned date and time of Activities commencement.

<u>Reporting:</u> BP agrees to provide the results of analytical testing performed by BP regarding its Activities at the Property and copies of all reports submitted to the appropriate State Agency. BP shall provide this information as a courtesy only. Use of any of the information contained in these documents is at Owner's sole risk. BP shall not be deemed to have made any representation or warranty, expressed or implied, as to the condition of the Property or the accuracy of the documents.

<u>Termination:</u> This Access Agreement will terminate when mutually agreed upon by the parties or once BP removes all of its soil borings and monitoring wells located on the Property and receives a No Further Action letter or similar Closure Letter from the appropriate State Agency. AOPA

Douglas Birkbeck

il gel

Signature Liability Business Manager

FormAccessAgreement(071305)(SVRV042407)

Mr.	burge
Property C	wner Signature / Title
V.R.E	URD
Printed Na	me of Owner
10/5	2015

Date of Authorization

Locator Tool Report

General Information:

Application ID:29 Date: 11-20-2015

Time: 11:46:08

WR File Number: L - 내 0 5년유이 D I Purpose: POINT OF DIVERSION

Applicant First Name: STANTEC CONSULTING INC. Applicant Last Name: BP PRODUCTS NORTH AMERICA

> GW Basin: LEA COUNTY County: LEA

Critical Management Area Name(s): NONE Special Condition Area Name(s): NONE Land Grant Name: NON GRANT

PLSS Description (New Mexico Principal Meridian):

NW 1/4 of NE 1/4 of SW 1/4 of SE 1/4 of Section 12, Township 20S, Range 36E.

Coordinate System Details:

Geographic Coordinates:

Latitude:	32 Degrees	35 Minutes	1.9 Seconds	N
Longitude:	103 Degrees	18 Minutes	19.6 Seconds	W

Universal Transverse Mercator Zone: 13N

N: 3,606,422	E: 659.047
N: 11,832,070	E: 2,162,224
N: 3,606,220	E: 659,096
N: 11,831,405	E: 2,162,383
	N: 3,606,422 N: 11,832,070 N: 3,606,220 N: 11,831,405

State Plane Coordinate System Zone: New Mexico East

NAD 1983(92) (Meters)	N: 176,074	E: 261.501
NAD 1983(92) (Survey Feet)	N: 577,669	E: 857,942
NAD 1927 (Meters)	N: 176,055	E: 248,949
NAD 1927 (Survey Feet)	N: 577,607	E: 816,760

NEW MEXICO OFFICE OF STATE ENGINEER

Locator Tool Report





 WR File Number: L-13752-POD1
 Scale: 1:30,132

 Northing/Easting: UTM83(92) (Meter):
 N: 3,606,422
 E: 659,047

 Northing/Easting: SPCS83(92) (Feet):
 N: 577,669
 E: 857,942

 GW Basin: Lea County
 E: 857,942
 E: 857,942

Page 2 of 2

Print Date: 11/20/2015

Locator Tool Report

General Information:

Application ID:29 Date: 11-20-2015

Time: 13:29:23

WR File Number: L-14054 Po DL Purpose: POINT OF DIVERSION

Applicant First Name: STANTEC CONSULTING INC. Applicant Last Name: BP PRODUCTS NORTH AMERICA

> GW Basin: LEA COUNTY County: LEA

Critical Management Area Name(s): NONE Special Condition Area Name(s): NONE Land Grant Name: NON GRANT

PLSS Description (New Mexico Principal Meridian):

NW 1/4 of NE 1/4 of SW 1/4 of SE 1/4 of Section 12, Township 20S, Range 36E.

Coordinate System Details:

Geographic Coordinates:

Latitude:	32 Degrees	35 Minutes	0.8 Seconds	N
Longitude:	103 Degrees	18 Minutes	16.7 Seconds	Ŵ

Universal Transverse Mercator Zone: 13N

NAD 1983(92) (Meters) NAD 1983(92) (Survey Feet)	N: 3,606,389	E: 659,123
NAD 1927 (Meters) NAD 1927 (Suprov Foot)	N: 3,606,187	E: 2,162,473 E: 659,172
TAD TOLI (Durvey reel)	N: 11,831,298	E: 2,162,633

State Plane Coordinate System Zone: New Mexico East

NAD 1983(92) (Meters)	N: 176,041	E: 261,577
NAD 1983(92) (Survey Feet)	N: 577,560	E: 858,192
NAD 1927 (Meters)	N: 176,022	E: 249,025
NAD 1927 (Survey Feet)	N: 577,498	E: 817,009

NEW MEXICO OFFICE OF STATE ENGINEER

Locator Tool Report





Page 2 of 2

Print Date: 11/20/2015

Locator Tool Report

General Information:

Application ID:29 Date: 11-20-2015

Time: 13:33:13

WR File Number: L-14054 PUD3 Purpose: POINT OF DIVERSION

Applicant First Name: STANTEC CONSULTING INC. Applicant Last Name: BP PRODUCTS NORTH AMERICA

> GW Basin: LEA COUNTY County: LEA

Critical Management Area Name(s): NONE Special Condition Area Name(s): NONE Land Grant Name: NON GRANT

PLSS Description (New Mexico Principal Meridian):

SW 1/4 of NE 1/4 of SW 1/4 of SE 1/4 of Section 12, Township 20S, Range 36E,

Coordinate System Details:

Geographic Coordinates:

Latitude:	32 Degrees	34 Minutes	59.3 Seconds	N
Longitude:	103 Degrees	18 Minutes	17.9 Seconds	W

Universal Transverse Mercator Zone: 13N

NAD 1983(92) (Meters)	N: 3.606.343	E 659 093
NAD 1983(92) (Survey Feet)	N: 11.831.809	E: 2 162 373
NAD 1927 (Meters)	N: 3.606.140	E: 659 141
NAD 1927 (Survey Feet)	N: 11,831,145	E: 2.162.533

State Plane Coordinate System Zone: New Mexico East

NAD 1983(92) (Meters)	N: 175,994	E: 261,546
NAD 1983(92) (Survey Feet)	N: 577,408	E: 858,090
NAD 1927 (Meters)	N: 175,975	E: 248,994
NAD 1927 (Survey Feet)	N: 577,345	E: 816,908

NEW MEXICO OFFICE OF STATE ENGINEER

Locator Tool Report





 WR File Number: L-13752-POD3
 Scale: 1:33,848

 Northing/Easting: UTM83(92) (Meter):
 N: 3,606,343
 E: 659,093

 Northing/Easting: SPCS83(92) (Feet):
 N: 577,408
 E: 858,090

 GW Basin: Lea County
 E: 858,090
 E: 858,090

Page 2 of 2

Print Date: 11/20/2015

Locator Tool Report

General Information:

Application ID:29 Date: 11-20-2015

Time: 13:35:31

WR File Number: L- 14054 PUD 4 Purpose: POINT OF DIVERSION

Applicant First Name: STANTEC CONSULTING INC. Applicant Last Name: BP PRODUCTS NORTH AMERICA

> GW Basin: LEA COUNTY County: LEA

Critical Management Area Name(s): NONE Special Condition Area Name(s): NONE Land Grant Name: NON GRANT

PLSS Description (New Mexico Principal Meridian):

SE 1/4 of NE 1/4 of SW 1/4 of SE 1/4 of Section 12, Township 20S, Range 36E,

Coordinate System Details:

Geographic Coordinates:

Latitude:	32 Degrees	34 Minutes	57.9 Seconds	Ν
Longitude:	103 Degrees	18 Minutes	14.2 Seconds	W

Universal Transverse Mercator Zone: 13N

NAD 1983(92) (Meters) NAD 1983(92) (Survey Feet) NAD 1927 (Meters) NAD 1927 (Survey Feet)	N: 3,606,301 N: 11,831,673 N: 3,606,099 N: 11,831,009	E: 659,190 E: 2,162,692 E: 659,239 E: 2,162,850
INAD 1927 (Survey Feel)	N: 11,831,009	E: 2,162,852
		,,

State Plane Coordinate System Zone: New Mexico East

NAD 1983(92) (Meters)	N: 175 952	E: 261 6/3
NAD 1983(92) (Survey Feet)	N: 577 269	E: 201,040
NAD 1927 (Meters)	N: 175 933	E: 240.001
NAD 1927 (Survey Feet)	N: 577 207	E. 249,091
, , , , , , , , , , , , , , , , , , , ,	N. 577,207	L. 017,220

NEW MEXICO OFFICE OF STATE ENGINEER

Locator Tool Report





 WR File Number: L-13752-POD4
 Scale: 1:36,661

 Northing/Easting: UTM83(92) (Meter):
 N: 3,606,301
 E: 659,190

 Northing/Easting: SPCS83(92) (Feet):
 N: 577,269
 E: 858,408

 GW Basin: Lea County
 E: 858,408
 E: 858,408

Page 2 of 2

Print Date: 11/20/2015

BYRD PUMP SITE OCD #1R0034

Appendix B Laboratory Analytical Results May 17, 2016

Appendix B LABORATORY ANALYTICAL RESULTS





Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa, KS 66219 (913)599-5665

January 25, 2016

Susan Hall BP Stantec 8770 Guion Rd. Ste B Indianapolis, IN 46268

RE: Project: BYRD PUMP SITE INVESTIGATION Pace Project No.: 60211093

Dear Susan Hall:

Enclosed are the analytical results for sample(s) received by the laboratory on January 13, 2016. The results relate only to the samples included in this report. Results contained within this report conform to the most current version of the TNI standards, BP LaMP Technical Requirements Revision 10.1, and any applicable Quality Assurance Project Plan (QAPP), or Work Plan unless otherwise narrated in the body of this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Alice Glanazan

Alice Flanagan alice.flanagan@pacelabs.com Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS



CERTIFICATIONS

Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211093

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219 WY STR Certification #: 2456.01 Arkansas Certification #: 15-016-0 Illinois Certification #: 003097 Iowa Certification #: 118 Kansas/NELAP Certification #: E-10116 Louisiana Certification #: 03055 Nevada Certification #: KS000212008A Oklahoma Certification #: 9205/9935 Texas Certification #: T104704407 Utah Certification #: KS00021 Kansas Field Laboratory Accreditation: # E-92587

REPORT OF LABORATORY ANALYSIS


SAMPLE SUMMARY

Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 0

60211093

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60211093001	BPS-MWPS2-20160111-29'	Solid	01/11/16 14:20	01/13/16 08:55
60211093002	BPS-MWPS2-20160111-29.5'	Solid	01/11/16 14:25	01/13/16 08:55
60211093003	BPS-MWPS3-20160112-29'	Solid	01/12/16 08:40	01/13/16 08:55
60211093004	BPS-MWPS3-20160112-29.5'	Solid	01/12/16 08:45	01/13/16 08:55
60211093005	BPS-MWPS1-20160112-29'	Solid	01/12/16 09:50	01/13/16 08:55
60211093006	BPS-MWPS1-20160112-29.5'	Solid	01/12/16 09:55	01/13/16 08:55
60211093007	BPS-MWPS4-20160112-29'	Solid	01/12/16 12:00	01/13/16 08:55
60211093008	BPS-MWPS4-20160112-29.5'	Solid	01/12/16 12:05	01/13/16 08:55
60211093009	BPS-DUP1-20160112	Solid	01/12/16 08:00	01/13/16 08:55



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211093

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60211093001		EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211093002	BPS-MWPS2-20160111-29.5'	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211093003	BPS-MWPS3-20160112-29'	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211093004	BPS-MWPS3-20160112-29.5'	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211093005	BPS-MWPS1-20160112-29'	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211093006	BPS-MWPS1-20160112-29.5'	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211093007	BPS-MWPS4-20160112-29'	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211093008	BPS-MWPS4-20160112-29.5'	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211093009	BPS-DUP1-20160112	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K



PROJECT NARRATIVE

Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211093

Method: EPA 8015B

Description:8015B Diesel Range OrganicsClient:BP Stantec TXDate:January 25, 2016

General Information:

9 samples were analyzed for EPA 8015B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3546 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:



PROJECT NARRATIVE

Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211093

Method: EPA 8015B Description: Gasoline Range Organics

 Description:
 Gasoline Range Organic

 Client:
 BP Stantec TX

 Date:
 January 25, 2016

General Information:

9 samples were analyzed for EPA 8015B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 5035A/5030B with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211093

Sample: BPS-MWPS2-20160111-2	29' Lab ID:	6021109300	01 Collecte	d: 01/11/16	5 14:20	Received: 01/	13/16 08:55 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	e adjusted f	or percent mo	oisture, sar	nple si	ize and any diluti	ions.		
		•	Report	,	•				
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EP/	A 8015B Prep	aration Met	hod: El	PA 3546			
TPH-DRO Surrogates	6.6J	mg/kg	11.5	5.7	1	01/20/16 00:00	01/24/16 14:17		
n-Tetracosane (S)	66	%	18-139		1	01/20/16 00:00	01/24/16 14:17	646-31-1	
p-Terphenyl (S)	54	%	51-120		1	01/20/16 00:00	01/24/16 14:17	92-94-4	
Gasoline Range Organics	Analytical	Method: EP	A 8015B Prep	aration Met	hod: El	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	16.7	8.4	1	01/21/16 00:00	01/21/16 17:47		
4-Bromofluorobenzene (S)	91	%	68-144		1	01/21/16 00:00	01/21/16 17:47	460-00-4	
Percent Moisture	Analytical	Method: AS	FM D2974						
Percent Moisture	13.7	%	0.50	0.50	1		01/20/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211093

Sample:	BPS-MWPS2-20160111- 29.5'	Lab ID:	60211093002	Collected	l: 01/11/16	14:25	Received: 01/	13/16 08:55 Ma	atrix: Solid	
Results i	reported on a "dry weight"	' basis and are	adjusted for	percent mo	isture, san	nple si	ze and any diluti	ons.		
				Report						
	Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Di	iesel Range Organics	Analytical	Method: EPA 8	015B Prepa	aration Met	hod: El	PA 3546			
TPH-DRO	C	ND	mg/kg	11.2	5.6	1	01/20/16 00:00	01/24/16 14:25		
Surrogat	tes		0 0							
n-Tetraco	sane (S)	64	%	18-139		1	01/20/16 00:00	01/24/16 14:25	646-31-1	
p-Terpher	nyl (S)	53	%	51-120		1	01/20/16 00:00	01/24/16 14:25	92-94-4	
Gasoline	Range Organics	Analytical	Method: EPA 8	015B Prepa	aration Met	hod: El	PA 5035A/5030B			
TPH-GR	C	ND	mg/kg	10.4	5.2	1	01/21/16 00:00	01/21/16 18:04		
Surrogat	tes									
4-Bromof	luorobenzene (S)	88	%	68-144		1	01/21/16 00:00	01/21/16 18:04	460-00-4	
Percent	Moisture	Analytical	Method: ASTM	D2974						
Percent N	Moisture	13.3	%	0.50	0.50	1		01/20/16 00:00		



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ANALYTICAL RESULTS

Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211093

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Sample: BPS-MWPS3-20160112-2	29' Lab ID:	6021109300	3 Collected	d: 01/12/16	6 08:40	Received: 01/	13/16 08:55 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and ar	e adjusted fo	or percent mo	oisture, sar	nple s	ize and any diluti	ions.		
			, Report	,	•				
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA	A 8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO Surrogates	ND	mg/kg	11.4	5.7	1	01/20/16 00:00	01/24/16 14:33		
n-Tetracosane (S)	66	%	18-139		1	01/20/16 00:00	01/24/16 14:33	646-31-1	
p-Terphenyl (S)	55	%	51-120		1	01/20/16 00:00	01/24/16 14:33	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA	A 8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	11.1	5.5	1	01/21/16 00:00	01/21/16 18:56		
4-Bromofluorobenzene (S)	90	%	68-144		1	01/21/16 00:00	01/21/16 18:56	460-00-4	
Percent Moisture	Analytical	Method: AS	FM D2974						
Percent Moisture	13.8	%	0.50	0.50	1		01/20/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211093

Sample:	BPS-MWPS3-20160112- 29.5'	Lab ID:	60211093004	Collecte	d: 01/12/16	6 08:45	Received: 01/	13/16 08:55 Ma	atrix: Solid	
Results I	reported on a "dry weight'	' basis and are	adjusted for	percent me	oisture, sar	nple s	ize and any diluti	ons.		
				Report						
	Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Di	iesel Range Organics	Analytical	Method: EPA 8	8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	C	ND	mg/kg	11.6	5.8	1	01/20/16 00:00	01/24/16 14:40		
Surroga	tes									
n-Tetraco	sane (S)	65	%	18-139		1	01/20/16 00:00	01/24/16 14:40	646-31-1	
p-Terphe	nyl (S)	55	%	51-120		1	01/20/16 00:00	01/24/16 14:40	92-94-4	
Gasoline	Range Organics	Analytical	Method: EPA 8	8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GR	C	ND	mg/kg	10.3	5.1	1	01/21/16 00:00	01/21/16 19:14		
Surrogat	tes									
4-Bromof	luorobenzene (S)	88	%	68-144		1	01/21/16 00:00	01/21/16 19:14	460-00-4	
Percent	Moisture	Analytical	Method: ASTM	1 D2974						
Percent N	Moisture	14.1	%	0.50	0.50	1		01/20/16 00:00		



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ANALYTICAL RESULTS

Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211093

-

Sample: BPS-MWPS1-20160112-2	29' Lab ID:	6021109300	5 Collecte	d: 01/12/16	s 09:50	Received: 01/	13/16 08:55 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and ar	e adjusted f	or percent mo	oisture, san	nple s	ize and any diluti	ons.		
, , , ,			Report	,	•				
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EP/	A 8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO Surrogates	ND	mg/kg	11.7	5.8	1	01/20/16 00:00	01/24/16 14:48		
n-Tetracosane (S)	66	%	18-139		1	01/20/16 00:00	01/24/16 14:48	646-31-1	
p-Terphenyl (S)	56	%	51-120		1	01/20/16 00:00	01/24/16 14:48	92-94-4	
Gasoline Range Organics	Analytical	Method: EP/	A 8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	11.9	5.9	1	01/21/16 00:00	01/21/16 19:31		
4-Bromofluorobenzene (S)	91	%	68-144		1	01/21/16 00:00	01/21/16 19:31	460-00-4	
Percent Moisture	Analytical	Method: AS	FM D2974						
Percent Moisture	16.2	%	0.50	0.50	1		01/20/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211093

Sample: BPS-MWPS1-20160112- 29.5'	Lab ID:	60211093006	Collecte	d: 01/12/16	6 09:55	Received: 01/	13/16 08:55 M	atrix: Solid	
Results reported on a "dry weight"	" basis and are	adjusted for	percent mo	oisture, sar	nple s	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	ND	mg/kg	16.0	8.0	1	01/20/16 00:00	01/24/16 15:11		
Surrogates									
n-Tetracosane (S)	66	%	18-139		1	01/20/16 00:00	01/24/16 15:11	646-31-1	
p-Terphenyl (S)	56	%	51-120		1	01/20/16 00:00	01/24/16 15:11	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO	ND	mg/kg	11.6	5.8	1	01/21/16 00:00	01/21/16 19:49		
4-Bromofluorobenzene (S)	94	%	68-144		1	01/21/16 00:00	01/21/16 19:49	460-00-4	
Percent Moisture	Analytical	Method: ASTM	D2974						
Percent Moisture	14.7	%	0.50	0.50	1		01/20/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211093

Sample: BPS-MWPS4-20160112-2	29' Lab ID:	6021109300	07 Collecte	d: 01/12/16	5 12:00	Received: 01/	13/16 08:55 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and ar	e adjusted f	or percent mo	oisture, san	nple s	ize and any diluti	ions.		
		•	Report		•	-			
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EP/	A 8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO Surrogates	ND	mg/kg	12.3	6.2	1	01/20/16 00:00	01/24/16 15:19		
n-Tetracosane (S)	68	%	18-139		1	01/20/16 00:00	01/24/16 15:19	646-31-1	
p-Terphenyl (S)	57	%	51-120		1	01/20/16 00:00	01/24/16 15:19	92-94-4	
Gasoline Range Organics	Analytical	Method: EP/	A 8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO <i>Surrogates</i>	ND	mg/kg	36.9	18.4	1	01/21/16 00:00	01/21/16 20:06		
4-Bromofluorobenzene (S)	85	%	68-144		1	01/21/16 00:00	01/21/16 20:06	460-00-4	
Percent Moisture	Analytical	Method: AS	TM D2974						
Percent Moisture	22.9	%	0.50	0.50	1		01/20/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211093

Sample: BPS-MWPS4-20160112- 29.5'	Lab ID:	60211093008	Collecte	d: 01/12/16	6 12:05	Received: 01/	13/16 08:55 Ma	atrix: Solid	
Results reported on a "dry weight"	" basis and are	adjusted for	percent mo	oisture, sar	nple s	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO Surrogates	ND	mg/kg	11.4	5.7	1	01/20/16 00:00	01/24/16 15:27		
n-Tetracosane (S)	61	%	18-139		1	01/20/16 00:00	01/24/16 15:27	646-31-1	
p-Terphenyl (S)	51	%	51-120		1	01/20/16 00:00	01/24/16 15:27	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	10.9	5.4	1	01/21/16 00:00	01/21/16 20:24		
4-Bromofluorobenzene (S)	81	%	68-144		1	01/21/16 00:00	01/21/16 20:24	460-00-4	
Percent Moisture	Analytical	Method: ASTM	D2974						
Percent Moisture	16.0	%	0.50	0.50	1		01/20/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211093

Sample: BPS-DUP1-20160112	Lab ID:	6021109300	09 Collected	d: 01/12/16	6 08:00	Received: 01/	13/16 08:55 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	e adjusted f	or percent mo	oisture, sar	nple s	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EP	A 8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO <i>Surrogates</i>	ND	mg/kg	26.8	13.4	1	01/20/16 00:00	01/24/16 15:34		
n-Tetracosane (S)	68	%	18-139		1	01/20/16 00:00	01/24/16 15:34	646-31-1	
p-Terphenyl (S)	57	%	51-120		1	01/20/16 00:00	01/24/16 15:34	92-94-4	
Gasoline Range Organics	Analytical	Method: EP/	A 8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO <i>Surrogates</i>	ND	mg/kg	11.6	5.8	1	01/21/16 00:00	01/21/16 20:41		
4-Bromofluorobenzene (S)	85	%	68-144		1	01/21/16 00:00	01/21/16 20:41	460-00-4	
Percent Moisture	Analytical	Method: AS	TM D2974						
Percent Moisture	13.5	%	0.50	0.50	1		01/20/16 00:00		



QUALITY CONTROL DATA

Project:	BYRD	PUMP SITE	INVESTIGATION										
Pace Project No.:	602110)93											
QC Batch:	GCV	/5295		Analys	is Method	:	EPA 8015B						
QC Batch Method:	EPA :	5035A/5030E	3	Analys	is Descrip	tion:	Gasoline Rar	ige Organi	cs				
Associated Lab Sar	nples:	602110930 602110930	01, 60211093002 08, 60211093009	, 602110930	003, 60211	1093004, (60211093005	, 60211093	3006, 60211	093007,			
METHOD BLANK:	170050	08		Ν	/latrix: Sol	lid							
Associated Lab Sar	mples:	602110930 602110930	01, 60211093002 08, 60211093009	, 602110930	003, 60211	1093004, (60211093005	, 6021109;	3006, 60211	093007,			
				Blank	K R	Reporting							
Parar	neter		Units	Resul	t	Limit	MDL		Analyzed	Qu	alifiers		
TPH-GRO			mg/kg		ND	10.	0	5.0 01/	21/16 12:14	4			
4-Bromofluorobenz	ene (S)		%		94	68-14	4	01/	21/16 12:14	1			
LABORATORY CO	NTROL	SAMPLE:	1700509										
				Spike	LCS	5	LCS	% Re	с				
Parar	neter		Units	Conc.	Resu	ult	% Rec	Limits	s Qi	ualifiers	_		
TPH-GRO			mg/kg	50		54.5	109	6	7-115				
4-Bromofluorobenz	ene (S)		%				97	68	3-144				
		פטוגב טו וטו	ICATE: 17005	10		1700511							
			IGATE. 17003	MS	MSD	170051							
			60210930001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	ər	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
TPH-GRO		mg/kg	g ND	63.1	63.1	69.	3 68.5	107	105	49-122	1	14	
4-Bromofluorobenze	ene (S)	%						90	94	68-144			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



QUALITY CONTROL DATA

Project:	BYRD	PUMP SITE II	VESTIGATION										
Pace Project No.:	602110)93											
QC Batch:	OEX	Г/52809		Analys	is Method	: E	PA 8015B						
QC Batch Method:	EPA :	3546		Analys	is Descrip	tion: E	PA 8015B						
Associated Lab Sar	mples:	6021109300 6021109300	1, 60211093002, 8, 60211093009	602110930	003, 60211	1093004, 60	0211093005	, 6021109	3006, 60211	093007,			
METHOD BLANK:	170000)2		Ν	Aatrix: Sol	lid							
Associated Lab Sar	mples:	6021109300 6021109300	1, 60211093002, 8, 60211093009	602110930	003, 60211	1093004, 6	0211093005	, 6021109	3006, 60211	093007,			
Parar	neter		Units	Blank Resuli	t R	Reporting Limit	MDL		Analyzed	Qua	alifiers		
TPH-DRO			mg/kg		ND	9.8		4.9 01	/24/16 13:40				
n-Tetracosane (S)			%		69	18-139)	01	/24/16 13:40	6			
p-Terphenyl (S)			%		59	51-120)	01.	/24/16 13:40	6			
LABORATORY CO	NTROL	SAMPLE: 1	700003										
				Spike	LCS	5	LCS	% Re	с				
Parar	neter		Units	Conc.	Resu	ult	% Rec	Limit	s Q	ualifiers			
TPH-DRO			mg/kg	80.8		87.3	108	7	6-115		-		
n-Tetracosane (S)			%				83	1	8-139				
p-Terphenyl (S)			%				74	5	1-120				
MATRIX SPIKE & N	ATRIX	SPIKE DUPLI	CATE: 17000	04		1700005							
				MS	MSD								
_			60211093001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	ər	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
TPH-DRO		mg/kg	6.6J	94.3	94.1	95.8	90.2	95	89	12-159	6	37	
n-Tetracosane (S)		%						73	71	18-139			
p-Terphenyl (S)		%						62	61	51-120			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



QUALITY CONTROL DATA

Project:	BYRD F	UMP SITE	NVESTIGATION					
Pace Project No.:	6021109	93						
QC Batch:	PMST	/11446		Analysis Metl	nod:	ASTM D2974		
QC Batch Method:	ASTM	D2974		Analysis Des	cription:	Dry Weight/Perce	nt Moisture	
Associated Lab Sar	nples:	6021109300 6021109300	01, 60211093002, 08, 60211093009	60211093003, 60	0211093004,	60211093005, 602	211093006, 602110	093007,
METHOD BLANK:	1699504	4		Matrix:	Solid			
Associated Lab Sar	nples:	6021109300 6021109300)1, 60211093002,)8, 60211093009	60211093003, 60	0211093004,	60211093005, 602	211093006, 602110	093007,
				Blank	Reporting			
Parar	neter		Units	Result	Limit	MDL	Analyzed	Qualifiers
Percent Moisture			%	ND	0.4	50 0.50	01/20/16 00:00	
SAMPLE DUPLICA	TE: 169	9505						
_				60211089001	Dup		Max	
Paran	neter		Units	Result	Result	RPD	RPD	Qualifiers
Percent Moisture			%	59.6	59	0.2 1	20	_

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



QUALIFIERS

Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211093

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211093

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60211093001	BPS-MWPS2-20160111-29'	EPA 3546	OEXT/52809	EPA 8015B	GCSV/20390
60211093002	BPS-MWPS2-20160111-29.5'	EPA 3546	OEXT/52809	EPA 8015B	GCSV/20390
60211093003	BPS-MWPS3-20160112-29'	EPA 3546	OEXT/52809	EPA 8015B	GCSV/20390
60211093004	BPS-MWPS3-20160112-29.5'	EPA 3546	OEXT/52809	EPA 8015B	GCSV/20390
60211093005	BPS-MWPS1-20160112-29'	EPA 3546	OEXT/52809	EPA 8015B	GCSV/20390
60211093006	BPS-MWPS1-20160112-29.5'	EPA 3546	OEXT/52809	EPA 8015B	GCSV/20390
60211093007	BPS-MWPS4-20160112-29'	EPA 3546	OEXT/52809	EPA 8015B	GCSV/20390
60211093008	BPS-MWPS4-20160112-29.5'	EPA 3546	OEXT/52809	EPA 8015B	GCSV/20390
60211093009	BPS-DUP1-20160112	EPA 3546	OEXT/52809	EPA 8015B	GCSV/20390
60211093001	BPS-MWPS2-20160111-29'	EPA 5035A/5030B	GCV/5295	EPA 8015B	GCV/5297
60211093002	BPS-MWPS2-20160111-29.5'	EPA 5035A/5030B	GCV/5295	EPA 8015B	GCV/5297
60211093003	BPS-MWPS3-20160112-29'	EPA 5035A/5030B	GCV/5295	EPA 8015B	GCV/5297
60211093004	BPS-MWPS3-20160112-29.5'	EPA 5035A/5030B	GCV/5295	EPA 8015B	GCV/5297
60211093005	BPS-MWPS1-20160112-29'	EPA 5035A/5030B	GCV/5295	EPA 8015B	GCV/5297
60211093006	BPS-MWPS1-20160112-29.5'	EPA 5035A/5030B	GCV/5295	EPA 8015B	GCV/5297
60211093007	BPS-MWPS4-20160112-29'	EPA 5035A/5030B	GCV/5295	EPA 8015B	GCV/5297
60211093008	BPS-MWPS4-20160112-29.5'	EPA 5035A/5030B	GCV/5295	EPA 8015B	GCV/5297
60211093009	BPS-DUP1-20160112	EPA 5035A/5030B	GCV/5295	EPA 8015B	GCV/5297
60211093001	BPS-MWPS2-20160111-29'	ASTM D2974	PMST/11446		
60211093002	BPS-MWPS2-20160111-29.5'	ASTM D2974	PMST/11446		
60211093003	BPS-MWPS3-20160112-29'	ASTM D2974	PMST/11446		
60211093004	BPS-MWPS3-20160112-29.5'	ASTM D2974	PMST/11446		
60211093005	BPS-MWPS1-20160112-29'	ASTM D2974	PMST/11446		
60211093006	BPS-MWPS1-20160112-29.5'	ASTM D2974	PMST/11446		
60211093007	BPS-MWPS4-20160112-29'	ASTM D2974	PMST/11446		
60211093008	BPS-MWPS4-20160112-29.5'	ASTM D2974	PMST/11446		
60211093009	BPS-DUP1-20160112	ASTM D2974	PMST/11446		



Sample Condition Upon Receipt ESI Tech Spec Client

WO#:60211093

Client Name: BP Stantec	Optional
Courier: FedEx 🖄 UPS 🗆 VIA 🗆 Clay 🗆 PEX 🗆 ECI 🗆 Pace 🗆 Other 🗆	Client Droj Due Date:
Tracking #: 6508 8163 4012 Pace Shipping Label Used? Yes □ No.	Proj Name:
Custody Seal on Cooler/Box Present: Yes 🗗 No 🗆 Seals intact: Yes 🗗 No 🗆	
Packing Material: Bubble Wrap 🖉 Bubble Bags 🗆 Foam 🗆 None 🗆	Other 🗆
Thermometer Used: <u>T-239</u> / <u>T-262</u> Type of Ice: We Blue None Sample	s received on ice, cooling process has begun.
Cooler Temperature: 4-6 (circle one)	ate and initials of person examining
Temperature should be above freezing to 6°C	intents: In 1/13/16 950
Chain of Custody present:	
Chain of Custody filled out: Øyes No N/A 2.	
Chain of Custody relinquished: Yes No N/A 3.	
Sampler name & signature on COC: ØYes DNo DN/A 4.	
Samples arrived within holding time: ØYes DNo DN/A 5.	
Short Hold Time analyses (<72hr):	
Rush Turn Around Time requested:	
Sufficient volume: Øyes DNo DN/A 8.	
Correct containers used: ØYes DNo DN/A	
Pace containers used: Yes No N/A 9	
Containers intact:	
Unpreserved 5035A soils frozen w/in 48hrs? Ares DNo ØN/A 11.	
Filtered volume received for dissolved tests?	
Sample labels match COC:	
Includes date/time/ID/analyses Matrix:	
All containers needing preservation have been checked.	
All containers needing preservation are found to be in compliance	
Initial when	Lot # of added
Trip Blank present:	preservative
Pace Trip Blank lot # (if purchased):	
Headspace in VOA vials (>6mm):	
	<u>n</u>
Client Notification/ Resolution:	men Men
	Temp Log: Record start and finish times
Person Contacted: Date/Time:	when unpacking cooler, if >20 min, recheck
	Start: 940 Start:
	End: 950 End:
Project Manager Review: AAF Date: 01/13/16	Temp: Temp:

F-KS-C-004-Rev.4, 30June 2015

	Atlantic,	Laborati	ory Man	age	m e	enti) O C C	gran	ı Lâ	MP	Chê	lin o	f CI	usto	δ	Rec	ord		9		ц	age	of /
	KIChTIeld	BP/ARC Proj	ect Name:	Byrd	Pur	np Site	Inves	tigatio	_			а	Req [ue Da	ate (m	pp/mi	(yy):	JT.A	Adn	9	Rush TA	T: Yes	NUX
	O A BP affiliated company	BP/ARC Faci	lity No:	Byrd	Pur	np Site						а	Lab V	Vork (Order	Numt	er:	Ŧ	00	PP-	24		
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Lab A	ddress: 9608 Loiret Blvd		-	City,	State,	, ZIP C	ode:		Monun	ient, N	5					Ğ	sultant	/Contra	ctor Pr	oject No			182630008
Lab P	M: Alice Flanagan			Lead	Regu	latory /	Agency		NN O	9						Add	ress:	8770 (Suion F	d. Ste E	3 Indianapolis, IN	t6268	
Lab P	'hone: 916-563-1409			Califo) nnia	Global I	D No.:		¥							Ö	sultant	/Contra	ctor PN	Sus	an Hall		
Lab S	hipping Accut: Lazad bi 219	24010		Enfos	\$ Prop	N leso	lä		DIGOC	-002						Pho	ne:	317-87	6-8375				
Lab B	ottle Order No: $/ U [\rho \partial H O$			Acco	unting) Mode:		Prov	ision		DOC-BL		8 0	N N		ш Ш	ail EDD	ü. To	usn.ha	ll@stan	tec.com		
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BP/A	3C EBM: Sergio Morescalchi				Matr	Ϋ́	ž	Con	taine	s/Pr	eserva	tive			Re	luest	ed An	alyses			Report.	rype & QC L	evel
EBM	Phone: 925-487-0940						6		-	-	-					7.8t	0.00		00			standard X	
EBM	Email: Sergio.Morescalchi@bp.com						siənis						89	89		C / 54)E (əte	1	K 601		Full Data	Package	
	-				p		r of Cont						108 090	108 OAE	10220 X	0109 STV	alus,IT ,I	49209 əti	, sN , eM		les 1	56011	
No.	Sample Description	Date	Time	bilo2 \ lio	Vater / Liqui	ліг / Уарог	otal Numbe	Jupreserved	*OS ^z I	101 •••••••••••••••••••••••••••••••••••	Vethanol]-Нdт)-НАТ		ATEM ARDS	nions (Br, C	itrate / Nitris	,eO - enoite	15] OM 6	C Note: If sample no Sample" in comm	omments of collected, indic ents and single-s printed sample d	ate "No trrike out escription.
	BPS-MWPS2-2016011-291	4112011/1	1420	\sim		/		10	1 ~6	1	-					24	√ <u>}</u>	10998U			Hold BT	EX	100
	8 PS - MNWPS2-20160111-2955	\rightarrow	1425	\times				D	R		-		-	-	-	1		-		-	Hold B.	EX	crr
	8PS-MWPS3-2016012-29'	1/12/2016	0640	\times				5	3		_		-	-	T			-		_	HOLD B	TEX	63
	BPS-MW PS3-20160112-24.51		0845	\succ				S	K		~			7				\rightarrow			HOLD B.	TEX	har
(1	8PS-IMMPS1-20160112-291	1 9	12 CASO	\times	-			3					1	1	_	20	Lifu)	-		-)		evs
λ.	BPS-MWPSI-20100112-29.5'		0955	X	_			Z	_				į	1							}		ceb
	BPS - MWPSY-2016 CUR-29'		1200	\sim	-			20	rb		-		_	-		21 w	den)(ER	WZNUA	(106-1)	(Constal)	AOLD B	TEX	202
	BPS-MW 154-20160112-29.51		1205	\times				2	Ъ	_	-		-	1	T	1		+		-	HOUP B	TEX	608
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Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa, KS 66219 (913)599-5665

January 29, 2016

Susan Hall BP Stantec 8770 Guion Rd. Ste B Indianapolis, IN 46268

RE: Project: BYRD PUMP SITE INVESTIGATION Pace Project No.: 60211322

Dear Susan Hall:

Enclosed are the analytical results for sample(s) received by the laboratory on January 15, 2016. The results relate only to the samples included in this report. Results contained within this report conform to the most current version of the TNI standards, BP LaMP Technical Requirements Revision 10.1, and any applicable Quality Assurance Project Plan (QAPP), or Work Plan unless otherwise narrated in the body of this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Alice Glanazan

Alice Flanagan alice.flanagan@pacelabs.com Project Manager

Enclosures





CERTIFICATIONS

Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219 WY STR Certification #: 2456.01 Arkansas Certification #: 15-016-0 Illinois Certification #: 003097 Iowa Certification #: 118 Kansas/NELAP Certification #: E-10116 Louisiana Certification #: 03055 Nevada Certification #: KS000212008A Oklahoma Certification #: 9205/9935 Texas Certification #: T104704407 Utah Certification #: KS00021 Kansas Field Laboratory Accreditation: # E-92587



SAMPLE SUMMARY

Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60211322001	SS-9A	Solid	01/13/16 10:43	01/15/16 08:50
60211322002	SS-9B	Solid	01/13/16 10:37	01/15/16 08:50
60211322003	SS-9C	Solid	01/13/16 10:44	01/15/16 08:50
60211322004	SS-9D	Solid	01/13/16 10:45	01/15/16 08:50
60211322005	SS-7A	Solid	01/13/16 09:50	01/15/16 08:50
60211322006	SS-7B	Solid	01/13/16 09:52	01/15/16 08:50
60211322007	SS-7C	Solid	01/13/16 09:54	01/15/16 08:50
60211322008	SS-7D	Solid	01/13/16 09:55	01/15/16 08:50
60211322009	SS-8A	Solid	01/13/16 10:18	01/15/16 08:50
60211322010	SS-8B	Solid	01/13/16 10:20	01/15/16 08:50
60211322011	SS-8C	Solid	01/13/16 10:22	01/15/16 08:50
60211322012	SS-8D	Solid	01/13/16 10:24	01/15/16 08:50
60211322013	SS-10A	Solid	01/13/16 11:06	01/15/16 08:50
60211322014	SS-10B	Solid	01/13/16 11:09	01/15/16 08:50
60211322015	SS-10C	Solid	01/13/16 11:12	01/15/16 08:50
60211322016	SS-10D	Solid	01/13/16 11:14	01/15/16 08:50
60211322017	SS-11A	Solid	01/13/16 11:32	01/15/16 08:50
60211322018	SS-11B	Solid	01/13/16 11:34	01/15/16 08:50
60211322019	SS-11C	Solid	01/13/16 11:37	01/15/16 08:50
60211322020	SS-11D	Solid	01/13/16 11:40	01/15/16 08:50
60211322021	SS-12A	Solid	01/13/16 11:55	01/15/16 08:50
60211322022	SS-12B	Solid	01/13/16 11:58	01/15/16 08:50
60211322023	SS-12C	Solid	01/13/16 11:59	01/15/16 08:50
60211322024	SS-12D	Solid	01/13/16 12:01	01/15/16 08:50
60211322025	SS-13A	Solid	01/13/16 12:25	01/15/16 08:50
60211322026	SS-13B	Solid	01/13/16 12:28	01/15/16 08:50
60211322027	SS-13C	Solid	01/13/16 12:31	01/15/16 08:50
60211322028	SS-13D	Solid	01/13/16 12:32	01/15/16 08:50
60211322029	SS-14A	Solid	01/13/16 12:44	01/15/16 08:50
60211322030	SS-14B	Solid	01/13/16 12:45	01/15/16 08:50
60211322031	SS-14C	Solid	01/13/16 12:49	01/15/16 08:50
60211322032	SS-14D	Solid	01/13/16 12:51	01/15/16 08:50
60211322033	DUP2	Solid	01/13/16 08:00	01/15/16 08:50
60211322034	DUP3	Solid	01/13/16 08:00	01/15/16 08:50
60211322035	TRIP BLANK	Solid	01/13/16 08:00	01/15/16 08:50



Project:	BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60211322001	SS-9A	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322002	SS-9B	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322003	SS-9C	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322004	SS-9D	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322005	SS-7A	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322006	SS-7B	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322007	SS-7C	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322008	SS-7D	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322009	SS-8A	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322010	SS-8B	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322011	SS-8C	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322012	SS-8D	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322013	SS-10A	EPA 8015B	ACW	3	PASI-K



Project:	BYRD PLIMP SITE INVESTIGATION
1 10/001.	BINDI ONI SHE INVESTIGATION

Pace Project No.: 60211322

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322014	SS-10B	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322015	SS-10C	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322016	SS-10D	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322017	SS-11A	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322018	SS-11B	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322019	SS-11C	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322020	SS-11D	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322021	SS-12A	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322022	SS-12B	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322023	SS-12C	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322024	SS-12D	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322025	SS-13A	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		ASTM D2974	DWC	1	PASI-K
60211322026	SS-13B	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322027	SS-13C	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322028	SS-13D	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322029	SS-14A	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322030	SS-14B	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322031	SS-14C	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322032	SS-14D	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322033	DUP2	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211322034	DUP3	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K



PROJECT NARRATIVE

Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Method: EPA 8015B

Description:8015B Diesel Range OrganicsClient:BP Stantec TXDate:January 29, 2016

General Information:

34 samples were analyzed for EPA 8015B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3546 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: OEXT/52849

1e: Surrogate recovery outside laboratory control limits. Verified by re-analysis. No further action taken due to holding time violations.

- SS-9C (Lab ID: 60211322003)
 - p-Terphenyl (S)



PROJECT NARRATIVE

Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Method: EPA 8015B

Description:Gasoline Range OrganicsClient:BP Stantec TXDate:January 29, 2016

General Information:

34 samples were analyzed for EPA 8015B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 5035A/5030B with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-9A	Lab ID:	6021132200	01 Collected	d: 01/13/16	6 10:43	Received: 01/	15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	adjusted f	or percent mo	oisture, san	nple s	ize and any diluti	ons.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EP/	A 8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	11.2	mg/kg	10.6	5.3	1	01/25/16 00:00	01/27/16 22:16		
Surrogates		0 0							
n-Tetracosane (S)	76	%	18-139		1	01/25/16 00:00	01/27/16 22:16	646-31-1	
p-Terphenyl (S)	64	%	51-120		1	01/25/16 00:00	01/27/16 22:16	92-94-4	
Gasoline Range Organics	Analytical	Method: EP	A 8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	10.8	5.4	1	01/22/16 00:00	01/25/16 13:03		
4-Bromofluorobenzene (S)	98	%	68-144		1	01/22/16 00:00	01/25/16 13:03	460-00-4	
Percent Moisture	Analytical	Method: AS	FM D2974						
Percent Moisture	7.3	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-9B	Lab ID:	6021132200	02 Collecte	d: 01/13/16	6 10:37	Received: 01/	15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	e adjusted f	or percent mo	oisture, san	nple s	ize and any diluti	ons.		
			Report						
Parameters	Results	Units	_ Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EP/	A 8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	ND	mg/kg	11.7	5.8	1	01/25/16 00:00	01/27/16 22:24		
Surrogates		0 0							
n-Tetracosane (S)	56	%	18-139		1	01/25/16 00:00	01/27/16 22:24	646-31-1	
p-Terphenyl (S)	52	%	51-120		1	01/25/16 00:00	01/27/16 22:24	92-94-4	
Gasoline Range Organics	Analytical	Method: EP	A 8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO <i>Surrogates</i>	ND	mg/kg	12.0	6.0	1	01/22/16 00:00	01/25/16 13:21		
4-Bromofluorobenzene (S)	99	%	68-144		1	01/22/16 00:00	01/25/16 13:21	460-00-4	
Percent Moisture	Analytical	Method: AS	TM D2974						
Percent Moisture	16.2	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-9C	Lab ID:	6021132200	03 Collected	d: 01/13/16	6 10:44	Received: 01/	15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	e adjusted fo	or percent mo	oisture, sar	nple s	ize and any diluti	ons.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EP/	A 8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	6.5J	mg/kg	11.0	5.5	1	01/25/16 00:00	01/27/16 22:32		
Surrogates		0 0							
n-Tetracosane (S)	61	%	18-139		1	01/25/16 00:00	01/27/16 22:32	646-31-1	
p-Terphenyl (S)	48	%	51-120		1	01/25/16 00:00	01/27/16 22:32	92-94-4	1e
Gasoline Range Organics	Analytical	Method: EP/	A 8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	11.8	5.9	1	01/22/16 00:00	01/25/16 13:38		
4-Bromofluorobenzene (S)	96	%	68-144		1	01/22/16 00:00	01/25/16 13:38	460-00-4	
Percent Moisture	Analytical	Method: AS	TM D2974						
Percent Moisture	14.9	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-9D	Lab ID:	6021132200	4 Collecte	d: 01/13/16	6 10:45	Received: 01/	15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weigh	nt" basis and are	e adjusted fo	or percent m	oisture, sar	nple s	ize and any diluti	ions.		
			Report					040.1	
Parameters	Results	Units		MDL	DF	Prepared	Analyzed	CAS NO.	Quai
8015B Diesel Range Organics	Analytical	Method: EPA	8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO Surrogates	27.2	mg/kg	10.4	5.2	1	01/25/16 00:00	01/27/16 22:55		
n-Tetracosane (S)	85	%	18-139		1	01/25/16 00:00	01/27/16 22:55	646-31-1	
p-Terphenyl (S)	71	%	51-120		1	01/25/16 00:00	01/27/16 22:55	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA	8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	10.5	5.3	1	01/22/16 00:00	01/25/16 13:56		
4-Bromofluorobenzene (S)	94	%	68-144		1	01/22/16 00:00	01/25/16 13:56	460-00-4	
Percent Moisture	Analytical	Method: AS1	M D2974						
Percent Moisture	4.9	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-7A	Lab ID:	60211322005	Collecte	d: 01/13/16	6 09:50	Received: 01/	/15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weigh	nt" basis and are	e adjusted for	percent mo	oisture, san	nple s	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA	8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO Surrogates	26.1	mg/kg	10.3	5.2	1	01/25/16 00:00	01/27/16 23:03		
n-Tetracosane (S)	87	%	18-139		1	01/25/16 00:00	01/27/16 23:03	646-31-1	
p-Terphenyl (S)	72	%	51-120		1	01/25/16 00:00	01/27/16 23:03	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA	8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	10.5	5.2	1	01/22/16 00:00	01/25/16 14:13		
4-Bromofluorobenzene (S)	87	%	68-144		1	01/22/16 00:00	01/25/16 14:13	460-00-4	
Percent Moisture	Analytical	Method: ASTN	/I D2974						
Percent Moisture	3.8	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-7B	Lab ID:	6021132200	6 Collected	d: 01/13/16	6 09:52	Received: 01/	15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	e adjusted fo	or percent mo	oisture, san	nple s	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA	8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	ND	mg/kg	11.7	5.9	1	01/25/16 00:00	01/27/16 23:10		
Surrogates		0 0							
n-Tetracosane (S)	68	%	18-139		1	01/25/16 00:00	01/27/16 23:10	646-31-1	
p-Terphenyl (S)	56	%	51-120		1	01/25/16 00:00	01/27/16 23:10	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA	A 8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	12.1	6.1	1	01/22/16 00:00	01/25/16 15:40		
4-Bromofluorobenzene (S)	90	%	68-144		1	01/22/16 00:00	01/25/16 15:40	460-00-4	
Percent Moisture	Analytical	Method: AST	FM D2974						
Percent Moisture	17.1	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-7C	Lab ID:	602113220	07 Collecte	d: 01/13/16	6 09:54	Received: 01/	15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weigh	nt" basis and are	e adjusted f	or percent m	oisture, sar	nple s	ize and any dilut	ions.		
Parameters	Results	l Inite	Report	MDI	DF	Prepared	Analyzed	CAS No	Qual
		OTINO							
8015B Diesel Range Organics	Analytical	Method: EP	A 8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO Surrogates	19.7	mg/kg	10.5	5.3	1	01/25/16 00:00	01/27/16 23:18		
n-Tetracosane (S)	75	%	18-139		1	01/25/16 00:00	01/27/16 23:18	646-31-1	
p-Terphenyl (S)	61	%	51-120		1	01/25/16 00:00	01/27/16 23:18	92-94-4	
Gasoline Range Organics	Analytical	Method: EP	A 8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO <i>Surrogates</i>	ND	mg/kg	10.9	5.4	1	01/22/16 00:00	01/25/16 15:58		
4-Bromofluorobenzene (S)	89	%	68-144		1	01/22/16 00:00	01/25/16 15:58	460-00-4	
Percent Moisture	Analytical	Method: AS	TM D2974						
Percent Moisture	7.7	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-7D	Lab ID:	602113220	08 Collecte	d: 01/13/16	6 09:55	Received: 01/	/15/16 08:50 M	atrix: Solid	
Results reported on a "dry weigh	nt" basis and are	e adjusted f	or percent m	oisture, saı	nple s	ize and any dilut	ions.		
			Report						
Parameters	_ Results	Units		MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EP	A 8015B Prep	paration Met	hod: E	PA 3546			
TPH-DRO Surrogates	35.1	mg/kg	10.1	5.1	1	01/25/16 00:00	01/27/16 23:26		
n-Tetracosane (S)	92	%	18-139		1	01/25/16 00:00	01/27/16 23:26	646-31-1	
p-Terphenyl (S)	77	%	51-120		1	01/25/16 00:00	01/27/16 23:26	92-94-4	
Gasoline Range Organics	Analytical	Method: EP	A 8015B Prep	paration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	10.3	5.1	1	01/22/16 00:00	01/25/16 16:15		
4-Bromofluorobenzene (S)	88	%	68-144		1	01/22/16 00:00	01/25/16 16:15	460-00-4	
Percent Moisture	Analytical	Method: AS	TM D2974						
Percent Moisture	2.8	%	0.50	0.50	1		01/25/16 00:00		


Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-8A	Lab ID:	6021132200	09 Collecte	d: 01/13/16	6 10:18	Received: 01/	15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	e adjusted f	or percent mo	oisture, sar	nple s	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EP	A 8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	9.9J	mg/kg	11.7	5.8	1	01/25/16 00:00	01/27/16 23:34		
Surrogates									
n-Tetracosane (S)	63	%	18-139		1	01/25/16 00:00	01/27/16 23:34	646-31-1	
p-Terphenyl (S)	53	%	51-120		1	01/25/16 00:00	01/27/16 23:34	92-94-4	
Gasoline Range Organics	Analytical	Method: EP	A 8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	11.8	5.9	1	01/22/16 00:00	01/25/16 16:32		
4-Bromofluorobenzene (S)	84	%	68-144		1	01/22/16 00:00	01/25/16 16:32	460-00-4	
Percent Moisture	Analytical	Method: AS	TM D2974						
Percent Moisture	15.3	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-8B	Lab ID:	6021132201	0 Collecte	d: 01/13/16	6 10:20	Received: 01/	15/16 08:50 M	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	adjusted f	or percent m	oisture, san	nple s	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EP/	A 8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	17.5	mg/kg	11.5	5.8	1	01/25/16 00:00	01/27/16 23:41		
Surrogates		00							
n-Tetracosane (S)	71	%	18-139		1	01/25/16 00:00	01/27/16 23:41	646-31-1	
p-Terphenyl (S)	60	%	51-120		1	01/25/16 00:00	01/27/16 23:41	92-94-4	
Gasoline Range Organics	Analytical	Method: EP	A 8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	11.6	5.8	1	01/22/16 00:00	01/25/16 16:49		
4-Bromofluorobenzene (S)	80	%	68-144		1	01/22/16 00:00	01/25/16 16:49	460-00-4	
Percent Moisture	Analytical	Method: AS	TM D2974						
Percent Moisture	14.2	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-8C	Lab ID:	602113220	11 Collecte	d: 01/13/16	6 10:22	Received: 01/	/15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	adjusted f	or percent mo	oisture, sar	nple s	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	_ Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EP	A 8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	24.6	mg/kg	10.3	5.1	1	01/25/16 00:00	01/27/16 23:49		
Surrogates									
n-Tetracosane (S)	80	%	18-139		1	01/25/16 00:00	01/27/16 23:49	646-31-1	
p-Terphenyl (S)	67	%	51-120		1	01/25/16 00:00	01/27/16 23:49	92-94-4	
Gasoline Range Organics	Analytical	Method: EP	A 8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	10.4	5.2	1	01/22/16 00:00	01/25/16 17:07		
4-Bromofluorobenzene (S)	89	%	68-144		1	01/22/16 00:00	01/25/16 17:07	460-00-4	
Percent Moisture	Analytical	Method: AS	TM D2974						
Percent Moisture	4.0	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-8D	Lab ID:	6021132201	12 Collecte	d: 01/13/16	6 10:24	Received: 01/	15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	e adjusted f	or percent me	oisture, sar	nple s	ize and any diluti	ons.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EP	A 8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	33.7	mg/kg	10.4	5.2	1	01/25/16 00:00	01/27/16 23:57		
Surrogates									
n-Tetracosane (S)	83	%	18-139		1	01/25/16 00:00	01/27/16 23:57	646-31-1	
p-Terphenyl (S)	66	%	51-120		1	01/25/16 00:00	01/27/16 23:57	92-94-4	
Gasoline Range Organics	Analytical	Method: EP/	A 8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO <i>Surrogates</i>	13.6	mg/kg	11.0	5.5	1	01/25/16 00:00	01/26/16 16:19		
4-Bromofluorobenzene (S)	99	%	68-144		1	01/25/16 00:00	01/26/16 16:19	460-00-4	
Percent Moisture	Analytical	Method: AS	TM D2974						
Percent Moisture	8.9	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-10A	Lab ID:	60211322013	Collecte	d: 01/13/16	6 11:06	Received: 01/	/15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	e adjusted for	percent me	oisture, san	nple si	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: El	PA 3546			
TPH-DRO Surrogates	12.9	mg/kg	10.2	5.1	1	01/25/16 00:00	01/28/16 00:20		
n-Tetracosane (S)	77	%	18-139		1	01/25/16 00:00	01/28/16 00:20	646-31-1	
p-Terphenyl (S)	64	%	51-120		1	01/25/16 00:00	01/28/16 00:20	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: El	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	10.3	5.2	1	01/25/16 00:00	01/26/16 17:11		
4-Bromofluorobenzene (S)	99	%	68-144		1	01/25/16 00:00	01/26/16 17:11	460-00-4	
Percent Moisture	Analytical	Method: ASTM	1 D2974						
Percent Moisture	3.3	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-10B	Lab ID:	6021132201	4 Collecte	d: 01/13/16	6 11:09	Received: 01/	15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weight	" basis and are	adjusted fo	r percent me	oisture, san	nple s	ize and any diluti	ons.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA	8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	17.9	mg/kg	10.1	5.0	1	01/25/16 00:00	01/28/16 00:27		
Surrogates		0 0							
n-Tetracosane (S)	79	%	18-139		1	01/25/16 00:00	01/28/16 00:27	646-31-1	
p-Terphenyl (S)	67	%	51-120		1	01/25/16 00:00	01/28/16 00:27	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA	8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	10.3	5.2	1	01/25/16 00:00	01/26/16 17:29		
4-Bromofluorobenzene (S)	99	%	68-144		1	01/25/16 00:00	01/26/16 17:29	460-00-4	
Percent Moisture	Analytical	Method: AST	M D2974						
Percent Moisture	4.2	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-10C	Lab ID:	60211322015	Collecte	d: 01/13/16	5 11:12	Received: 01/	15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	e adjusted for	percent me	oisture, san	nple si	ze and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: El	PA 3546			
TPH-DRO <i>Surrogates</i>	10.7J	mg/kg	10.8	5.4	1	01/25/16 00:00	01/28/16 00:35		
n-Tetracosane (S)	70	%	18-139		1	01/25/16 00:00	01/28/16 00:35	646-31-1	
p-Terphenyl (S)	58	%	51-120		1	01/25/16 00:00	01/28/16 00:35	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: El	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	11.0	5.5	1	01/25/16 00:00	01/26/16 17:46		
4-Bromofluorobenzene (S)	92	%	68-144		1	01/25/16 00:00	01/26/16 17:46	460-00-4	
Percent Moisture	Analytical	Method: ASTM	1 D2974						
Percent Moisture	9.1	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-10D	Lab ID:	60211322016	Collecte	d: 01/13/16	6 11:14	Received: 01/	/15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	e adjusted for	percent mo	oisture, san	nple s	ize and any diluti	ions.		
_			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA	3015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO Surrogates	ND	mg/kg	12.3	6.1	1	01/25/16 00:00	01/28/16 00:43		
n-Tetracosane (S)	67	%	18-139		1	01/25/16 00:00	01/28/16 00:43	646-31-1	
p-Terphenyl (S)	55	%	51-120		1	01/25/16 00:00	01/28/16 00:43	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA	8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	12.8	6.4	1	01/25/16 00:00	01/26/16 18:04		
4-Bromofluorobenzene (S)	86	%	68-144		1	01/25/16 00:00	01/26/16 18:04	460-00-4	
Percent Moisture	Analytical	Method: ASTN	/I D2974						
Percent Moisture	22.3	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-11A	Lab ID:	6021132201	7 Collecte	d: 01/13/16	6 11:32	Received: 01/	15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	e adjusted fo	r percent m	oisture, san	nple s	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA	8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	ND	mg/kg	12.5	6.3	1	01/25/16 00:00	01/28/16 12:10		
Surrogates		00							
n-Tetracosane (S)	70	%	18-139		1	01/25/16 00:00	01/28/16 12:10	646-31-1	
p-Terphenyl (S)	55	%	51-120		1	01/25/16 00:00	01/28/16 12:10	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA	8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	12.8	6.4	1	01/25/16 00:00	01/26/16 18:21		
4-Bromofluorobenzene (S)	92	%	68-144		1	01/25/16 00:00	01/26/16 18:21	460-00-4	
Percent Moisture	Analytical	Method: AST	M D2974						
Percent Moisture	21.8	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-11B	Lab ID:	60211322018	Collecte	d: 01/13/16	6 11:34	Received: 01/	15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	adjusted for	percent me	oisture, san	nple si	ize and any diluti	ons.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: El	PA 3546			
TPH-DRO	30.6	mg/kg	10.2	5.1	1	01/25/16 00:00	01/28/16 00:58		
Surrogates									
n-Tetracosane (S)	84	%	18-139		1	01/25/16 00:00	01/28/16 00:58	646-31-1	
p-Terphenyl (S)	70	%	51-120		1	01/25/16 00:00	01/28/16 00:58	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: El	PA 5035A/5030B			
TPH-GRO	ND	mg/kg	10.3	5.1	1	01/25/16 00:00	01/26/16 19:14		
4-Bromofluorobenzene (S)	99	%	68-144		1	01/25/16 00:00	01/26/16 19:14	460-00-4	
Percent Moisture	Analytical	Method: ASTM	1 D2974						
Percent Moisture	2.6	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-11C	Lab ID:	60211322019	Collecte	d: 01/13/16	6 11:37	Received: 01/	15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	adjusted for	percent m	oisture, san	nple s	ize and any diluti	ons.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	25.4	mg/kg	10.3	5.2	1	01/25/16 00:00	01/28/16 01:06		
Surrogates		0 0							
n-Tetracosane (S)	81	%	18-139		1	01/25/16 00:00	01/28/16 01:06	646-31-1	
p-Terphenyl (S)	68	%	51-120		1	01/25/16 00:00	01/28/16 01:06	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO <i>Surrogates</i>	ND	mg/kg	10.4	5.2	1	01/25/16 00:00	01/26/16 19:31		
4-Bromofluorobenzene (S)	98	%	68-144		1	01/25/16 00:00	01/26/16 19:31	460-00-4	
Percent Moisture	Analytical	Method: ASTM	D2974						
Percent Moisture	4.8	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-11D	Lab ID:	60211322020	Collecte	d: 01/13/16	6 11:40	Received: 01/	15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	adjusted for	percent m	oisture, sar	nple si	ize and any diluti	ons.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	015B Prep	paration Met	hod: El	PA 3546			
TPH-DRO	27.3	mg/kg	10.1	5.1	1	01/25/16 00:00	01/28/16 01:13		
Surrogates									
n-Tetracosane (S)	88	%	18-139		1	01/25/16 00:00	01/28/16 01:13	646-31-1	
p-Terphenyl (S)	73	%	51-120		1	01/25/16 00:00	01/28/16 01:13	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	015B Prep	aration Met	hod: El	PA 5035A/5030B			
TPH-GRO <i>Surrogates</i>	ND	mg/kg	10.5	5.2	1	01/25/16 00:00	01/26/16 19:48		
4-Bromofluorobenzene (S)	93	%	68-144		1	01/25/16 00:00	01/26/16 19:48	460-00-4	
Percent Moisture	Analytical	Method: ASTM	D2974						
Percent Moisture	4.5	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-12A	Lab ID:	6021132202	21 Collecte	d: 01/13/16	6 11:55	Received: 01/	15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	e adjusted fo	or percent me	oisture, san	nple s	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EP/	8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	ND	mg/kg	11.5	5.7	1	01/25/16 00:00	01/27/16 10:44		
Surrogates		0 0							
n-Tetracosane (S)	84	%	18-139		1	01/25/16 00:00	01/27/16 10:44	646-31-1	
p-Terphenyl (S)	83	%	51-120		1	01/25/16 00:00	01/27/16 10:44	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA	A 8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	11.6	5.8	1	01/25/16 00:00	01/26/16 20:05		
4-Bromofluorobenzene (S)	95	%	68-144		1	01/25/16 00:00	01/26/16 20:05	460-00-4	
Percent Moisture	Analytical	Method: AS	FM D2974						
Percent Moisture	13.0	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-12B	Lab ID:	6021132202	22 Collecte	d: 01/13/16	6 11:58	Received: 01/	15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	e adjusted f	or percent me	oisture, sar	nple s	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EP	A 8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	ND	mg/kg	12.8	6.4	1	01/25/16 00:00	01/27/16 10:53		
Surrogates									
n-Tetracosane (S)	88	%	18-139		1	01/25/16 00:00	01/27/16 10:53	646-31-1	
p-Terphenyl (S)	84	%	51-120		1	01/25/16 00:00	01/27/16 10:53	92-94-4	
Gasoline Range Organics	Analytical	Method: EP	A 8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	13.1	6.6	1	01/25/16 00:00	01/26/16 20:23		
4-Bromofluorobenzene (S)	89	%	68-144		1	01/25/16 00:00	01/26/16 20:23	460-00-4	
Percent Moisture	Analytical	Method: AS	TM D2974						
Percent Moisture	23.4	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-12C	Lab ID:	60211322023	Collecte	d: 01/13/16	6 11:59	Received: 01/	15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	e adjusted for	percent me	oisture, san	nple s	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	7.2J	mg/kg	11.7	5.9	1	01/25/16 00:00	01/27/16 11:02		
Surrogates									
n-Tetracosane (S)	83	%	18-139		1	01/25/16 00:00	01/27/16 11:02	646-31-1	
p-Terphenyl (S)	77	%	51-120		1	01/25/16 00:00	01/27/16 11:02	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO <i>Surrogates</i>	ND	mg/kg	11.8	5.9	1	01/25/16 00:00	01/26/16 20:40		
4-Bromofluorobenzene (S)	93	%	68-144		1	01/25/16 00:00	01/26/16 20:40	460-00-4	
Percent Moisture	Analytical	Method: ASTM	1 D2974						
Percent Moisture	15.3	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-12D	Lab ID:	60211322024	Collecte	d: 01/13/16	6 12:01	Received: 01/	15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	adjusted for	percent m	oisture, san	nple s	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	ND	mg/kg	11.8	5.9	1	01/25/16 00:00	01/27/16 11:12		
Surrogates		0 0							
n-Tetracosane (S)	92	%	18-139		1	01/25/16 00:00	01/27/16 11:12	646-31-1	
p-Terphenyl (S)	87	%	51-120		1	01/25/16 00:00	01/27/16 11:12	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO <i>Surrogates</i>	ND	mg/kg	12.2	6.1	1	01/25/16 00:00	01/26/16 20:58		
4-Bromofluorobenzene (S)	93	%	68-144		1	01/25/16 00:00	01/26/16 20:58	460-00-4	
Percent Moisture	Analytical	Method: ASTM	D2974						
Percent Moisture	18.6	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-13A	Lab ID:	60211322025	Collecte	d: 01/13/16	6 12:25	Received: 01/	15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	e adjusted for	percent m	oisture, san	nple si	ze and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	015B Prep	aration Met	hod: El	PA 3546			
TPH-DRO	9.8J	mg/kg	11.1	5.6	1	01/25/16 00:00	01/27/16 11:21		
Surrogates		0 0							
n-Tetracosane (S)	95	%	18-139		1	01/25/16 00:00	01/27/16 11:21	646-31-1	
p-Terphenyl (S)	80	%	51-120		1	01/25/16 00:00	01/27/16 11:21	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	015B Prep	aration Met	hod: El	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	11.3	5.7	1	01/25/16 00:00	01/26/16 21:15		
4-Bromofluorobenzene (S)	85	%	68-144		1	01/25/16 00:00	01/26/16 21:15	460-00-4	
Percent Moisture	Analytical	Method: ASTM	D2974						
Percent Moisture	12.4	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-13B	Lab ID:	60211322026	Collecte	d: 01/13/16	6 12:28	Received: 01/	15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	e adjusted for	percent me	oisture, san	nple si	ize and any diluti	ons.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	23.1	mg/kg	10.0	5.0	1	01/25/16 00:00	01/27/16 11:49		
Surrogates		0 0							
n-Tetracosane (S)	133	%	18-139		1	01/25/16 00:00	01/27/16 11:49	646-31-1	
p-Terphenyl (S)	116	%	51-120		1	01/25/16 00:00	01/27/16 11:49	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	015B Prep	aration Met	hod: El	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	10.3	5.1	1	01/25/16 00:00	01/26/16 21:32		
4-Bromofluorobenzene (S)	92	%	68-144		1	01/25/16 00:00	01/26/16 21:32	460-00-4	
Percent Moisture	Analytical	Method: ASTM	D2974						
Percent Moisture	3.3	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-13C	Lab ID:	60211322027	Collecte	d: 01/13/16	12:31	Received: 01/	15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	e adjusted for	percent m	oisture, san	nple si	ize and any diluti	ions.		
_			Report			_			
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Metl	hod: El	PA 3546			
TPH-DRO	11.9	mg/kg	10.7	5.3	1	01/25/16 00:00	01/27/16 13:31		
n-Tetracosane (S)	107	%	18-139		1	01/25/16 00:00	01/27/16 13:31	646-31-1	
p-Terphenyl (S)	93	%	51-120		1	01/25/16 00:00	01/27/16 13:31	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Metl	hod: El	PA 5035A/5030B			
TPH-GRO <i>Surrogates</i>	ND	mg/kg	10.9	5.4	1	01/25/16 00:00	01/26/16 21:50		
4-Bromofluorobenzene (S)	90	%	68-144		1	01/25/16 00:00	01/26/16 21:50	460-00-4	
Percent Moisture	Analytical	Method: ASTM	1 D2974						
Percent Moisture	8.1	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-13D	Lab ID:	60211322028	Collecte	d: 01/13/16	6 12:32	Received: 01/	15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	adjusted for	percent m	oisture, san	nple si	ze and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	015B Prep	paration Met	hod: El	PA 3546			
TPH-DRO	8.1J	mg/kg	12.0	6.0	1	01/25/16 00:00	01/27/16 13:40		
Surrogates									
n-Tetracosane (S)	85	%	18-139		1	01/25/16 00:00	01/27/16 13:40	646-31-1	
p-Terphenyl (S)	83	%	51-120		1	01/25/16 00:00	01/27/16 13:40	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	015B Prep	aration Met	hod: El	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	12.1	6.0	1	01/25/16 00:00	01/26/16 22:41		
4-Bromofluorobenzene (S)	92	%	68-144		1	01/25/16 00:00	01/26/16 22:41	460-00-4	
Percent Moisture	Analytical	Method: ASTM	D2974						
Percent Moisture	17.2	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-14A	Lab ID:	6021132202	29 Collecte	d: 01/13/16	6 12:44	Received: 01/	15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	e adjusted fo	or percent mo	oisture, san	nple s	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA	8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO Surrogates	13.0	mg/kg	10.3	5.2	1	01/25/16 00:00	01/27/16 13:49		
n-Tetracosane (S)	105	%	18-139		1	01/25/16 00:00	01/27/16 13:49	646-31-1	
p-Terphenyl (S)	98	%	51-120		1	01/25/16 00:00	01/27/16 13:49	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA	A 8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	10.7	5.4	1	01/25/16 00:00	01/26/16 22:59		
4-Bromofluorobenzene (S)	99	%	68-144		1	01/25/16 00:00	01/26/16 22:59	460-00-4	
Percent Moisture	Analytical	Method: AST	FM D2974						
Percent Moisture	7.4	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-14B	Lab ID:	6021132203	30 Collecte	d: 01/13/16	6 12:45	Received: 01/	15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	e adjusted fo	or percent mo	oisture, sar	nple s	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EP/	A 8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	11.4	mg/kg	10.9	5.5	1	01/25/16 00:00	01/27/16 13:59		
Surrogates		0 0							
n-Tetracosane (S)	101	%	18-139		1	01/25/16 00:00	01/27/16 13:59	646-31-1	
p-Terphenyl (S)	86	%	51-120		1	01/25/16 00:00	01/27/16 13:59	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA	A 8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO <i>Surrogates</i>	ND	mg/kg	11.2	5.6	1	01/25/16 00:00	01/26/16 23:16		
4-Bromofluorobenzene (S)	87	%	68-144		1	01/25/16 00:00	01/26/16 23:16	460-00-4	
Percent Moisture	Analytical	Method: AS	FM D2974						
Percent Moisture	11.1	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-14C	Lab ID:	60211322031	Collecte	d: 01/13/16	5 12:49	Received: 01/	15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	e adjusted for	percent me	oisture, san	nple si	ize and any diluti	ons.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	3015B Prep	paration Met	hod: El	PA 3546			
TPH-DRO	ND	mg/kg	12.2	6.1	1	01/25/16 00:00	01/27/16 14:08		
Surrogates		0 0							
n-Tetracosane (S)	82	%	18-139		1	01/25/16 00:00	01/27/16 14:08	646-31-1	
p-Terphenyl (S)	77	%	51-120		1	01/25/16 00:00	01/27/16 14:08	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	3015B Prep	paration Met	hod: El	PA 5035A/5030B			
TPH-GRO <i>Surrogates</i>	ND	mg/kg	12.9	6.4	1	01/25/16 00:00	01/26/16 23:33		
4-Bromofluorobenzene (S)	90	%	68-144		1	01/25/16 00:00	01/26/16 23:33	460-00-4	
Percent Moisture	Analytical	Method: ASTM	1 D2974						
Percent Moisture	22.6	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: SS-14D	Lab ID:	6021132203	32 Collected	d: 01/13/16	6 12:51	Received: 01/	15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	adjusted f	or percent mo	oisture, sar	nple s	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EP	A 8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	ND	mg/kg	11.8	5.9	1	01/25/16 00:00	01/27/16 14:17		
Surrogates									
n-Tetracosane (S)	78	%	18-139		1	01/25/16 00:00	01/27/16 14:17	646-31-1	
p-Terphenyl (S)	77	%	51-120		1	01/25/16 00:00	01/27/16 14:17	92-94-4	
Gasoline Range Organics	Analytical	Method: EP	A 8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	11.8	5.9	1	01/26/16 00:00	01/27/16 00:25		
4-Bromofluorobenzene (S)	96	%	68-144		1	01/26/16 00:00	01/27/16 00:25	460-00-4	
Percent Moisture	Analytical	Method: AS	TM D2974						
Percent Moisture	15.7	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: DUP2	Lab ID:	6021132203	33 Collecte	d: 01/13/16	6 08:00	Received: 01/	/15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	adjusted f	or percent m	oisture, sar	nple s	ize and any dilut	ions.		
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EP/	A 8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO Surrogates	ND	mg/kg	11.9	6.0	1	01/25/16 00:00	01/27/16 14:27		
n-Tetracosane (S)	83	%	18-139		1	01/25/16 00:00	01/27/16 14:27	646-31-1	
p-Terphenyl (S)	79	%	51-120		1	01/25/16 00:00	01/27/16 14:27	92-94-4	
Gasoline Range Organics	Analytical	Method: EP	A 8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	12.2	6.1	1	01/26/16 00:00	01/27/16 00:43		
4-Bromofluorobenzene (S)	90	%	68-144		1	01/26/16 00:00	01/27/16 00:43	460-00-4	
Percent Moisture	Analytical	Method: AS	TM D2974						
Percent Moisture	17.4	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Sample: DUP3	Lab ID:	60211322034	Collecte	d: 01/13/16	6 08:00	Received: 01/	15/16 08:50 Ma	atrix: Solid	
Results reported on a "dry weight"	' basis and are	adjusted for	percent me	oisture, sar	nple si	ze and any diluti	ons.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: El	PA 3546			
TPH-DRO	22.1	mg/kg	10.1	5.1	1	01/25/16 00:00	01/27/16 14:36		
Surrogates									
n-Tetracosane (S)	112	%	18-139		1	01/25/16 00:00	01/27/16 14:36	646-31-1	
p-Terphenyl (S)	105	%	51-120		1	01/25/16 00:00	01/27/16 14:36	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: El	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	10.6	5.3	1	01/26/16 00:00	01/27/16 01:00		
4-Bromofluorobenzene (S)	86	%	68-144		1	01/26/16 00:00	01/27/16 01:00	460-00-4	
Percent Moisture	Analytical	Method: ASTM	1 D2974						
Percent Moisture	5.6	%	0.50	0.50	1		01/25/16 00:00		



Project:	BYRD PU	MP SITE IN	VESTIGATION										
Pace Project No.:	60211322												
QC Batch:	GCV/529	99		Analys	is Method:		EPA 8015B						
QC Batch Method:	EPA 503	5A/5030B		Analys	is Descript	tion:	Gasoline Rar	ige Organi	cs				
Associated Lab Sar	mples: 60 60	211322001 211322008	, 60211322002 , 60211322009	, 602113220 , 602113220	003, 60211 010, 60211	322004, 6 322011	60211322005	, 60211322	2006, 60211	322007,			
METHOD BLANK:	1701578			N	latrix: Soli	id							
Associated Lab Sar	mples: 60 60	211322001 211322008	, 60211322002 , 60211322009	, 602113220 , 602113220)03, 60211)10, 60211	322004, 6 322011	60211322005	, 60211322	2006, 60211	322007,			
				Blank	R	eporting							
Parar	neter		Units	Resul	t	Limit	MDL		Analyzed	Qua	alifiers		
TPH-GRO			mg/kg		ND	10.	0	5.0 01/	25/16 11:28	3			
4-Bromofluorobenzo	ene (S)		%		97	68-14	4	01/	25/16 11:28	3			
			01570										
LABORATORT CO	NTROL SAI	VIFLE. I/	01579	Snike	LCS	:	LCS	% Re					
Parar	neter		Units	Conc.	Resu	, Ilt	% Rec	Limits	Qı	ualifiers			
TPH-GRO			mg/kg	50		50.5	101	67	·-115		-		
4-Bromofluorobenze	ene (S)		%				97	68	8-144				
MATRIX SPIKE & N			ATE: 17015	88		1701589)						
				MS	MSD								
			60211322005	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	er	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
TPH-GRO		mg/kg	ND	52.4	52.4	54.	5 52.1	103	98	49-122	5	14	
4-Bromofluorobenze	ene (S)	%						88	81	68-144			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

QC Batch: GC	CV/5300		Analys	is Method:	: E	PA 8015B						
QC Batch Method: EF	PA 5035A/5030	3	Analys	is Descript	tion: G	Basoline Ran	ge Organi	cs				
Associated Lab Samples	: 602113220 602113220 602113220	12, 60211322013 19, 60211322020 26, 60211322027	, 602113220 , 602113220 , 602113220)14, 60211)21, 60211)28, 60211	322015, 60 322022, 60 322029, 60	0211322016 0211322023 0211322030	, 60211322 , 60211322 , 60211322	2017, 60211 2024, 60211 2031	322018, 322025,			
METHOD BLANK: 170	1613		N	latrix: Sol	id							
Associated Lab Samples	: 602113220 602113220 602113220	12, 60211322013 19, 60211322020 26, 60211322027	, 602113220 , 602113220 , 602113220)14, 60211)21, 60211)28, 60211	322015, 60 322022, 60 322029, 60	0211322016 0211322023 0211322030	, 60211322 , 60211322 , 60211322	2017, 60211 2024, 60211 2031	322018, 322025,			
Paramotor		Lipite	Blank	. R	eporting	MDI		Applyzod	0	alifiare		
		011113			LIIIII					anners		
4-Bromofluorobenzene (S)	mg/kg %		ND 97	10.0 68-144	•	5.0 01/	26/16 14:58 26/16 14:58	3			
LABORATORY CONTRO	DL SAMPLE:	1701614										
Parameter		Units	Spike Conc.	LCS Resu	S Ilt	LCS % Rec	% Ree Limits	c s Qu	ualifiers			
TPH-GRO 4-Bromofluorobenzene (\$	5)	mg/kg %	50		54.2	108 92	67 68	7-115 3-144		_		
MATRIX SPIKE & MATR	IX SPIKE DUPI	LICATE: 17016	15 MS	MSD	1701616							
		60211322012	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	Qual
Parameter		s Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits		RPD	Qual
TPH-GRO	mg/k	a 13.6	55	55	52.2	51.5	70	69	49-122	1	14	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS



Project: B	YRD PUMP SITE I	NVESTIGATION										
Pace Project No.: 60)211322											
QC Batch:	GCV/5301		Analys	is Method:	: 6	EPA 8015B						
QC Batch Method:	EPA 5035A/5030B		Analys	is Descript	tion: (Gasoline Ran	ige Organi	cs				
Associated Lab Sample	es: 6021132203	82, 60211322033	, 602113220)34								
METHOD BLANK: 17	/02190		N	latrix: Sol	id							
Associated Lab Sample	es: 6021132203	32, 60211322033	, 602113220)34								
			Blank	R	eporting							
Paramete	er	Units	Resul	t	Limit	MDL		Analyzed	Qu	alifiers		
TPH-GRO		mg/kg		ND	10.	0	5.0 01	/27/16 00:08	3			
4-Bromofluorobenzene	(S)	%		98	68-14	4	01.	/27/16 00:08	3			
LABORATORY CONTR	ROL SAMPLE: 1	702191										
			Spike	LCS	6	LCS	% Re	с				
Paramete	er	Units	Conc.	Resu	ılt	% Rec	Limit	s Qu	ualifiers			
TPH-GRO		mg/kg	50		50.8	102	6	7-115		-		
4-Bromofluorobenzene	(S)	%				94	6	8-144				
MATRIX SPIKE & MAT	RIX SPIKE DUPLI	ICATE: 17021	92		1702193							
			MS	MSD								
		60211323001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
TPH-GRO	mg/kg	I ND	61.5	61.5	63.0	60.6	102	98	49-122	: 4	14	
4-Bromofluorobenzene	(S) %						86	90	68-144	÷		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

QC Batch: OE>	(T/52849	Analysis N	lethod:	EPA 8015B			
QC Batch Method: EPA	3546	Analysis D	Description:	EPA 8015B			
Associated Lab Samples:	60211322001, 60211322002 60211322008, 60211322009 60211322015, 60211322016	2, 60211322003 9, 60211322010 5, 60211322017	, 60211322004, , 60211322011, , 60211322018,	60211322005, 60211322012, 60211322019,	60211322006, 6 60211322013, 6 60211322020	02113220 02113220	007, 014,
METHOD BLANK: 17014	185	Matr	ix: Solid				
Associated Lab Samples:	60211322001, 60211322002 60211322008, 60211322008 60211322015, 60211322016	2, 60211322003 9, 60211322010 5, 60211322017 Blank	, 60211322004, , 60211322011, , 60211322018, Reporting	60211322005, 60211322012, 60211322019,	60211322006, 6 60211322013, 6 60211322020	02113220 02113220	007, 014,
Parameter	Units	Result	Limit	MDL	Analyz	ed	Qualifiers
TPH-DRO n-Tetracosane (S)	mg/kg %	N 7	D 9 /3 18-1).8 39	4.9 01/27/16 2 01/27/16 2	21:53 21:53	
p-Terphenyl (S)	%	6	54 51-11 54	20	01/27/16	21:53	
LABORATORY CONTROL	SAMPLE: 1701486						
Parameter	Units	Spike Conc.	LCS Result	% Rec	% Rec Limits	Qualifie	ers
TPH-DRO	mg/kg	78.2	77.4	99	76-115		
p-Terphenyl (S)	%			81 70	18-139 51-120		
MATRIX SPIKE & MATRIX	SPIKE DUPLICATE: 17014	187 MS M	170148	8			

		60211322005	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
TPH-DRO	mg/kg	26.1	83.9	85.8	116	121	107	111	12-159	4	37	
n-Tetracosane (S)	%						100	101	18-139			
p-Terphenyl (S)	%						85	85	51-120			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS



D <i>i i</i>		
Project:	BYRD PUMP SITE	INVESTIGATION

Pace Project No.: 60211322

QC Batch: 0	OEXT/52850		Analysis	Method:	EPA 8015B				
QC Batch Method:	EPA 3546		Analysis	Description:	EPA 8015B				
Associated Lab Sample	es: 60211322 60211322	021, 60211322022, 028, 60211322029,	60211322023 60211322030	3, 60211322024), 60211322031	, 60211322025 , 60211322032	, 602′ , 602′	11322026, 6 11322033, 6	0211322 0211322	2027, 2034
METHOD BLANK: 17	701492		Mat	rix: Solid					
Associated Lab Sample	es: 60211322 60211322	021, 60211322022, 028, 60211322029,	60211322023 60211322030 Blank	3, 60211322024), 60211322031 Reporting	, 60211322025 , 60211322032	, 602′ , 602′	11322026, 6 11322033, 6	0211322 0211322	2027, 2034
Paramete	er	Units	Result	Limit	MDL		Analyz	ed	Qualifiers
TPH-DRO n-Tetracosane (S) p-Terphenyl (S)		mg/kg % %	N	ND 85 18- 86 51-	9.5 139 120	4.7	01/27/16 ⁻ 01/27/16 ⁻ 01/27/16 ⁻	10:06 10:06 10:06	
LABORATORY CONTR	ROL SAMPLE:	1701493							
Paramete	er	Units	Spike Conc.	LCS Result	LCS % Rec	9 I	∕₀ Rec _imits	Qualif	fiers
TPH-DRO		mg/kg	80.2	71.1	89		76-115		
n-Tetracosane (S)		%			98		18-139		
p-Terphenyl (S)		%			103		51-120		
MATRIX SPIKE & MAT	RIX SPIKE DUP	LICATE: 17014	94	17014	95				

Parameter	l Inits	60211322021 Result	Spike Conc	Spike Conc	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
i didificici	Office	rteour	00110.	00110.	Result	rtooun	/01100	701100	Linno			Quui
TPH-DRO	mg/kg	ND	94.3	94.1	79.9	76.7	83	80	12-159	4	37	
n-Tetracosane (S)	%						78	86	18-139			
p-Terphenyl (S)	%						79	87	51-120			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS



Project:	BYRD	PUMP SITE IN	IVESTIGATION					
Pace Project No.:	602113	22						
QC Batch:	PMS	/11457		Analysis Meth	nod:	ASTM D2974		
QC Batch Method:	ASTM	1 D2974		Analysis Desc	cription:	Dry Weight/Pero	cent Moisture	
Associated Lab Sar	nples:	60211322001 60211322008 60211322015	, 60211322002, , 60211322009, , 60211322016,	60211322003, 60 60211322010, 60 60211322017, 60	211322004, 211322011, 211322018,	60211322005, 6 60211322012, 6 60211322019, 6	0211322006, 6021 ⁻ 0211322013, 60211 0211322020	1322007, 322014,
METHOD BLANK:	170146	5		Matrix:	Solid			
Associated Lab Sar	nples:	60211322001 60211322008 60211322015	, 60211322002, , 60211322009, , 60211322016,	60211322003, 60 60211322010, 60 60211322017, 60	211322004, 211322011, 211322018,	60211322005, 6 60211322012, 6 60211322019, 6	0211322006, 6021 [,] 0211322013, 60211 0211322020	1322007, 322014,
Doron	notor		Linita	Blank	Reporting	MDI	Applyrod	Qualifiara
Paran	neter	·	Units		Limit			
Percent Moisture			%	ND	0.	50 0.4	50 01/25/16 00:00)
SAMPLE DUPLICA	TE: 17	01466						
_				60211322001	Dup		Max	-
Parar	neter		Units	Result	Result			Qualifiers
Percent Moisture			%	7.3	7	7.1	3 20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



Project:	BYRD F	UMP SITE IN	VESTIGATION					
Pace Project No.:	6021132	22						
QC Batch:	PMST	/11458		Analysis Met	hod:	ASTM D2974		
QC Batch Method:	ASTM	D2974		Analysis Des	scription:	Dry Weight/Pero	cent Moisture	
Associated Lab San	nples:	60211322021 60211322028	, 60211322022, , 60211322029,	60211322023, 6 60211322030, 6	0211322024, 0211322031,	60211322025, 6 60211322032, 6	0211322026, 60211 0211322033, 60211	322027, 322034
METHOD BLANK:	170147 [,]	1		Matrix:	Solid			
Associated Lab San	nples:	60211322021 60211322028	, 60211322022, , 60211322029,	60211322023, 6 60211322030, 6	0211322024, 0211322031,	60211322025, 6 60211322032, 6	0211322026, 60211 0211322033, 60211	322027, 322034
Doron	notor		Linita	Blank	Reporting	MDI	Applyzod	Qualifiara
Percent Moisture			%	ND	0.			
SAMPLE DUPLICA	TE: 170	1472		60211322021	Dup		Мах	
Paran	neter		Units	Result	Result	RPD	RPD	Qualifiers
Percent Moisture			%	13.0	13	3.5	3 20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS



QUALIFIERS

Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

ANALYTE QUALIFIERS

1e Surrogate recovery outside laboratory control limits. Verified by re-analysis. No further action taken due to holding time violations.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60211322001	SS-9A	EPA 3546	OEXT/52849	EPA 8015B	GCSV/20415
60211322002	SS-9B	EPA 3546	OEXT/52849	EPA 8015B	GCSV/20415
60211322003	SS-9C	EPA 3546	OEXT/52849	EPA 8015B	GCSV/20415
60211322004	SS-9D	EPA 3546	OEXT/52849	EPA 8015B	GCSV/20415
60211322005	SS-7A	EPA 3546	OEXT/52849	EPA 8015B	GCSV/20415
60211322006	SS-7B	EPA 3546	OEXT/52849	EPA 8015B	GCSV/20415
60211322007	SS-7C	EPA 3546	OEXT/52849	EPA 8015B	GCSV/20415
60211322008	SS-7D	EPA 3546	OEXT/52849	EPA 8015B	GCSV/20415
60211322009	SS-8A	EPA 3546	OEXT/52849	EPA 8015B	GCSV/20415
60211322010	SS-8B	EPA 3546	OEXT/52849	EPA 8015B	GCSV/20415
60211322011	SS-8C	EPA 3546	OEXT/52849	EPA 8015B	GCSV/20415
60211322012	SS-8D	EPA 3546	OEXT/52849	EPA 8015B	GCSV/20415
60211322013	SS-10A	EPA 3546	OEXT/52849	EPA 8015B	GCSV/20415
60211322014	SS-10B	EPA 3546	OEXT/52849	EPA 8015B	GCSV/20415
60211322015	SS-10C	EPA 3546	OEXT/52849	EPA 8015B	GCSV/20415
60211322016	SS-10D	EPA 3546	OEXT/52849	EPA 8015B	GCSV/20415
60211322017	SS-11A	EPA 3546	OEXT/52849	EPA 8015B	GCSV/20415
60211322018	SS-11B	EPA 3546	OEXT/52849	EPA 8015B	GCSV/20415
60211322019	SS-11C	EPA 3546	OEXT/52849	EPA 8015B	GCSV/20415
60211322020	SS-11D	EPA 3546	OEXT/52849	EPA 8015B	GCSV/20415
60211322021	SS-12A	EPA 3546	OEXT/52850	EPA 8015B	GCSV/20408
60211322022	SS-12B	EPA 3546	OEXT/52850	EPA 8015B	GCSV/20408
60211322023	SS-12C	EPA 3546	OEXT/52850	EPA 8015B	GCSV/20408
60211322024	SS-12D	EPA 3546	OEXT/52850	EPA 8015B	GCSV/20408
60211322025	SS-13A	EPA 3546	OEXT/52850	EPA 8015B	GCSV/20408
60211322026	SS-13B	EPA 3546	OEXT/52850	EPA 8015B	GCSV/20408
60211322027	SS-13C	EPA 3546	OEXT/52850	EPA 8015B	GCSV/20408
60211322028	SS-13D	EPA 3546	OEXT/52850	EPA 8015B	GCSV/20408
60211322029	SS-14A	EPA 3546	OEXT/52850	EPA 8015B	GCSV/20408
60211322030	SS-14B	EPA 3546	OEXT/52850	EPA 8015B	GCSV/20408
60211322031	SS-14C	EPA 3546	OEXT/52850	EPA 8015B	GCSV/20408
60211322032	SS-14D	EPA 3546	OEXT/52850	EPA 8015B	GCSV/20408
60211322033	DUP2	EPA 3546	OEXT/52850	EPA 8015B	GCSV/20408
60211322034	DUP3	EPA 3546	OEXT/52850	EPA 8015B	GCSV/20408
60211322001	SS-9A	EPA 5035A/5030B	GCV/5299	EPA 8015B	GCV/5302
60211322002	SS-9B	EPA 5035A/5030B	GCV/5299	EPA 8015B	GCV/5302
60211322003	SS-9C	EPA 5035A/5030B	GCV/5299	EPA 8015B	GCV/5302
60211322004	SS-9D	EPA 5035A/5030B	GCV/5299	EPA 8015B	GCV/5302
60211322005	SS-7A	EPA 5035A/5030B	GCV/5299	EPA 8015B	GCV/5302
60211322006	SS-7B	EPA 5035A/5030B	GCV/5299	EPA 8015B	GCV/5302
60211322007	SS-7C	EPA 5035A/5030B	GCV/5299	EPA 8015B	GCV/5302
60211322008	SS-7D	EPA 5035A/5030B	GCV/5299	EPA 8015B	GCV/5302
60211322009	SS-8A	EPA 5035A/5030B	GCV/5299	EPA 8015B	GCV/5302
60211322010	SS-8B	EPA 5035A/5030B	GCV/5299	EPA 8015B	GCV/5302
60211322011	SS-8C	EPA 5035A/5030B	GCV/5299	EPA 8015B	GCV/5302
60211322012	SS-8D	EPA 5035A/5030B	GCV/5300	EPA 8015B	GCV/5303
60211322013	SS-10A	EPA 5035A/5030B	GCV/5300	EPA 8015B	GCV/5303



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60211322014	SS-10B	EPA 5035A/5030B	GCV/5300	EPA 8015B	GCV/5303
60211322015	SS-10C	EPA 5035A/5030B	GCV/5300	EPA 8015B	GCV/5303
60211322016	SS-10D	EPA 5035A/5030B	GCV/5300	EPA 8015B	GCV/5303
60211322017	SS-11A	EPA 5035A/5030B	GCV/5300	EPA 8015B	GCV/5303
60211322018	SS-11B	EPA 5035A/5030B	GCV/5300	EPA 8015B	GCV/5303
60211322019	SS-11C	EPA 5035A/5030B	GCV/5300	EPA 8015B	GCV/5303
60211322020	SS-11D	EPA 5035A/5030B	GCV/5300	EPA 8015B	GCV/5303
60211322021	SS-12A	EPA 5035A/5030B	GCV/5300	EPA 8015B	GCV/5303
60211322022	SS-12B	EPA 5035A/5030B	GCV/5300	EPA 8015B	GCV/5303
60211322023	SS-12C	EPA 5035A/5030B	GCV/5300	EPA 8015B	GCV/5303
60211322024	SS-12D	EPA 5035A/5030B	GCV/5300	EPA 8015B	GCV/5303
60211322025	SS-13A	EPA 5035A/5030B	GCV/5300	EPA 8015B	GCV/5303
60211322026	SS-13B	EPA 5035A/5030B	GCV/5300	EPA 8015B	GCV/5303
60211322027	SS-13C	EPA 5035A/5030B	GCV/5300	EPA 8015B	GCV/5303
60211322028	SS-13D	EPA 5035A/5030B	GCV/5300	EPA 8015B	GCV/5303
60211322029	SS-14A	EPA 5035A/5030B	GCV/5300	EPA 8015B	GCV/5303
60211322030	SS-14B	EPA 5035A/5030B	GCV/5300	EPA 8015B	GCV/5303
60211322031	SS-14C	EPA 5035A/5030B	GCV/5300	EPA 8015B	GCV/5303
60211322032	SS-14D	EPA 5035A/5030B	GCV/5301	EPA 8015B	GCV/5304
60211322033	DUP2	EPA 5035A/5030B	GCV/5301	EPA 8015B	GCV/5304
60211322034	DUP3	EPA 5035A/5030B	GCV/5301	EPA 8015B	GCV/5304
60211322001	SS-9A	ASTM D2974	PMST/11457		
60211322002	SS-9B	ASTM D2974	PMST/11457		
60211322003	SS-9C	ASTM D2974	PMST/11457		
60211322004	SS-9D	ASTM D2974	PMST/11457		
60211322005	SS-7A	ASTM D2974	PMST/11457		
60211322006	SS-7B	ASTM D2974	PMST/11457		
60211322007	SS-7C	ASTM D2974	PMST/11457		
60211322008	SS-7D	ASTM D2974	PMST/11457		
60211322009	SS-8A	ASTM D2974	PMST/11457		
60211322010	SS-8B	ASTM D2974	PMST/11457		
60211322011	SS-8C	ASTM D2974	PMST/11457		
60211322012	SS-8D	ASTM D2974	PMST/11457		
60211322013	SS-10A	ASTM D2974	PMST/11457		
60211322014	SS-10B	ASTM D2974	PMST/11457		
60211322015	SS-10C	ASTM D2974	PMST/11457		
60211322016	SS-10D	ASTM D2974	PMST/11457		
60211322017	SS-11A	ASTM D2974	PMST/11457		
60211322018	SS-11B	ASTM D2974	PMST/11457		
60211322019	SS-11C	ASTM D2974	PMST/11457		
60211322020	SS-11D	ASTM D2974	PMST/11457		
60211322021	SS-12A	ASTM D2974	PMST/11458		
60211322022	SS-12B	ASTM D2974	PMST/11458		
60211322023	SS-12C	ASTM D2974	PMST/11458		
60211322024	SS-12D	ASTM D2974	PMST/11458		
60211322025	SS-13A	ASTM D2974	PMST/11458		
60211322026	SS-13B	ASTM D2974	PMST/11458		


QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211322

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60211322027	SS-13C	ASTM D2974	PMST/11458		
60211322028	SS-13D	ASTM D2974	PMST/11458		
60211322029	SS-14A	ASTM D2974	PMST/11458		
60211322030	SS-14B	ASTM D2974	PMST/11458		
60211322031	SS-14C	ASTM D2974	PMST/11458		
60211322032	SS-14D	ASTM D2974	PMST/11458		
60211322033	DUP2	ASTM D2974	PMST/11458		
60211322034	DUP3	ASTM D2974	PMST/11458		



Sample Condition Upon Receipt ESI Tech Spec Client

WO#:60211322

Client Name: BP Stantec	Optional
	Pace Other Client Proj Due Date:
Tracking #: 6516 8163 4620 Pace Shipping Label	Used? Yes I No I Proi Name:
Custody Seal on Cooler/Box Present: Yes 🕅 No 🗆 Seals intact:	Yes Ø No □
Packing Material: Bubble Wrap Bubble Bags	None Other
Thermometer Used: T-239 (F+0.7) Type of Ice. Wer B	lue None Samples received on ice, cooling process has begun.
Cooler Temperature: 3.0 (circ	e one) Date and initials of person examining
Temperature should be above freezing to 6°C	contents: Ji II
Chain of Custody present:	1
Chain of Custody filled out:	2.
Chain of Custody relinquished:	3.
Sampler name & signature on COC:	4.
Samples arrived within holding time:	5.
Short Hold Time analyses (<72hr):	6.
Rush Turn Around Time requested:	7.
Sufficient volume:	8. No Volum received for 55-86, 55-80
Correct containers used:	01 1/15
Pace containers used: Ves DNo DN/A	9.
Containers intact:	10.
Unpreserved 5035A soils frozen w/in 48hrs?	11.
Filtered volume received for dissolved tests?	12.
Sample labels match COC:	
Includes date/time/ID/analyses Matrix: 6	13.
All containers needing preservation have been checked.	
All containers needing preservation are found to be in compliance	14
	Initial when Lot # of added
Trip Blank present:	completed preservative
Pace Trip Blank lot # (if purchased): 101215-3	15
Headspace in VOA vials (>6mm):	
	16
	17 List State: NM
Additional labels attached to E025A visite in the field?	10
Client Notification/ Resolution: Copy COC to Client? Y /	N Field Data Required? Y / N
Person Contacted: Date/Time:	Temp Log: Record start and finish times
Comments/ Resolution:	when unpacking cooler, if >20 min, recheck sample temps.
	Start: 1/95 Start:
	End: WY End:
Project Manager Review: AAF	Date:

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Laboratory Management Program LaMP Chain of Custody Record

Req Due Date (mm/dd/yy): BP/ARC Project Name: Byrd Pump Site Investigation

Page Stewardard Rush TAT: Ye

of 4

NoX	
Rush TAT: Yes	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
curch	

	O A BP affiliated company	BP/ARC Fac	ility No:	Byrd P	ump Site					1	Lab	Work	Order	Numt	er:				csircon)	2	
Lab	Vame: Pace Analytical Services, Inc.			BP/ARC	> Facility /	Address:	15	Joanne	: Lane	x				Cor	sultant/	Contrac	tor:	Stante	c Consulting		
Lab.	Address: 9608 Loiret Blvd			City, St	ate, ZIP C	ode:	Mc	numen	t, NM					Cor	sultant/	Contrac	tor Proje	ect No:		•	82630008
Lab	M: Alice Flanagan			Lead R	sgulatory.	Agency:	NN	1 OCD						Add	ress:	8770 GI	lion Rd	Ste B Ir	ndianapolis, IN 4626	88	
Lab	³ hone: 916-563-1409			Californ	ia Global	D No.:	AN							Cor	sultant/	Contrac	tor PM:	Susan	Hall		
Lab	Shipping Accnt:			Enfos P	roposal N	ö	00	9PD-00	5					Phc	ne:	317-87€	-8375				
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BP//	RC EBM: Sergio Morescalchi			M	atrix	NO	Conta	iners /	Prese	rvative	_		Re	quest	∌d Ana	lyses			Report Typ	e & QC Le	ivel
EBM	Phone: 925-487-0940					s				-				7.84	0-00		201		Stan	dard 👗	
EBM	Email: Sergio.Morescalchi@bp.com					ainer					89	89	Ę	0015	e (ets		00 V		Full Data Pac	kage	
Lat No	Sample Description	Date	Time	Soil / Solid Water / Liquid	Air / Vapor	Total Number of Cont	Unpreserved	HNO ³	HCI	lonsitiaM	108 OAD-H9T	108 OAO-H9T	BTEX 82605	RCRA METALS 6010	Anions (Br, Cl, Fl,Sulf	Nitrate / Nitriate 9056	TDS 160,1/SM 2540C		Com Note: If sample not co Sample" in comments and initial any preprint	I ments Mected, indice and single-st ed sample de	te "No rike out scription.
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Laboratory Management Program LaMP Chain of Custody Record

BP/ARC Project Name: Byrd Pump Site Investigation

of Custody Record Req Due Date (mm/dd/yy): Sturdend

Page <u>2</u> of <u>4</u>

C Rush TAT: Yes

No

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, -	A BP affiliated company	BP/ARC Fac	ility No:	Byrd	Pum	p Site						Ť	La	b Wo	ž Ož	der Ni	Imbe	1						
ab Na	me: Pace Analytical Services, Inc.			BP/A	RC Fa	cility A	ddress	.,	15 Jo	anne L	ane						Consu	ltant/Co	ontract	or:	Stan	tec Consulting		
ab Ac	dress: 9608 Loiret Blvd			City,	State,	ZIP C	ode:		Monu	ment,	MM						Consu	ltant/Co	ontract	or Proj	ect No:			18263000
Lab PN	. Alice Flanagan			Lead	Regul	atory /	\gency		0 MN	B							Addre	ss: 81	70 Gu	ion Ro	. Ste B	Indianapolis, IN 462	68	
Lab Ph	one: 916-563-1409			Calific	omia G	lobal	D No.:		AA								Consu	ltant/Co	ontract	or PM:	Susa	an Hall		
ab Sh	pping Accnt:			Enfos	Prop	osal N	l ii		I4600	0-002							Phone	3.	7-876	-8375				
Lab Bc	tile Order No:			Acco	unting	Mode		Pro	/ision	$ \times $	000	 	0	OC-RI			Email	EDD T(: SU:	sn.hall	@stant	.ec.com		
Other	nfo:			Stage	4	Exec	etr	Ac	tivity:	Proje	ct Sp	bend					Invoic	e To:		BP/AR	× v	Contractor		
BP/AR	C EBM: Sergio Morescalchi				Matr	.×	ž	. Col	ntaine	ers / F	resei	vativ				Requ	ested	Analy	ses			Report Tyl	oe & QC L	evel
EBM F	hone: 925-487-0940					-	s						_				7.84	0.008	501			Sta	ndard 🗡	
EBM E	mail: Sergio.Morescalchi@bp.com					-	nenis						88	98	6		c / 5	S (ete	109 X	, 00 N		Full Data Pa	ckage	
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Laboratory Management Program LaMP Chain of Custody Record Page 3 of 1 BP/ARC Project Name: Byrd Pump Site Investigation Req Due Date (mm/dd/yy):

Page 3 of H

	O A BP affiliated company	BP/ARC Facility No	ä	3yrd Pt	imp Sit					Ĩ	Lab	Work (Drder	qmnN	: : :						
Lab N	ame: Pace Analytical Services, Inc.		8	3P/ARC	Facility	Address:	15	Joann	e Lane					Con	sultant/(contract	:- U	Stant	tec Consulting		
Lab A	ddress: 9608 Loiret Blvd		0	city, Sta	te, ZIP (code:	W	numer	t, NM					Co	sultant/(Contract	or Proj	ect No:		4	32630008
Lab P	N: Alice Flanagan			ead Re	gulatory	Agency:	N	и оср						Add	ess: 8	8770 GI	iion Rd	. Ste B	Indianapolis, IN 4626	88	
Lab P	hone: 916-563-1409			Saliforni	a Global	ID No.:	ž							Con	sultant/(ontrac	or PM:	Susa	ın Hall		
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EBM	Email: Sergio.Morescalchi@bp.com					ainer					89	89		c / 5	; (əte)	∀) N 00		Fuli Data Pac	kage	
Lab No.	Sample Description	Date	e	Soil / Solid Water / Liquid	Аіг / Уарог	Total Number of Cont	Unpreserved	HNO ²	HCI	lonsdtaM	гов ОЯО-НЧТ	гов ояо-нат	0158 X3T8	RCRA METALS 6010	Anions (Br, Cl, Fl,Sull	Nitrate / Nitriate 9056	TDS 160,1/SM 25400		Corr Note: If sample not cc Sample" in comments and initial any preprint	iments allected, indicat and single-str ed sample de	te "No ike out scription.
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Laboratory Management Program LaMP Chain of Custody Record Page 1 of 1 Page 1 of 1 Req Due Date (mm/dd/yy): Studder Rush TAT: Yes No X

	O ABP	affiliated company	BP/ARC Facil	ity No:	Byrd	Pump	Site					Ĭ	Lab	Work	Order	Numb				ł		3	
Lab r	lame:	Pace Analytical Services, Inc.			BP/AF	RC Facil	lity Add	ess:	15 J	oanne	Lane					Cor	sultant/	Contract	or:	Stan	tec Consulting		
Lab /	\ddress:	9608 Loiret Blvd			City, S	state, ZI	P Code		Mon	ument,	MN					Cor	sultant/	Contract	or Proj	ect No:		1	32630008
Lab F	:W	Alice Flanagan			Lead F	Regulati	ory Age	ncy:	MN	OCD						Add	ress:	3770 Gu	lion Ra	. Ste B	Indianapolis, IN 4626	8	
Lab F	hone:	916-563-1409			Califor	mia Glo	bal ID N	:"0	M							Cor	sultant/	Contract	or PM:	Susa	an Hall		
Lab \$	hipping 4	Accnt:			Enfos	Propos	al No:		1600	D-002						Pho	ле:	317-876	-8375				
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EBM	Phone:	925-487-0940						s								7.24	0.008	007	201		Stano	dard	
EBM	Email:	Sergio.Morescalchi@bp.com						ainer					89	89	Ę	C / S	s (əte	v √	N 00		Full Data Pack	age	
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Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa, KS 66219 (913)599-5665

January 29, 2016

Susan Hall BP Stantec 8770 Guion Rd. Ste B Indianapolis, IN 46268

RE: Project: BYRD PUMP SITE INVESTIGATION Pace Project No.: 60211323

Dear Susan Hall:

Enclosed are the analytical results for sample(s) received by the laboratory on January 15, 2016. The results relate only to the samples included in this report. Results contained within this report conform to the most current version of the TNI standards, BP LaMP Technical Requirements Revision 10.1, and any applicable Quality Assurance Project Plan (QAPP), or Work Plan unless otherwise narrated in the body of this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Alice Glanazan

Alice Flanagan alice.flanagan@pacelabs.com Project Manager

Enclosures





CERTIFICATIONS

Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219 WY STR Certification #: 2456.01 Arkansas Certification #: 15-016-0 Illinois Certification #: 003097 Iowa Certification #: 118 Kansas/NELAP Certification #: E-10116 Louisiana Certification #: 03055 Nevada Certification #: KS000212008A Oklahoma Certification #: 9205/9935 Texas Certification #: T104704407 Utah Certification #: KS00021 Kansas Field Laboratory Accreditation: # E-92587



SAMPLE SUMMARY

Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Lab ID	Sample ID	Matrix	Date Collec	ted Date Received
60211323001	SS-15A	Solid	01/13/16 13	01/15/16 09:50
60211323002	SS-15B	Solid	01/13/16 13	01/15/16 09:50
60211323003	SS-15C	Solid	01/13/16 13	01/15/16 09:50
60211323004	SS-15D	Solid	01/13/16 13	10 01/15/16 09:50
60211323005	SS-16A	Solid	01/13/16 13	20 01/15/16 09:50
60211323006	SS-16B	Solid	01/13/16 13	.22 01/15/16 09:50
60211323007	SS-16C	Solid	01/13/16 13	28 01/15/16 09:50
60211323008	SS-16D	Solid	01/13/16 13	30 01/15/16 09:50
60211323009	SS-17A	Solid	01/13/16 13	38 01/15/16 09:50
60211323010	SS-17B	Solid	01/13/16 13	40 01/15/16 09:50
60211323011	SS-17C	Solid	01/13/16 13	46 01/15/16 09:50
60211323012	SS-17D	Solid	01/13/16 13	49 01/15/16 09:50
60211323013	SS-18A	Solid	01/13/16 13	.58 01/15/16 09:50
60211323014	SS-18B	Solid	01/13/16 14	01/15/16 09:50
60211323015	SS-18C	Solid	01/13/16 14	06 01/15/16 09:50
60211323016	SS-18D	Solid	01/13/16 14	01/15/16 09:50
60211323017	SS-19A	Solid	01/13/16 14	18 01/15/16 09:50
60211323018	SS-19B	Solid	01/13/16 14	21 01/15/16 09:50
60211323019	SS-19C	Solid	01/13/16 14	26 01/15/16 09:50
60211323020	SS-19D	Solid	01/13/16 14	30 01/15/16 09:50
60211323021	SS-20A	Solid	01/13/16 14	01/15/16 09:50
60211323022	SS-20B	Solid	01/13/16 14	46 01/15/16 09:50
60211323023	SS-20C	Solid	01/13/16 14	48 01/15/16 09:50
60211323024	SS-20D	Solid	01/13/16 14	48 01/15/16 09:50
60211323025	SS-21A	Solid	01/13/16 15	01/15/16 09:50
60211323026	SS-21B	Solid	01/13/16 15	10 01/15/16 09:50
60211323027	SS-21C	Solid	01/13/16 15	.17 01/15/16 09:50
60211323028	SS-21D	Solid	01/13/16 15	.14 01/15/16 09:50
60211323029	TRIP BLANK	Solid	01/13/16 15	.14 01/15/16 09:50



SAMPLE ANALYTE COUNT

Project:	BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60211323001	SS-15A	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211323002	SS-15B	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211323003	SS-15C	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211323004	SS-15D	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211323005	SS-16A	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211323006	SS-16B	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211323007	SS-16C	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211323008	SS-16D	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211323009	SS-17A	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211323010	SS-17B	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211323011	SS-17C	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211323012	SS-17D	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211323013	SS-18A	EPA 8015B	ACW	3	PASI-K



SAMPLE ANALYTE COUNT

Project:	BYRD DUMP SITE INVESTIGATION
Flojeci.	DIRD FUIVE SHE INVESTIGATION

Pace Project No.: 60211323

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory	
		EPA 8015B		2	PASI-K	
		ASTM D2974	DWC	1	PASI-K	
60211323014	SS-18B	EPA 8015B	ACW	3	PASI-K	
		EPA 8015B	JTK	2	PASI-K	
		ASTM D2974	DWC	1	PASI-K	
60211323015	SS-18C	EPA 8015B	ACW	3	PASI-K	
		EPA 8015B	JTK	2	PASI-K	
		ASTM D2974	DWC	1	PASI-K	
60211323016	SS-18D	EPA 8015B	ACW	3	PASI-K	
		EPA 8015B	JTK	2	PASI-K	
		ASTM D2974	DWC	1	PASI-K	
60211323017	SS-19A	EPA 8015B	ACW	3	PASI-K	
		EPA 8015B	JTK	2	PASI-K	
		ASTM D2974	DWC	1	PASI-K	
60211323018	SS-19B	EPA 8015B	ACW	3	PASI-K	
		EPA 8015B	JTK	2	PASI-K	
		ASTM D2974	DWC	1	PASI-K	
60211323019	SS-19C	EPA 8015B	ACW	3	PASI-K	
		EPA 8015B	JTK	2	PASI-K	
		ASTM D2974	DWC	1	PASI-K	
60211323020	SS-19D	EPA 8015B	ACW	3	PASI-K	
		EPA 8015B	JTK	2	PASI-K	
		ASTM D2974	DWC	1	PASI-K	
60211323021	SS-20A	EPA 8015B	ACW	3	PASI-K	
		EPA 8015B	JTK	2	PASI-K	
		ASTM D2974	DWC	1	PASI-K	
60211323022	SS-20B	EPA 8015B	ACW	3	PASI-K	
		EPA 8015B	JTK	2	PASI-K	
		ASTM D2974	DWC	1	PASI-K	
60211323023	SS-20C	EPA 8015B	ACW	3	PASI-K	
		EPA 8015B	JTK	2	PASI-K	
		ASTM D2974	DWC	1	PASI-K	
60211323024	SS-20D	EPA 8015B	ACW	3	PASI-K	
		EPA 8015B	JTK	2	PASI-K	
		ASTM D2974	DWC	1	PASI-K	
60211323025	SS-21A	EPA 8015B	ACW	3	PASI-K	
		EPA 8015B	JTK	2	PASI-K	



SAMPLE ANALYTE COUNT

Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		ASTM D2974	DWC	1	PASI-K
60211323026	SS-21B	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211323027	SS-21C	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211323028	SS-21D	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K



PROJECT NARRATIVE

Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Method: EPA 8015B

Description:8015B Diesel Range OrganicsClient:BP Stantec TXDate:January 29, 2016

General Information:

28 samples were analyzed for EPA 8015B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3546 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

QC Batch: OEXT/52872

S0: Surrogate recovery outside laboratory control limits.

• MSD (Lab ID: 1702280)

p-Terphenyl (S)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: OEXT/52872

1e: Surrogate recovery outside laboratory control limits. Verified by re-analysis. No further action taken due to holding time violations.

• SS-17A (Lab ID: 60211323009)

p-Terphenyl (S)



PROJECT NARRATIVE

Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Method:EPA 8015BDescription:8015B Diesel Range OrganicsClient:BP Stantec TXDate:January 29, 2016

Analyte Comments:

QC Batch: OEXT/52872

2e: Surrogate recovery outside laboratory control limits. Verified by re-analysis. No further action taken due to holding time violations.

• SS-15A (Lab ID: 60211323001)

• p-Terphenyl (S)



PROJECT NARRATIVE

Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Method: EPA 8015B

Description:Gasoline Range OrganicsClient:BP Stantec TXDate:January 29, 2016

General Information:

28 samples were analyzed for EPA 8015B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 5035A/5030B with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Sample: SS-15A	Lab ID:	60211323001	Collecte	d: 01/13/16	6 13:02	Received: 01/	15/16 09:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	e adjusted for	percent mo	oisture, sar	nple s	ize and any diluti	ons.		
		-	Report		•	-			
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA	8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO Surrogates	10.9J	mg/kg	12.1	6.1	1	01/27/16 00:00	01/28/16 10:21		
n-Tetracosane (S)	60	%	18-139		1	01/27/16 00:00	01/28/16 10:21	646-31-1	
p-Terphenyl (S)	48	%	51-120		1	01/27/16 00:00	01/28/16 10:21	92-94-4	2e
Gasoline Range Organics	Analytical	Method: EPA	8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	12.3	6.2	1	01/26/16 00:00	01/27/16 01:17		
4-Bromofluorobenzene (S)	93	%	68-144		1	01/26/16 00:00	01/27/16 01:17	460-00-4	
Percent Moisture	Analytical	Method: ASTN	/I D2974						
Percent Moisture	18.1	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Sample: SS-15B	Lab ID:	6021132300	2 Collecte	d: 01/13/16	6 13:04	Received: 01/	15/16 09:50 Ma	atrix: Solid	
Results reported on a "dry weight	" basis and are	adjusted fo	or percent mo	oisture, san	nple s	ize and any diluti	ons.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA	8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	ND	mg/kg	11.1	5.5	1	01/27/16 00:00	01/28/16 10:29		
Surrogates		0 0							
n-Tetracosane (S)	68	%	18-139		1	01/27/16 00:00	01/28/16 10:29	646-31-1	
p-Terphenyl (S)	57	%	51-120		1	01/27/16 00:00	01/28/16 10:29	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA	8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO <i>Surrogates</i>	ND	mg/kg	11.2	5.6	1	01/26/16 00:00	01/27/16 02:44		
4-Bromofluorobenzene (S)	94	%	68-144		1	01/26/16 00:00	01/27/16 02:44	460-00-4	
Percent Moisture	Analytical	Method: AST	M D2974						
Percent Moisture	10.9	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Sample: SS-15C	Lab ID:	60211323003	Collecte	d: 01/13/16	6 13:08	Received: 01/	15/16 09:50 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	e adjusted for	percent me	oisture, san	nple si	ize and any diluti	ions.		
_			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: El	PA 3546			
TPH-DRO <i>Surrogates</i>	27.2	mg/kg	10.3	5.1	1	01/27/16 00:00	01/28/16 10:37		
n-Tetracosane (S)	85	%	18-139		1	01/27/16 00:00	01/28/16 10:37	646-31-1	
p-Terphenyl (S)	68	%	51-120		1	01/27/16 00:00	01/28/16 10:37	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: El	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	10.2	5.1	1	01/26/16 00:00	01/27/16 03:01		
4-Bromofluorobenzene (S)	86	%	68-144		1	01/26/16 00:00	01/27/16 03:01	460-00-4	
Percent Moisture	Analytical	Method: ASTM	1 D2974						
Percent Moisture	2.7	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Sample: SS-15D	Lab ID:	60211323004	Collecte	d: 01/13/16	6 13:10	Received: 01/	15/16 09:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	e adjusted for	percent m	oisture, san	nple si	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	8015B Prep	aration Met	hod: El	PA 3546			
TPH-DRO	22.7	mg/kg	10.2	5.1	1	01/27/16 00:00	01/28/16 10:45		
Surrogates		0 0							
n-Tetracosane (S)	76	%	18-139		1	01/27/16 00:00	01/28/16 10:45	646-31-1	
p-Terphenyl (S)	62	%	51-120		1	01/27/16 00:00	01/28/16 10:45	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	8015B Prep	aration Met	hod: El	PA 5035A/5030B			
TPH-GRO <i>Surrogates</i>	ND	mg/kg	10.3	5.2	1	01/26/16 00:00	01/27/16 03:18		
4-Bromofluorobenzene (S)	85	%	68-144		1	01/26/16 00:00	01/27/16 03:18	460-00-4	
Percent Moisture	Analytical	Method: ASTM	1 D2974						
Percent Moisture	2.9	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Sample: SS-16A	Lab ID:	6021132300	05 Collecte	d: 01/13/16	6 13:20	Received: 01/	(15/16 09:50 Ma	atrix: Solid	
Results reported on a "dry weigh	nt" basis and are	adjusted f	or percent me	oisture, sar	nple s	ize and any dilut	ions.		
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analvzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EP	A8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO Surrogates	16.6	mg/kg	11.4	5.7	1	01/27/16 00:00	01/28/16 10:53		
n-Tetracosane (S)	80	%	18-139		1	01/27/16 00:00	01/28/16 10:53	646-31-1	
p-Terphenyl (S)	66	%	51-120		1	01/27/16 00:00	01/28/16 10:53	92-94-4	
Gasoline Range Organics	Analytical	Method: EP	A 8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	11.5	5.8	1	01/26/16 00:00	01/27/16 03:35		
4-Bromofluorobenzene (S)	90	%	68-144		1	01/26/16 00:00	01/27/16 03:35	460-00-4	
Percent Moisture	Analytical	Method: AS	FM D2974						
Percent Moisture	12.8	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Sample: SS-16B	Lab ID:	6021132300	06 Collecte	d: 01/13/16	6 13:22	Received: 01/	15/16 09:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	e adjusted fo	or percent mo	oisture, sar	nple s	ize and any diluti	ons.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EP/	A 8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	17.7	mg/kg	10.5	5.2	1	01/27/16 00:00	01/28/16 11:16		
Surrogates		0 0							
n-Tetracosane (S)	77	%	18-139		1	01/27/16 00:00	01/28/16 11:16	646-31-1	
p-Terphenyl (S)	64	%	51-120		1	01/27/16 00:00	01/28/16 11:16	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA	A 8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	10.5	5.3	1	01/26/16 00:00	01/27/16 03:53		
4-Bromofluorobenzene (S)	93	%	68-144		1	01/26/16 00:00	01/27/16 03:53	460-00-4	
Percent Moisture	Analytical	Method: AS	TM D2974						
Percent Moisture	5.0	%	0.50	0.50	1		01/26/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Sample: SS-16C	Lab ID:	60211323007	Collecte	d: 01/13/16	6 13:28	Received: 01/	15/16 09:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	e adjusted for	percent m	oisture, san	nple s	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	015B Prep	paration Met	hod: E	PA 3546			
TPH-DRO	37.7	mg/kg	11.1	5.5	1	01/27/16 00:00	01/28/16 11:24		
Surrogates		0 0							
n-Tetracosane (S)	87	%	18-139		1	01/27/16 00:00	01/28/16 11:24	646-31-1	
p-Terphenyl (S)	71	%	51-120		1	01/27/16 00:00	01/28/16 11:24	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	11.1	5.6	1	01/26/16 00:00	01/27/16 04:10		
4-Bromofluorobenzene (S)	94	%	68-144		1	01/26/16 00:00	01/27/16 04:10	460-00-4	
Percent Moisture	Analytical	Method: ASTM	D2974						
Percent Moisture	11.0	%	0.50	0.50	1		01/26/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Sample: SS-16D	Lab ID:	6021132300	08 Collecte	d: 01/13/16	6 13:30	Received: 01/	15/16 09:50 Ma	atrix: Solid	
Results reported on a "dry weigh	nt" basis and are	adjusted f	or percent m	oisture, sar	nple s	ize and any dilut	ions.		
Doromotoro	Booulto	Linita	Report	MDI	DE	Bronarad	Applyzod		Qual
Falameters		Units			DF			CAS NO.	Quai
8015B Diesel Range Organics	Analytical	Method: EP	A 8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO Surrogates	12.0	mg/kg	10.5	5.2	1	01/27/16 00:00	01/28/16 11:31		
n-Tetracosane (S)	77	%	18-139		1	01/27/16 00:00	01/28/16 11:31	646-31-1	
p-Terphenyl (S)	65	%	51-120		1	01/27/16 00:00	01/28/16 11:31	92-94-4	
Gasoline Range Organics	Analytical	Method: EP	A 8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	10.4	5.2	1	01/26/16 00:00	01/27/16 04:27		
4-Bromofluorobenzene (S)	94	%	68-144		1	01/26/16 00:00	01/27/16 04:27	460-00-4	
Percent Moisture	Analytical	Method: AS	TM D2974						
Percent Moisture	4.5	%	0.50	0.50	1		01/26/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Sample: SS-17A	Lab ID:	602113230	09 Collecte	d: 01/13/16	6 13:38	Received: 01/	15/16 09:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	e adjusted f	or percent mo	oisture, san	nple s	ize and any dilut	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EP	A 8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	6.0J	mg/kg	11.5	5.8	1	01/27/16 00:00	01/28/16 13:19		
Surrogates									
n-Tetracosane (S)	55	%	18-139		1	01/27/16 00:00	01/28/16 13:19	646-31-1	
p-Terphenyl (S)	44	%	51-120		1	01/27/16 00:00	01/28/16 13:19	92-94-4	1e
Gasoline Range Organics	Analytical	Method: EP	A 8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	11.6	5.8	1	01/26/16 00:00	01/27/16 04:44		
4-Bromofluorobenzene (S)	93	%	68-144		1	01/26/16 00:00	01/27/16 04:44	460-00-4	
Percent Moisture	Analytical	Method: AS	TM D2974						
Percent Moisture	14.1	%	0.50	0.50	1		01/26/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Sample: SS-17B	Lab ID:	60211323010	Collecte	d: 01/13/16	6 13:40	Received: 01/	15/16 09:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	adjusted for	percent m	oisture, san	nple s	ize and any diluti	ons.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	13.0	mg/kg	11.5	5.8	1	01/27/16 00:00	01/28/16 11:47		
Surrogates		0 0							
n-Tetracosane (S)	75	%	18-139		1	01/27/16 00:00	01/28/16 11:47	646-31-1	
p-Terphenyl (S)	58	%	51-120		1	01/27/16 00:00	01/28/16 11:47	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO <i>Surrogates</i>	ND	mg/kg	11.7	5.8	1	01/26/16 00:00	01/27/16 13:29		
4-Bromofluorobenzene (S)	93	%	68-144		1	01/26/16 00:00	01/27/16 13:29	460-00-4	
Percent Moisture	Analytical	Method: ASTM	D2974						
Percent Moisture	14.0	%	0.50	0.50	1		01/26/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Sample: SS-17C	Lab ID:	60211323011	Collecte	d: 01/13/16	5 13:46	Received: 01/	15/16 09:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	e adjusted for	percent mo	oisture, san	nple si	ize and any diluti	ons.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: El	PA 3546			
TPH-DRO <i>Surrogates</i>	11.8	mg/kg	10.5	5.2	1	01/27/16 00:00	01/28/16 11:54		
n-Tetracosane (S)	74	%	18-139		1	01/27/16 00:00	01/28/16 11:54	646-31-1	
p-Terphenyl (S)	62	%	51-120		1	01/27/16 00:00	01/28/16 11:54	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: El	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	10.5	5.2	1	01/26/16 00:00	01/27/16 13:46		
4-Bromofluorobenzene (S)	87	%	68-144		1	01/26/16 00:00	01/27/16 13:46	460-00-4	
Percent Moisture	Analytical	Method: ASTM	1 D2974						
Percent Moisture	4.8	%	0.50	0.50	1		01/26/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Sample: SS-17D	Lab ID:	60211323012	Collecte	d: 01/13/16	6 13:49	Received: 01/	15/16 09:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	adjusted for	percent m	oisture, san	nple s	ize and any diluti	ons.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	015B Prep	paration Met	hod: E	PA 3546			
TPH-DRO	10.4J	mg/kg	11.7	5.9	1	01/27/16 00:00	01/28/16 10:05		
Surrogates									
n-Tetracosane (S)	84	%	18-139		1	01/27/16 00:00	01/28/16 10:05	646-31-1	
p-Terphenyl (S)	72	%	51-120		1	01/27/16 00:00	01/28/16 10:05	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO <i>Surrogates</i>	ND	mg/kg	11.9	5.9	1	01/26/16 00:00	01/27/16 14:03		
4-Bromofluorobenzene (S)	92	%	68-144		1	01/26/16 00:00	01/27/16 14:03	460-00-4	
Percent Moisture	Analytical	Method: ASTM	D2974						
Percent Moisture	15.5	%	0.50	0.50	1		01/26/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Sample: SS-18A	Lab ID:	60211323013	Collecte	d: 01/13/16	6 13:58	Received: 01/	15/16 09:50 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	e adjusted for	percent mo	oisture, san	nple si	ze and any diluti	ons.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	15.3	mg/kg	11.1	5.6	1	01/27/16 00:00	01/28/16 10:15		
Surrogates		0 0							
n-Tetracosane (S)	112	%	18-139		1	01/27/16 00:00	01/28/16 10:15	646-31-1	
p-Terphenyl (S)	93	%	51-120		1	01/27/16 00:00	01/28/16 10:15	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	015B Prep	aration Met	hod: El	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	11.2	5.6	1	01/26/16 00:00	01/27/16 14:21		
4-Bromofluorobenzene (S)	92	%	68-144		1	01/26/16 00:00	01/27/16 14:21	460-00-4	
Percent Moisture	Analytical	Method: ASTM	D2974						
Percent Moisture	10.7	%	0.50	0.50	1		01/26/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Sample: SS-18B	Lab ID:	602113230	14 Collecte	d: 01/13/16	6 14:02	Received: 01/	(15/16 09:50 Ma	atrix: Solid	
Results reported on a "dry weigh	nt" basis and are	adjusted f	or percent m	oisture, sar	nple s	ize and any dilut	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EP	A 8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	6.0J	mg/kg	11.8	5.9	1	01/27/16 00:00	01/28/16 10:24		
Surrogates									
n-Tetracosane (S)	67	%	18-139		1	01/27/16 00:00	01/28/16 10:24	646-31-1	
p-Terphenyl (S)	71	%	51-120		1	01/27/16 00:00	01/28/16 10:24	92-94-4	
Gasoline Range Organics	Analytical	Method: EP	A 8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO	ND	mg/kg	11.9	6.0	1	01/26/16 00:00	01/27/16 14:38		
4-Bromofluorobenzene (S)	88	%	68-144		1	01/26/16 00:00	01/27/16 14:38	460-00-4	
Percent Moisture	Analytical	Method: AS	TM D2974						
Percent Moisture	16.2	%	0.50	0.50	1		01/26/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Sample: SS-18C	Lab ID:	60211323015	Collecte	d: 01/13/16	14:06	Received: 01/	15/16 09:50 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	adjusted for	percent me	oisture, san	nple si	ze and any diluti	ons.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	015B Prep	aration Metl	hod: El	PA 3546			
TPH-DRO <i>Surrogates</i>	43.7	mg/kg	10.6	5.3	1	01/27/16 00:00	01/28/16 10:33		
n-Tetracosane (S)	86	%	18-139		1	01/27/16 00:00	01/28/16 10:33	646-31-1	
p-Terphenyl (S)	89	%	51-120		1	01/27/16 00:00	01/28/16 10:33	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	015B Prep	aration Metl	hod: El	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	10.7	5.3	1	01/26/16 00:00	01/27/16 14:55		
4-Bromofluorobenzene (S)	91	%	68-144		1	01/26/16 00:00	01/27/16 14:55	460-00-4	
Percent Moisture	Analytical	Method: ASTM	D2974						
Percent Moisture	6.1	%	0.50	0.50	1		01/26/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Sample: SS-18D	Lab ID:	60211323016	Collecte	d: 01/13/16	6 14:08	Received: 01/	15/16 09:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	e adjusted for	percent m	oisture, san	nple s	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	8015B Prep	paration Met	hod: E	PA 3546			
TPH-DRO	16.1	mg/kg	11.9	5.9	1	01/27/16 00:00	01/28/16 10:43		
Surrogates		0 0							
n-Tetracosane (S)	78	%	18-139		1	01/27/16 00:00	01/28/16 10:43	646-31-1	
p-Terphenyl (S)	72	%	51-120		1	01/27/16 00:00	01/28/16 10:43	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO <i>Surrogates</i>	ND	mg/kg	12.0	6.0	1	01/26/16 00:00	01/27/16 15:13		
4-Bromofluorobenzene (S)	91	%	68-144		1	01/26/16 00:00	01/27/16 15:13	460-00-4	
Percent Moisture	Analytical	Method: ASTM	1 D2974						
Percent Moisture	17.1	%	0.50	0.50	1		01/26/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Sample: SS-19A	Lab ID:	60211323017	Collecte	d: 01/13/16	6 14:18	Received: 01/	15/16 09:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	e adjusted for	percent m	oisture, san	nple s	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	13.0	mg/kg	11.3	5.6	1	01/27/16 00:00	01/28/16 10:52		
Surrogates		0 0							
n-Tetracosane (S)	83	%	18-139		1	01/27/16 00:00	01/28/16 10:52	646-31-1	
p-Terphenyl (S)	81	%	51-120		1	01/27/16 00:00	01/28/16 10:52	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	11.5	5.7	1	01/26/16 00:00	01/27/16 15:30		
4-Bromofluorobenzene (S)	87	%	68-144		1	01/26/16 00:00	01/27/16 15:30	460-00-4	
Percent Moisture	Analytical	Method: ASTM	1 D2974						
Percent Moisture	12.5	%	0.50	0.50	1		01/26/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Sample: SS-19B	Lab ID:	6021132301	8 Collecte	d: 01/13/16	6 14:21	Received: 01/	15/16 09:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	e adjusted fo	or percent mo	oisture, sar	nple s	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	_ Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EP/	A 8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	48.1	mg/kg	10.9	5.5	1	01/27/16 00:00	01/28/16 11:01		
Surrogates									
n-Tetracosane (S)	81	%	18-139		1	01/27/16 00:00	01/28/16 11:01	646-31-1	
p-Terphenyl (S)	80	%	51-120		1	01/27/16 00:00	01/28/16 11:01	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA	A 8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	11.0	5.5	1	01/27/16 00:00	01/27/16 16:57		
4-Bromofluorobenzene (S)	85	%	68-144		1	01/27/16 00:00	01/27/16 16:57	460-00-4	
Percent Moisture	Analytical	Method: AS	TM D2974						
Percent Moisture	9.7	%	0.50	0.50	1		01/26/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Sample: SS-19C	Lab ID:	60211323019	Collecte	d: 01/13/16	6 14:26	Received: 01/	15/16 09:50 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	e adjusted for	percent m	oisture, san	nple si	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	8015B Prep	aration Met	hod: El	PA 3546			
TPH-DRO	22.7	mg/kg	11.2	5.6	1	01/27/16 00:00	01/28/16 11:11		
Surrogates		0 0							
n-Tetracosane (S)	113	%	18-139		1	01/27/16 00:00	01/28/16 11:11	646-31-1	
p-Terphenyl (S)	91	%	51-120		1	01/27/16 00:00	01/28/16 11:11	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	8015B Prep	aration Met	hod: El	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	11.4	5.7	1	01/27/16 00:00	01/27/16 17:14		
4-Bromofluorobenzene (S)	84	%	68-144		1	01/27/16 00:00	01/27/16 17:14	460-00-4	
Percent Moisture	Analytical	Method: ASTM	1 D2974						
Percent Moisture	11.3	%	0.50	0.50	1		01/26/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Sample: SS-19D	Lab ID:	60211323020	Collecte	d: 01/13/16	6 14:30	Received: 01/	15/16 09:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	adjusted for	percent m	oisture, san	nple si	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical Method: EPA 8015B Preparation Method: EPA 3546								
TPH-DRO	14.4	mg/kg	12.2	6.1	1	01/27/16 00:00	01/28/16 11:20		
Surrogates		0 0							
n-Tetracosane (S)	102	%	18-139		1	01/27/16 00:00	01/28/16 11:20	646-31-1	
p-Terphenyl (S)	93	%	51-120		1	01/27/16 00:00	01/28/16 11:20	92-94-4	
Gasoline Range Organics	Analytical Method: EPA 8015B Preparation Method: EPA 5035A/5030B								
TPH-GRO <i>Surrogates</i>	ND	mg/kg	12.3	6.1	1	01/27/16 00:00	01/27/16 17:31		
4-Bromofluorobenzene (S)	91	%	68-144		1	01/27/16 00:00	01/27/16 17:31	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974								
Percent Moisture	18.3	%	0.50	0.50	1		01/26/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Sample: SS-20A	Lab ID:	6021132302	1 Collecte	d: 01/13/16	6 14:44	Received: 01/	15/16 09:50 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	e adjusted fo	or percent me	oisture, sar	nple s	ize and any diluti	ons.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical Method: EPA 8015B Preparation Method: EPA 3546								
TPH-DRO	38.1	mg/kg	10.2	5.1	1	01/27/16 00:00	01/28/16 13:12		
Surrogates									
n-Tetracosane (S)	110	%	18-139		1	01/27/16 00:00	01/28/16 13:12	646-31-1	
p-Terphenyl (S)	94	%	51-120		1	01/27/16 00:00	01/28/16 13:12	92-94-4	
Gasoline Range Organics	Analytical Method: EPA 8015B Preparation Method: EPA 5035A/5030B								
TPH-GRO <i>Surrogates</i>	ND	mg/kg	10.1	5.1	1	01/27/16 00:00	01/27/16 17:49		
4-Bromofluorobenzene (S)	93	%	68-144		1	01/27/16 00:00	01/27/16 17:49	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974								
Percent Moisture	2.1	%	0.50	0.50	1		01/26/16 00:00		


Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Sample: SS-20B	Lab ID:	6021132302	22 Collecte	d: 01/13/16	6 14:46	Received: 01/	15/16 09:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	e adjusted f	or percent me	oisture, sar	nple s	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EP	A 8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	10.2J	mg/kg	11.9	5.9	1	01/27/16 00:00	01/28/16 12:07		
Surrogates		0 0							
n-Tetracosane (S)	101	%	18-139		1	01/27/16 00:00	01/28/16 12:07	646-31-1	
p-Terphenyl (S)	90	%	51-120		1	01/27/16 00:00	01/28/16 12:07	92-94-4	
Gasoline Range Organics	Analytical	Method: EP	A 8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	11.9	6.0	1	01/27/16 00:00	01/27/16 18:06		
4-Bromofluorobenzene (S)	85	%	68-144		1	01/27/16 00:00	01/27/16 18:06	460-00-4	
Percent Moisture	Analytical	Method: AS	TM D2974						
Percent Moisture	16.2	%	0.50	0.50	1		01/26/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Sample: SS-20C	Lab ID:	60211323023	Collecte	d: 01/13/16	6 14:48	Received: 01/	15/16 09:50 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	adjusted for	percent me	oisture, san	nple si	ze and any diluti	ons.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	015B Prep	aration Met	hod: El	PA 3546			
TPH-DRO <i>Surrogates</i>	11.8	mg/kg	10.3	5.2	1	01/27/16 00:00	01/28/16 12:16		
n-Tetracosane (S)	110	%	18-139		1	01/27/16 00:00	01/28/16 12:16	646-31-1	
p-Terphenyl (S)	100	%	51-120		1	01/27/16 00:00	01/28/16 12:16	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	015B Prep	aration Met	hod: El	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	10.4	5.2	1	01/27/16 00:00	01/27/16 18:23		
4-Bromofluorobenzene (S)	91	%	68-144		1	01/27/16 00:00	01/27/16 18:23	460-00-4	
Percent Moisture	Analytical	Method: ASTM	D2974						
Percent Moisture	4.2	%	0.50	0.50	1		01/26/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Sample: SS-20D	Lab ID:	60211323024	Collecte	d: 01/13/16	6 14:48	Received: 01/	15/16 09:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	e adjusted for	percent m	oisture, san	nple s	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	10.2J	mg/kg	11.8	5.9	1	01/27/16 00:00	01/28/16 12:25		
Surrogates									
n-Tetracosane (S)	83	%	18-139		1	01/27/16 00:00	01/28/16 12:25	646-31-1	
p-Terphenyl (S)	83	%	51-120		1	01/27/16 00:00	01/28/16 12:25	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO <i>Surrogates</i>	ND	mg/kg	11.9	6.0	1	01/27/16 00:00	01/27/16 18:41		
4-Bromofluorobenzene (S)	92	%	68-144		1	01/27/16 00:00	01/27/16 18:41	460-00-4	
Percent Moisture	Analytical	Method: ASTM	I D2974						
Percent Moisture	16.0	%	0.50	0.50	1		01/26/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Sample: SS-21A	Lab ID:	6021132302	25 Collected	d: 01/13/16	6 15:08	Received: 01/	15/16 09:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	adjusted fo	or percent mo	oisture, sar	nple s	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EP/	A 8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	8.7J	mg/kg	11.5	5.7	1	01/27/16 00:00	01/28/16 14:28		
Surrogates									
n-Tetracosane (S)	82	%	18-139		1	01/27/16 00:00	01/28/16 14:28	646-31-1	
p-Terphenyl (S)	79	%	51-120		1	01/27/16 00:00	01/28/16 14:28	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA	A 8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	11.6	5.8	1	01/27/16 00:00	01/27/16 18:58		
4-Bromofluorobenzene (S)	91	%	68-144		1	01/27/16 00:00	01/27/16 18:58	460-00-4	
Percent Moisture	Analytical	Method: AS	TM D2974						
Percent Moisture	13.1	%	0.50	0.50	1		01/26/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Sample: SS-21B	Lab ID:	6021132302	26 Collecte	d: 01/13/16	6 15:10	Received: 01/	15/16 09:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	e adjusted f	or percent me	oisture, sar	nple s	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EP	A 8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	36.4	mg/kg	10.2	5.1	1	01/27/16 00:00	01/28/16 12:35		
Surrogates		0 0							
n-Tetracosane (S)	89	%	18-139		1	01/27/16 00:00	01/28/16 12:35	646-31-1	
p-Terphenyl (S)	86	%	51-120		1	01/27/16 00:00	01/28/16 12:35	92-94-4	
Gasoline Range Organics	Analytical	Method: EP	A 8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	10.3	5.1	1	01/27/16 00:00	01/27/16 20:25		
4-Bromofluorobenzene (S)	93	%	68-144		1	01/27/16 00:00	01/27/16 20:25	460-00-4	
Percent Moisture	Analytical	Method: AS	TM D2974						
Percent Moisture	2.3	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Sample: SS-21C	Lab ID:	6021132302	7 Collecte	d: 01/13/16	6 15:17	Received: 01/	15/16 09:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	adjusted fo	r percent m	oisture, sar	nple s	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA	8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	16.3	mg/kg	10.7	5.3	1	01/27/16 00:00	01/28/16 12:44		
Surrogates									
n-Tetracosane (S)	117	%	18-139		1	01/27/16 00:00	01/28/16 12:44	646-31-1	
p-Terphenyl (S)	101	%	51-120		1	01/27/16 00:00	01/28/16 12:44	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA	8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO <i>Surrogates</i>	ND	mg/kg	10.8	5.4	1	01/27/16 00:00	01/27/16 20:42		
4-Bromofluorobenzene (S)	91	%	68-144		1	01/27/16 00:00	01/27/16 20:42	460-00-4	
Percent Moisture	Analytical	Method: AST	M D2974						
Percent Moisture	6.8	%	0.50	0.50	1		01/25/16 00:00		



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Sample: SS-21D	Lab ID:	60211323028	Collecte	d: 01/13/16	6 15:14	Received: 01/	15/16 09:50 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	e adjusted for	percent mo	oisture, sar	nple si	ze and any diluti	ons.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	13.9	mg/kg	12.2	6.1	1	01/27/16 00:00	01/28/16 12:53		
Surrogates									
n-Tetracosane (S)	93	%	18-139		1	01/27/16 00:00	01/28/16 12:53	646-31-1	
p-Terphenyl (S)	89	%	51-120		1	01/27/16 00:00	01/28/16 12:53	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: El	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	12.2	6.1	1	01/27/16 00:00	01/27/16 20:59		
4-Bromofluorobenzene (S)	86	%	68-144		1	01/27/16 00:00	01/27/16 20:59	460-00-4	
Percent Moisture	Analytical	Method: ASTM	1 D2974						
Percent Moisture	18.4	%	0.50	0.50	1		01/25/16 00:00		



Project:	BYRD	PUMP SITE	INVESTIGATION										
Pace Project No.:	602113	323											
QC Batch:	GCV	/5301		Analys	is Method	:	EPA 8015B						
QC Batch Method:	EPA	5035A/5030B	i	Analys	is Descrip	tion:	Gasoline Ran	ige Organi	cs				
Associated Lab Sar	mples:	6021132300 6021132300)1, 60211323002)8, 60211323009	, 602113230	003, 60211	323004, (60211323005	, 60211323	3006, 6021	1323007,			
METHOD BLANK:	170219	90		Ν	Aatrix: Sol	id							
Associated Lab Sar	mples:	6021132300 6021132300	01, 60211323002 08, 60211323009	, 602113230	003, 60211	323004,	60211323005	, 6021132:	3006, 6021	1323007,			
				Blank	R	eporting							
Parar	Parameter Units				t	Limit	MDL		Analyzed	Qu	alifiers		
TPH-GRO	-GRO mg/kg				ND	10.	.0	5.0 01/	27/16 00:0	8			
4-Bromofluorobenz		98	68-14	4	01/	27/16 00:0	8						
LABORATORY CO	NTROL	SAMPLE:	1702191	Coilco				0/ Do	•				
Parar	neter		Units	Conc	Resi	o Ilt	% Rec	1 imits	5 D	ualifiers			
							102		7 115		-		
4-Bromofluorobenz	ene (S)		тід/кд %	50		50.6	94	68	7-115 3-144				
MATRIX SPIKE & N	ATRIX	SPIKE DUPL	ICATE: 17021	92		1702193	3						
				MS	MSD								
Damasat		11-26-	60211323001	Spike	Spike	MS	MSD	MS	MSD	% Rec	000	Max	0
Paramete	ər	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	<u>крр</u>	Qual
TPH-GRO		mg/kg	, ND	61.5	61.5	63.	0 60.6	102	98	49-122	4	14	
4-Bromofluorobenze	ene (S)	%						86	90	68-144			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



Project:	BYRD P	UMP SITE I	NVESTIGATION									
Pace Project No.:	6021132	3										
QC Batch:	GCV/5	305		Analysi	s Method:	EF	PA 8015B					
QC Batch Method:	EPA 50)35A/5030B		Analysi	s Descriptio	on: Ga	asoline Ran	ige Or	ganics			
Associated Lab San	nples: (6021132301 6021132301	0, 60211323011, 7	602113230	12, 602113	23013, 602	211323014	, 6021	1323015, 6	0211323	016,	
METHOD BLANK:	1702539)		М	latrix: Solid							
Associated Lab San	nples: 6	6021132301 6021132301	0, 60211323011, 7	602113230	12, 602113	23013, 602	211323014	, 6021	1323015, 6	0211323	016,	
				Blank	Rej	oorting						
Paran	neter		Units	Result	L	imit	MDL		Analyz	ed	Qualifiers	3
TPH-GRO			mg/kg		ND	10.0		5.0	01/27/16	13:11		
4-Bromofluorobenze	ene (S)		%		99	68-144			01/27/16 ⁻	13:11		
LABORATORY COM	NTROL S	AMPLE: 1	702540									
				Spike	LCS		LCS	%	6 Rec			
Paran	neter		Units	Conc.	Result	c	% Rec	L	imits	Qualifi	iers	
TPH-GRO 4-Bromofluorobenze	ene (S)		mg/kg %	50		54.3	109 95		67-115 68-144			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



Project:	BYRD P	UMP SITE IN	VESTIGATION										
Pace Project No.:	6021132	23											
QC Batch:	GCV/5	306		Analys	is Method:	:	EPA 8015B						
QC Batch Method:	EPA 50	035A/5030B		Analys	is Descript	tion:	Gasoline Ran	nge Organi	CS				
Associated Lab Sar	mples:	60211323018 60211323028	3, 60211323019 5, 60211323026	602113230 602113230)20, 60211)27, 60211	323021, 323028	60211323022	, 6021132:	3023, 60211	323024,			
METHOD BLANK:	1702552	2		N	latrix: Sol	id							
Associated Lab Sar	nples:	60211323018 60211323028	3, 60211323019 5, 60211323026	602113230 602113230)20, 60211)27, 60211	323021, 0 323028	60211323022	, 6021132:	3023, 60211	323024,			
				Blank	R	eporting							
Parar	neter		Units	Result Limit		Limit	MDL		Analyzed	Qua	alifiers		
TPH-GRO			mg/kg		ND	10.	.0	5.0 01/	/27/16 16:39)			
4-Bromofluorobenz	ene (S)		%		90	68-14	4	01/	27/16 16:39)			
LABORATORY CO	NTROL S	AMPLE: 17	702553										
				Spike	LCS	5	LCS	% Re	с				
Parar	neter		Units	Conc.	Resu	ılt	% Rec	Limit	s Qu	ualifiers	_		
TPH-GRO			mg/kg	50		54.8	110	6	7-115				
4-Bromofluorobenzo	ene (S)		%				103	6	8-144				
MATRIX SPIKE & N	ATRIX S		CATE: 17025	54	MOD	1702555	5						
			60211222025	MS Spiko	MSD Spiko	MS	MSD	MS	Med	% Poc		Max	
Paramete	ər	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
TPH-GRO		mg/kg	ND	57.9	57.9	61.	1 59.0	105	101	49-122	4	14	
4-Bromofluorobenze	ene (S)	%						94	96	68-144			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

QC Batch:	OEXT	/52872	52872 Analysis Method: E										
QC Batch Method:	EPA 3	546		Analys	is Desc	ription:	EPA 8015B						
Associated Lab Sam	nples:	602113230 602113230 602113230	01, 60211323002 08, 60211323009 15, 60211323016	, 602113230 , 602113230 , 602113230	003, 60 010, 60 017, 60	211323004, (211323011, (211323018, (60211323005 60211323012 60211323019	, 602113 , 602113 , 602113	23006, 60 23013, 60 23020	211323007, 211323014,			
METHOD BLANK:	170227	7		Ν	latrix:	Solid							
Associated Lab Sam	nples:	602113230 602113230 602113230	01, 60211323002 08, 60211323009 15, 60211323016	, 602113230 , 602113230 , 602113230)03, 60)10, 60)17, 60	211323004, (211323011, (211323018, (60211323005 60211323012 60211323019	, 602113 , 602113 , 602113	23006, 60 23013, 60 23020	211323007, 211323014,			
				Blank		Reporting							
Param	neter		Units	Result	t	Limit	MDL		Analyze	d Qu	alifiers		
TPH-DRO			mg/kg		ND	1	0	5.0 0	1/28/16 09	9:50			
n-Tetracosane (S)			%		69	18-13	9	C	1/28/16 09	9:50			
p-Terphenyl (S)			%		59	51-12	0	C	01/28/16 09	9:50			
LABORATORY CON	ITROL S	SAMPLE:	1702278										
				Spike	L	CS	LCS	% F	Rec				
Param	neter		Units	Conc.	R	esult	% Rec	Lin	nits	Qualifiers			
TPH-DRO			mg/kg	83.2		78.9	95		76-115		_		
n-Tetracosane (S)			%				76		18-139				
p-Terphenyl (S)			%				65		51-120				
MATRIX SPIKE & M	ATRIX S	SPIKE DUPI	-ICATE: 17022	79		1702280)						
				MS	MSD								
			60211323001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	r	Units	s Result	Conc.	Conc	. Result	Result	% Rec	% Re	c Limits	RPD	RPD	Qual

101

107

101

95

67

53

89

62

49

12-159

18-139

51-120

6 37

S0

10.9J

mg/kg

%

%

101

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

TPH-DRO

n-Tetracosane (S)

p-Terphenyl (S)

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Project:	BYRD	PUMP SITE II	VESTIGATION										
Pace Project No.:	602113	323											
QC Batch:	OEX	Г/52873		Analys	is Method	: E	PA 8015B						
QC Batch Method:	EPA :	3546		Analys	is Descrip	tion: E	PA 8015B						
Associated Lab Sar	mples:	6021132302 6021132302	1, 60211323022 8	, 602113230	023, 60211	323024, 60)211323025	, 60211323	8026, 60211	323027,			
METHOD BLANK:	170228	31		N	Aatrix: Sol	id							
Associated Lab Sar	mples:	6021132302 6021132302	1, 60211323022, 8	, 602113230	023, 60211	323024, 60)211323025	, 60211323	8026, 60211	323027,			
Parar	neter		Units	Blank Resul	: R t	eporting Limit	MDL		Analvzed	Qua	alifiers		
			ma/ka		ND	9.9		5.0 01/	28/16 12:33				
n-Tetracosane (S)			%		73	18-139		01/	28/16 12:33	, }			
p-Terphenyl (S)			%		63	51-120		01/	28/16 12:33	3			
LABORATORY CO	NTROL	SAMPLE: 1	702282										
				Spike	LCS	8	LCS	% Red)				
Parar	neter		Units	Conc.	Resu	ult	% Rec	Limits	s Qu	ualifiers			
TPH-DRO			mg/kg	83.2		79.7	96	76	6-115		-		
n-Tetracosane (S)			%				78	18	3-139				
p-Terphenyl (S)			%				69	51	-120				
MATRIX SPIKE & M	ATRIX		CATE: 17022	83		1702284							
				MS	MSD								
_			60211323025	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	. .
Paramete	ər	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
TPH-DRO		mg/kg	8.7J	95	94.5	83.0	99.6	78	96	12-159	18	37	
n-Tetracosane (S)		%						96	94	18-139			
p-Terphenyl (S)		%						98	97	51-120			

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REPORT OF LABORATORY ANALYSIS

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Project:	BYRD PUMP SITE	INVESTIGATION					
Pace Project No.:	60211323						
QC Batch:	PMST/11458		Analysis Meth	nod:	ASTM D2974		
QC Batch Method:	ASTM D2974		Analysis Des	cription:	Dry Weight/Percen	t Moisture	
Associated Lab Sar	nples: 602113230	001, 60211323002,	60211323003, 60	211323004,	60211323005		
METHOD BLANK:	1701471		Matrix:	Solid			
Associated Lab Sar	nples: 602113230	001, 60211323002,	60211323003, 60	211323004,	60211323005		
			Blank	Reporting			
Parar	neter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Percent Moisture		%	ND	0.5	0 0.50	01/25/16 00:00	
SAMPLE DUPLICA	TE: 1701472						
			60211322021	Dup		Max	
Parar	neter	Units	Result	Result	RPD	RPD	Qualifiers
Percent Moisture		%	13.0	13	5 3	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



Project:	BYRD F	PUMP SITE IN	IVESTIGATION					
Pace Project No.:	602113	23						
QC Batch:	PMST	/11459		Analysis Meth	nod:	ASTM D2974		
QC Batch Method:	ASTM	D2974		Analysis Desc	cription:	Dry Weight/Perce	nt Moisture	
Associated Lab Sar	nples:	60211323006 60211323013 60211323020	, 60211323007, , 60211323014, , 60211323021,	60211323008, 60 60211323015, 60 60211323022, 60	211323009, 211323016, 211323023,	60211323010, 602 60211323017, 602 60211323024, 602	211323011, 602113 211323018, 602113 211323025	323012, 323019,
METHOD BLANK:	170147	3		Matrix:	Solid			
Associated Lab Sar	nples:	60211323006 60211323013 60211323020	, 60211323007, , 60211323014, , 60211323021,	60211323008, 60 60211323015, 60 60211323022, 60	211323009, 211323016, 211323023,	60211323010, 602 60211323017, 602 60211323024, 602	211323011, 602113 211323018, 602113 211323025	323012, 323019,
Paran	notor		l Inite	Blank	Reporting	МП	Analyzed	Qualifiers
Percent Moisture			%	ND	0.8	50 0.50	01/26/16 00:00	
SAMPLE DUPLICA	TE: 170)1474						
Deve			Linita	60211323006	Dup		Max	Qualifiana
Parar	neter		Units	Result	Result		RPD	Quaimers
Percent Moisture			%	5.0	5	.6 10	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



Project:	BYRD PUMP SITE	INVESTIGATION						
Pace Project No .:	60211323							
QC Batch:	PMST/11460		Analysis Meth	hod:	ASTM D2974			
QC Batch Method:	ASTM D2974		Analysis Des	cription:	Dry Weight/Perce	ent Moisture		
Associated Lab Sar	nples: 602113230	26, 60211323027,	60211323028					
METHOD BLANK:	1701475		Matrix:	Solid				
Associated Lab Sar	nples: 602113230	26, 60211323027,	60211323028					
			Blank	Reporting				
Parar	neter	Units	Result	Limit	MDL	Analyzed	Qualifiers	
Percent Moisture		%	ND	0.8	50 0.50	0 01/25/16 00:00		
SAMPLE DUPLICA	TE: 1701476							
			60211323026	Dup		Max		
Parar	neter	Units	Result	Result	RPD	RPD	Qualifiers	
Percent Moisture		%	2.3	2		5 20		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



QUALIFIERS

Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

ANALYTE QUALIFIERS

- 1e Surrogate recovery outside laboratory control limits. Verified by re-analysis. No further action taken due to holding time violations.
- 2e Surrogate recovery outside laboratory control limits. Verified by re-analysis. No further action taken due to holding time violations.
- S0 Surrogate recovery outside laboratory control limits.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

	Sample ID	OC Batch Method	OC Batch	Analytical Method	Analytical Batch
					Batch
60211323001	SS-15A	EPA 3546	OEXT/52872	EPA 8015B	GCSV/20417
60211323002	SS-15B	EPA 3546	OEXT/52872	EPA 8015B	GCSV/20417
60211323003	SS-15C	EPA 3546	OEXT/52872	EPA 8015B	GCSV/20417
60211323004	SS-15D	EPA 3546	OEXT/52872	EPA 8015B	GCSV/20417
60211323005	SS-16A	EPA 3546	OEXT/52872	EPA 8015B	GCSV/20417
60211323006	SS-16B	EPA 3546	OEXT/52872	EPA 8015B	GCSV/20417
60211323007	SS-16C	EPA 3546	OEXT/52872	EPA 8015B	GCSV/20417
60211323008	SS-16D	EPA 3546	OEXT/52872	EPA 8015B	GCSV/20417
60211323009	SS-17A	EPA 3546	OEXT/52872	EPA 8015B	GCSV/20417
60211323010	SS-17B	EPA 3546	OEXT/52872	EPA 8015B	GCSV/20417
60211323011	SS-17C	EPA 3546	OEXT/52872	EPA 8015B	GCSV/20417
60211323012	SS-17D	EPA 3546	OEXT/52872	EPA 8015B	GCSV/20417
60211323013	SS-18A	EPA 3546	OEXT/52872	EPA 8015B	GCSV/20417
60211323014	SS-18B	EPA 3546	OEXT/52872	EPA 8015B	GCSV/20417
60211323015	SS-18C	EPA 3546	OEXT/52872	EPA 8015B	GCSV/20417
60211323016	SS-18D	EPA 3546	OEXT/52872	EPA 8015B	GCSV/20417
60211323017	SS-19A	EPA 3546	OEXT/52872	EPA 8015B	GCSV/20417
60211323018	SS-19B	EPA 3546	OEXT/52872	EPA 8015B	GCSV/20417
60211323019	SS-19C	EPA 3546	OEXT/52872	EPA 8015B	GCSV/20417
60211323020	SS-19D	EPA 3546	OEXT/52872	EPA 8015B	GCSV/20417
60211323021	SS-20A	EPA 3546	OEXT/52873	EPA 8015B	GCSV/20421
60211323022	SS-20B	EPA 3546	OEXT/52873	EPA 8015B	GCSV/20421
60211323023	SS-20C	EPA 3546	OEXT/52873	EPA 8015B	GCSV/20421
60211323024	SS-20D	EPA 3546	OEXT/52873	EPA 8015B	GCSV/20421
60211323025	SS-21A	EPA 3546	OEXT/52873	EPA 8015B	GCSV/20421
60211323026	SS-21B	EPA 3546	OEXT/52873	EPA 8015B	GCSV/20421
60211323027	SS-21C	EPA 3546	OEXT/52873	EPA 8015B	GCSV/20421
60211323028	SS-21D	EPA 3546	OEXT/52873	EPA 8015B	GCSV/20421
60211323001	SS-15A	EPA 5035A/5030B	GCV/5301	EPA 8015B	GCV/5304
60211323002	SS-15B	EPA 5035A/5030B	GCV/5301	EPA 8015B	GCV/5304
60211323003	SS-15C	EPA 5035A/5030B	GCV/5301	EPA 8015B	GCV/5304
60211323004	SS-15D	EPA 5035A/5030B	GCV/5301	EPA 8015B	GCV/5304
60211323005	SS-16A	EPA 5035A/5030B	GCV/5301	EPA 8015B	GCV/5304
60211323006	SS-16B	EPA 5035A/5030B	GCV/5301	EPA 8015B	GCV/5304
60211323007	SS-16C	EPA 5035A/5030B	GCV/5301	EPA 8015B	GCV/5304
60211323008	SS-16D	EPA 5035A/5030B	GCV/5301	EPA 8015B	GCV/5304
60211323009	SS-17A	EPA 5035A/5030B	GCV/5301	EPA 8015B	GCV/5304
60211323010	SS-17B	EPA 5035A/5030B	GCV/5305	EPA 8015B	GCV/5307
60211323011	SS-17C	EPA 5035A/5030B	GCV/5305	EPA 8015B	GCV/5307
60211323012	SS-17D	EPA 5035A/5030B	GCV/5305	EPA 8015B	GCV/5307
60211323013	SS-18A	EPA 5035A/5030B	GCV/5305	EPA 8015B	GCV/5307
60211323014	SS-18B	EPA 5035A/5030B	GCV/5305	EPA 8015B	GCV/5307
60211323015	SS-18C	EPA 5035A/5030B	GCV/5305	EPA 8015B	GCV/5307
60211323016	SS-18D	EPA 5035A/5030B	GCV/5305	EPA 8015B	GCV/5307
60211323017	SS-19A	EPA 5035A/5030B	GCV/5305	EPA 8015B	GCV/5307
60211323018	SS-19B	EPA 5035A/5030B	GCV/5306	EPA 8015B	GCV/5308
60211323019	SS-19C	EPA 5035A/5030B	GCV/5306	EPA 8015B	GCV/5308



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BYRD PUMP SITE INVESTIGATION

Pace Project No.: 60211323

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60211323020	 SS-19D	EPA 5035A/5030B	GCV/5306	EPA 8015B	GCV/5308
60211323021	SS-20A	EPA 5035A/5030B	GCV/5306	EPA 8015B	GCV/5308
60211323022	SS-20B	EPA 5035A/5030B	GCV/5306	EPA 8015B	GCV/5308
60211323023	SS-20C	EPA 5035A/5030B	GCV/5306	EPA 8015B	GCV/5308
60211323024	SS-20D	EPA 5035A/5030B	GCV/5306	EPA 8015B	GCV/5308
60211323025	SS-21A	EPA 5035A/5030B	GCV/5306	EPA 8015B	GCV/5308
60211323026	SS-21B	EPA 5035A/5030B	GCV/5306	EPA 8015B	GCV/5308
60211323027	SS-21C	EPA 5035A/5030B	GCV/5306	EPA 8015B	GCV/5308
60211323028	SS-21D	EPA 5035A/5030B	GCV/5306	EPA 8015B	GCV/5308
60211323001	SS-15A	ASTM D2974	PMST/11458		
60211323002	SS-15B	ASTM D2974	PMST/11458		
60211323003	SS-15C	ASTM D2974	PMST/11458		
60211323004	SS-15D	ASTM D2974	PMST/11458		
60211323005	SS-16A	ASTM D2974	PMST/11458		
60211323006	SS-16B	ASTM D2974	PMST/11459		
60211323007	SS-16C	ASTM D2974	PMST/11459		
60211323008	SS-16D	ASTM D2974	PMST/11459		
60211323009	SS-17A	ASTM D2974	PMST/11459		
60211323010	SS-17B	ASTM D2974	PMST/11459		
60211323011	SS-17C	ASTM D2974	PMST/11459		
60211323012	SS-17D	ASTM D2974	PMST/11459		
60211323013	SS-18A	ASTM D2974	PMST/11459		
60211323014	SS-18B	ASTM D2974	PMST/11459		
60211323015	SS-18C	ASTM D2974	PMST/11459		
60211323016	SS-18D	ASTM D2974	PMST/11459		
60211323017	SS-19A	ASTM D2974	PMST/11459		
60211323018	SS-19B	ASTM D2974	PMST/11459		
60211323019	SS-19C	ASTM D2974	PMST/11459		
60211323020	SS-19D	ASTM D2974	PMST/11459		
60211323021	SS-20A	ASTM D2974	PMST/11459		
60211323022	SS-20B	ASTM D2974	PMST/11459		
60211323023	SS-20C	ASTM D2974	PMST/11459		
60211323024	SS-20D	ASTM D2974	PMST/11459		
60211323025	SS-21A	ASTM D2974	PMST/11459		
60211323026	SS-21B	ASTM D2974	PMST/11460		
60211323027	SS-21C	ASTM D2974	PMST/11460		
60211323028	SS-21D	ASTM D2974	PMST/11460		



Sample Condition Upon Receipt ESI Tech Spec Client

WO#:60211323

Client Name: BP Stuntec		Optional
Courier: FedEx 🖄 UPS 🗆 VIA 🗆 Clay 🗆 PEX 🗆 ECI 🗆	Pace 🗆 Other 🗆 C	lient Proi Due Date:
Tracking #: 10 508 8163 4641 Pace Shipping Label	Used? Yes 🗆 No 🗆	Proi Name:
Custody Seal on Cooler/Box Present: Yes 🛍 No 🗆 Seals intact:	Yes 12∕ No □	
Packing Material: Bubble Wrap D Bubble Bags B Foam		Dther 🗆
Thermometer Used: <u>T-239</u> <u>CF +0.7</u> <u>T-262</u> Type of Ice: Wet	lue None 🗆 Samples re	ceived on ice, cooling process has begun.
Cooler Temperature: 2.4 (circ	le one) Date	and initials of person examining
Temperature should be above freezing to 6°C	conte	ents: JB 1 15
Chain of Custody present:	1.	d.
Chain of Custody filled out:	2.	
Chain of Custody relinquished:	3.	
Sampler name & signature on COC:	4.	
Samples arrived within holding time: 🛛 🖄 Yes 🗆 No 🗆 N/A	5.	
Short Hold Time analyses (<72hr):	6.	
Rush Turn Around Time requested: □Yes DNA	7.	
Sufficient volume: Ways No N/A	8.	
Correct containers used: Market Correct containers used:		
Pace containers used: De N/A	9.	
Containers intact:	10.	
Unpreserved 5035A soils frozen w/in 48hrs?	11.	
Filtered volume received for dissolved tests?	12.	
Sample labels match COC:		
Includes date/time/ID/analyses Matrix: 1/L	13.	
All containers needing preservation have been checked.		
All containers needing preservation are found to be in compliance with EPA recommendation.	14.	
Exceptions: VOA, Coliform, O&G, WI-DRO (water)	Initial when	Lot # of added
Trip Blank present:		
Pace Trip Blank lot # (if purchased): 1/1215-2	15.	
Headspace in VOA vials (>6mm): □Yes □No ℤN/A		
	16.	
Project sampled in USDA Regulated Area:	17. List State: NM	
Additional labels attached to 5035A yials in the field?	18.	
Client Notification/ Resolution: Copy COC to Client? Y /	N Field Data Requir	ed? Y / N
Person Contacted: Date/Time:		Temp Log: Record start and finish times
Comments/ Resolution:		when unpacking cooler, if >20 min, recheck sample temps.
		Start: 1275 Start:
		End: 1231 End:
Project Manager Review:AAF	Date: 01/15/16	Temp: Temp:

F-KS-C-004-Rev.4, 30June 2015 Page 49 of 52

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Laboratory Management Program LaMP Chain of Custody Record

BP/ARC Project Name: Byrd Pump Site Investigation Req Due Date (mm/r			
BPIARC Project Name: Dylu Fund Sile Investigation		Durd Dump Cito Invoctionation	Red Due Date (mm/r
	DP/ARC Project Nalile:	DVIU FUILIP OILE INVESTIGATION	summi and and have

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, 'C	Richfield	BP/ARC Project	Name:	Byrd F	oump S	ite Inve	stigatio	F			-	Req D	ue Da	te (mr	/pp/u	بران	572	n	dav	d Rush	TAT: Yes	No
<u>ە</u> ر		BP/ARC Facility	No:	Byrd F	s dun	lite					Ξ,	-ab M	ork O	rder N	lumb	u Le		P		0	511120	
Lab Narr	le: Pace Analytical Services, Inc.			BP/AR	C Facilit	y Addre:	:SS	15 Joa	nne Lar	Q					Con	ultant/(contrac	tor:	Sta	ntec Consulting		
Lab Add	ess: 9608 Loiret Blvd			City, St	tate, ZIF	Code:		Monur	nent, NN	~					Con	ultant/(Contrac	tor Pro	oject No	:		182630008
Lab PM:	Alice Flanagan			Lead R	egulato	ry Ageno		Ŏ WN	8						Addr	ess:	3770 G	uion R	d. Ste I	3 Indianapolis,	N 46268	
Lab Pho	ne: 916-563-1409			Califor	nia Glob	al ID No		M							Con	ultant/(Contrac	tor PN	I: Sus	an Hall		
Lab Ship	ping Accrt:			Enfos I	roposa	I No:		009PE	-002						Phor	i i i i i i i i i i i i i i i i i i i	317-876	3-8375				
Lab Bott	le Order No:			Accourt	nting Mc	de:	Pro	vision		OC-BU		000	RM		Ema	EDD	lo: SI	sh ha	ll@star	itec.com		
Other Int	.o.			Stage:	4 E	(ecute	¥	tivity:	Projec	t Spen	p				Invo	ce To:		BP/A	SC X	Cont	ractor	
BP/ARC	EBM: Sergio Morescalchi				Aatrix	F	0. Co	ntaine	rs / Pr	eserva	tive			Req	ueste	d Ana	yses			Repo	rt Type & QC	Level
EBM Ph	one: 925-487-0940		x			s									7.845	0.005		2011			Standard 关	ĩ
EBM Err	ail: Sergio.Morescalchi@bp.com					ner:						98	3		2/00	; (ətel	A	, K 60		Full Dâ	ita Package	
Lab No.	Sample Description	Date	Time	bilo2 \ lio2	vvater / ⊾iquid Air / Vapor	tro. 10 pedmin letoT	Unpreserved	[‡] OS ^z H	^{\$} ONH	Methanol		гов ояд-нат		PAH 8310	RCRA METALS 601	Anions (Br, Cl, Fl,Sult	Nitrate / Nitriate 9056	Cations - Ca, Mg, Va,	20462 MS/1.081 SUT	Note: If samp Sample" in cc and initial any	Comments e not collected, ind mments and single preprinted sample	icate "No -strike out description.
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Specie	al Instructions:					2												3	-			
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Laboratory Management Program LaMP Chain of Custody Record

BP/ARC Project Name: Byrd Pump Site Investigation

Page 2 of

Rush TAT: Yes No 9 Req Due Date (mm/dd/yy): Strind Cu

	O A BP affiliated company	BP/ARC Facility No	Byr	d Pur	np Sit	0					ĩ	Lab	Work	Order	Numt	' E						
Lab N	ame: Pace Analytical Services, Inc.		BP/	ARC F	-acility	Addres	ŝ	15 Jo	anne L	ane					Cor	sultant/(Contrac	tor:	Sta	ntec Consulting		
Lab A	tdress: 9608 Loiret Blvd		City	, State	e, ZIP (ode:		Monu	ment, h	W					Ç	sultant/	Contrac	tor Pro	oject Nc		-	82630008
Lab P	M: Alice Flanagan		Lea	d Reg	ulatory	Agenc	÷	NMO	G						Adc	less:	3770 G	uion R	d. Ste I	3 Indianapolis, IN 4	5268	
Lab Pi	10ne: 916-563-1409		Cali	fornia	Global	ID No		¥							Cor	sultant/(Contrac	tor PN	l: Sus	an Hall		
Lab S	ipping Accnt:		Enfo	os Pro	posal h	ö		9600	0-002						Phc	.e.	317-87(3-8375				
Lab B	ttie Order No:		Acc	ountin	g Mode		Pro	vision	$ \times $	000-E	n l	00	C-RM	ľ	Ш	ii EDD	To: sı	eh nsu	ll@stan	tec.com		
Other	Info:		Sta	ie iei	4 Exe	cute	Ā	ctivity:	Proje	ct Spe	pue				Invo	ice To:		BP/AI	N N N	Contract	r 	
BP/AF	C EBM: Sergio Morescalchi			Ma	trix	Ľ	0 0	ntain	ers / P	reser	rative			Rec	luest	d Ana	yses			Report T	ype & QC Le	ivel
EBM	³ hone: 925-487-0940					S			(12) (1)						7.84	0.008		201		S	tandard 🗶	
EBM	:mail: Sergio.Morescalchi@bp.com					19nis)						89	89	5	0015) (əte	A	K 60		Full Data P	ackage	
Lab No.	Sample Description	Date	ი bilo2 \ lio2	Mater / Liquid	Air / Vapor	Total Number of Cont	Unpreserved	⁺OS ^z H	€ONH	HCI		108 OAO-H9T	гов ояб-нат	90828 X 3 78	RCRA METALS 6010	Anions (Br, Cl, Fl,Sulf	Vitrate / Nitriate 9056/	,eN ,eM ,eO - enoiteC		Co Note: If sample no Sample" in comme and initial any prep	in the second se	te "No rike out scription.
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Ship	ent Tracking No:														_	R						

BP/ARC LaMP COC Rev. 6 01/01/2009 MS/MSD Sample Submitted: Yes/ No

Trip Blank Yes No

°F/C

Cooler Temp on Receipt: 24

Temp Blank Yes No

S THIS LINE - LAB USE ONLY: Custody Seals In Place Yes No

Special Instructions:

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Laboratory Management Program LaMP Chain of Custody Record Page 2 of 3 BP/ARC Project Name: Byrd Pump Site Investigation Req Due Date (mm/dd/yy):

		BP/ARC Facility Net	шI Ю	yrd Pı	ump Site					1	Lat	o Wor	k Orde	er Nun	nber:					с	
Lab N	ame: Pace Analytical Services, Inc.			PIARC	Facility Ac	dress:	15	Joanne	e Lane					0	onsulta	nt/Conti	actor:	Sta	antec Consulting		
Lab A	ddress: 9608 Loiret Blvd		0	ity, Sta	te, ZIP Co	le:	Mo	uamen	ť, NM					0	onsulta	nt/Conti	actor F	roject N	0:	£.	82630008
Lab P	M: Alice Flanagan			ead Re	gulatory A	gency:	Z	1 OCD						4	ddress:	8770	Guion	Rd. Ste	B Indianapolis, IN 46	268	
Lab P	hone: 916-563-1409		0	aliforni	a Global IC	No.:	AN							0	onsulta	nt/Conti	actor F	M: Su	san Hall		
Lab S	hipping Accnt:			nfos Pr	oposal No		8	PD-00	0						hone:	317-	376-83	5			
Lab B	ottle Order No:			ccount	ing Mode:		Provisi	X K	ŏ	-BU	ŏ 	DC-RM		ш	mail EC	D To:	susn.ł	all@sta	ntec.com		
Other	Info:		0	tage:	4_Execut	υ	Activit	y: Pro	ject S	pend					voice T	ö	BP/	ARC >	Contracto		
BP/AF	C EBM: Sergio Morescalchi			Ŵ	atrix	No.	Conta	iners	/ Prese	Ivative	_		æ	eque	sted A	nalyse	v		Report T)	rpe & QC Le	ivel
EBM	² hone: 925-487-0940					s	-							_	0.008		201	_	έζ.	andard 🗡	
EBM	Email: Sergio.Morescalchi@bp.com					nənis					89	89	Ę		S / D	۲.	K 60		Full Data Pa	ackage	
Lab No.	Sample Description	Date	e	soil / Solid Mater / Liquid	Уіг ∖ Уарог	Fotal Number of Cont		HOO3	ICI	lonsriteN	108 OAD-H9T	108 OAO-H9T	BTEX 8260E	0168 HA9		Vitrate / Nitriate 9056	,ations - Ca, Mg, Va,	DS 160.1/SM 2540C	Co Note: If sample not Sample" in commer and initial any prepr	mments collected, indicants and single-st inted sample de	tte "No rike out scription.
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																			BP/ARC Lah	AP COC Rev. 6	01/01/2009



Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa, KS 66219 (913)599-5665

February 03, 2016

Susan Hall BP Stantec 8770 Guion Rd. Ste B Indianapolis, IN 46268

RE: Project: Byrd Pump Site Investigation Pace Project No.: 60211423

Dear Susan Hall:

Enclosed are the analytical results for sample(s) received by the laboratory on January 19, 2016. The results relate only to the samples included in this report. Results contained within this report conform to the most current version of the TNI standards, BP LaMP Technical Requirements Revision 10.1, and any applicable Quality Assurance Project Plan (QAPP), or Work Plan unless otherwise narrated in the body of this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Emily Webb for Alice Flanagan alice.flanagan@pacelabs.com Project Manager

Enclosures





CERTIFICATIONS

Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219 WY STR Certification #: 2456.01 Arkansas Certification #: 15-016-0 Illinois Certification #: 003097 Iowa Certification #: 118 Kansas/NELAP Certification #: E-10116 Louisiana Certification #: 03055 Nevada Certification #: KS000212008A Oklahoma Certification #: 9205/9935 Texas Certification #: T104704407 Utah Certification #: KS00021 Kansas Field Laboratory Accreditation: # E-92587



SAMPLE SUMMARY

Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60211423001	SS-3A	Solid	01/12/16 15:40	01/19/16 08:15
60211423002	SS-3B	Solid	01/12/16 15:42	01/19/16 08:15
60211423003	SS-3C	Solid	01/12/16 15:45	01/19/16 08:15
60211423004	SS-3D	Solid	01/12/16 15:48	01/19/16 08:15
60211423005	SS-4A	Solid	01/12/16 15:22	01/19/16 08:15
60211423006	SS-4B	Solid	01/12/16 15:25	01/19/16 08:15
60211423007	SS-4C	Solid	01/12/16 15:27	01/19/16 08:15
60211423008	SS-4D	Solid	01/12/16 15:30	01/19/16 08:15
60211423009	SS-5A	Solid	01/12/16 15:08	01/19/16 08:15
60211423010	SS-5B	Solid	01/12/16 15:09	01/19/16 08:15
60211423011	SS-5C	Solid	01/12/16 15:11	01/19/16 08:15
60211423012	SS-5D	Solid	01/12/16 15:13	01/19/16 08:15
60211423013	SS-6A	Solid	01/12/16 14:55	01/19/16 08:15
60211423014	SS-6B	Solid	01/12/16 14:56	01/19/16 08:15
60211423015	SS-6C	Solid	01/12/16 14:57	01/19/16 08:15
60211423016	SS-6D	Solid	01/12/16 15:00	01/19/16 08:15
60211423017	SS-1A	Solid	01/13/16 09:19	01/19/16 08:15
60211423018	SS-1B	Solid	01/13/16 09:22	01/19/16 08:15
60211423019	SS-1C	Solid	01/13/16 09:23	01/19/16 08:15
60211423020	SS-1D	Solid	01/13/16 09:28	01/19/16 08:15
60211423021	SS-2A	Solid	01/13/16 08:57	01/19/16 08:15
60211423022	SS-2B	Solid	01/13/16 08:59	01/19/16 08:15
60211423023	SS-2C	Solid	01/13/16 09:01	01/19/16 08:15
60211423024	SS-2D	Solid	01/13/16 09:03	01/19/16 08:15
60044400005				



SAMPLE ANALYTE COUNT

Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60211423001	SS-3A	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211423002	SS-3B	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211423003	SS-3C	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211423004	SS-3D	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211423005	SS-4A	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211423006	SS-4B	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211423007	SS-4C	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211423008	SS-4D	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211423009	SS-5A	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211423010	SS-5B	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211423011	SS-5C	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211423012	SS-5D	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211423013	SS-6A	EPA 8015B	ACW	3	PASI-K



SAMPLE ANALYTE COUNT

Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211423014	SS-6B	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211423015	SS-6C	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211423016	SS-6D	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211423017	SS-1A	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211423018	SS-1B	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211423019	SS-1C	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211423020	SS-1D	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211423021	SS-2A	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211423022	SS-2B	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211423023	SS-2C	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211423024	SS-2D	EPA 8015B	ACW	3	PASI-K
		EPA 8015B	JTK	2	PASI-K
		ASTM D2974	DWC	1	PASI-K
60211423025	TRIP BLANK	EPA 8015B	JTK	2	PASI-K



PROJECT NARRATIVE

Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Method: EPA 8015B

Description:8015B Diesel Range OrganicsClient:BP Stantec TXDate:February 03, 2016

General Information:

24 samples were analyzed for EPA 8015B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3546 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

QC Batch: OEXT/52860

S0: Surrogate recovery outside laboratory control limits.

• MS (Lab ID: 1701689)

p-Terphenyl (S)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:



PROJECT NARRATIVE

Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Method:EPA 8015BDescription:Gasoline Range OrganicsClient:BP Stantec TXDate:February 03, 2016

General Information:

25 samples were analyzed for EPA 8015B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

H1: Analysis conducted outside the EPA method holding time.

• TRIP BLANK (Lab ID: 60211423025)

Sample Preparation:

The samples were prepared in accordance with EPA 5035A/5030B with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: GCV/5296

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.



Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Sample: SS-3A	Lab ID:	60211423001	Collecte	d: 01/12/16	6 15:40	Received: 01/	19/16 08:15 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	e adjusted for	percent me	oisture, san	nple si	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: El	PA 3546			
TPH-DRO <i>Surrogates</i>	ND	mg/kg	13.7	6.9	1	01/25/16 00:00	01/27/16 19:11		
n-Tetracosane (S)	64	%	18-139		1	01/25/16 00:00	01/27/16 19:11	646-31-1	
p-Terphenyl (S)	53	%	51-120		1	01/25/16 00:00	01/27/16 19:11	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: El	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	13.6	6.8	1	01/21/16 00:00	01/21/16 20:58		
4-Bromofluorobenzene (S)	86	%	68-144		1	01/21/16 00:00	01/21/16 20:58	460-00-4	
Percent Moisture	Analytical	Method: ASTM	1 D2974						
Percent Moisture	27.3	%	0.50	0.50	1		01/29/16 00:00		



Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Sample: SS-3B	Lab ID:	60211423002	Collecte	d: 01/12/16	5 15:42	Received: 01/	'19/16 08:15 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	e adjusted for	percent mo	oisture, san	nple si	ize and any diluti	ions.		
Doromotoro	Populto	Lipito	Report		DE	Bronarad	Applyzod		Qual
Falameters		Units			DF				Quai
8015B Diesel Range Organics	Analytical	Method: EPA	3015B Prep	aration Met	hod: El	PA 3546			
TPH-DRO <i>Surrogates</i>	ND	mg/kg	13.9	6.9	1	01/25/16 00:00	02/01/16 12:29		
n-Tetracosane (S)	76	%	18-139		1	01/25/16 00:00	02/01/16 12:29	646-31-1	
p-Terphenyl (S)	73	%	51-120		1	01/25/16 00:00	02/01/16 12:29	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA	3015B Prep	aration Met	hod: El	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	13.9	6.9	1	01/21/16 00:00	01/21/16 21:16		
4-Bromofluorobenzene (S)	93	%	68-144		1	01/21/16 00:00	01/21/16 21:16	460-00-4	
Percent Moisture	Analytical	Method: ASTN	1 D2974						
Percent Moisture	28.7	%	0.50	0.50	1		01/29/16 00:00		



Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Sample: SS-3C	Lab ID:	60211423003	Collecte	d: 01/12/16	6 15:45	Received: 01/	19/16 08:15 Ma	atrix: Solid	
Results reported on a "dry weight	" basis and are	e adjusted for	percent me	oisture, san	nple si	ize and any diluti	ons.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	8015B Prep	aration Met	hod: El	PA 3546			
TPH-DRO <i>Surrogates</i>	ND	mg/kg	12.2	6.1	1	01/25/16 00:00	02/01/16 12:38		
n-Tetracosane (S)	78	%	18-139		1	01/25/16 00:00	02/01/16 12:38	646-31-1	
p-Terphenyl (S)	76	%	51-120		1	01/25/16 00:00	02/01/16 12:38	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	8015B Prep	aration Met	hod: El	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	12.2	6.1	1	01/21/16 00:00	01/21/16 21:33		
4-Bromofluorobenzene (S)	87	%	68-144		1	01/21/16 00:00	01/21/16 21:33	460-00-4	
Percent Moisture	Analytical	Method: ASTM	1 D2974						
Percent Moisture	18.0	%	0.50	0.50	1		01/29/16 00:00		



Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Sample: SS-3D	Lab ID:	60211423004	Collecte	d: 01/12/16	5 15:48	Received: 01/	19/16 08:15 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	e adjusted for	percent me	oisture, san	nple si	ize and any diluti	ions.		
D	D <i>I</i>		Report			. .		0.00 M	. .
Parameters				MDL	DF	Prepared	Analyzed	CAS NO.	Quai
8015B Diesel Range Organics	Analytical	Method: EPA 8	015B Prep	aration Met	hod: El	PA 3546			
TPH-DRO <i>Surrogates</i>	ND	mg/kg	13.3	6.6	1	01/25/16 00:00	02/01/16 12:48		
n-Tetracosane (S)	73	%	18-139		1	01/25/16 00:00	02/01/16 12:48	646-31-1	
p-Terphenyl (S)	71	%	51-120		1	01/25/16 00:00	02/01/16 12:48	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	015B Prep	aration Met	hod: El	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	13.3	6.6	1	01/21/16 00:00	01/21/16 22:25		
4-Bromofluorobenzene (S)	88	%	68-144		1	01/21/16 00:00	01/21/16 22:25	460-00-4	
Percent Moisture	Analytical	Method: ASTM	D2974						
Percent Moisture	24.8	%	0.50	0.50	1		01/29/16 00:00		



Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Sample: SS-4A	Lab ID:	60211423005	Collecte	d: 01/12/16	5 15:22	Received: 01/	'19/16 08:15 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	e adjusted for	percent mo	oisture, san	nple s	ize and any diluti	ions.		
Demonstration	Desults	11-26-	Report			Deserved	A solution of the	040 N	Qual
Parameters		Units		MDL	DF	Prepared	Analyzed	CAS NO.	Quai
8015B Diesel Range Organics	Analytical	Method: EPA	3015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	107	mg/kg	13.2	6.6	1	01/25/16 00:00	01/27/16 19:42		
Surrogates	99	0/	18-130		1	01/25/16 00:00	01/27/16 10.42	646-31-1	
p-Terphenyl (S)	80	%	51-120		1	01/25/16 00:00	01/27/16 19:42	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	13.2	6.6	1	01/21/16 00:00	01/21/16 22:43		
4-Bromofluorobenzene (S)	87	%	68-144		1	01/21/16 00:00	01/21/16 22:43	460-00-4	
Percent Moisture	Analytical	Method: ASTN	1 D2974						
Percent Moisture	24.6	%	0.50	0.50	1		01/29/16 00:00		



Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Sample: SS-4B	Lab ID:	60211423006	Collecte	d: 01/12/16	6 15:25	Received: 01/	19/16 08:15 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	e adjusted for	percent mo	oisture, san	nple si	ize and any diluti	ions.		
Deremetere	Deculto	Linita	Report			Drepared	Applyzod		Qual
Parameters		Units			DF				Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: El	PA 3546			
TPH-DRO <i>Surrogates</i>	77.9	mg/kg	14.1	7.1	1	01/25/16 00:00	01/27/16 20:05		
n-Tetracosane (S)	88	%	18-139		1	01/25/16 00:00	01/27/16 20:05	646-31-1	
p-Terphenyl (S)	71	%	51-120		1	01/25/16 00:00	01/27/16 20:05	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: El	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	14.3	7.1	1	01/21/16 00:00	01/21/16 23:00		
4-Bromofluorobenzene (S)	82	%	68-144		1	01/21/16 00:00	01/21/16 23:00	460-00-4	
Percent Moisture	Analytical	Method: ASTM	1 D2974						
Percent Moisture	30.3	%	0.50	0.50	1		01/29/16 00:00		



Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Sample: SS-4C	Lab ID:	60211423007	Collecte	d: 01/12/16	6 15:27	Received: 01/	19/16 08:15 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	e adjusted for	r percent me	oisture, san	nple s	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA	8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	59.5	mg/kg	13.8	6.9	1	01/25/16 00:00	01/27/16 20:13		
Surrogates									
n-Tetracosane (S)	76	%	18-139		1	01/25/16 00:00	01/27/16 20:13	646-31-1	
p-Terphenyl (S)	58	%	51-120		1	01/25/16 00:00	01/27/16 20:13	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA	8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO	ND	mg/kg	13.8	6.9	1	01/21/16 00:00	01/21/16 23:17		
4-Bromofluorobenzene (S)	92	%	68-144		1	01/21/16 00:00	01/21/16 23:17	460-00-4	
Percent Moisture	Analytical	Method: ASTI	VI D2974						
Percent Moisture	27.8	%	0.50	0.50	1		01/29/16 00:00		


Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Sample: SS-4D	Lab ID:	60211423008	Collecte	d: 01/12/16	5 15:30	Received: 01/	19/16 08:15 Ma	atrix: Solid	
Results reported on a "dry weight	" basis and are	e adjusted for	percent mo	oisture, san	nple si	ize and any diluti	ions.		
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: El	PA 3546			
TPH-DRO <i>Surrogates</i>	ND	mg/kg	14.0	7.0	1	01/25/16 00:00	02/01/16 12:57		
n-Tetracosane (S)	80	%	18-139		1	01/25/16 00:00	02/01/16 12:57	646-31-1	
p-Terphenyl (S)	76	%	51-120		1	01/25/16 00:00	02/01/16 12:57	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: El	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	14.1	7.0	1	01/22/16 00:00	01/22/16 17:39		
4-Bromofluorobenzene (S)	93	%	68-144		1	01/22/16 00:00	01/22/16 17:39	460-00-4	
Percent Moisture	Analytical	Method: ASTM	1 D2974						
Percent Moisture	29.0	%	0.50	0.50	1		01/29/16 00:00		



Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Sample: SS-5A	Lab ID:	60211423009	Collecte	d: 01/12/16	5 15:08	Received: 01/	'19/16 08:15 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	e adjusted for	percent mo	oisture, san	nple s	ize and any diluti	ions.		
Denementene	Desults	Linita	Report			Draward	A seals see al		Qual
Parameters		Units			DF	- Prepared	Analyzed	CAS NO.	Quai
8015B Diesel Range Organics	Analytical	Method: EPA	3015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO Surrogates	68.9	mg/kg	13.4	6.7	1	01/25/16 00:00	01/27/16 20:29		
n-Tetracosane (S)	86	%	18-139		1	01/25/16 00:00	01/27/16 20:29	646-31-1	
p-Terphenyl (S)	66	%	51-120		1	01/25/16 00:00	01/27/16 20:29	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA	3015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	13.3	6.6	1	01/22/16 00:00	01/22/16 17:57		
4-Bromofluorobenzene (S)	98	%	68-144		1	01/22/16 00:00	01/22/16 17:57	460-00-4	
Percent Moisture	Analytical	Method: ASTN	1 D2974						
Percent Moisture	25.4	%	0.50	0.50	1		01/29/16 00:00		



Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Sample: SS-5B	Lab ID:	60211423010	Collecte	d: 01/12/16	5 15:09	Received: 01/	19/16 08:15 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	e adjusted for	percent mo	oisture, san	nple s	ize and any diluti	ions.		
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO <i>Surrogates</i>	16.1	mg/kg	13.0	6.5	1	01/25/16 00:00	01/27/16 20:36		
n-Tetracosane (S)	68	%	18-139		1	01/25/16 00:00	01/27/16 20:36	646-31-1	
p-Terphenyl (S)	54	%	51-120		1	01/25/16 00:00	01/27/16 20:36	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	13.1	6.6	1	01/22/16 00:00	01/22/16 18:14		
4-Bromofluorobenzene (S)	96	%	68-144		1	01/22/16 00:00	01/22/16 18:14	460-00-4	
Percent Moisture	Analytical	Method: ASTM	1 D2974						
Percent Moisture	23.3	%	0.50	0.50	1		01/29/16 00:00		



Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Sample: SS-5C	Lab ID:	60211423011	Collecte	d: 01/12/16	5 15:11	Received: 01/	19/16 08:15 Ma	atrix: Solid	
Results reported on a "dry weight	" basis and are	e adjusted for	percent mo	oisture, san	nple si	ize and any diluti	ons.		
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: El	PA 3546			
TPH-DRO <i>Surrogates</i>	12.2J	mg/kg	13.0	6.5	1	01/25/16 00:00	02/01/16 13:06		
n-Tetracosane (S)	83	%	18-139		1	01/25/16 00:00	02/01/16 13:06	646-31-1	
p-Terphenyl (S)	78	%	51-120		1	01/25/16 00:00	02/01/16 13:06	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: El	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	13.2	6.6	1	01/22/16 00:00	01/22/16 18:31		
4-Bromofluorobenzene (S)	95	%	68-144		1	01/22/16 00:00	01/22/16 18:31	460-00-4	
Percent Moisture	Analytical	Method: ASTM	1 D2974						
Percent Moisture	23.9	%	0.50	0.50	1		01/29/16 00:00		



Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Sample: SS-5D	Lab ID:	60211423012	Collecte	d: 01/12/16	5 15:13	Received: 01/	'19/16 08:15 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	e adjusted for	percent mo	oisture, san	nple si	ize and any diluti	ions.		
Denementere	Desults	l la ita	Report			Drananad	A stark started		Qual
Parameters		Units			DF			CAS NO.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: El	PA 3546			
TPH-DRO Surrogates	12.7J	mg/kg	13.7	6.8	1	01/25/16 00:00	02/01/16 13:15		
n-Tetracosane (S)	85	%	18-139		1	01/25/16 00:00	02/01/16 13:15	646-31-1	
p-Terphenyl (S)	80	%	51-120		1	01/25/16 00:00	02/01/16 13:15	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: El	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	13.8	6.9	1	01/22/16 00:00	01/22/16 18:49		
4-Bromofluorobenzene (S)	95	%	68-144		1	01/22/16 00:00	01/22/16 18:49	460-00-4	
Percent Moisture	Analytical	Method: ASTM	1 D2974						
Percent Moisture	27.3	%	0.50	0.50	1		01/29/16 00:00		



Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Sample: SS-6A	Lab ID:	60211423013	Collected	d: 01/12/16	6 14:55	Received: 01/	19/16 08:15 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	adjusted for	percent mo	oisture, san	nple s	ize and any diluti	ons.		
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO <i>Surrogates</i>	62.5	mg/kg	14.0	7.0	1	01/25/16 00:00	01/27/16 20:59		
n-Tetracosane (S)	85	%	18-139		1	01/25/16 00:00	01/27/16 20:59	646-31-1	
p-Terphenyl (S)	66	%	51-120		1	01/25/16 00:00	01/27/16 20:59	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	13.9	6.9	1	01/22/16 00:00	01/22/16 19:06		
4-Bromofluorobenzene (S)	94	%	68-144		1	01/22/16 00:00	01/22/16 19:06	460-00-4	
Percent Moisture	Analytical	Method: ASTM	1 D2974						
Percent Moisture	28.4	%	0.50	0.50	1		01/29/16 00:00		



Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Sample: SS-6B	Lab ID:	60211423014	Collecte	d: 01/12/16	6 14:56	Received: 01/	19/16 08:15 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	e adjusted for	percent mo	oisture, san	nple s	ize and any diluti	ons.		
Darametera	Populto	Linito	Report		DE	Broporod	Applyzod		Qual
Faranielers		Units			DF				Quai
8015B Diesel Range Organics	Analytical	Method: EPA	8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO Surrogates	121	mg/kg	14.3	7.2	1	01/25/16 00:00	01/27/16 21:07		
n-Tetracosane (S)	104	%	18-139		1	01/25/16 00:00	01/27/16 21:07	646-31-1	
p-Terphenyl (S)	83	%	51-120		1	01/25/16 00:00	01/27/16 21:07	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA	8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	14.3	7.1	1	01/22/16 00:00	01/22/16 19:24		
4-Bromofluorobenzene (S)	95	%	68-144		1	01/22/16 00:00	01/22/16 19:24	460-00-4	
Percent Moisture	Analytical	Method: ASTN	/I D2974						
Percent Moisture	30.3	%	0.50	0.50	1		01/29/16 00:00		



Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Sample: SS-6C	Lab ID:	60211423015	Collecte	d: 01/12/16	6 14:57	Received: 01/	19/16 08:15 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	e adjusted for	percent me	oisture, san	nple s	ize and any diluti	ions.		
			Report					0.4 0 M	. .
Parameters		Units		MDL	DF	Prepared	Analyzed	CAS NO.	Quai
8015B Diesel Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO <i>Surrogates</i>	ND	mg/kg	14.9	7.4	1	01/25/16 00:00	01/27/16 21:30		
n-Tetracosane (S)	79	%	18-139		1	01/25/16 00:00	01/27/16 21:30	646-31-1	
p-Terphenyl (S)	64	%	51-120		1	01/25/16 00:00	01/27/16 21:30	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	15.0	7.5	1	01/22/16 00:00	01/22/16 19:41		
4-Bromofluorobenzene (S)	90	%	68-144		1	01/22/16 00:00	01/22/16 19:41	460-00-4	
Percent Moisture	Analytical	Method: ASTM	1 D2974						
Percent Moisture	33.1	%	0.50	0.50	1		01/29/16 00:00		



Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Sample: SS-6D	Lab ID:	60211423016	Collecte	d: 01/12/16	5 15:00	Received: 01/	19/16 08:15 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	e adjusted for	percent me	oisture, san	nple si	ize and any diluti	ions.		
Denementene	Desults	Linita	Report			Duonousd	A seals see al		Qual
Parameters		Units			DF	Prepared	Analyzed		Quai
8015B Diesel Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: El	PA 3546			
TPH-DRO <i>Surrogates</i>	ND	mg/kg	13.6	6.8	1	01/25/16 00:00	02/01/16 13:43		
n-Tetracosane (S)	76	%	18-139		1	01/25/16 00:00	02/01/16 13:43	646-31-1	
p-Terphenyl (S)	73	%	51-120		1	01/25/16 00:00	02/01/16 13:43	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: El	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	13.7	6.9	1	01/22/16 00:00	01/25/16 12:46		
4-Bromofluorobenzene (S)	111	%	68-144		1	01/22/16 00:00	01/25/16 12:46	460-00-4	
Percent Moisture	Analytical	Method: ASTM	1 D2974						
Percent Moisture	27.3	%	0.50	0.50	1		01/29/16 00:00		



Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Sample: SS-1A	Lab ID:	60211423017	Collecte	d: 01/13/16	6 09:19	Received: 01/	19/16 08:15 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	adjusted for	percent mo	oisture, san	nple s	ize and any diluti	ons.		
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO <i>Surrogates</i>	ND	mg/kg	12.3	6.2	1	01/27/16 00:00	01/28/16 13:51		
n-Tetracosane (S)	64	%	18-139		1	01/27/16 00:00	01/28/16 13:51	646-31-1	
p-Terphenyl (S)	56	%	51-120		1	01/27/16 00:00	01/28/16 13:51	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	12.6	6.3	1	01/27/16 00:00	01/27/16 21:17		
4-Bromofluorobenzene (S)	89	%	68-144		1	01/27/16 00:00	01/27/16 21:17	460-00-4	
Percent Moisture	Analytical	Method: ASTM	1 D2974						
Percent Moisture	20.1	%	0.50	0.50	1		01/29/16 00:00		



Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Sample: SS-1B	Lab ID:	60211423018	Collected	d: 01/13/16	6 09:22	Received: 01/	19/16 08:15 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	e adjusted for	percent mo	oisture, san	nple s	ize and any diluti	ons.		
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO <i>Surrogates</i>	6.8J	mg/kg	13.1	6.5	1	01/27/16 00:00	01/28/16 14:59		
n-Tetracosane (S)	81	%	18-139		1	01/27/16 00:00	01/28/16 14:59	646-31-1	
p-Terphenyl (S)	81	%	51-120		1	01/27/16 00:00	01/28/16 14:59	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	13.2	6.6	1	01/27/16 00:00	01/27/16 21:34		
4-Bromofluorobenzene (S)	94	%	68-144		1	01/27/16 00:00	01/27/16 21:34	460-00-4	
Percent Moisture	Analytical	Method: ASTM	1 D2974						
Percent Moisture	24.0	%	0.50	0.50	1		01/29/16 00:00		



Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Sample: SS-1C	Lab ID:	60211423019	Collecte	d: 01/13/16	09:23	Received: 01/	19/16 08:15 Ma	atrix: Solid	
Results reported on a "dry weight	" basis and are	e adjusted for	percent mo	oisture, san	nple si	ze and any diluti	ons.		
-			Report			- ·			<u> </u>
Parameters	Results	Units		MDL .	DF	Prepared	Analyzed	CAS NO.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	8015B Prep	aration Met	hod: El	PA 3546			
TPH-DRO <i>Surrogates</i>	ND	mg/kg	13.5	6.7	1	01/27/16 00:00	01/28/16 14:06		
n-Tetracosane (S)	66	%	18-139		1	01/27/16 00:00	01/28/16 14:06	646-31-1	
p-Terphenyl (S)	57	%	51-120		1	01/27/16 00:00	01/28/16 14:06	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	8015B Prep	aration Met	nod: El	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	13.6	6.8	1	01/27/16 00:00	01/27/16 21:52		
4-Bromofluorobenzene (S)	96	%	68-144		1	01/27/16 00:00	01/27/16 21:52	460-00-4	
Percent Moisture	Analytical	Method: ASTM	1 D2974						
Percent Moisture	26.9	%	0.50	0.50	1		01/29/16 00:00		



Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Sample: SS-1D	Lab ID:	6021142302	Collecte	d: 01/13/16	6 09:28	Received: 01/	19/16 08:15 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	adjusted fo	r percent me	oisture, san	nple si	ize and any diluti	ons.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA	8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	ND	mg/kg	13.8	6.9	1	01/27/16 00:00	01/28/16 14:14		
Surrogates		0 0							
n-Tetracosane (S)	63	%	18-139		1	01/27/16 00:00	01/28/16 14:14	646-31-1	
p-Terphenyl (S)	54	%	51-120		1	01/27/16 00:00	01/28/16 14:14	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA	8015B Prep	aration Met	hod: El	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	13.8	6.9	1	01/27/16 00:00	01/27/16 22:09		
4-Bromofluorobenzene (S)	95	%	68-144		1	01/27/16 00:00	01/27/16 22:09	460-00-4	
Percent Moisture	Analytical	Method: AST	M D2974						
Percent Moisture	27.5	%	0.50	0.50	1		01/29/16 00:00		



Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Sample: SS-2A	Lab ID:	60211423021	Collected	d: 01/13/16	08:57	Received: 01/	19/16 08:15 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	e adjusted for	percent mo	oisture, san	nple s	ize and any diluti	ons.		
Devenuetore	Desults	l la ita	Report			Dranarad	A se a h se a d		Qual
Parameters		Units			DF	Prepared	Analyzed		Quai
8015B Diesel Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO Surrogates	ND	mg/kg	12.5	6.3	1	01/27/16 00:00	01/28/16 14:22		
n-Tetracosane (S)	66	%	18-139		1	01/27/16 00:00	01/28/16 14:22	646-31-1	
p-Terphenyl (S)	58	%	51-120		1	01/27/16 00:00	01/28/16 14:22	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	nod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	12.4	6.2	1	01/27/16 00:00	01/27/16 22:26		
4-Bromofluorobenzene (S)	95	%	68-144		1	01/27/16 00:00	01/27/16 22:26	460-00-4	
Percent Moisture	Analytical	Method: ASTM	1 D2974						
Percent Moisture	20.4	%	0.50	0.50	1		01/29/16 00:00		



Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Sample: SS-2B	Lab ID:	60211423022	Collecte	d: 01/13/16	6 08:59	Received: 01/	'19/16 08:15 Ma	atrix: Solid	
Results reported on a "dry weigh	t" basis and are	e adjusted for	percent mo	oisture, san	nple si	ize and any diluti	ions.		
Doromotoro	Populto	Linita	Report		DE	Bronarad	Applyzod		Qual
Falameters					DF				Quai
8015B Diesel Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: El	PA 3546			
TPH-DRO Surrogates	ND	mg/kg	12.5	6.2	1	01/27/16 00:00	01/28/16 15:08		
n-Tetracosane (S)	84	%	18-139		1	01/27/16 00:00	01/28/16 15:08	646-31-1	
p-Terphenyl (S)	85	%	51-120		1	01/27/16 00:00	01/28/16 15:08	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA 8	3015B Prep	aration Met	hod: El	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	12.7	6.3	1	01/27/16 00:00	01/27/16 23:18		
4-Bromofluorobenzene (S)	88	%	68-144		1	01/27/16 00:00	01/27/16 23:18	460-00-4	
Percent Moisture	Analytical	Method: ASTM	1 D2974						
Percent Moisture	20.4	%	0.50	0.50	1		01/29/16 00:00		



Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Sample: SS-2C	Lab ID:	6021142302	3 Collecte	d: 01/13/16	6 09:01	Received: 01/	19/16 08:15 Ma	atrix: Solid	
Results reported on a "dry weight	" basis and are	adjusted fo	or percent me	oisture, san	nple s	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA	8015B Prep	aration Met	hod: E	PA 3546			
TPH-DRO	ND	mg/kg	13.8	6.9	1	01/27/16 00:00	01/28/16 14:37		
Surrogates									
n-Tetracosane (S)	62	%	18-139		1	01/27/16 00:00	01/28/16 14:37	646-31-1	
p-Terphenyl (S)	52	%	51-120		1	01/27/16 00:00	01/28/16 14:37	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA	8015B Prep	aration Met	hod: E	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	13.8	6.9	1	01/27/16 00:00	01/27/16 23:36		
4-Bromofluorobenzene (S)	93	%	68-144		1	01/27/16 00:00	01/27/16 23:36	460-00-4	
Percent Moisture	Analytical	Method: AST	M D2974						
Percent Moisture	27.9	%	0.50	0.50	1		01/29/16 00:00		



Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Sample: SS-2D	Lab ID:	60211423024	Collecte	d: 01/13/16	6 09:03	Received: 01/	19/16 08:15 Ma	atrix: Solid	
Results reported on a "dry weight	t" basis and are	adjusted for	percent me	oisture, sar	nple si	ize and any diluti	ions.		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA	8015B Prep	aration Met	hod: El	PA 3546			
TPH-DRO	ND	mg/kg	12.3	6.1	1	01/27/16 00:00	01/28/16 14:45		
Surrogates		0 0							
n-Tetracosane (S)	61	%	18-139		1	01/27/16 00:00	01/28/16 14:45	646-31-1	
p-Terphenyl (S)	57	%	51-120		1	01/27/16 00:00	01/28/16 14:45	92-94-4	
Gasoline Range Organics	Analytical	Method: EPA	8015B Prep	aration Met	hod: El	PA 5035A/5030B			
TPH-GRO <i>Surrogates</i>	ND	mg/kg	12.5	6.2	1	01/27/16 00:00	01/27/16 23:53		
4-Bromofluorobenzene (S)	90	%	68-144		1	01/27/16 00:00	01/27/16 23:53	460-00-4	
Percent Moisture	Analytical	Method: ASTN	M D2974						
Percent Moisture	19.4	%	0.50	0.50	1		01/29/16 00:00		



Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Sample: TRIP BLANK	Lab ID:	60211423025	Collected	d: 01/13/16	08:00	Received: 01/	19/16 08:15 Ma	atrix: Solid	
Results reported on a "wet-weight"	basis								
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Gasoline Range Organics	Analytical	Method: EPA 8	015B Prepa	aration Meth	nod: EF	PA 5035A/5030B			
TPH-GRO Surrogates	ND	mg/kg	10.0	5.0	1	01/27/16 00:00	01/28/16 00:10		H1
4-Bromofluorobenzene (S)	92	%	68-144		1	01/27/16 00:00	01/28/16 00:10	460-00-4	



QUALITY CONTROL DATA

Project:	Byrd Pump	Site Inve	stigation										
Pace Project No .:	60211423												
QC Batch:	GCV/529	5		Analys	is Method	: E	EPA 8015B						
QC Batch Method:	EPA 5035	5A/5030B		Analys	is Descrip	tion: C	Gasoline Ran	ige Organio	CS				
Associated Lab San	nples: 60	21142300	1, 60211423002,	, 602114230	003, 60211	423004, 6	0211423005	, 60211423	8006, 60211	423007			
METHOD BLANK:	1700508			Ν	Aatrix: Sol	id							
Associated Lab San	nples: 60	21142300	1, 60211423002,	, 602114230	003, 60211	423004, 6	0211423005	, 60211423	8006, 60211	423007			
				Blank	K R	eporting							
Paran	neter		Units	Resul	t	Limit	MDL		Analyzed	Qu	alifiers		
TPH-GRO			mg/kg		ND	10.0	0	5.0 01/	21/16 12:14	1			
4-Bromofluorobenze	ene (S)		%		94	68-144	4	01/	21/16 12:14	ļ.			
LABORATORY COM	NTROL SAM	1PLE: 1	700509										
				Spike	LCS	6	LCS	% Red	0				
Paran	neter		Units	Conc.	Resu	ılt	% Rec	Limits	s Qu	ualifiers			
TPH-GRO			mg/kg	50		54.5	109	67	7-115		-		
4-Bromofluorobenze	ene (S)		%				97	68	8-144				
MATRIX SPIKE & M	IATRIX SPI		CATE: 17005	10		1700511							
				MS	MSD								
			60210930001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	r	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
TPH-GRO		mg/kg	ND	63.1	63.1	69.3	68.5	107	105	49-122	1	14	
4-Bromofluorobenze	ene (S)	%						90	94	68-144			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



Project:	Byrd Pu	Imp Site Inv	estigation									
Pace Project No.:	6021142	23										
QC Batch:	GCV/5	5296		Analysi	s Method:	EP	A 8015B					
QC Batch Method:	EPA 5	035A/5030	В	Analysi	s Description	n: Ga	soline Ran	ge Or	ganics			
Associated Lab Sar	nples:	602114230 602114230	008, 6021142300 015	9, 602114230	10, 6021142	3011, 602	11423012,	6021	1423013, 6	0211423	3014,	
METHOD BLANK:	170104	0		М	atrix: Solid							
Associated Lab Sar	nples:	602114230 602114230	008, 6021142300 015	9, 602114230	10, 6021142	3011, 602	11423012,	6021	1423013, 6	0211423	3014,	
				Blank	Rep	orting						
Parar	neter		Units	Result	Li	mit	MDL		Analyz	ed	Qualifiers	
TPH-GRO			mg/kg		ND	10.0		5.0	01/22/16	13:02		_
4-Bromofluorobenz	ene (S)		%		99	68-144			01/22/16	13:02		
LABORATORY CO	NTROL S	AMPLE:	1701041									
				Spike	LCS		LCS	%	6 Rec			
Parar	neter		Units	Conc.	Result	%	6 Rec	L	imits	Qualif	fiers	
TPH-GRO			mg/kg	50	5	4.7	109		67-115			
4-Bromofluorobenzene (S)			%				104		68-144			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



Byrd Pump Site Investigation

Project:

QUALITY CONTROL DATA

Pace Project No.: 60211423												
QC Batch: GCV/529	99		Analys	is Method	1: E	EPA 8015B						
QC Batch Method: EPA 503	5A/5030B		Analys	is Descrip	otion: (Gasoline Rar	ige Organio	CS				
Associated Lab Samples: 60	211423016											
METHOD BLANK: 1701578			N	Aatrix: So	lid							
Associated Lab Samples: 60	211423016											
			Blank	: F	Reporting							
Parameter		Units	Resul	t	Limit	MDL		Analyzed	Qua	alifiers		
TPH-GRO		mg/kg		ND	10.0	0	5.0 01/	25/16 11:28	3			
4-Bromofluorobenzene (S)		%		97	68-14	4	01/	25/16 11:28	\$			
LABORATORY CONTROL SAM	MPLE: 17	01579										
			Spike	LC	S	LCS	% Red	0				
Parameter		Units	Conc.	Res	ult	% Rec	Limits	; Qi	alifiers	_		
TPH-GRO		mg/kg	50		50.5	101	67	7-115				
4-Bromofluorobenzene (S)		%				97	68	3-144				
MATRIX SPIKE & MATRIX SPI	KE DUPLIC	ATE: 17015	88		1701589	1						
			MS	MSD								
_		60211322005	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
TPH-GRO	mg/kg	ND	52.4	52.4	54.5	5 52.1	103	98	49-122	5	14	
4-Bromofluorobenzene (S)	%						88	81	68-144			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



Project:	Byrd P	ump Site Inve	stigation										
Pace Project No.:	602114	423											
QC Batch:	GCV	/5306		Analys	is Method	:	EPA 8015B						
QC Batch Method:	EPA	5035A/5030B		Analys	is Descrip	tion:	Gasoline Rar	nge Organi	CS				
Associated Lab Sar	mples:	6021142301 6021142302	7, 60211423018 4, 60211423025	, 602114230	019, 60211	423020,	60211423021	, 6021142	3022, 60211	1423023,			
METHOD BLANK:	17025	52		N	latrix: Sol	id							
Associated Lab Sar	nples:	6021142301 6021142302	7, 60211423018 4, 60211423025	, 602114230	019, 60211	423020,	60211423021	, 6021142	3022, 60211	423023,			
				Blank	R	eporting							
Parar	neter		Units	Resul	t	Limit	MDL		Analyzed	Qua	alifiers		
TPH-GRO			mg/kg		ND	10	.0	5.0 01	/27/16 16:39	9			
4-Bromofluorobenzo	ene (S)		%		90	68-14	4	01	/27/16 16:39	Э			
LABORATORY CO	NTROL	SAMPLE: 1	702553	0.11			1.00	04 D					
Doror	motor		Linita	Spike	LCS	5	LCS	% Re	c o	uolifioro			
Falal	netei		Units		Rest		70 REC		<u> </u>	uaimers	-		
TPH-GRO			mg/kg	50		54.8	110	6	7-115				
4-Bromofluorobenzo	ene (S)		%				103	6	8-144				
MATRIX SPIKE & N			CATE: 17025	54		170255	5						
				MS	MSD								
			60211323025	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	er	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
TPH-GRO		mg/kg	ND	57.9	57.9	61.	1 59.0	105	101	49-122	4	14	
4-Bromofluorobenze	ene (S)	%						94	96	68-144			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



Project:	Byrd P	ump Site Inv	estigation										
Pace Project No.:	602114	123											
QC Batch:	OEX	T/52860		Analys	is Method	: E	PA 8015B						
QC Batch Method:	EPA 3	3546		Analys	is Descrip	tion: E	EPA 8015B						
Associated Lab Sar	mples:	602114230 602114230 602114230	01, 60211423002 08, 60211423009 15, 60211423016	2, 60211423(9, 60211423(5	003, 60211 010, 60211	1423004, 6 1423011, 6	0211423005 0211423012	, 60211423 , 60211423	3006, 6021 3013, 6021 ⁻	1423007, 1423014,			
METHOD BLANK:	170168	37		N	Aatrix: Sol	lid							
Associated Lab Sar	mples:	602114230 602114230 602114230	01, 60211423002 08, 60211423009 15, 60211423016	2, 602114230 9, 602114230 3	003, 60211 010, 60211	1423004, 6 1423011, 6	0211423005 0211423012	, 60211423 , 60211423	3006, 6021 3013, 6021	1423007, 1423014,			
				Blank	R	Reporting							
Parar	neter		Units	Resul	t	Limit	MDL		Analyzed	Qu	alifiers		
TPH-DRO			mg/kg		ND	9.9	9	5.0 01/	27/16 18:4	0			
n-Tetracosane (S)			%		72	18-139	9	01/	27/16 18:4	0			
p-reiphenyi (3)			70		01	51-120)	017	27/10 10.4	0			
LABORATORY CO	NTROL	SAMPLE:	1701688										
Dava			l la ita	Spike	LCS	5	LCS	% Re					
Parar	neter		Units	Conc.	Resi	JIT	% Rec	Limits	s Q	uaimers	-		
TPH-DRO			mg/kg	82.5		88.0	107	76	5-115				
n-Tetracosane (S)			%				88	18	3-139				
p-reiphenyi (3)			78				11	5	1-120				
MATRIX SPIKE & N	MATRIX	SPIKE DUPL	ICATE: 17016	689 MS	MSD	1701690							
			60211423001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	ər	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
TPH-DRO		mg/k	g ND	113	115	94.1	103	83	90	12-159	9	37	
n-Tetracosane (S)		%						48	65	18-139			
p-Terphenyl (S)		%						39	54	51-120			S0

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



Project:	Byrd P	ump Site Inve	stigation										
Pace Project No.:	602114	23											
QC Batch:	OEX	Г/52873		Analys	is Method:	E	PA 8015B						
QC Batch Method:	EPA :	3546		Analys	is Descript	ion: E	PA 8015B						
Associated Lab Sar	mples:	6021142301 6021142302	7, 60211423018 4	, 602114230	019, 60211	423020, 60	211423021	, 60211423	022, 60211	423023,			
METHOD BLANK:	170228	31		N	Aatrix: Soli	d							
Associated Lab Sar	mples:	6021142301 6021142302	7, 60211423018 4	, 602114230	019, 60211	423020, 60	211423021	, 60211423	022, 60211	423023,			
Parar	neter		Units	Blank Resul	t R	eporting Limit	MDL	ļ	Analyzed	Qua	alifiers		
TPH-DRO			mg/kg		ND	9.9		5.0 01/2	28/16 12:33	3			
n-Tetracosane (S)			%		73	18-139		01/2	28/16 12:33	3			
p-Terphenyl (S)			%		63	51-120		01/2	28/16 12:33	3			
LABORATORY CO	NTROL	SAMPLE: 1	702282										
				Spike	LCS	;	LCS	% Rec	;				
Parar	neter		Units	Conc.	Resu	lt	% Rec	Limits	Qı	alifiers			
TPH-DRO			mg/kg	83.2		79.7	96	76	5-115		-		
n-Tetracosane (S)			%				78	18	-139				
p-Terphenyl (S)			%				69	51	-120				
MATRIX SPIKE & N	/ATRIX	SPIKE DUPLI	CATE: 17022	83		1702284							
				MS	MSD					_			
Deer		1.1.4.16-	60211323025	Spike	Spike	MS	MSD	MS % Dee	MSD	% Rec		Max	Qual
Paramete	-		Kesuit	Conc.	Conc.	Result	Result	% Kec	% Kec		KPD	KPD	Quai
TPH-DRO		mg/kg	8.7J	95	94.5	83.0	99.6	78	96	12-159	18	37	
n-Tetracosane (S)		%						96	94	18-139			
p-Terphenyl (S)		%						98	97	51-120			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



Project:	Byrd Pur	np Site Inves	stigation						
Pace Project No.:	6021142	3							
QC Batch:	PMST/	11466		Analysis Met	hod:	ASTM D2974			
QC Batch Method:	ASTM	D2974		Analysis Des	scription:	Dry Weight/Perce	nt Moisture		
Associated Lab Sar	nples: 6 6	50211423001 50211423008 50211423015	, 60211423002, 3, 60211423009, 5, 60211423016,	60211423003, 6 60211423010, 6 60211423017, 6	0211423004, 0211423011, 0211423018,	60211423005, 60 60211423012, 60 60211423019, 60	211423006, 60211 211423013, 60211 211423020	423007, 423014,	
METHOD BLANK:	1703497			Matrix:	Solid				
Associated Lab Sar	nples: 6 6 6	50211423001 50211423008 50211423015	, 60211423002, 3, 60211423009, 5, 60211423016,	60211423003, 6 60211423010, 6 60211423017, 6	0211423004, 0211423011, 0211423018,	60211423005, 60 60211423012, 60 60211423019, 60	211423006, 602114 211423013, 602114 211423020	423007, 423014,	
Deve			Linita	Blank	Reporting	MDI	A se a lusar a d	Qualifiana	
Paran	neter		Units	Result	Limit	MDL	Analyzed		
Percent Moisture			%	ND	0.9	50 0.50	01/29/16 00:00		
SAMPLE DUPLICA	TE: 170	3498							
_				60211423001	Dup		Max		
Paran	neter		Units	Result	Result	RPD	RPD	Qualifiers	
Percent Moisture			%	27.3	28	3.9 6	20		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Project:	Byrd Pump Site Inv	estigation					
Pace Project No.:	60211423						
QC Batch:	PMST/11467		Analysis Meth	nod:	ASTM D2974		
QC Batch Method:	ASTM D2974		Analysis Des	cription:	Dry Weight/Percer	nt Moisture	
Associated Lab Sar	nples: 602114230	021, 60211423022,	60211423023, 60	211423024			
METHOD BLANK:	1703499		Matrix:	Solid			
Associated Lab Sar	nples: 602114230	021, 60211423022,	60211423023, 60	211423024			
			Blank	Reporting			
Paran	neter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Percent Moisture		%	ND	0.5	0.50	01/29/16 00:00	
SAMPLE DUPLICA	TE: 1703500						
			60211423021	Dup		Max	
Paran	neter	Units	Result	Result	RPD	RPD	Qualifiers
Percent Moisture		%	20.4	21	.1 3	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



QUALIFIERS

Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

BATCH QUALIFIERS

Batch: GCV/5298

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

- H1 Analysis conducted outside the EPA method holding time.
- S0 Surrogate recovery outside laboratory control limits.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60211423001	SS-3A	EPA 3546	OEXT/52860	EPA 8015B	GCSV/20414
60211423002	SS-3B	EPA 3546	OEXT/52860	EPA 8015B	GCSV/20414
60211423003	SS-3C	EPA 3546	OEXT/52860	EPA 8015B	GCSV/20414
60211423004	SS-3D	EPA 3546	OEXT/52860	EPA 8015B	GCSV/20414
60211423005	SS-4A	EPA 3546	OEXT/52860	EPA 8015B	GCSV/20414
60211423006	SS-4B	EPA 3546	OEXT/52860	EPA 8015B	GCSV/20414
60211423007	SS-4C	EPA 3546	OEXT/52860	EPA 8015B	GCSV/20414
60211423008	SS-4D	EPA 3546	OEXT/52860	EPA 8015B	GCSV/20414
60211423009	SS-5A	EPA 3546	OEXT/52860	EPA 8015B	GCSV/20414
60211423010	SS-5B	EPA 3546	OEXT/52860	EPA 8015B	GCSV/20414
60211423011	SS-5C	EPA 3546	OEXT/52860	EPA 8015B	GCSV/20414
60211423012	SS-5D	EPA 3546	OEXT/52860	EPA 8015B	GCSV/20414
60211423013	SS-6A	EPA 3546	OEXT/52860	EPA 8015B	GCSV/20414
60211423014	SS-6B	EPA 3546	OEXT/52860	EPA 8015B	GCSV/20414
60211423015	SS-6C	EPA 3546	OEXT/52860	EPA 8015B	GCSV/20414
60211423016	SS-6D	EPA 3546	OEXT/52860	EPA 8015B	GCSV/20414
60211423017	SS-1A	EPA 3546	OEXT/52873	EPA 8015B	GCSV/20421
60211423018	SS-1B	EPA 3546	OEXT/52873	EPA 8015B	GCSV/20421
60211423019	SS-1C	EPA 3546	OEXT/52873	EPA 8015B	GCSV/20421
60211423020	SS-1D	EPA 3546	OEXT/52873	EPA 8015B	GCSV/20421
60211423021	SS-2A	EPA 3546	OEXT/52873	EPA 8015B	GCSV/20421
60211423022	SS-2B	EPA 3546	OEXT/52873	EPA 8015B	GCSV/20421
60211423023	SS-2C	EPA 3546	OEXT/52873	EPA 8015B	GCSV/20421
60211423024	SS-2D	EPA 3546	OEXT/52873	EPA 8015B	GCSV/20421
60211423001	SS-3A	EPA 5035A/5030B	GCV/5295	EPA 8015B	GCV/5297
60211423002	SS-3B	EPA 5035A/5030B	GCV/5295	EPA 8015B	GCV/5297
60211423003	SS-3C	EPA 5035A/5030B	GCV/5295	EPA 8015B	GCV/5297
60211423004	SS-3D	EPA 5035A/5030B	GCV/5295	EPA 8015B	GCV/5297
60211423005	SS-4A	EPA 5035A/5030B	GCV/5295	EPA 8015B	GCV/5297
60211423006	SS-4B	EPA 5035A/5030B	GCV/5295	EPA 8015B	GCV/5297
60211423007	SS-4C	EPA 5035A/5030B	GCV/5295	EPA 8015B	GCV/5297
60211423008	SS-4D	EPA 5035A/5030B	GCV/5296	EPA 8015B	GCV/5298
60211423009	SS-5A	EPA 5035A/5030B	GCV/5296	EPA 8015B	GCV/5298
60211423010	SS-5B	EPA 5035A/5030B	GCV/5296	EPA 8015B	GCV/5298
60211423011	SS-5C	EPA 5035A/5030B	GCV/5296	EPA 8015B	GCV/5298
60211423012	SS-5D	EPA 5035A/5030B	GCV/5296	EPA 8015B	GCV/5298
60211423013	SS-6A	EPA 5035A/5030B	GCV/5296	EPA 8015B	GCV/5298
60211423014	SS-6B	EPA 5035A/5030B	GCV/5296	EPA 8015B	GCV/5298
60211423015	SS-6C	EPA 5035A/5030B	GCV/5296	EPA 8015B	GCV/5298
60211423016	SS-6D	EPA 5035A/5030B	GCV/5299	EPA 8015B	GCV/5302
60211423017	SS-1A	EPA 5035A/5030B	GCV/5306	EPA 8015B	GCV/5308
60211423018	SS-1B	EPA 5035A/5030B	GCV/5306	EPA 8015B	GCV/5308
60211423019	SS-1C	EPA 5035A/5030B	GCV/5306	EPA 8015B	GCV/5308
60211423020	SS-1D	EPA 5035A/5030B	GCV/5306	EPA 8015B	GCV/5308
60211423021	SS-2A	EPA 5035A/5030B	GCV/5306	EPA 8015B	GCV/5308
60211423022	SS-2B	EPA 5035A/5030B	GCV/5306	EPA 8015B	GCV/5308



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Byrd Pump Site Investigation

Pace Project No.: 60211423

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60211423023		EPA 5035A/5030B	GCV/5306	EPA 8015B	GCV/5308
60211423024	SS-2D	EPA 5035A/5030B	GCV/5306	EPA 8015B	GCV/5308
60211423025	TRIP BLANK	EPA 5035A/5030B	GCV/5306	EPA 8015B	GCV/5308
60211423001	SS-3A	ASTM D2974	PMST/11466		
60211423002	SS-3B	ASTM D2974	PMST/11466		
60211423003	SS-3C	ASTM D2974	PMST/11466		
60211423004	SS-3D	ASTM D2974	PMST/11466		
60211423005	SS-4A	ASTM D2974	PMST/11466		
60211423006	SS-4B	ASTM D2974	PMST/11466		
60211423007	SS-4C	ASTM D2974	PMST/11466		
60211423008	SS-4D	ASTM D2974	PMST/11466		
60211423009	SS-5A	ASTM D2974	PMST/11466		
60211423010	SS-5B	ASTM D2974	PMST/11466		
60211423011	SS-5C	ASTM D2974	PMST/11466		
60211423012	SS-5D	ASTM D2974	PMST/11466		
60211423013	SS-6A	ASTM D2974	PMST/11466		
60211423014	SS-6B	ASTM D2974	PMST/11466		
60211423015	SS-6C	ASTM D2974	PMST/11466		
60211423016	SS-6D	ASTM D2974	PMST/11466		
60211423017	SS-1A	ASTM D2974	PMST/11466		
60211423018	SS-1B	ASTM D2974	PMST/11466		
60211423019	SS-1C	ASTM D2974	PMST/11466		
60211423020	SS-1D	ASTM D2974	PMST/11466		
60211423021	SS-2A	ASTM D2974	PMST/11467		
60211423022	SS-2B	ASTM D2974	PMST/11467		
60211423023	SS-2C	ASTM D2974	PMST/11467		
60211423024	SS-2D	ASTM D2974	PMST/11467		



Sample Condition Upon Receipt ESI Tech Spec Client

WO#:60211423

Client Name: <u>BP Stan Jec</u>		Optional
Courier: FedEx DUPS DVIA Clay PEX ECI	Pace 🗆 Other 🗆 Clier	nt 🗆 Proj Due Date:
Tracking #:	Used? Yes 🗆 No 🗹	Proj Name:
Custody Seal on Cooler/Box Present: Yes D No D Seals intact:	Yes 🗹 No 🗆	
Packing Material: Bubble Wrap G Bubble Bags D Foam	□ None □ Oth	er 🗆
Thermometer Used: T-239 / T-262 Type of Ice: We B	lue None 🗆 Samples recei	ved on ice, cooling process has begun.
Cooler Temperature:	le one) Date and	d initials of person examining
Temperature should be above freezing to 6°C	contents	5: pr1/19/16
Chain of Custody present:	1.	
Chain of Custody filled out:	2.	1
Chain of Custody relinquished:	3.	
Sampler name & signature on COC:	4.	
Samples arrived within holding time:	5,	
Short Hold Time analyses (<72hr):	6.	
Rush Turn Around Time requested:	7.	
Sufficient volume:	8.	
Correct containers used:		
Pace containers used:/_Yes_ □No □N/A	9.	
Containers intact: ŹYes □No □N/A	10.	
Unpreserved 5035A soils frozen w/in 48hrs?	11.	
Filtered volume received for dissolved tests?	12.	
Sample labels match COC:		
Includes date/time/ID/analyses Matrix: SL	13.	
All containers needing preservation have been checked.		
All containers needing preservation are found to be in compliance $\Box_{Yes} \Box_{No}$ N/A with EPA recommendation.	14.	
Exceptions: VOA, Coliform, O&G, WI-DRO (water)	Initial when completed	Lot # of added preservative
Trip Blank present:	-	
Pace Trip Blank lot # (if purchased): 10/2/5-3 pv//19/16	15.	
Headspace in VOA vials (>6mm):		
	16.	
Project sampled in USDA Regulated Area:	17. List State:	
Additional labels attached to 5035A vials in the field?	18.	
Client Notification/ Resolution: Copy COC to Client?	N Field Data Required	? Y / N
Person Contacted: Date/Time:	Te	emp Log: Record start and finish times
Comments/ Resolution:	Wi \$2	ample temps.
	Si	tart: 0905 Start:
	E	nd: 0915 End:
Project Manager Review:AAF	Date: 01/19/16 Te	emp: Temp:

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Contraction Device Order Number: Low work Order Number: Device Testary Arrays Devic	Company A BP affiliated company		Burr	Dump	Site Inve	estigatio	c		1	Req Di	ue vate	(mm)	:(Kí/þi	9	1 der	LOW CI	Rush TAT: Yes	
Answer Denomination Consummation Consummation <thconsummation< th=""> Consummation</thconsummation<>	A BP athiated company	BP/ARC Project N	ante: Byro	dund P	Site				1	Lab W	ork Ore	der Nur	nber:	1			:	
BYEN Tope AnyPort Stances, Les, and Regulary Forma Exponential formation of the communication of t	n a Analistical Services Inc.	BPIARU FAUILLY					15 Inan	he Lane					consulta	nt/Contr	actor:	Stan	ec Consulting	
Manual Constrained Dense FTD Cale Montane (Link) Accession Montane (Link) Montane (Link	Nome Pace Alialyucar ou more in the		BP//	ARC Fac	hity Addre	SS.	2	NIN 1					Consulta	nt/Cont	actor P	oject No:		182631
By Charles Land Land Land Land Land Land Land Land			City	State, Z	IP Code:		Monum						Adrace	8770	Guion	Rd. Ste B	Indianapolis, IN 46268	
(m) Alse Finangin Constant contract of con	b Address: 9608 Loiter Divu		Lea	d Regula	tory Age	icy:	NM OC						realinn.			Suc.	in Hall	
Brone 51635-1439 Ends Properation al Strends Jorn al Strends al St	b PM: Alice Flanagan		Cal	ifornia G	obal ID N	:.0	AN						Consulta	Int/Cont	ractor	. M		
Resting April Land Storp April Lan	b Phone: 916-563-1409		i i		col No:		009PD	002					Phone;	317-	876-83	0		
Model Condition Description Total IC Date IC Contractor Diff Inf:	h Shinning Accnt:		E	Dolar Sol			i i		C-BU	00	RM		Email E	DD To:	susn.1	all@stan	.ec.com	
Interference Suge 4_Ecold Activity Report Type & CLUv Interference Interference Activity Marrix Second Type & CLuv Interference Interference Activity Marrix Second Type & CLuv Interference Interference Activity Marrix Second Type & CLuv Interference Second Type & CLuv Activity Marrix Second Type & CLuv Interference Second Type & CLuv Activity Marrix Marrix Marrix Interference Second Type & CLuv Activity Marrix Marrix Marrix Marrix Interference Second Type & CLuv Time Marrix M			AC	counting	Mode:	Ĭ	INISINI						Invoice	Цо.	BPI	ARC X	Contractor	
Contraction	ab Bottle Order No.		Sta	age: 4	Execute	٩	ctivity: F	roject	penu]		adve	l y		Report Type & (QC Level
BMARCEENI Manual Man	ther Info:		t	Mohr	Ī,	NO.	ntaine	's / Pres	ervative			Requ	ested /	Analys	s -	F		×
EMPTPARE ISS-677-000 Fail Data Podesa EXAT MARK ISS-677-000 Exat Mark Exat Mark Exat Mark EXAT MARK ISS-677-000 Exat Mark Exat Mark Exat Mark Exat Mark EXAT MARK ISS-677-000 Exat Mark Exat Mark Exat Mark Exat Mark Exat Mark Exat Mark Exat Mark Implement Mark Implement Exat Mark Implement Exat Mark	P/ARC EBM: Sergio Morescalchi					\vdash					-		7.84	0'008	2010		Standard	1
Exercite Contract Sarple Description Date Time Contract Even Sample Description Date Time Addition Date Time Addition Contracts Even Sample Description Date Time Addition Date Time Addition Contracts Di SS-34 UB/LU SF4 Di Di Pisson Di Di <tddi< td=""> Di</tddi<>	BM Phone: 925-487-0940					ers				8	8		cis	; (əte	K 90		Full Data Package	
Commentance Сонструкции	Dem Email: Sergio.Morescalchi@bp.com					nistri				9108	2108 9096	018	0109	9920	, sN ,	2040C	6021142	M
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o Name:	Pace Analytical Services, Inc.			BP/ARC F	⁻ acility Ac	ldress:	15 Joa	nne Lane					Consult	ant/Con	tractor:	Stan	tec Consulting	
o Address	: 9608 Loiret Blvd			City, State	e, ZIP Co	de:	Monun	lent, NM					Consult	ant/Con	tractor Pr	oject No:		182630
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b Phone:	916-563-1409			California	Global II	No.:	M						Consult	ant/Con	tractor PN	1: Suse	an Hall	
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Density, Relative Density and Absorption of Coarse Aggregate

ASTM C 127

Project BP - Byrd Pump Site	Project No. 182630008
Source Sample 2, 0.0'-14.0'	Lab ID 1
Material Gravel, white	
Retained Particle Size + 3/8" Nominal Maximum Particle Size	3"
Preparation Method: Tested at as received moisture content.	Preparation Date 01-29-2016
Water Temperature (°C) 21.2	Test Date 01-29-2016
Tare Mass (g) 1356.7	
Saturated Surface Dry Sample + Tare Mass (g) 3120.9	
Basket Mass in Water (g) 1734.8	
Sample + Mass Basket in Water (g) 2700.2	
Oven Dry Sample Mass (g) 1592.7	
SSD Sample Mass $(q) = 1764.2$	
Sample Mass in Water (g) 965.4	
	5.
Relative Density (OD) <u>1.99</u>	
Relative Density (SSD) 2.21	
Apparent Relative Density 2.54	
Absorption (%) 10.8	
Density (OD), kg/m², @ 23 C 1990	
Density (OD), lb/ft ³ , @ 23 °C124	
Density (SSD), kg/m³ @ 23 °C 2200	
Density (SSD), lb/ft ³ , @ 23 °C 137.5	
Apparent Density, kg/m³, @ 23 °C 2530	
Apparent Density, lb/ft³, @ 23 °C 158.0	

Comments

Reviewed By Laboratory Document Prepared By: JW Approved By: TLK

File: frm_182630008_proc_1,xlsm Sheet: Gs Report Preparation Date: 2-1999 Revision Date: 9-2008





Compaction Characteristics of Soil Using Standard Effort

ASTM D 698 - Method B

Project	t <u>BP - Byrd Pu</u>	mp Site					Project No.	18263000
Source	Sample 2, 0.0)'-14.0'					Sample ID	1
Description	Clayey Sand	with Gravel (SC), white			Da	ate Received	01/27/201
'isual Notes	S						Date Tested	02/01/201
Tes Gs of Oversized F	t Fraction (%) Test Fraction Fraction Sieve	78.9 2.7 3/8"	Assumed	G MC of	Oversized I is of Oversiz Oversized I	Fraction (%) zed Fraction Fraction (%)	21.1 2.0 10.8	
Мс	old Weight (g)	4250.9	Prepara	ation Method	Moist	R	ammer Type	Manual
	Wet Soil		Моі	sture Conten	t Determinat	tion	Drv	
	& Mold	Wet Soil	Wet Soil	Dry Soil		Water	Unit Weight	
	Weight (g)	Weight (g)	& Tare (g)	& Tare (q)	Tare (g)	Content (%)	(pcf)	
	5845	1594	527.39	491.69	75.03	8.6	97.5	
	5966	1715	521.67	477.56	72.50	10.9	102.7	
	6087	1836	560.37	504.29	74.72	13.1	107.8	
	6163	1912	563.86	499.44	73.67	15.1	110.3	
	6176	1925	479.90	420.45	76.11	17.3	109.0	
112					т			
110					×		-	
108								
104								
102		/						
100								
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96						Gs =	2.1	
94 + 6	8	10	12 Mois	2 ture Content (%	14 5)	16	18	20
Corre Corre	Maximu Optimui ected Maximu ected Optimui	m Dry Unit V m Moisture (m Dry Unit V m Moisture (Veight (pcf) Content (%) Veight (pcf) Content (%)	110.3 15.3 113.0 14.3		ł	Reviewed By_	RJ.
Comments								
			Ctorate - 4		viana Inc.			Laboratory D



Summary of Soil Tests

roject Name	BP - Byrd Pump	Site	Project Number	182630008
ource	Sample 2, 0.0'-	14.0'	, Lab ID	1
ample Type	BUCKET		Date Received	1-27-16
	DOORLI		Date Reported	2-3-16
			Test Results	
Nati	ural Moisture Co	ontent	Atterberg Limits	
Test Not Pe	erformed		Test Method: ASTM D 4318 Method	IA
Moist	ure Content (%):	N/A	Prepared: Dry	
			Liquid Limit:	36
			Plastic Limit:	13
<u>Pa</u>	article Size Anal	<u>ysis</u>	Plasticity Index:	23
Preparation	Method: ASTM	D 421	Activity Index:	2.88
Gradation N	lethod: ASTM D	422		
Hydrometer	Method: ASTM	D 422		
			Moisture-Density Relation	<u>nship</u>
Par	ticle Size	%	ASTM D 698 - Method B	
Sieve Siz	e (mm)	Passing	Maximum Dry Density (lb/ft ³):	113.0
	N/A		Maximum Dry Density (kg/m ³):	1810
	N/A		Optimum Moisture Content (%):	14.3
1 1/2"	37.5	100.0	Over Size Correction %:	21.1
1 1/2	25	01.3		21.1
2/4"	25	91.3		
3/4	19	79.0	California Boaring Bat	io
3/0 No.4	9.5	70.9	Tost Not Porformed	
No. 4	4.75	62.6	Rearing Patio (%):	NI/A
NO. 10	2	02.0		
No. 40	0.425	56.5	Compacted Dry Density (lb/ft°):	<u>N/A</u>
No. 200	0.075	16.0	Compacted Moisture Content (%):	N/A
	0.02	10.4		
	0.005	9.2		
	0.002	7.5	Specific Gravity	
estimated	0.001	6.0	Estimated	
Plus 3 in. m	aterial, not includ	led: 0 (%)	Particle Size:	No. 10
	,		Specific Gravity at 20° Celsius:	2.70
	ASTM	AASHTO		
Rande	(%)	(%)		
Gravel	27.0	37.4	Classification	
Coarse Sa	nd 10.4	6.1	Unified Group Symbol:	SC
Medium Sa	and 6.1		Group Name: Clavey sa	nd with gravel
Fine San	d 40.5	40.5		
Silt	6.8	8.5		
Clay	9.2	7.5	AASHTO Classification:	A-2-6(0)
Commenter				
Comments:				
Comments:			Reviewed Bv	RI
Particle-Size Analysis of Soils

ASTM D 422

1

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				5				y	0.0		-			51			-0			Γ	3.1	Sie	ve]		%		٦						
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D.								_																_										
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Particle		-55.	vve	au	ier	eu	ar		F Hid	aD	le	-								┢				-				-						
	Tested	l Bv		SK	S															ŀ	1	11	/2"		1	00	0							
	Test D)ate	01-2	28-	20	16	-													ŀ		1	"			91.	3							
Dat	te Recei	ved	01-2	27-	20	16	_													ŀ		3/	1"		8	32.	6							
		-					_															3/	3"		7	78.	9							
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Spe	cific Gra	vitv		2	7																0.0	0.)2	mr	n		10.	4	-						
• • •	0	·····) -					-													1	0.0	005	mr	n		9.2	2							
Disp	ersed us	sing	Appa	ara	tus	A a	- 1	Лe	cha	ani	ca	l, f	or	1 n	nin	ute	Э				0.0	02	mr	n		7.5	5							
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ASTM	Coarse Gr 17.4	ravel	Fine	e Gra 9.6	vel		C. 1	Sano 0.4	d	Pa _∧	Mediu Coars	cle Im 8 6.1	e S Band	ize	e D	Dist F	ine S	Sand	on					Sil 6.8	t S	ilt			 <u>Cla</u> 9.2	ay 2	lav			
ASTM AASHTO	Coarse Gr 17.4	ravel	Fine Grav 37.4	e Gra 9.6 /el 4	vel		C. 1	<u>Sano</u> 0.4	d	Pa ∧ (Mediu Nediu Coars	Cle Im S 6.1 Se S 6.1	e S Sand	ize	D	Dist Fi	ine \$ 40. ine \$ 40	Sand 5 Sand Sand	on					Sil 6.8	t 3 8	ilt .5			 <u>Cla</u> 9.2	ay 2 C	2 <u>lay</u> 7.5	-		
ASTM AASHTO Sieve	Coarse Gr 17.4	ravel	Fine Grav 37.4	e Gra 9.6 /el 4	vel		C. 1	Sano 0.4	d		Aediu Coars eve s	Cle <u>um S</u> 6.1 Se S 6.1 Size	Sand	ize		Pist F	ine 9 40 10 40	Sand 5 Sand 0.5	on	200				<u>Sil</u>	t 3 8 8	ilt .5			 <u>Cla</u> 9.2	ay 2 C	<u>Clay</u> 7.5	-		
ASTM AASHTO Sieve	Coarse Gr 17.4 Size in inche 3 2	ravel es 1 3	Fine Grav 37.4	<u>9.6</u> <u>9.6</u> <u>/el</u> 4 3/8	vel	4	C. 1	<u>Sanc</u> 0.4	d 10	Pa N Si	Arti Mediu Coars eve s 16	Cle <u>im 8</u> <u>6.1</u> Size	Sand	ize	P D	Pist F	ine \$ 40 ine \$ 40	Sand .5 Sand 0.5 100	on 	200				Sil ¹	t 3 8	ilt .5			<u>Cla</u> 9.2	ay 2 C	2lay 7.5	-] -] 	00	
ASTM AASHTO Sieve	Coarse Gr 17.4 Size in inche 3 2	ravel rs 1 3	<u>Grav</u> 37.4	e Gra 9.6 /el 4 3/8	vel	4	<u>C.</u>	Sanc 0.4	10	Pa N Si	Arti Mediu Coars eve s 16	Cle <u>im 8</u> <u>6.1</u> Size	and in si 30	ize	P D	Dist F	ine 9 40 ine 9 40	Sand .5 Sand 0.5 100	on 	200				Sil ¹ 6.8	t 3 8 8	ilt .5			<u>Cla</u> 9.2	ay 2 C	<u>Clay</u> 7.5	- - - - - - - - - - - - - - - - - - -	00	
ASTM AASHTO Sieve	Coarse Gr 17.4 Size in inche 3 2	ravel	Grav 37.4	9.6 9.6 /el 4 3/8		4	<u>C.</u> 1	Sano 0.4	10	Pa N Si	Artio Mediu Coars eve s 16	Cle um S 6.1 Se S 6.1 Size	e Sand	ize	P D	Dist F	rib <u>40</u> <u>40</u> 40	Sand .5 Sand 0.5 100		200				Sil 6.8	t 3 8 8	Silt 5.5			<u>Cla</u> 9.2		2 <u>lav</u> 7.5	- - - - - - - - - - - - - - - - - - -	00	
ASTM AASHTO Sieve	Coarse Gr 17.4 Size in inche 3 2	ravel	Grav 37.4	e Gra 9.6 /el 4 3/8		4	<u>C.</u>	Sano 0.4	10	Pa M Sin	Arti Mediu Coars (eve s 16	Cle um S 6.1 Size Size	Sand and iand in si 30	ize	P D	Dist Finders	tine s 40 40	Sand 5 Sand 0.5 100		200				Sili 6.8	t 3 8	iilt .5					<u>Clay</u> 7.5	- - - - - - - - - - - - - - - - - - -	00 00 60	
ASTM AASHTO Sieve	Coarse Gi 17.4	ravel	Grav 37.4	3/8		4			10	Pa M	Arti Mediu Coars Coars 16	Cle <u>um S</u> <u>6.1</u> <u>Se S</u> <u>6.1</u> Size	Sand	ize	2 D	Pist F		5 Sand .5 100		200				Sil: 6.8	t 3 8 8	5.5					<u>7.5</u>	- - - - - - - - - - - - - - - - - - -	00	
ASTM AASHTO Sieve	Coarse Gr 17.4 Size in inche 3 2	ravel	Grav 37.4	3/8		4		Sanc 0.4	10	Pa M	Antional Ant	Cle im S 6.1 Size Size	e S Sand		P D	Pist F Bers		Sand .5 Sand .5 100		200				Sili 6.8	t 3 8 8	<u>iilt</u> .5					2lay 7.5	1 9 8 7	00 00 60 70	ing
ASTM AASHTO Sieve	Coarse Gr 17.4	ravel	Grav 37.4	3/8					10		16	Cle im S 6.1 Size Size	e S Sand		P D	Pist F Babers		Sand .5 Sand .5 100		200					tS 	ilt .5					21av 7.5	1 9 8 7 6	00 00 60 70 60	assing
ASTM AASHTO Sieve	Coarse Gi 17.4	ravel	Grav 37.4	3/8		4			10		Anti Mediu Mediu Coars eve s 16	Cle	e S Sand			Dist F		5 5 5 100							t 3 8 8	iilt .5					<u></u>	1 9 8 7 6 5	00 00 60 70 60	nt Passing
ASTM AASHTO Sieve	Coarse Gr 17.4	ravel	Grav 37.4	3/8					10	Pa M	Antin Mediu Coars () () () () () () () () () () () () ()	Cle	e S Sand and i in si 30		P D	Dist F		Dutii Sand .5 Sand .5 100							t 3 8	5.5					Clay 7.5	1 9 8 7 6 5	00 00 00 70 60 60	rcent Passing
ASTM AASHTO Sieve	Coarse Gr 17.4		Grav 37.4	3/8					10		Irti Mediu Coars (eve s 16	Cle im § 6.1 Size Size	e S Sand Fin si 30			Pist F		Dutic Sand .5 Sand 1 0.5 100							t 3 8 8	5					Clav 7.5	1 9 8 7 6 5 4	00 00 00 70 60 60	Percent Passing
ASTM AASHTO Sieve	Coarse Gi 17.4	avel	Grav 37.4	3/8					10		Inti Mediu Coars () eve \$ 16		e S Sand iand i in si 30			Dist F		Dutii Sand .5 100								5					Clav 7.5	1 9 8 7 6 5 4 3	00 90 90 70 90 90 90 90 90	Percent Passing
ASTM AASHTO Sieve	Coarse Gr 17.4		Grav 37.4	3 Gra 9.6 /el 4 3/8					10		Intii Mediu Coars (eve s 16		e S Sand and in si 300			Dist F		DUtii Sand .5 100							<u>t</u> 3 8 8						2lay 7.5	1 1 9 8 7 6 5 4 4 3	00 00 00 00 00 00 00 00 00	Percent Passing
ASTM AASHTO Sieve	Coarse Gr 17.4		Grav 37.4	3/8				Sanc 0.4			Intil Mediu Coars (eve s 16		e S Sand			Pist F		Dutii Sand .5 Sand 9.5 100								Silt					Clav 7.5	1 9 8 7 6 5 4 3 2	00 00 00 00 00 00 00 00 00	Percent Passing
ASTM AASHTO Sieve	Coarse Gi 17.4		Grav 37.4	2 Gra 9.6 yel 4 3/8 3/8							Intil Mediu Coarse eves 16		e S Sand and i in si 30 20 20 20 20 20 20 20 20 20 20 20 20 20					Dutii Sand 2.5 100														1 9 8 7 6 5 4 3 2 1	000 00 70 60 60 60 80 80 80	Percent Passing
ASTM AASHTO Sieve	Coarse Gr 17.4		Grav 37.4	2 Gra 9.6 (el 4 3/8 3/8							Intii Mediu Coars (Coars 16		e S Sand			Pist F		Dutii Sand 9.5 100														1 9 8 7 6 6 5 4 3 2 1 1		Percent Passing

Comments

File: frm_182630008_sum_1.xlsm Preparation Date: 1998 Revision Date: 1-2008

Stantec Consulting Services Inc. Lexington, Kentucky

Laboratory Document Prepared By: MW Approved BY: TLK

Reviewed By





BP - Byrd Pump Site

Sample 2, 0.0'-14.0'

Project Name

Source





ATTERBERG LIMITS

Project	ΒP	- Byrd Pump Sit	te			Project No.	182630008
Source	Sar	nple 2, 0.0'-14.0)'			Lab ID	1
						% + No. 40	44
Tested By		KG	Test Method	ASTM D 4318 N	Vethod A	Date Received	01-27-2016
Test Date		02-01-2016	Prepared	Dry	_		
	<u> </u>						
		Net Soil and	Dry Soil and		Number		
					Number of		Liquid Lipsit
		(g)	(g)	(g)	BIOWS	(%)	
		22.53	20.01	12.75	30	34.7	
		22.56	19.96	12.67	26	35.7	
		22.72	19.96	12.55	23	37.2	36
		21.00	18.36	11.47	19	38.3	
	L		I			11	
	-	0		Liquid	l Limit		
	5						
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				-	20	00	-0 50
				NUMBER	OF BLOWS		

PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and	Dry Soil and		Water		
Tare Mass	Tare Mass	Tare Mass	Content		
(g)	(g)	(g)	(%)	Plastic Limit	Plasticity Index
18.63	17.79	11.34	13.0	13	23
18.85	18.00	11.45	13.0		

Remarks:

Reviewed By





Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa, KS 66219 (913)599-5665

January 27, 2016

Susan Hall BP Stantec 8770 Guion Rd. Ste B Indianapolis, IN 46268

RE: Project: BYRD PUMP INVESTIGATION Pace Project No.: 60211350

Dear Susan Hall:

Enclosed are the analytical results for sample(s) received by the laboratory on January 15, 2016. The results relate only to the samples included in this report. Results contained within this report conform to the most current version of the TNI standards, BP LaMP Technical Requirements Revision 10.1, and any applicable Quality Assurance Project Plan (QAPP), or Work Plan unless otherwise narrated in the body of this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Alice Glanazan

Alice Flanagan alice.flanagan@pacelabs.com Project Manager

Enclosures





CERTIFICATIONS

Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211350

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219 WY STR Certification #: 2456.01 Arkansas Certification #: 15-016-0 Illinois Certification #: 003097 Iowa Certification #: 118 Kansas/NELAP Certification #: E-10116 Louisiana Certification #: 03055 Nevada Certification #: KS000212008A Oklahoma Certification #: 9205/9935 Texas Certification #: T104704407 Utah Certification #: KS00021 Kansas Field Laboratory Accreditation: # E-92587



SAMPLE SUMMARY

Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211350

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60211350001	MW-PS1	Water	01/14/16 10:00	01/15/16 08:50
60211350002	MW-PS3	Water	01/14/16 11:45	01/15/16 08:50
60211350003	TRIP BLANK	Water	01/14/16 08:00	01/15/16 08:50



SAMPLE ANALYTE COUNT

Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211350

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60211350001	MW-PS1	EPA 5030B/8015B		3	PASI-K
		EPA 6010	ZBM	7	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 8270C by SIM	NAW	18	PASI-K
		EPA 8260/OA1	JDH	8	PASI-K
		EPA 300.0	RAB	4	PASI-K
60211350002	MW-PS3	EPA 5030B/8015B	JTK	3	PASI-K
		EPA 6010	ZBM	7	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 8270C by SIM	NAW	18	PASI-K
		EPA 8260/OA1	JDH	8	PASI-K
		EPA 300.0	RAB	4	PASI-K



Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211350

Method: EPA 5030B/8015B

Description:Gasoline Range OrganicsClient:BP Stantec TXDate:January 27, 2016

General Information:

2 samples were analyzed for EPA 5030B/8015B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: GCV/5293

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:



Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211350

Method: EPA 6010 Description: 6010 MET ICP

Client:BP Stantec TXDate:January 27, 2016

General Information:

2 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:



Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211350

Method: EPA 7470 Description: 7470 Mercury

Client:BP Stantec TXDate:January 27, 2016

General Information:

2 samples were analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MERP/10270

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60211350001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1699794)
 - Mercury
- MSD (Lab ID: 1699795)
 - Mercury

Additional Comments:



Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211350

Method:EPA 8270C by SIMDescription:8270 MSSV PAH by SIMClient:BP Stantec TXDate:January 27, 2016

General Information:

2 samples were analyzed for EPA 8270C by SIM. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3510C with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:



Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211350

Method: EPA 8260/OA1

Description:8260/OA1 UST, WaterClient:BP Stantec TXDate:January 27, 2016

General Information:

2 samples were analyzed for EPA 8260/OA1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:



Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211350

Method:EPA 300.0Description:300.0 IC Anions 28 DaysClient:BP Stantec TXDate:January 27, 2016

General Information:

2 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: WETA/37799

- D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
 - MW-PS1 (Lab ID: 60211350001)
 - Fluoride
 - MW-PS3 (Lab ID: 60211350002)
 - Fluoride

This data package has been reviewed for quality and completeness and is approved for release.



Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211350

Sample: MW-PS1	Lab ID:	60211350001	Collected	: 01/14/1	6 10:00	Received: 01/	15/16 08:50 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Gasoline Range Organics	Analytica	I Method: EPA 5	030B/8015B						
TPH-GRO Surrogates	ND	mg/L	0.50	0.024	1		01/19/16 13:08		
4-Bromofluorobenzene (S)	95	%	82-114		1		01/19/16 13:08	460-00-4	
Preservation pH	1.0		0.10		1		01/19/16 13:08		
6010 MET ICP	Analytica	I Method: EPA 6	010 Prepara	ation Meth	od: EPA	3010			
Arsenic	8.1J	ug/L	10.0	4.5	1	01/19/16 09:00	01/25/16 12:01	7440-38-2	
Barium	255	ug/L	10.0	0.52	1	01/19/16 09:00	01/25/16 12:01	7440-39-3	
Cadmium	0.76J	ug/L	5.0	0.56	1	01/19/16 09:00	01/25/16 12:01	7440-43-9	
Chromium	1.7J	ug/L	5.0	0.96	1	01/19/16 09:00	01/25/16 12:01	7440-47-3	
Lead	ND	ug/L	5.0	1.9	1	01/19/16 09:00	01/25/16 16:31	7439-92-1	
Selenium	ND	ug/L	15.0	5.8	1	01/19/16 09:00	01/25/16 12:01	7782-49-2	
Silver	ND	ug/L	7.0	1.1	1	01/19/16 09:00	01/25/16 12:01	7440-22-4	
7470 Mercury	Analytica	I Method: EPA 7	470 Prepara	ation Meth	od: EPA	7470			
Mercury	ND	ug/L	0.20	0.012	1	01/20/16 01:30	01/21/16 10:11	7439-97-6	M1
8270 MSSV PAH by SIM	Analytica	I Method: EPA 8	270C by SIN	/ Prepara	tion Met	hod: EPA 3510C			
Acenaphthene	ND	ug/L	0.091	0.013	1	01/20/16 00:00	01/22/16 18:26	83-32-9	
Acenaphthylene	ND	ug/L	0.091	0.015	1	01/20/16 00:00	01/22/16 18:26	208-96-8	
Anthracene	ND	ug/L	0.091	0.013	1	01/20/16 00:00	01/22/16 18:26	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.091	0.012	1	01/20/16 00:00	01/22/16 18:26	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.091	0.010	1	01/20/16 00:00	01/22/16 18:26	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.091	0.011	1	01/20/16 00:00	01/22/16 18:26	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.091	0.010	1	01/20/16 00:00	01/22/16 18:26	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.091	0.012	1	01/20/16 00:00	01/22/16 18:26	207-08-9	
Chrysene	ND	ug/L	0.091	0.010	1	01/20/16 00:00	01/22/16 18:26	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.091	0.015	1	01/20/16 00:00	01/22/16 18:26	53-70-3	
Fluoranthene	ND	ug/L	0.45	0.017	1	01/20/16 00:00	01/22/16 18:26	206-44-0	
Fluorene	ND	ug/L	0.091	0.012	1	01/20/16 00:00	01/22/16 18:26	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.091	0.014	1	01/20/16 00:00	01/22/16 18:26	193-39-5	
Naphthalene	0.33J	ug/L	0.45	0.042	1	01/20/16 00:00	01/22/16 18:26	91-20-3	
Phenanthrene	0.12J	ug/L	0.45	0.022	1	01/20/16 00:00	01/22/16 18:26	85-01-8	
Pyrene	ND	ug/L	0.091	0.027	1	01/20/16 00:00	01/22/16 18:26	129-00-0	
Surrogates		U U							
2-Fluorobiphenyl (S)	49	%	39-85		1	01/20/16 00:00	01/22/16 18:26	321-60-8	
Terphenyl-d14 (S)	73	%	48-95		1	01/20/16 00:00	01/22/16 18:26	1718-51-0	
8260/OA1 UST, Water	Analytica	I Method: EPA 8	260/OA1						
Benzene	1.0	ug/L	1.0	0.060	1		01/21/16 16:13	71-43-2	
Toluene	ND	ug/L	1.0	0.17	1		01/21/16 16:13	108-88-3	
Ethylbenzene	ND	ug/L	1.0	0.18	1		01/21/16 16:13	100-41-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		01/21/16 16:13	1330-20-7	
Surrogates		5							
Toluene-d8 (S)	101	%	80-120		1		01/21/16 16:13	2037-26-5	
4-Bromofluorobenzene (S)	99	%	77-130		1		01/21/16 16:13	460-00-4	

REPORT OF LABORATORY ANALYSIS

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Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211350

Sample: MW-PS1	Lab ID:	60211350001	Collecte	d: 01/14/16	6 10:00	Received: 01	/15/16 08:50 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/OA1 UST, Water	Analytical I	Method: EPA 8	260/OA1						
Surrogates 1,2-Dichloroethane-d4 (S) Preservation pH	107 1.0	%	81-127 0.10	0.10	1 1		01/21/16 16:13 01/21/16 16:13	17060-07-0	
300.0 IC Anions 28 Days	Analytical I	Method: EPA 3	00.0						
Bromide	38.8	mg/L	25.0	12.5	25		01/20/16 17:00	24959-67-9	
Chloride	5060	mg/L	500	250	500		01/20/16 17:44	16887-00-6	
Fluoride	2.1J	mg/L	5.0	1.8	25		01/20/16 17:00	16984-48-8	D3
Sulfate	182	mg/L	25.0	6.2	25		01/20/16 17:00	14808-79-8	



Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211350

Sample: MW-PS3	Lab ID:	60211350002	Collecte	d: 01/14/10	6 11:45	Received: 01/	15/16 08:50 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Gasoline Range Organics	Analytica	I Method: EPA 5	030B/8015	В					
TPH-GRO Surrogates	ND	mg/L	0.50	0.024	1		01/19/16 13:25		
4-Bromofluorobenzene (S)	97	%	82-114		1		01/19/16 13:25	460-00-4	
Preservation pH	1.0		0.10		1		01/19/16 13:25		
6010 MET ICP	Analytica	I Method: EPA 6	010 Prepa	ration Meth	od: EPA	3010			
Arsenic	13.4	ug/L	10.0	4.5	1	01/19/16 09:00	01/25/16 12:10	7440-38-2	
Barium	154	ug/L	10.0	0.52	1	01/19/16 09:00	01/25/16 12:10	7440-39-3	
Cadmium	0.75J	ug/L	5.0	0.56	1	01/19/16 09:00	01/25/16 12:10	7440-43-9	
Chromium	1.8J	ug/L	5.0	0.96	1	01/19/16 09:00	01/25/16 12:10	7440-47-3	
Lead	ND	ug/L	5.0	1.9	1	01/19/16 09:00	01/25/16 16:41	7439-92-1	
Selenium	ND	ug/L	15.0	5.8	1	01/19/16 09:00	01/25/16 12:10	7782-49-2	
Silver	ND	ug/L	7.0	1.1	1	01/19/16 09:00	01/25/16 12:10	7440-22-4	
7470 Mercury	Analytica	l Method: EPA 7	470 Prepa	ration Meth	od: EPA	7470			
Mercury	ND	ug/L	0.20	0.012	1	01/20/16 01:30	01/21/16 10:17	7439-97-6	
8270 MSSV PAH by SIM	Analytica	I Method: EPA 8	270C by SI	M Prepara	tion Met	thod: EPA 3510C			
Acenaphthene	ND	ug/L	0.091	0.013	1	01/20/16 00:00	01/22/16 19:31	83-32-9	
Acenaphthylene	ND	ug/L	0.091	0.015	1	01/20/16 00:00	01/22/16 19:31	208-96-8	
Anthracene	ND	ug/L	0.091	0.013	1	01/20/16 00:00	01/22/16 19:31	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.091	0.012	1	01/20/16 00:00	01/22/16 19:31	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.091	0.010	1	01/20/16 00:00	01/22/16 19:31	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.091	0.011	1	01/20/16 00:00	01/22/16 19:31	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.091	0.010	1	01/20/16 00:00	01/22/16 19:31	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.091	0.012	1	01/20/16 00:00	01/22/16 19:31	207-08-9	
Chrysene	ND	ug/L	0.091	0.010	1	01/20/16 00:00	01/22/16 19:31	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.091	0.015	1	01/20/16 00:00	01/22/16 19:31	53-70-3	
Fluoranthene	ND	ug/L	0.45	0.017	1	01/20/16 00:00	01/22/16 19:31	206-44-0	
Fluorene	ND	ug/L	0.091	0.012	1	01/20/16 00:00	01/22/16 19:31	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.091	0.014	1	01/20/16 00:00	01/22/16 19:31	193-39-5	
Naphthalene	0.32J	ug/L	0.45	0.042	1	01/20/16 00:00	01/22/16 19:31	91-20-3	
Phenanthrene	ND	ug/L	0.45	0.022	1	01/20/16 00:00	01/22/16 19:31	85-01-8	
Pyrene	ND	ug/L	0.091	0.027	1	01/20/16 00:00	01/22/16 19:31	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	58	%	39-85		1	01/20/16 00:00	01/22/16 19:31	321-60-8	
Terphenyl-d14 (S)	77	%	48-95		1	01/20/16 00:00	01/22/16 19:31	1718-51-0	
8260/OA1 UST, Water	Analytica	I Method: EPA 8	260/OA1						
Benzene	0.71J	ug/L	1.0	0.060	1		01/21/16 16:54	71-43-2	
Toluene	ND	ug/L	1.0	0.17	1		01/21/16 16:54	108-88-3	
Ethylbenzene	ND	ug/L	1.0	0.18	1		01/21/16 16:54	100-41-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		01/21/16 16:54	1330-20-7	
Surrogates									
Toluene-d8 (S)	99	%	80-120		1		01/21/16 16:54	2037-26-5	
4-Bromofluorobenzene (S)	98	%	77-130		1		01/21/16 16:54	460-00-4	

REPORT OF LABORATORY ANALYSIS

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Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211350

Sample: MW-PS3	Lab ID:	60211350002	Collecte	d: 01/14/16	6 11:45	Received: 01	/15/16 08:50 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/OA1 UST, Water	Analytical	Method: EPA 8	3260/OA1						
Surrogates									
1,2-Dichloroethane-d4 (S)	108	%	81-127		1		01/21/16 16:54	17060-07-0	
Preservation pH	1.0		0.10	0.10	1		01/21/16 16:54		
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	800.0						
Bromide	38.8	mg/L	25.0	12.5	25		01/20/16 19:10	24959-67-9	
Chloride	4980	mg/L	500	250	500		01/20/16 19:24	16887-00-6	
Fluoride	2.5J	mg/L	5.0	1.8	25		01/20/16 19:10	16984-48-8	D3
Sulfate	240	mg/L	25.0	6.2	25		01/20/16 19:10	14808-79-8	



Project:	BYRD PUMP INV	ESTIGATION									
Pace Project No.:	60211350										
QC Batch:	GCV/5293		Analysis	Method:	EF	PA 5030B/8	015B				
QC Batch Method:	EPA 5030B/8015	БB	Analysis	Description	: Ga	asoline Ran	nge Org	anics			
Associated Lab Sam	ples: 60211350	001, 60211350002									
METHOD BLANK:	1699129		Mat	trix: Water							
Associated Lab Sam	ples: 60211350	001, 60211350002									
			Blank	Repo	orting						
Param	neter	Units	Result	Lir	nit	MDL		Analyz	ed	Qualifiers	_
TPH-GRO		mg/L	0.03	6J	0.50	0	0.024	01/19/16 [·]	11:17		
4-Bromofluorobenze	ne (S)	%		97	82-114			01/19/16	11:17		
LABORATORY CON	ITROL SAMPLE:	1699130									
			Spike	LCS		LCS	%	Rec			
Param	neter	Units	Conc.	Result		% Rec	Lir	mits	Qualifi	ers	
TPH-GRO		mg/L	1	1	.0	105		68-110			
4-Bromofluorobenze	ne (S)	%				97		82-114			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



Project:	BYRD PUMP	INVESTIC	GATION											
Pace Project No.:	60211350													
QC Batch:	MERP/1027)		Analys	is Metho	d: E	EPA 7470							
QC Batch Method:	EPA 7470			Analys	is Descri	ption: 7	7470 Mercu	ry						
Associated Lab Sar	nples: 60211	350001, 6	60211350002											
METHOD BLANK:	1699792			Ν	/latrix: W	/ater								
Associated Lab Sar	nples: 60211	350001, 6	60211350002											
				Blank	τ.	Reporting								
Paran	neter		Units	Resul	t	Limit	MDL		Analyze	ed	Qua	alifiers		
Mercury			ug/L		ND	0.20	C	0.046 (01/21/16 1	1:42				
LABORATORY CO	NTROL SAMPL	E: 1699	9793											
				Spike	LC	S	LCS	% F	Rec					
Paran	neter		Units	Conc.	Res	sult	% Rec	Lin	nits	Qua	lifiers	-		
Mercury			ug/L	5		5.7	114	1	80-120					
MATRIX SPIKE & M	IATRIX SPIKE	DUPLICA	TE: 169979	94		1699795								
				MS	MSD									
		6	0211350001	Spike	Spike	MS	MSD	MS	MSD)	% Rec		Max	
Paramete	er	Units	Result	Conc.	Conc.	Result	Result	% Rec	> % Re	C	Limits	RPD	RPD	Qual
Mercury		ug/L	ND	5	Ę	5 0.87	0.78		17	16	75-125	10	20	M1

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Project: BYRD PUMP INVESTIGATION

60044050

Silver

Pace Project No.: 60211350					
QC Batch: MPRP/34643	Analysis Met	hod:	EPA 6010		
QC Batch Method: EPA 3010	Analysis Des	cription:	6010 MET		
Associated Lab Samples: 60211350001, 60211350002					
METHOD BLANK: 1698900	Matrix:	Water			
Associated Lab Samples: 60211350001, 60211350002					
	Blank	Reporting			
Parameter Units	Result	Limit	MDL	Analyzed	Qualifiers
Arsenic ug/L	ND	10	.0 4.5	01/25/16 11:56	
Barium ug/L	ND	10	.0 0.52	01/25/16 11:56	
Cadmium ug/L	ND	5	.0 0.56	01/25/16 11:56	
Chromium ug/L	ND	5	.0 0.96	01/25/16 11:56	
Lead ug/L	ND	5	.0 1.9	01/25/16 16:27	
Selenium ug/L	ND	15	.0 5.8	01/25/16 11:56	

ND

7.0

1.1 01/25/16 11:56

LABORATORY CONTROL SAMPLE: 1698901

ug/L

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Arsenic	ug/L	1000	993	99	80-120	
Barium	ug/L	1000	1010	101	80-120	
Cadmium	ug/L	1000	1020	102	80-120	
Chromium	ug/L	1000	988	99	80-120	
Lead	ug/L	1000	953	95	80-120	
Selenium	ug/L	1000	1040	104	80-120	
Silver	ug/L	500	493	99	80-120	

MATRIX SPIKE & MATRIX SPIK	E DUPLI	CATE: 169890	02		1698903							
			MS	MSD								
		60211350001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Arsenic	ug/L		1000	1000	1080	1090	107	108	75-125	1	20	
Barium	ug/L	255	1000	1000	1280	1280	103	102	75-125	1	20	
Cadmium	ug/L	0.76J	1000	1000	1110	1110	111	111	75-125	0	20	
Chromium	ug/L	1.7J	1000	1000	936	943	93	94	75-125	1	20	
Lead	ug/L	ND	1000	1000	902	900	90	90	75-125	0	20	
Selenium	ug/L	ND	1000	1000	1070	1070	107	107	75-125	0	20	
Silver	ug/L	ND	500	500	555	555	111	111	75-125	0	20	

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Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211350

QC Batch:	MSV/73845
QC Batch Method:	EPA 8260/OA1

Analysis Method:

Analysis Description: 8260/OA1 UST-WATER

EPA 8260/OA1

Associated Lab Samples: 60211350001, 60211350002

METHOD BLANK: 1700433

Associated Lab Samples:	60211350001	60211350002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Benzene	ug/L		1.0	0.060	01/21/16 12:06	
Ethylbenzene	ug/L	ND	1.0	0.18	01/21/16 12:06	
Toluene	ug/L	ND	1.0	0.17	01/21/16 12:06	
Xylene (Total)	ug/L	ND	3.0	0.42	01/21/16 12:06	
1,2-Dichloroethane-d4 (S)	%	103	81-127		01/21/16 12:06	
4-Bromofluorobenzene (S)	%	98	77-130		01/21/16 12:06	
Toluene-d8 (S)	%	99	80-120		01/21/16 12:06	

Matrix: Water

LABORATORY CONTROL SAMPLE: 1700434

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Benzene	ug/L	20	19.1	96	79-116	
Ethylbenzene	ug/L	20	18.1	91	81-110	
Toluene	ug/L	20	18.0	90	82-111	
Xylene (Total)	ug/L	60	53.6	89	80-111	
1,2-Dichloroethane-d4 (S)	%			105	81-127	
4-Bromofluorobenzene (S)	%			98	77-130	
Toluene-d8 (S)	%			98	80-120	

MATRIX SPIKE & MATRIX SP	IKE DUPLIC	CATE: 17004	35		1700436							
Parameter	Units	60211325004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	ND	20	20	17.8	19.4	89	97	37-151	9	40	
Ethylbenzene	ug/L	ND	20	20	16.4	18.1	82	90	29-151	10	45	
Toluene	ug/L	ND	20	20	16.9	18.5	85	92	37-147	9	43	
Xylene (Total)	ug/L	ND	60	60	48.5	53.1	81	88	27-156	9	46	
1,2-Dichloroethane-d4 (S)	%						104	107	81-127			
4-Bromofluorobenzene (S)	%						99	100	77-130			
Toluene-d8 (S)	%						100	100	80-120			
Preservation pH		1.0			1.0	1.0				0		

MATRIX SPIKE & MATRIX SPIK		CATE: 17004:	37		1700438						
			MS	MSD							
		60211350001	Spike	Spike	MS	MSD	MS	MSD	% Rec	Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD RPD	Qual
Benzene	ug/L	1.0	20	20	20.9	20.5	99	97	37-151	2 40	

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Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211350

MATRIX SPIKE & MATRIX SP	IKE DUPLI	CATE: 170043	37		1700438							
Parameter	Units	60211350001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Ethylbenzene	ug/L	ND	20	20	18.0	18.3	89	91	29-151	2	45	
Toluene	ug/L	ND	20	20	18.3	18.4	92	92	37-147	1	43	
Xylene (Total)	ug/L	ND	60	60	53.6	53.9	89	90	27-156	1	46	
1,2-Dichloroethane-d4 (S)	%						107	107	81-127			
4-Bromofluorobenzene (S)	%						98	100	77-130			
Toluene-d8 (S)	%						98	99	80-120			
Preservation pH		1.0			1.0	1.0				0		

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Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211350

QC Batch:	OEXT/52796	Analysis Method:	EPA 8270C by SIM	
QC Batch Method:	EPA 3510C	Analysis Description:	8270 Water PAH by SIM MSSV	
Associated Lab Sam	ples: 60211350001, 60211350002			
METHOD BLANK:	1699484	Matrix: Water		
Associated Lab Sam	ples: 60211350001, 60211350002			
		Diamis Damantin		

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Acenaphthene	ug/L	ND	0.10	0.014	01/22/16 13:44	
Acenaphthylene	ug/L	ND	0.10	0.017	01/22/16 13:44	
Anthracene	ug/L	ND	0.10	0.014	01/22/16 13:44	
Benzo(a)anthracene	ug/L	ND	0.10	0.013	01/22/16 13:44	
Benzo(a)pyrene	ug/L	ND	0.10	0.011	01/22/16 13:44	
Benzo(b)fluoranthene	ug/L	ND	0.10	0.012	01/22/16 13:44	
Benzo(g,h,i)perylene	ug/L	ND	0.10	0.011	01/22/16 13:44	
Benzo(k)fluoranthene	ug/L	ND	0.10	0.013	01/22/16 13:44	
Chrysene	ug/L	ND	0.10	0.011	01/22/16 13:44	
Dibenz(a,h)anthracene	ug/L	ND	0.10	0.017	01/22/16 13:44	
Fluoranthene	ug/L	ND	0.50	0.019	01/22/16 13:44	
Fluorene	ug/L	ND	0.10	0.013	01/22/16 13:44	
Indeno(1,2,3-cd)pyrene	ug/L	ND	0.10	0.015	01/22/16 13:44	
Naphthalene	ug/L	ND	0.50	0.046	01/22/16 13:44	
Phenanthrene	ug/L	ND	0.50	0.024	01/22/16 13:44	
Pyrene	ug/L	ND	0.10	0.030	01/22/16 13:44	
2-Fluorobiphenyl (S)	%	57	39-85		01/22/16 13:44	
Terphenyl-d14 (S)	%	67	48-95		01/22/16 13:44	

LABORATORY CONTROL SAMPLE: 1699485

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Acenaphthene	ug/L		7.1	71	44-106	
Acenaphthylene	ug/L	10	7.4	74	45-111	
Anthracene	ug/L	10	8.2	82	49-111	
Benzo(a)anthracene	ug/L	10	8.7	87	53-120	
Benzo(a)pyrene	ug/L	10	8.6	86	51-115	
Benzo(b)fluoranthene	ug/L	10	8.3	83	44-126	
Benzo(g,h,i)perylene	ug/L	10	8.8	88	39-122	
Benzo(k)fluoranthene	ug/L	10	8.6	86	48-115	
Chrysene	ug/L	10	8.2	82	42-98	
Dibenz(a,h)anthracene	ug/L	10	9.9	99	30-127	
Fluoranthene	ug/L	10	9.1	91	57-121	
Fluorene	ug/L	10	7.5	75	47-110	
Indeno(1,2,3-cd)pyrene	ug/L	10	8.8	88	35-126	
Naphthalene	ug/L	10	6.8	68	40-106	
Phenanthrene	ug/L	10	7.4	74	45-107	
Pyrene	ug/L	10	8.1	81	42-117	
2-Fluorobiphenyl (S)	%			63	39-85	
Terphenyl-d14 (S)	%			74	48-95	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211350

MATRIX SPIKE & MATRIX S	PIKE DUPLICA	TE: 16994	86		1699487							
			MS	MSD								
	6	0211350001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Acenaphthene	ug/L	ND	9.1	9.1	5.5	5.1	61	56	55-105	9	80	
Acenaphthylene	ug/L	ND	9.1	9.1	5.9	5.5	65	61	56-114	6	81	
Anthracene	ug/L	ND	9.1	9.1	7.4	6.8	82	75	51-123	9	85	
Benzo(a)anthracene	ug/L	ND	9.1	9.1	8.1	7.2	89	79	60-124	12	81	
Benzo(a)pyrene	ug/L	ND	9.1	9.1	7.9	6.9	87	76	63-113	13	80	
Benzo(b)fluoranthene	ug/L	ND	9.1	9.1	8.1	6.8	89	74	50-129	18	83	
Benzo(g,h,i)perylene	ug/L	ND	9.1	9.1	7.5	6.5	82	72	44-128	14	80	
Benzo(k)fluoranthene	ug/L	ND	9.1	9.1	7.4	6.8	81	74	59-107	9	79	
Chrysene	ug/L	ND	9.1	9.1	7.8	6.9	85	76	45-100	12	79	
Dibenz(a,h)anthracene	ug/L	ND	9.1	9.1	8.4	7.2	93	79	42-129	16	80	
Fluoranthene	ug/L	ND	9.1	9.1	8.7	7.6	95	84	62-124	12	82	
Fluorene	ug/L	ND	9.1	9.1	5.7	5.3	63	58	58-111	7	83	
Indeno(1,2,3-cd)pyrene	ug/L	ND	9.1	9.1	7.7	6.6	84	73	45-129	15	80	
Naphthalene	ug/L	0.33J	9.1	9.1	6.4	5.8	66	60	35-117	10	48	
Phenanthrene	ug/L	0.12J	9.1	9.1	6.7	6.1	72	66	53-103	9	79	
Pyrene	ug/L	ND	9.1	9.1	7.4	6.7	82	74	52-109	10	85	
2-Fluorobiphenyl (S)	%						50	48	39-85		78	
Terphenyl-d14 (S)	%						74	66	48-95		79	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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EPA 300.0

300.0 IC Anions

Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211350

METHOD BLANK: 1699579

QC Batch:	WETA	/37799	Analysis Method:
QC Batch Method:	EPA 3	00.0	Analysis Description:
Associated Lab Samp	les:	60211350001, 60211350002	

Associated Lab Samples: 60211350001, 60211350002 Blank Reporting Limit MDL Parameter Units Result Analyzed Qualifiers Bromide mg/L ND 1.0 0.50 01/20/16 11:29 Chloride mg/L ND 1.0 0.50 01/20/16 11:29 01/20/16 11:29 Fluoride ND 0.20 0.073 mg/L Sulfate mg/L ND 1.0 0.25 01/20/16 11:29

Matrix: Water

LABORATORY CONTROL SAMPLE: 1699580 LCS LCS Spike % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Bromide mg/L 5 5.0 100 90-110 Chloride mg/L 5 4.9 97 90-110 Fluoride mg/L 2.5 2.6 104 90-110 Sulfate mg/L 5 5.0 99 90-110

MATRIX SPIKE & MATRIX SPIK		CATE: 169958	31		1699582							
Parameter	Units	60211350001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Bromide	mg/L		125	125	141	140	82	81	80-120	0	15	
Chloride	mg/L	5060	2500	2500	7180	7140	85	83	80-120	1	15	
Fluoride	mg/L	2.1J	62.5	62.5	57.6	57.7	89	89	80-120	0	15	
Sulfate	mg/L	182	125	125	286	287	83	84	80-120	0	15	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



QUALIFIERS

Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211350

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

BATCH QUALIFIERS

Batch: GCV/5293

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

- D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
- M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211350

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60211350001	MW-PS1	EPA 5030B/8015B	GCV/5293		
60211350002	MW-PS3	EPA 5030B/8015B	GCV/5293		
60211350001	MW-PS1	EPA 3010	MPRP/34643	EPA 6010	ICP/25405
60211350002	MW-PS3	EPA 3010	MPRP/34643	EPA 6010	ICP/25405
60211350001	MW-PS1	EPA 7470	MERP/10270	EPA 7470	MERC/10217
60211350002	MW-PS3	EPA 7470	MERP/10270	EPA 7470	MERC/10217
60211350001	MW-PS1	EPA 3510C	OEXT/52796	EPA 8270C by SIM	MSSV/17176
60211350002	MW-PS3	EPA 3510C	OEXT/52796	EPA 8270C by SIM	MSSV/17176
60211350001	MW-PS1	EPA 8260/OA1	MSV/73845		
60211350002	MW-PS3	EPA 8260/OA1	MSV/73845		
60211350001	MW-PS1	EPA 300.0	WETA/37799		
60211350002	MW-PS3	EPA 300.0	WETA/37799		



Sample Condition Upon Receipt ESI Tech Spec Client

WO#:60211350

Client Name: BP Stantec	Optional
Courier: FedEx 🛍 UPS 🗆 VIA 🗆 Clay 🗆 PEX 🗆 ECI 🗆	Pace Other Client Proj Due Date:
Tracking #: 6508 8163 4593 Pace Shipping Lab	el Used? Yes 🗆 No 🗔 🔹 Proj Name:
Custody Seal on Cooler/Box Present: Yes 🗹 No 🗆 Seals intact:	Yes 🙇 No 🗆
Packing Material: Bubble Wrap Bubble Bags 🛱 Foa	m 🏚 None 🗆 Other 🗆
Thermometer Used: CF +0.8 CF +0.7 Type of Ice. Wet	Blue None Samples received on ice, cooling process has begun.
Cooler Temperature: 2,0 (c	Date and initials of person examining
Temperature should be above freezing to 6°C	contents: JB 1/13
Chain of Custody present:	A 1.
Chain of Custody filled out:	A 2.
Chain of Custody relinquished: 🕺 🕅 🖓 Yes 🗆 No 🗆 N	A 3.
Sampler name & signature on COC: 🕅 Yes 🗆 No 🗆 N	A 4.
Samples arrived within holding time:	A 5.
Short Hold Time analyses (<72hr): □Yes ⊉No □N	^{(A} 6.
Rush Turn Around Time requested: □Yes 🕅 № □N	A 7.
Sufficient volume: 🛱 Yes 🗆 No 🗆 N	A 8.
Correct containers used: 🛱 Yes 🗆 No 🗆 N	A
Pace containers used: Way ONO	A 9.
Containers intact: 🕅 Yes 🗆 No 🗔 N	^{(A} 10.
Unpreserved 5035A soils frozen w/in 48hrs? 🛛 🖓 🖓 🕅 🖓	(A 11.
Filtered volume received for dissolved tests?	(A 12,
Sample labels match COC:	/A
Includes date/time/ID/analyses Matrix: W	13.
All containers needing preservation have been checked.	/A
All containers needing preservation are found to be in compliance	/A 14
Exceptions: VOA) Coliform, O&G, WI-DRO (water)	Initial when Lot # of added
Trip Blank present:	
Pace Trip Blank lot # (if purchased): 1716	15
Headspace in VOA vials (>6mm):	/A
	16
	10
Client Notification/ Resolution: Copy COC to Client? Y	N Field Data Required? Y / N
Person Contacted:	Temp Log: Record start and finish times
Comments/ Resolution:	when unpacking cooler, if >20 min, recheck sample temps.
	Start: 1390 Start:
	End: \30 8 End:
Project Manager Review:AAF	Date: 01/15/16 Temp: Temp:

F-KS-C-004-Rev.4, 30June 2015 Page 25 of 26

-	Atlantic.	Laboratory Ma	ınageı	neni	Pro	gran	n Lê	MP	Chair	l of	Cus	tod	/ Re	COL	8				Page / o	()
	Kichtield	BP/ARC Project Name	Byrd F	s dun	te Inve	stigatic	E			Re	d Due	Date	(mm/	(yy)		Harr	Lan	Rush	TAT: Yes	No
	O A BP affiliated company	BP/ARC Facility No:	Byrd P	s dun	ę					La	b Wor	k Ord	er Nui	nber:				602	11350	
Lab	Vame: Pace Analytical Services, Inc.	-	BP/AR(C Facility	/ Addres	ici.	15 Joa	nne Lan	a	-				consult	ant/Cor	tractor	S	antec Consulting		
Lab	Address: 9608 Loiret Blvd		City, St	ate, ZIP	Code:		Monun	ient, NN						consult	ant/Con	tractor	Project N	ło:	1	82630008
Lab	M: Alice Flanagan		Lead R	egulator	y Agency		O WN	Q					4	ddress	: 877	0 Guio	Rd. Ste	B Indianapolis, I	N 46268	
Lab	² hone: 916-563-1409		Califorr	ia Globa	I ID No.		MA						0	consult	ant/Con	tractor	PM: SI	usan Hall		
Lab	Shipping Accnt:		Enfos F	roposal	No:		04600	-002					<u> </u>	hone:	317	-876-8;	75			
Lab	3ottle Order No:		Accoun	ting Mot	ë	Prov	ision	o ×	OC-BU_	ŏ	OC-RN			imail E	DD To:	usns	hall@sta	antec.com		
Othe	r Info:		Stage:	4_EX	ecute	Aci	ivity: F	roject	Spend					Tvoice	To:	ВР	ARC	X Cont	ractor	
BP/A	RC EBM: Sergio Morescalchi		2	atrix	z	o. Cor	itaine	's / Pre	servativ	e			seque	sted /	nalys	Se		Repo	rt Type & QC Le	vel
EBM	Phone: 925-487-0940				9			-						2 St	0.00	201			Standard 🐥	
EBM	Email: Sergio.Morescalchi@bp.com				nenis					28	89	6			۲ د (عالم	K 60.		Full Da	ta Package	
Lat No.	Sample Description	Date	bilo2 \ lio2	Air / Vapor	Total Number of Cont	Unpreserved	⁺OS ^z H	нсі HNO ³	lonsdteM	108 OAG-H9T	TPH-GRO 801	BTEX 82605	0168 HA9	RCRA METALS 6010	Mitrate / Nitriate 9056/	Cations - Ca, Mg, Na,	TDS 160.1/SM 2540C	Note: If sampl Sample" in co	Comments e not collected, indica mments and single-str preprinted sample de	te "No říke out scription.
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	STHIS LINE - LAB USE ONLY: Cust	dy Seals In Place Yes, No	Ter Ter	np Blan	c Yes	9	Ŝ	oler Tem	p on Keo	i E E	2			2	siank, Y	es/ No		MIS/MISU Sample BP/ARC	C LaMP COC Rev. 6	01/01/2009



Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa, KS 66219 (913)599-5665

January 27, 2016

Susan Hall BP Stantec 8770 Guion Rd. Ste B Indianapolis, IN 46268

RE: Project: BYRD PUMP INVESTIGATION Pace Project No.: 60211351

Dear Susan Hall:

Enclosed are the analytical results for sample(s) received by the laboratory on January 15, 2016. The results relate only to the samples included in this report. Results contained within this report conform to the most current version of the TNI standards, BP LaMP Technical Requirements Revision 10.1, and any applicable Quality Assurance Project Plan (QAPP), or Work Plan unless otherwise narrated in the body of this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Alice Glanazan

Alice Flanagan alice.flanagan@pacelabs.com Project Manager

Enclosures





CERTIFICATIONS

Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211351

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219 WY STR Certification #: 2456.01 Arkansas Certification #: 15-016-0 Illinois Certification #: 003097 Iowa Certification #: 118 Kansas/NELAP Certification #: E-10116 Louisiana Certification #: 03055 Nevada Certification #: KS000212008A Oklahoma Certification #: 9205/9935 Texas Certification #: T104704407 Utah Certification #: KS00021 Kansas Field Laboratory Accreditation: # E-92587



SAMPLE SUMMARY

Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211351

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60211351001	MW-PS2	Water	01/14/16 14:00	01/15/16 08:50
60211351002	MW-PS4	Water	01/14/16 15:40	01/15/16 08:50
60211351003	DUP-1-GW	Water	01/14/16 08:00	01/15/16 08:50
60211351004	EB-01	Water	01/14/16 15:15	01/15/16 08:50
60211351005	TRIP BLANK	Water	01/14/16 08:00	01/15/16 08:50



SAMPLE ANALYTE COUNT

Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211351

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60211351001	MW-PS2	EPA 5030B/8015B	JTK	3	PASI-K
		EPA 6010	ZBM	7	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 8270C by SIM	NAW	18	PASI-K
		EPA 8260/OA1	JDH	8	PASI-K
		EPA 300.0	RAB	4	PASI-K
60211351002	MW-PS4	EPA 5030B/8015B	JTK	3	PASI-K
		EPA 6010	ZBM	7	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 8270C by SIM	NAW	18	PASI-K
		EPA 8260/OA1	JDH	8	PASI-K
		EPA 300.0	RAB	4	PASI-K
60211351003	DUP-1-GW	EPA 5030B/8015B	JTK	3	PASI-K
		EPA 6010	ZBM	7	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 8270C by SIM	NAW	18	PASI-K
		EPA 8260/OA1	JDH	8	PASI-K
		EPA 300.0	RAB	4	PASI-K
60211351004	EB-01	EPA 6010	ZBM	7	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 8270C by SIM	NAW	18	PASI-K
		EPA 300.0	RAB	4	PASI-K



Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211351

Method: EPA 5030B/8015B

Description:Gasoline Range OrganicsClient:BP Stantec TXDate:January 27, 2016

General Information:

3 samples were analyzed for EPA 5030B/8015B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: GCV/5293

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:



Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211351

Method: EPA 6010

Description:6010 MET ICPClient:BP Stantec TXDate:January 27, 2016

General Information:

4 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:



Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211351

Method: EPA 7470 Description: 7470 Mercury

Description:7470 MercuryClient:BP Stantec TXDate:January 27, 2016

General Information:

4 samples were analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MERP/10270

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60211350001

- M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
 - MS (Lab ID: 1699794)
 - Mercury
 - MSD (Lab ID: 1699795)
 - Mercury

Additional Comments:



Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211351

Method:EPA 8270C by SIMDescription:8270 MSSV PAH by SIMClient:BP Stantec TXDate:January 27, 2016

General Information:

4 samples were analyzed for EPA 8270C by SIM. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3510C with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:


Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211351

Method: EPA 8260/OA1

Description:8260/OA1 UST, WaterClient:BP Stantec TXDate:January 27, 2016

General Information:

3 samples were analyzed for EPA 8260/OA1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:



Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211351

Method:EPA 300.0Description:300.0 IC Anions 28 DaysClient:BP Stantec TXDate:January 27, 2016

General Information:

4 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: WETA/37799

- D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
 - DUP-1-GW (Lab ID: 60211351003)
 - Fluoride
 - MW-PS2 (Lab ID: 60211351001)
 - Fluoride
 - MW-PS4 (Lab ID: 60211351002)
 - Fluoride

This data package has been reviewed for quality and completeness and is approved for release.



Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211351

Sample: MW-PS2	Lab ID:	60211351001	Collected	01/14/1	6 14:00	Received: 01/	15/16 08:50 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Gasoline Range Organics	Analytical	Method: EPA 5	5030B/8015B						
TPH-GRO	ND	mg/L	0.50	0.024	1		01/19/16 13:42		
4-Bromofluorobenzene (S)	95	%	82-114		1		01/19/16 13:42	460-00-4	
Preservation pH	1.0		0.10		1		01/19/16 13:42		
6010 MET ICP	Analytical	Method: EPA 6	010 Prepara	ation Meth	od: EPA	3010			
Arsenic	9.7J	ug/L	10.0	4.5	1	01/19/16 09:00	01/25/16 12:13	7440-38-2	
Barium	212	ug/L	10.0	0.52	1	01/19/16 09:00	01/25/16 12:13	7440-39-3	
Cadmium	ND	ug/L	5.0	0.56	1	01/19/16 09:00	01/25/16 12:13	7440-43-9	
Chromium	1.3J	ua/L	5.0	0.96	1	01/19/16 09:00	01/25/16 12:13	7440-47-3	
Lead	ND	ua/L	5.0	1.9	1	01/19/16 09:00	01/25/16 16:43	7439-92-1	
Selenium	ND	ug/L	15.0	5.8	1	01/19/16 09:00	01/25/16 12:13	7782-49-2	
Silver	ND	ug/L	7.0	1.1	1	01/19/16 09:00	01/25/16 12:13	7440-22-4	
7470 Mercury	Analytical	Method: EPA 7	470 Prepara	ation Meth	od: EPA	7470			
Mercury	ND	ug/L	0.20	0.012	1	01/20/16 01:30	01/21/16 10:02	7439-97-6	
8270 MSSV PAH by SIM	Analytical	Method: EPA 8	3270C by SIM	1 Prepara	tion Me	thod: EPA 3510C			
Acenaphthene	ND	ug/L	0.091	0.013	1	01/20/16 00:00	01/22/16 19:53	83-32-9	
Acenaphthylene	ND	ug/L	0.091	0.015	1	01/20/16 00:00	01/22/16 19:53	208-96-8	
Anthracene	ND	ug/L	0.091	0.013	1	01/20/16 00:00	01/22/16 19:53	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.091	0.012	1	01/20/16 00:00	01/22/16 19:53	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.091	0.010	1	01/20/16 00:00	01/22/16 19:53	50-32-8	
Benzo(b)fluoranthene	ND	ua/L	0.091	0.011	1	01/20/16 00:00	01/22/16 19:53	205-99-2	
Benzo(g.h.i)pervlene	ND	ug/L	0.091	0.010	1	01/20/16 00:00	01/22/16 19:53	191-24-2	
Benzo(k)fluoranthene	ND	ug/l	0.091	0.012	1	01/20/16 00:00	01/22/16 19:53	207-08-9	
Chrysene	ND	ug/L	0.091	0.010	1	01/20/16 00:00	01/22/16 19:53	218-01-9	
Dibenz(a h)anthracene	ND	ug/L	0.091	0.015	1	01/20/16 00:00	01/22/16 19:53	53-70-3	
Fluoranthene	ND	ug/L	0.45	0.017	1	01/20/16 00:00	01/22/16 19:53	206-44-0	
Fluorene	ND	ug/L	0.091	0.012	1	01/20/16 00:00	01/22/16 19:53	86-73-7	
Indeno(1 2 3-cd)pyrene	ND	ug/L	0.091	0.014	1	01/20/16 00:00	01/22/16 19:53	193-39-5	
Nanhthalene	0.064.1	ug/L	0.45	0.042	1	01/20/16 00:00	01/22/16 19:53	91-20-3	
Phenanthrene	0.0471	ug/L	0.45	0.042	1	01/20/16 00:00	01/22/16 10:53	85-01-8	
Pyrene		ug/L	0.90	0.022	1	01/20/16 00:00	01/22/16 19:53	129-00-0	
Surrogates	NB	ug/L	0.001	0.021		01/20/10 00:00	01/22/10 10:00	120 00 0	
2-Fluorobiphenvl (S)	46	%	39-85		1	01/20/16 00:00	01/22/16 19:53	321-60-8	
Terphenyl-d14 (S)	70	%	48-95		1	01/20/16 00:00	01/22/16 19:53	1718-51-0	
8260/OA1 UST, Water	Analytical	Method: EPA 8	3260/OA1						
Benzene	0.29J	ug/L	1.0	0.060	1		01/21/16 17:08	71-43-2	
Toluene	ND	ug/L	1.0	0.17	1		01/21/16 17:08	108-88-3	
Ethylbenzene	ND	ug/L	1.0	0.18	1		01/21/16 17:08	100-41-4	
Xylene (Total)	ND	ug/l	3.0	0.42	1		01/21/16 17:08	1330-20-7	
Surrogates		~ 9 , –	0.0	J. 12					
Toluene-d8 (S)	99	%	80-120		1		01/21/16 17:08	2037-26-5	
4-Bromofluorobenzene (S)	99	%	77-130		1		01/21/16 17:08	460-00-4	

REPORT OF LABORATORY ANALYSIS

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Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211351

Sample: MW-PS2	Lab ID:	Lab ID: 60211351001			6 14:00	Received: 01			
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/OA1 UST, Water	Analytical	Method: EPA 8	3260/OA1						
Surrogates									
1,2-Dichloroethane-d4 (S)	106	%	81-127		1		01/21/16 17:08	17060-07-0	
Preservation pH	1.0		0.10	0.10	1		01/21/16 17:08		
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Bromide	25.7	mg/L	25.0	12.5	25		01/20/16 19:39	24959-67-9	
Chloride	3720	mg/L	500	250	500		01/20/16 19:53	16887-00-6	
Fluoride	1.9J	mg/L	5.0	1.8	25		01/20/16 19:39	16984-48-8	D3
Sulfate	193	mg/L	25.0	6.2	25		01/20/16 19:39	14808-79-8	



Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211351

Sample: MW-PS4 Lab ID: 60211351002 Collected: 01/14/16 15:40 Received: 01/15/16 08:50 Matrix: Water Report Units MDL DF Parameters Results Limit Prepared CAS No. Analyzed Qual Analytical Method: EPA 5030B/8015B **Gasoline Range Organics TPH-GRO** ND 0.50 0.024 1 01/19/16 14:00 mg/L Surrogates 92 4-Bromofluorobenzene (S) % 82-114 1 01/19/16 14:00 460-00-4 01/19/16 14:00 Preservation pH 1.0 0.10 1 **6010 MET ICP** Analytical Method: EPA 6010 Preparation Method: EPA 3010 11.8 ug/L 10.0 4.5 01/19/16 09:00 01/25/16 12:19 7440-38-2 Arsenic 1 Barium 171 ug/L 10.0 0.52 1 01/19/16 09:00 01/25/16 12:19 7440-39-3 Cadmium ND ug/L 5.0 0.56 1 01/19/16 09:00 01/25/16 12:19 7440-43-9 Chromium ND ug/L 5.0 0.96 1 01/19/16 09:00 01/25/16 12:19 7440-47-3 ND ug/L 5.0 1.9 01/19/16 09:00 01/25/16 16:46 7439-92-1 I ead 1 Selenium ND ug/L 15.0 5.8 1 01/19/16 09:00 01/25/16 12:19 7782-49-2 Silver ND ug/L 7.0 1.1 1 01/19/16 09:00 01/25/16 12:19 7440-22-4 7470 Mercury Analytical Method: EPA 7470 Preparation Method: EPA 7470 Mercury ND ug/L 0.20 0.012 1 01/20/16 01:30 01/21/16 10:04 7439-97-6 8270 MSSV PAH by SIM Analytical Method: EPA 8270C by SIM Preparation Method: EPA 3510C Acenaphthene ND ug/L 0.091 0.013 1 01/20/16 00:00 01/22/16 20:15 83-32-9 0.015 Acenaphthylene ND ug/L 0.091 1 01/20/16 00:00 01/22/16 20:15 208-96-8 Anthracene ND ug/L 0.091 0.013 1 01/20/16 00:00 01/22/16 20:15 120-12-7 ND 0.012 Benzo(a)anthracene ug/L 0.091 1 01/20/16 00:00 01/22/16 20:15 56-55-3 ND 0.091 0.010 01/20/16 00:00 01/22/16 20:15 50-32-8 Benzo(a)pyrene ug/L 1 Benzo(b)fluoranthene ND ug/L 0.091 0.011 1 01/20/16 00:00 01/22/16 20:15 205-99-2 Benzo(g,h,i)perylene ND ug/L 0.091 0.010 1 01/20/16 00:00 01/22/16 20:15 191-24-2 01/20/16 00:00 01/22/16 20:15 207-08-9 Benzo(k)fluoranthene ND ug/L 0.091 0.012 1 Chrysene ND ug/L 0.091 0.010 01/20/16 00:00 01/22/16 20:15 218-01-9 1 Dibenz(a,h)anthracene ND ug/L 0.091 0.015 1 01/20/16 00:00 01/22/16 20:15 53-70-3 Fluoranthene ND ug/L 0.45 0.017 01/20/16 00:00 01/22/16 20:15 206-44-0 1 0.091 0.012 01/20/16 00:00 01/22/16 20:15 86-73-7 Fluorene ND ug/L 1 0.014 Indeno(1,2,3-cd)pyrene ND ug/L 0.091 1 01/20/16 00:00 01/22/16 20:15 193-39-5 Naphthalene 0.22J ug/L 0.45 0.042 01/20/16 00:00 01/22/16 20:15 91-20-3 1 Phenanthrene 0.062J ua/L 0.45 0.022 1 01/20/16 00:00 01/22/16 20:15 85-01-8 0.091 0.027 01/20/16 00:00 01/22/16 20:15 129-00-0 **Pvrene** ND ug/L 1 Surrogates 2-Fluorobiphenyl (S) 48 % 39-85 01/20/16 00:00 01/22/16 20:15 321-60-8 1 Terphenyl-d14 (S) 68 % 48-95 1 01/20/16 00:00 01/22/16 20:15 1718-51-0 Analytical Method: EPA 8260/OA1 8260/OA1 UST, Water ug/L 0.060 01/21/16 17:22 71-43-2 Benzene 0.13J 1.0 1 Toluene ND ug/L 1.0 0.17 1 01/21/16 17:22 108-88-3 Ethylbenzene ND ug/L 1.0 0.18 1 01/21/16 17:22 100-41-4 Xylene (Total) ND 3.0 0.42 1 01/21/16 17:22 1330-20-7 ug/L Surrogates Toluene-d8 (S) 99 % 80-120 1 01/21/16 17:22 2037-26-5

REPORT OF LABORATORY ANALYSIS

1

77-130

100

%

4-Bromofluorobenzene (S)

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Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211351

Sample: MW-PS4	Lab ID:	Lab ID: 60211351002			6 15:40	Received: 01	atrix: Water		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/OA1 UST, Water	Analytical	Method: EPA 8	260/OA1						
Surrogates									
1,2-Dichloroethane-d4 (S)	107	%	81-127		1		01/21/16 17:22	17060-07-0	
Preservation pH	1.0		0.10	0.10	1		01/21/16 17:22		
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	0.00						
Bromide	106	mg/L	50.0	25.0	50		01/20/16 20:08	24959-67-9	
Chloride	5270	mg/L	500	250	500		01/20/16 20:22	16887-00-6	
Fluoride	3.9J	mg/L	10.0	3.6	50		01/20/16 20:08	16984-48-8	D3
Sulfate	603	mg/L	50.0	12.4	50		01/20/16 20:08	14808-79-8	



Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211351

Sample: DUP-1-GW	Lab ID:	60211351003	Collected	01/14/1	6 08:00	Received: 01/	15/16 08:50 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Gasoline Range Organics	Analytical	Method: EPA 5	030B/8015B						
TPH-GRO	ND	mg/L	0.50	0.024	1		01/19/16 14:17		
4-Bromofluorobenzene (S)	86	%	82-114		1		01/19/16 14.17	460-00-4	
Preservation pH	1.0	70	0.10		1		01/19/16 14:17	100 00 1	
6010 MET ICP	Analytical	Method: EPA 6	010 Prepara	ation Meth	iod: EPA	3010			
Arsenic	12.4	ug/L	10.0	4.5	1	01/19/16 09:00	01/25/16 12:22	7440-38-2	
Barium	181	ug/L	10.0	0.52	1	01/19/16 09:00	01/25/16 12:22	7440-39-3	
Cadmium	0.92J	ua/L	5.0	0.56	1	01/19/16 09:00	01/25/16 12:22	7440-43-9	
Chromium	ND	ua/L	5.0	0.96	1	01/19/16 09:00	01/25/16 12:22	7440-47-3	
Lead	ND	ug/L	5.0	1.9	1	01/19/16 09:00	01/25/16 16:48	7439-92-1	
Selenium	ND	ua/L	15.0	5.8	1	01/19/16 09:00	01/25/16 12:22	7782-49-2	
Silver	ND	ug/L	7.0	1.1	1	01/19/16 09:00	01/25/16 12:22	7440-22-4	
7470 Mercury	Analytical	Method: EPA 7	470 Prepara	ation Meth	od: EPA	7470			
Mercury	ND	ug/L	0.20	0.012	1	01/20/16 01:30	01/21/16 10:06	7439-97-6	
8270 MSSV PAH by SIM	Analytical	Method: EPA 8	270C by SIM	1 Prepara	tion Met	hod: EPA 3510C			
Acenaphthene	ND	ug/L	0.091	0.013	1	01/20/16 00:00	01/22/16 20:36	83-32-9	
Acenaphthylene	ND	ug/L	0.091	0.015	1	01/20/16 00:00	01/22/16 20:36	208-96-8	
Anthracene	ND	ug/L	0.091	0.013	1	01/20/16 00:00	01/22/16 20:36	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.091	0.012	1	01/20/16 00:00	01/22/16 20:36	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.091	0.010	1	01/20/16 00:00	01/22/16 20:36	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.091	0.011	1	01/20/16 00:00	01/22/16 20:36	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.091	0.010	1	01/20/16 00:00	01/22/16 20:36	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.091	0.012	1	01/20/16 00:00	01/22/16 20:36	207-08-9	
Chrysene	ND	ug/L	0.091	0.010	1	01/20/16 00:00	01/22/16 20:36	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.091	0.015	1	01/20/16 00:00	01/22/16 20:36	53-70-3	
Fluoranthene	ND	ug/L	0.45	0.017	1	01/20/16 00:00	01/22/16 20:36	206-44-0	
Fluorene	ND	ug/L	0.091	0.012	1	01/20/16 00:00	01/22/16 20:36	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.091	0.014	1	01/20/16 00:00	01/22/16 20:36	193-39-5	
Naphthalene	0.29J	ug/L	0.45	0.042	1	01/20/16 00:00	01/22/16 20:36	91-20-3	
Phenanthrene	0.053J	ug/L	0.45	0.022	1	01/20/16 00:00	01/22/16 20:36	85-01-8	
Pyrene	ND	ug/L	0.091	0.027	1	01/20/16 00:00	01/22/16 20:36	129-00-0	
Surrogates		0							
2-Fluorobiphenyl (S)	51	%	39-85		1	01/20/16 00:00	01/22/16 20:36	321-60-8	
Terphenyl-d14 (S)	70	%	48-95		1	01/20/16 00:00	01/22/16 20:36	1718-51-0	
8260/OA1 UST, Water	Analytical	Method: EPA 8	260/OA1						
Benzene	0.12J	ug/L	1.0	0.060	1		01/21/16 17:35	71-43-2	
Toluene	ND	ug/L	1.0	0.17	1		01/21/16 17:35	108-88-3	
Ethylbenzene	ND	ug/L	1.0	0.18	1		01/21/16 17:35	100-41-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		01/21/16 17:35	1330-20-7	
Surrogates		-							
Toluene-d8 (S)	99	%	80-120		1		01/21/16 17:35	2037-26-5	
4-Bromofluorobenzene (S)	99	%	77-130		1		01/21/16 17:35	460-00-4	



Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211351

Sample: DUP-1-GW	Lab ID:	Lab ID: 60211351003			6 08:00	Received: 01	/15/16 08:50 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/OA1 UST, Water	Analytical	Method: EPA 8	260/OA1						
Surrogates									
1,2-Dichloroethane-d4 (S)	105	%	81-127		1		01/21/16 17:35	17060-07-0	
Preservation pH	1.0		0.10	0.10	1		01/21/16 17:35		
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	0.00						
Bromide	92.1	mg/L	50.0	25.0	50		01/20/16 20:37	24959-67-9	
Chloride	5330	mg/L	500	250	500		01/20/16 20:51	16887-00-6	
Fluoride	4.0J	mg/L	10.0	3.6	50		01/20/16 20:37	16984-48-8	D3
Sulfate	613	mg/L	50.0	12.4	50		01/20/16 20:37	14808-79-8	



Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211351

Sample: EB-01	Lab ID:	60211351004	Collected	1: 01/14/16	6 15:15	:15 Received: 01/15/16 08:50 Matrix: Water			
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical	Method: EPA 6	010 Prepar	ation Metho	od: EPA	3010			
Arsenic	ND	ug/L	10.0	4.5	1	01/19/16 09:00	01/25/16 12:24	7440-38-2	
Barium	1.2J	ug/L	10.0	0.52	1	01/19/16 09:00	01/25/16 12:24	7440-39-3	
Cadmium	ND	ug/L	5.0	0.56	1	01/19/16 09:00	01/25/16 12:24	7440-43-9	
Chromium	1.7J	ug/L	5.0	0.96	1	01/19/16 09:00	01/25/16 12:24	7440-47-3	
Lead	ND	ug/L	5.0	1.9	1	01/19/16 09:00	01/25/16 16:55	7439-92-1	
Selenium	ND	ug/L	15.0	5.8	1	01/19/16 09:00	01/25/16 12:24	7782-49-2	
Silver	ND	ug/L	7.0	1.1	1	01/19/16 09:00	01/25/16 12:24	7440-22-4	
7470 Mercury	Analytical	Method: EPA 7	470 Prepar	ation Metho	od: EPA	7470			
Mercury	ND	ug/L	0.20	0.012	1	01/20/16 01:30	01/21/16 10:08	7439-97-6	
8270 MSSV PAH by SIM	Analytical	Method: EPA 8	270C by SI	V Preparat	tion Met	hod: EPA 3510C			
Acenaphthene	ND	ug/L	0.091	0.013	1	01/20/16 00:00	01/22/16 20:58	83-32-9	
Acenaphthylene	ND	ug/L	0.091	0.015	1	01/20/16 00:00	01/22/16 20:58	208-96-8	
Anthracene	ND	ug/L	0.091	0.013	1	01/20/16 00:00	01/22/16 20:58	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.091	0.012	1	01/20/16 00:00	01/22/16 20:58	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.091	0.010	1	01/20/16 00:00	01/22/16 20:58	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.091	0.011	1	01/20/16 00:00	01/22/16 20:58	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.091	0.010	1	01/20/16 00:00	01/22/16 20:58	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.091	0.012	1	01/20/16 00:00	01/22/16 20:58	207-08-9	
Chrysene	ND	ug/L	0.091	0.010	1	01/20/16 00:00	01/22/16 20:58	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.091	0.015	1	01/20/16 00:00	01/22/16 20:58	53-70-3	
Fluoranthene	ND	ug/L	0.45	0.017	1	01/20/16 00:00	01/22/16 20:58	206-44-0	
Fluorene	ND	ug/L	0.091	0.012	1	01/20/16 00:00	01/22/16 20:58	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.091	0.014	1	01/20/16 00:00	01/22/16 20:58	193-39-5	
Naphthalene	ND	ug/L	0.45	0.042	1	01/20/16 00:00	01/22/16 20:58	91-20-3	
Phenanthrene	0.047J	ug/L	0.45	0.022	1	01/20/16 00:00	01/22/16 20:58	85-01-8	
Pyrene	ND	ug/L	0.091	0.027	1	01/20/16 00:00	01/22/16 20:58	129-00-0	
Surrogates		Ū.							
2-Fluorobiphenyl (S)	51	%	39-85		1	01/20/16 00:00	01/22/16 20:58	321-60-8	
Terphenyl-d14 (S)	64	%	48-95		1	01/20/16 00:00	01/22/16 20:58	1718-51-0	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	0.00						
Bromide	ND	mg/L	1.0	0.50	1		01/20/16 16:46	24959-67-9	
Chloride	ND	mg/L	1.0	0.50	1		01/20/16 16:46	16887-00-6	
Fluoride	ND	mg/L	0.20	0.073	1		01/20/16 16:46	16984-48-8	
Sulfate	ND	ma/L	1.0	0.25	1		01/20/16 16:46	14808-79-8	



Project: E	BYRD PUMP INV	ESTIGATION									
Pace Project No.: 6	0211351										
QC Batch:	GCV/5293		Analysis I	Method:	EPA	A 5030B/80	15B				
QC Batch Method:	EPA 5030B/8015	5B	Analysis [Description:	Gas	Gasoline Range Organics					
Associated Lab Samp	les: 60211351	001, 6021135100	2, 60211351003	3							
METHOD BLANK: 1	699129		Mat	rix: Water							
Associated Lab Samp	les: 60211351	001, 6021135100	2, 60211351003	3							
			Blank	Report	ng						
Parame	ter	Units	Result	Limit		MDL	Analy	zed	Qualifiers		
TPH-GRO		mg/L	0.03	6J	0.50	0.0	01/19/16	11:17			
4-Bromofluorobenzen	e (S)	%	9	97 8	2-114		01/19/16	11:17			
LABORATORY CONT	ROL SAMPLE:	1699130									
			Spike	LCS	L	CS	% Rec				
Parame	ter	Units	Conc.	Result	%	Rec	Limits	Qualifi	ers		
TPH-GRO		mg/L	1	1.0		105	68-110				
4-Bromofluorobenzen	e (S)	%				97	82-114				

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REPORT OF LABORATORY ANALYSIS

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Project:	BYRD PUMP INVE	ESTIGATION										
Pace Project No.:	60211351											
QC Batch:	MERP/10270		Analys	is Method:	E	PA 7470						
QC Batch Method:	EPA 7470		Analys	is Descript	ion: 7	470 Mercur	у					
Associated Lab Sar	nples: 60211351	001, 60211351002,	60211351	003, 60211	351004							
METHOD BLANK:	1699792		Ν	Aatrix: Wat	ter							
Associated Lab Sar	nples: 60211351	001, 60211351002,	60211351	003, 60211	351004							
			Blank	: Re	eporting							
Paran	neter	Units	Resul	t	Limit	MDL		Analyzed	Qu	alifiers		
Mercury		ug/L		ND	0.20	0 0	0.046 01	/21/16 11:42	2			
LABORATORY COI	NTROL SAMPLE:	1699793										
			Spike	LCS	;	LCS	% Re	C				
Paran	neter	Units	Conc.	Resu	lt	% Rec	Limit	s Qi	ualifiers	_		
Mercury		ug/L	5		5.7	114	8	0-120				
MATRIX SPIKE & M	IATRIX SPIKE DUP	LICATE: 16997	94		1699795							
			MS	MSD								
_		60211350001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	- ·
Paramete	er Uni	ts Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Mercury	ug/	L ND	5	5	0.87	0.78	17	16	75-125	10	20	M1

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Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211351

QC Batch:	MPRP/3464	Analysis Method:	EPA 6010
QC Batch Method:	EPA 3010	Analysis Description:	6010 MET
Associated Lab Samp	oles: 60211	351001, 60211351002, 60211351003, 60211351004	

 METHOD BLANK:
 1698900
 Matrix:
 Water

 Associated Lab Samples:
 60211351001, 60211351002, 60211351003, 60211351004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analvzed	Qualifiers
Arsenic	uq/l			4.5	01/25/16 11:56	
Barium	ug/L	ND	10.0	0.52	01/25/16 11:56	
Cadmium	ug/L	ND	5.0	0.56	01/25/16 11:56	
Chromium	ug/L	ND	5.0	0.96	01/25/16 11:56	
Lead	ug/L	ND	5.0	1.9	01/25/16 16:27	
Selenium	ug/L	ND	15.0	5.8	01/25/16 11:56	
Silver	ug/L	ND	7.0	1.1	01/25/16 11:56	

LABORATORY CONTROL SAMPLE: 1698901

		Spike	LCS	LCS	% Rec	0 11/1
Parameter	Units	Conc	Result	% Rec	Limits	Qualifiers
Arsenic	ug/L	1000	993	99	80-120	
Barium	ug/L	1000	1010	101	80-120	
Cadmium	ug/L	1000	1020	102	80-120	
Chromium	ug/L	1000	988	99	80-120	
Lead	ug/L	1000	953	95	80-120	
Selenium	ug/L	1000	1040	104	80-120	
Silver	ug/L	500	493	99	80-120	

MATRIX SPIKE & MATRIX SPIK												
			MS	MSD								
		60211350001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Arsenic	ug/L		1000	1000	1080	1090	107	108	75-125	1	20	
Barium	ug/L	255	1000	1000	1280	1280	103	102	75-125	1	20	
Cadmium	ug/L	0.76J	1000	1000	1110	1110	111	111	75-125	0	20	
Chromium	ug/L	1.7J	1000	1000	936	943	93	94	75-125	1	20	
Lead	ug/L	ND	1000	1000	902	900	90	90	75-125	0	20	
Selenium	ug/L	ND	1000	1000	1070	1070	107	107	75-125	0	20	
Silver	ug/L	ND	500	500	555	555	111	111	75-125	0	20	

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Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211351

QC Batch:	MSV/73845
QC Batch Method:	EPA 8260/OA1

Analysis Method:

Analysis Description: 8260/OA1 UST-WATER

EPA 8260/OA1

Associated Lab Samples: 60211351001, 60211351002, 60211351003

		-	
METHOD BLANK:	170043	3	

Associated Lab Samples: 6	0211351001, 60211351002, 6	0211351003				
		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	0.060	01/21/16 12:06	
Ethylbenzene	ug/L	ND	1.0	0.18	01/21/16 12:06	
Toluene	ug/L	ND	1.0	0.17	01/21/16 12:06	
Xylene (Total)	ug/L	ND	3.0	0.42	01/21/16 12:06	
1,2-Dichloroethane-d4 (S)	%	103	81-127		01/21/16 12:06	
4-Bromofluorobenzene (S)	%	98	77-130		01/21/16 12:06	
Toluene-d8 (S)	%	99	80-120		01/21/16 12:06	

Matrix: Water

LABORATORY CONTROL SAMPLE: 1700434

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Benzene	ug/L	20	19.1	96	79-116	
Ethylbenzene	ug/L	20	18.1	91	81-110	
Toluene	ug/L	20	18.0	90	82-111	
Xylene (Total)	ug/L	60	53.6	89	80-111	
1,2-Dichloroethane-d4 (S)	%			105	81-127	
4-Bromofluorobenzene (S)	%			98	77-130	
Toluene-d8 (S)	%			98	80-120	

MATRIX SPIKE & MATRIX SP	IKE DUPLIC	CATE: 170043	35		1700436							
		60211325004	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Benzene	ug/L	ND	20	20	17.8	19.4	89	97	37-151	9	40	
Ethylbenzene	ug/L	ND	20	20	16.4	18.1	82	90	29-151	10	45	
Toluene	ug/L	ND	20	20	16.9	18.5	85	92	37-147	9	43	
Xylene (Total)	ug/L	ND	60	60	48.5	53.1	81	88	27-156	9	46	
1,2-Dichloroethane-d4 (S)	%						104	107	81-127			
4-Bromofluorobenzene (S)	%						99	100	77-130			
Toluene-d8 (S)	%						100	100	80-120			
Preservation pH		1.0			1.0	1.0				0		

MATRIX SPIKE & MATRIX SPIK	37		1700438									
			MS	MSD								
		60211350001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Benzene	ug/L	1.0	20	20	20.9	20.5	99	97	37-151	2	40	

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Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211351

MATRIX SPIKE & MATRIX SP	IKE DUPLI	CATE: 170043	37 MS	MSD	1700438							
Parameter	Units	60211350001 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Ethylbenzene	ug/L	ND	20	20	18.0	18.3	89	91	29-151	2	45	
Toluene	ug/L	ND	20	20	18.3	18.4	92	92	37-147	1	43	
Xylene (Total)	ug/L	ND	60	60	53.6	53.9	89	90	27-156	1	46	
1,2-Dichloroethane-d4 (S)	%						107	107	81-127			
4-Bromofluorobenzene (S)	%						98	100	77-130			
Toluene-d8 (S)	%						98	99	80-120			
Preservation pH		1.0			1.0	1.0				0		

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Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211351

QC Batch:	OEXT/52796		Analysis Method:	EPA 8270C by SIM
QC Batch Method:	EPA 3510C		Analysis Description:	8270 Water PAH by SIM MSSV
Associated Lab Samp	oles: 6	0211351001, 60211351002, 602	211351003, 60211351004	

METHOD BLANK: 169948	Matrix: Water	
Associated Lab Samples:	60211351001, 60211351002,	60211351003, 60211351004

	Blan		Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Acenaphthene	ug/L	ND	0.10	0.014	01/22/16 13:44	
Acenaphthylene	ug/L	ND	0.10	0.017	01/22/16 13:44	
Anthracene	ug/L	ND	0.10	0.014	01/22/16 13:44	
Benzo(a)anthracene	ug/L	ND	0.10	0.013	01/22/16 13:44	
Benzo(a)pyrene	ug/L	ND	0.10	0.011	01/22/16 13:44	
Benzo(b)fluoranthene	ug/L	ND	0.10	0.012	01/22/16 13:44	
Benzo(g,h,i)perylene	ug/L	ND	0.10	0.011	01/22/16 13:44	
Benzo(k)fluoranthene	ug/L	ND	0.10	0.013	01/22/16 13:44	
Chrysene	ug/L	ND	0.10	0.011	01/22/16 13:44	
Dibenz(a,h)anthracene	ug/L	ND	0.10	0.017	01/22/16 13:44	
Fluoranthene	ug/L	ND	0.50	0.019	01/22/16 13:44	
Fluorene	ug/L	ND	0.10	0.013	01/22/16 13:44	
Indeno(1,2,3-cd)pyrene	ug/L	ND	0.10	0.015	01/22/16 13:44	
Naphthalene	ug/L	ND	0.50	0.046	01/22/16 13:44	
Phenanthrene	ug/L	ND	0.50	0.024	01/22/16 13:44	
Pyrene	ug/L	ND	0.10	0.030	01/22/16 13:44	
2-Fluorobiphenyl (S)	%	57	39-85		01/22/16 13:44	
Terphenyl-d14 (S)	%	67	48-95		01/22/16 13:44	

LABORATORY CONTROL SAMPLE: 1699485

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Acenaphthene	ug/L		7.1	71	44-106	
Acenaphthylene	ug/L	10	7.4	74	45-111	
Anthracene	ug/L	10	8.2	82	49-111	
Benzo(a)anthracene	ug/L	10	8.7	87	53-120	
Benzo(a)pyrene	ug/L	10	8.6	86	51-115	
Benzo(b)fluoranthene	ug/L	10	8.3	83	44-126	
Benzo(g,h,i)perylene	ug/L	10	8.8	88	39-122	
Benzo(k)fluoranthene	ug/L	10	8.6	86	48-115	
Chrysene	ug/L	10	8.2	82	42-98	
Dibenz(a,h)anthracene	ug/L	10	9.9	99	30-127	
Fluoranthene	ug/L	10	9.1	91	57-121	
Fluorene	ug/L	10	7.5	75	47-110	
Indeno(1,2,3-cd)pyrene	ug/L	10	8.8	88	35-126	
Naphthalene	ug/L	10	6.8	68	40-106	
Phenanthrene	ug/L	10	7.4	74	45-107	
Pyrene	ug/L	10	8.1	81	42-117	
2-Fluorobiphenyl (S)	%			63	39-85	
Terphenyl-d14 (S)	%			74	48-95	

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Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211351

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1699486 1699487												
			MS	MSD								
	6	0211350001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Acenaphthene	ug/L	ND	9.1	9.1	5.5	5.1	61	56	55-105	9	80	
Acenaphthylene	ug/L	ND	9.1	9.1	5.9	5.5	65	61	56-114	6	81	
Anthracene	ug/L	ND	9.1	9.1	7.4	6.8	82	75	51-123	9	85	
Benzo(a)anthracene	ug/L	ND	9.1	9.1	8.1	7.2	89	79	60-124	12	81	
Benzo(a)pyrene	ug/L	ND	9.1	9.1	7.9	6.9	87	76	63-113	13	80	
Benzo(b)fluoranthene	ug/L	ND	9.1	9.1	8.1	6.8	89	74	50-129	18	83	
Benzo(g,h,i)perylene	ug/L	ND	9.1	9.1	7.5	6.5	82	72	44-128	14	80	
Benzo(k)fluoranthene	ug/L	ND	9.1	9.1	7.4	6.8	81	74	59-107	9	79	
Chrysene	ug/L	ND	9.1	9.1	7.8	6.9	85	76	45-100	12	79	
Dibenz(a,h)anthracene	ug/L	ND	9.1	9.1	8.4	7.2	93	79	42-129	16	80	
Fluoranthene	ug/L	ND	9.1	9.1	8.7	7.6	95	84	62-124	12	82	
Fluorene	ug/L	ND	9.1	9.1	5.7	5.3	63	58	58-111	7	83	
Indeno(1,2,3-cd)pyrene	ug/L	ND	9.1	9.1	7.7	6.6	84	73	45-129	15	80	
Naphthalene	ug/L	0.33J	9.1	9.1	6.4	5.8	66	60	35-117	10	48	
Phenanthrene	ug/L	0.12J	9.1	9.1	6.7	6.1	72	66	53-103	9	79	
Pyrene	ug/L	ND	9.1	9.1	7.4	6.7	82	74	52-109	10	85	
2-Fluorobiphenyl (S)	%						50	48	39-85		78	
Terphenyl-d14 (S)	%						74	66	48-95		79	

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Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211351

QC Batch:	WETA/37799
QC Batch Method:	EPA 300.0

Analysis Method:EPA 300.0Analysis Description:300.0 IC Anions

Associated Lab Samples: 60211351001, 60211351002, 60211351003, 60211351004

METHOD BLANK: 1699579 Matrix: Water Associated Lab Samples: 60211351001, 60211351002, 60211351003, 60211351004

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Bromide	mg/L	ND	1.0	0.50	01/20/16 11:29	
Chloride	mg/L	ND	1.0	0.50	01/20/16 11:29	
Fluoride	mg/L	ND	0.20	0.073	01/20/16 11:29	
Sulfate	mg/L	ND	1.0	0.25	01/20/16 11:29	

LABORATORY CONTROL SAMPLE: 1699580

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	5	5.0	100	90-110	
Chloride	mg/L	5	4.9	97	90-110	
Fluoride	mg/L	2.5	2.6	104	90-110	
Sulfate	mg/L	5	5.0	99	90-110	

MATRIX SPIKE & MATRIX SPIK		CATE: 169958	81		1699582							
		60211350001	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Bromide	mg/L	38.8	125	125	141	140	82	81	80-120	0	15	
Chloride	mg/L	5060	2500	2500	7180	7140	85	83	80-120	1	15	
Fluoride	mg/L	2.1J	62.5	62.5	57.6	57.7	89	89	80-120	0	15	
Sulfate	mg/L	182	125	125	286	287	83	84	80-120	0	15	

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QUALIFIERS

Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211351

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

BATCH QUALIFIERS

Batch: GCV/5293

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

- D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
- M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BYRD PUMP INVESTIGATION

Pace Project No.: 60211351

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60211351001	MW-PS2	EPA 5030B/8015B	GCV/5293		
60211351002	MW-PS4	EPA 5030B/8015B	GCV/5293		
60211351003	DUP-1-GW	EPA 5030B/8015B	GCV/5293		
60211351001	MW-PS2	EPA 3010	MPRP/34643	EPA 6010	ICP/25405
60211351002	MW-PS4	EPA 3010	MPRP/34643	EPA 6010	ICP/25405
60211351003	DUP-1-GW	EPA 3010	MPRP/34643	EPA 6010	ICP/25405
60211351004	EB-01	EPA 3010	MPRP/34643	EPA 6010	ICP/25405
60211351001	MW-PS2	EPA 7470	MERP/10270	EPA 7470	MERC/10217
60211351002	MW-PS4	EPA 7470	MERP/10270	EPA 7470	MERC/10217
60211351003	DUP-1-GW	EPA 7470	MERP/10270	EPA 7470	MERC/10217
60211351004	EB-01	EPA 7470	MERP/10270	EPA 7470	MERC/10217
60211351001	MW-PS2	EPA 3510C	OEXT/52796	EPA 8270C by SIM	MSSV/17176
60211351002	MW-PS4	EPA 3510C	OEXT/52796	EPA 8270C by SIM	MSSV/17176
60211351003	DUP-1-GW	EPA 3510C	OEXT/52796	EPA 8270C by SIM	MSSV/17176
60211351004	EB-01	EPA 3510C	OEXT/52796	EPA 8270C by SIM	MSSV/17176
60211351001	MW-PS2	EPA 8260/OA1	MSV/73845		
60211351002	MW-PS4	EPA 8260/OA1	MSV/73845		
60211351003	DUP-1-GW	EPA 8260/OA1	MSV/73845		
60211351001	MW-PS2	EPA 300.0	WETA/37799		
60211351002	MW-PS4	EPA 300.0	WETA/37799		
60211351003	DUP-1-GW	EPA 300.0	WETA/37799		
60211351004	EB-01	EPA 300.0	WETA/37799		



Sample Condition Upon Receipt ESI Tech Spec Client

WO#:60211351

Client Name: BP Stantec		Optional
Courier: FedEx 🙇 UPS 🗆 VIA 🗆 Clay 🗆 PEX 🗆 ECI 🗆 F	Pace 🗆 Other 🗆 Client 🗆	Proj Due Date:
Tracking #: 6508 8163 4023 Pace Shipping Label Us	ed? Yes 🗆 No 🖊	Proj Name:
Custody Seal on Cooler/Box Present: Yes Z No D Seals intact: Yes	s 🗗 No 🗆	
Packing Material: Bubble Wrap D Bubble Bags B Feam	None 🗆 Other 🗆	
Thermometer Used: T-239 / T-262 Type of Ice: Wet Blue	None 🛛 Samples received on	ice, cooling process has begun.
Cooler Temperature:(, / (circle o	Date and initial	s of person examining
Temperature should be above freezing to 6°C	contents: pl	4/16 PU/15/16
Chain of Custody present:		
Chain of Custody filled out: Yes DNo DN/A 2		
Chain of Custody relinquished: ZiYes DNo DN/A 3	•	
Sampler name & signature on COC:		
Samples arrived within holding time:		
Short Hold Time analyses (<72hr):		
Rush Turn Around Time requested:	£	
Sufficient volume: Øves DNo DN/A 8		
Correct containers used:		
Pace containers used:		
Containers intact:	0.	
Unpreserved 5035A soils frozen w/in 48hrs?	1.	
Filtered volume received for dissolved tests?	2.	
Sample labels match COC:		
Includes date/time/ID/analyses Matrix: MT 1	3.	
All containers needing preservation have been checked.		
All containers needing preservation are found to be in compliance $\gamma_{Yes} \square N_0 \square N/A$ 1.	4.	
Exceptions: Too, Coliform, O&G, WI-DRO (water)	nitial when Lot #	of added
Trip Blank present:	prost	
Pace Trip Blank lot # (if purchased): 11 69(5-3	5.	
Headspace in VOA vials (>6mm):		
/ 1	6.	
Project sampled in USDA Regulated Area:	7. List State:	
Additional labels attached to 5035A vials in the field?	8.	
Client Notification/ Resolution: Copy COC to Client? 4 / N	Field Data Required? Y	/ N
Person Contacted: Date/Time:	Temp Lo when unp	g: Record start and finish times acking cooler, if >20 min, recheck
Comments/ Resolution:	sample te	mps.
	Start: //	Start:
Project Manager Poviewr	End: ///	End:
		remp:

F-KS-C-004-Rev.4, 30June 2015 Page 28 of 29

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Laboratory Management Program LaMP Chain of Custody Record

	Atlantic.	Laboratory	Mana	agen	nent	Pro	gran	n La	MP	Cha	uin o	fCL	isto	dy F	Seci	ord			34	Page	-	
	Kichtield	BP/ARC Project N	ame:	Byrd Pi	ump Sit	e Inve	stigatic	E				Req D	ue Da	te (m	/pp/u	í,	Li.	nde	wel	Rush TAT: Y	es .	No
	O A BP affiliated company	BP/ARC Facility N	:0	Byrd Pi	ump Sit	n						Lab M	/ork O	rder I	dmu	ü		6		(4031135)	5 602	1351
Lab r	ame: Pace Analytical Services, Inc.		-	BP/ARC	Facility	Addres	10	15 Joa	nne Lar	e					Con	sultant/(Contrac	tor:	Stant	ec Consulting		
Lab /	ddress: 9608 Loiret Blvd			City, Sta	te, ZIP (:ode:		Monum	ient, NN	_					Con	sultant/(Contrac	tor Pro	ect No:		-	82630008
Lab	M: Alice Flanagan			Lead Re	gulatory	Agency		NM OC	Q						Addi	ess:	3770 G	lion Rc	Ste B	ndianapolis, IN 46268		
Lab F	hane: 916-563-1409			Californi	a Global	ID No.		NA							Con	sultant/(Contrac	tor PM:	Susar	I Hall		
Lab \$	hipping Accrit:			Enfos P	oposal I	:0		DABDD	-002						Phoi	ë	317-876	-8375				
Lab E	ottle Order No:			Account	ing Mode		Prov	ision	×	OC-BL		000	RM	1	Ema	EDD .	Lo: Sl	sn.hall	Østante	c.com		
Othe	Info:			Stage:	4_Exe	sute	Ac	ivity: F	roject	Sper	p				Invo	ce To:		BP/AR	×	Contractor	1	
BP/A	3C EBM: Sergio Morescalchi			Ŵ	atrix	z	o. Cor	tainei	s / Pre	serva	tive			Req	ueste	d Ana	yses			Report Type	& QC Le	vel
EBM	Phone: 925-487-0940					s			_				-		2'9 7	0.00		201		Stand	ard 🗶	
EBM	Email: Sergio Morescalchi@bp.com					nenis						89	3 89		C / 2	5 (ete	1	00 1		Full Data Packs	ige	
Lab No.	Sample Description	Date	e	Soil / Solid Water / Liquid	Air / Vapor	Total Number of Cont	Dnpreserved	[†] OS ^z H	HCI HNO ³	Methanol		гов ояд-нат		PAH 8310	RCRA METALS 6010	Anions (Br, Cl, Fl,Sulf	Nitrate / Nitriate 9056	, BVI (011 KB) - 26400		Comn Note: If sample not colle Sample" in comments a and initial any preprinter	nents scted, indica nd single-st	te "No ike out scription.
	MIN-PS2	1/14/10 14C	2	\times		0 jc	3		2				ω	3			2464	4 18	29	1892 6061	*	(m
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Samp	ler's Name: A. How Kins			-	Re	inguis	hed E	y / Afi	iliatio			Dat		Time	Ц	-	Accep	ted B	/ Affil	iation	Date	Time
Samp	ler's Company: Stauter Co	ins withing		D	CH	A	2	7	Stau	242(1/14	14	730	0	Mi	2	#St			11211	080
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Spe	Bal Instructions:																					ſ
	THIS LINE - LAB USE ONLY: Custor	ly Seals In Place	No No	Ter	p Blank	Yes	0	Š	ller Ten	Ip on R	eceipt:	~	Ĵ	2	Ŧ	ip Blan	Ì	Ŷ	MS	/MSD Sample Submit	ted: Yes /	(%)



Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa, KS 66219 (913)599-5665

March 14, 2016

Susan Hall BP Stantec 8770 Guion Rd. Ste B Indianapolis, IN 46268

RE: Project: BP Byrd Pump Site Investigatio Pace Project No.: 60214252

Dear Susan Hall:

Enclosed are the analytical results for sample(s) received by the laboratory on March 04, 2016. The results relate only to the samples included in this report. Results contained within this report conform to the most current version of the TNI standards, BP LaMP Technical Requirements Revision 10.1, and any applicable Quality Assurance Project Plan (QAPP), or Work Plan unless otherwise narrated in the body of this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Alice Glanazan

Alice Flanagan alice.flanagan@pacelabs.com Project Manager

Enclosures





CERTIFICATIONS

Project: BP Byrd Pump Site Investigatio

Pace Project No.: 60214252

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219 WY STR Certification #: 2456.01 Arkansas Certification #: 15-016-0 Illinois Certification #: 003097 Iowa Certification #: 118 Kansas/NELAP Certification #: E-10116 Louisiana Certification #: 03055 Nevada Certification #: KS000212008A Oklahoma Certification #: 9205/9935 Texas Certification #: T104704407 Utah Certification #: KS00021 Kansas Field Laboratory Accreditation: # E-92587



SAMPLE SUMMARY

Project: BP Byrd Pump Site Investigatio

Pace Project No.: 60214252

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60214252001	MW-PS1-030316	Water	03/03/16 14:35	03/04/16 08:40
60214252002	MW-PS2-030316	Water	03/03/16 13:23	03/04/16 08:40
60214252003	MW-PS3-030316	Water	03/03/16 15:45	03/04/16 08:40
60214252004	MW-PS4-030316	Water	03/03/16 12:16	03/04/16 08:40
60214252005	MW-DUP-030316	Water	03/03/16 00:00	03/04/16 08:40



SAMPLE ANALYTE COUNT

Project: BP Byrd Pump Site Investigatio

Pace Project No.: 60214252

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60214252001	MW-PS1-030316	EPA 8015B	ACW	3	PASI-K
		EPA 6010	JGP	4	PASI-K
		SM 2540C	LJS	1	PASI-K
		EPA 353.2	AJM	2	PASI-K
60214252002	MW-PS2-030316	EPA 8015B	ACW	3	PASI-K
		EPA 6010	JGP	4	PASI-K
		SM 2540C	LJS	1	PASI-K
		EPA 353.2	AJM	2	PASI-K
60214252003	MW-PS3-030316	EPA 8015B	ACW	3	PASI-K
		EPA 6010	JGP	4	PASI-K
		SM 2540C	LJS	1	PASI-K
		EPA 353.2	AJM	2	PASI-K
60214252004	MW-PS4-030316	EPA 8015B	ACW	3	PASI-K
		EPA 6010	JGP	4	PASI-K
		SM 2540C	LJS	1	PASI-K
		EPA 353.2	AJM	2	PASI-K
60214252005	MW-DUP-030316	EPA 8015B	ACW	3	PASI-K
		EPA 6010	JGP	4	PASI-K
		SM 2540C	LJS	1	PASI-K
		EPA 353.2	AJM	2	PASI-K



Project: BP Byrd Pump Site Investigatio

Pace Project No.: 60214252

Method: EPA 8015B

Description:8015B Diesel Range OrganicsClient:BP Stantec TXDate:March 14, 2016

General Information:

5 samples were analyzed for EPA 8015B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3510C with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:



Project: BP Byrd Pump Site Investigatio

Pace Project No.: 60214252

Method:EPA 6010Description:6010 MET ICPClient:BP Stantec TX

Date: March 14, 2016

General Information:

5 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/35094

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60214252001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1720697)
 - Calcium
 - Magnesium
 - Sodium
- MSD (Lab ID: 1720698)
 - Calcium
 - Magnesium
 - Sodium

Additional Comments:



Project: BP Byrd Pump Site Investigatio

Pace Project No.: 60214252

Method: SM 2540C

Description:2540C Total Dissolved SolidsClient:BP Stantec TXDate:March 14, 2016

General Information:

5 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:



Project: BP Byrd Pump Site Investigatio

Pace Project No.: 60214252

Method: EPA 353.2

Description:353.2 Nitrogen, NO2/NO3 unpresClient:BP Stantec TXDate:March 14, 2016

General Information:

5 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.



Project: BP Byrd Pump Site Investigatio

Pace Project No.: 60214252

Sample: MW-PS1-030316	Lab ID:	60214252001	Collecte	d: 03/03/16	5 14:35	Received: 03/	/04/16 08:40 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	8015B Prep	aration Met	hod: El	PA 3510C			
TPH-DRO Surrogates	0.59	mg/L	0.45	0.23	1	03/09/16 00:00	03/10/16 10:13		
p-Terphenyl (S)	108	%	18-135		1	03/09/16 00:00	03/10/16 10:13	92-94-4	
n-Tetracosane (S)	88	%	21-121		1	03/09/16 00:00	03/10/16 10:13	646-31-1	
6010 MET ICP	Analytical	Method: EPA 6	010 Prepa	ration Meth	od: EPA	A 3010			
Calcium	1100000	ug/L	500	40.7	5	03/07/16 15:30	03/10/16 11:21	7440-70-2	M1
Magnesium	486000	ug/L	250	79.0	5	03/07/16 15:30	03/10/16 11:21	7439-95-4	M1
Potassium	11100	ug/L	2500	643	5	03/07/16 15:30	03/10/16 11:21	7440-09-7	
Sodium	980000	ug/L	2500	104	5	03/07/16 15:30	03/10/16 11:21	7440-23-5	M1
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	11100	mg/L	5.0	5.0	1		03/05/16 14:13		
353.2 Nitrogen, NO2/NO3 unpres	Analytical	Method: EPA 3	353.2						
Nitrogen, Nitrate	ND	mg/L	0.10	0.012	1		03/04/16 13:24		
Nitrogen, Nitrite	ND	mg/L	0.10	0.010	1		03/04/16 13:24		



Project: BP Byrd Pump Site Investigatio

Pace Project No.: 60214252

Sample: MW-PS2-030316	Lab ID:	60214252002	Collected	d: 03/03/16	6 13:23	Received: 03/	04/16 08:40 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	015B Prep	aration Met	hod: EF	PA 3510C			
TPH-DRO Surrogates	0.60	mg/L	0.45	0.23	1	03/09/16 00:00	03/10/16 10:20		
p-Terphenyl (S)	108	%	18-135		1	03/09/16 00:00	03/10/16 10:20	92-94-4	
n-Tetracosane (S)	99	%	21-121		1	03/09/16 00:00	03/10/16 10:20	646-31-1	
6010 MET ICP	Analytical	Method: EPA 6	010 Prepa	ration Methe	od: EPA	3010			
Calcium	1120000	ug/L	500	40.7	5	03/07/16 15:30	03/10/16 11:36	7440-70-2	
Magnesium	456000	ug/L	250	79.0	5	03/07/16 15:30	03/10/16 11:36	7439-95-4	
Potassium	11300	ug/L	2500	643	5	03/07/16 15:30	03/10/16 11:36	7440-09-7	
Sodium	758000	ug/L	2500	104	5	03/07/16 15:30	03/10/16 11:36	7440-23-5	
2540C Total Dissolved Solids	Analytical	Method: SM 25	540C						
Total Dissolved Solids	10900	mg/L	5.0	5.0	1		03/05/16 14:14		
353.2 Nitrogen, NO2/NO3 unpres	Analytical	Method: EPA 3	53.2						
Nitrogen, Nitrate	ND	mg/L	0.10	0.012	1		03/04/16 13:27		
Nitrogen, Nitrite	ND	mg/L	0.10	0.010	1		03/04/16 13:27		



Project: BP Byrd Pump Site Investigatio

Pace Project No.: 60214252

Sample: MW-PS3-030316	Lab ID:	60214252003	Collected	d: 03/03/16	6 15:45	Received: 03/	/04/16 08:40 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	015B Prep	aration Met	hod: EF	PA 3510C			
TPH-DRO Surrogates	0.42J	mg/L	0.45	0.23	1	03/09/16 00:00	03/10/16 10:44		
p-Terphenyl (S)	92	%	18-135		1	03/09/16 00:00	03/10/16 10:44	92-94-4	
n-Tetracosane (S)	86	%	21-121		1	03/09/16 00:00	03/10/16 10:44	646-31-1	
6010 MET ICP	Analytical	Method: EPA 6	010 Prepa	ration Methe	od: EPA	3010			
Calcium	1670000	ug/L	500	40.7	5	03/07/16 15:30	03/10/16 11:40	7440-70-2	
Magnesium	828000	ug/L	250	79.0	5	03/07/16 15:30	03/10/16 11:40	7439-95-4	
Potassium	17400	ug/L	2500	643	5	03/07/16 15:30	03/10/16 11:40	7440-09-7	
Sodium	1880000	ug/L	2500	104	5	03/07/16 15:30	03/10/16 11:40	7440-23-5	
2540C Total Dissolved Solids	Analytical	Method: SM 25	540C						
Total Dissolved Solids	19000	mg/L	5.0	5.0	1		03/05/16 14:15		
353.2 Nitrogen, NO2/NO3 unpres	Analytical	Method: EPA 3	53.2						
Nitrogen, Nitrate	ND	mg/L	0.10	0.012	1		03/04/16 13:28		
Nitrogen, Nitrite	ND	mg/L	0.10	0.010	1		03/04/16 13:28		



Project: BP Byrd Pump Site Investigatio

Pace Project No.: 60214252

Sample: MW-PS4-030316	Lab ID:	60214252004	Collected: 03/03/16 12:16			Received: 03/			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	015B Prep	aration Met	hod: EF	PA 3510C			
TPH-DRO Surrogates	0.61	mg/L	0.45	0.23	1	03/09/16 00:00	03/10/16 10:51		
p-Terphenyl (S)	120	%	18-135		1	03/09/16 00:00	03/10/16 10:51	92-94-4	
n-Tetracosane (S)	115	%	21-121		1	03/09/16 00:00	03/10/16 10:51	646-31-1	
6010 MET ICP	Analytical	Method: EPA 6	010 Prepa	ration Methe	od: EPA	A 3010			
Calcium	978000	ug/L	500	40.7	5	03/07/16 15:30	03/10/16 11:52	7440-70-2	
Magnesium	520000	ug/L	250	79.0	5	03/07/16 15:30	03/10/16 11:52	7439-95-4	
Potassium	11500	ug/L	2500	643	5	03/07/16 15:30	03/10/16 11:52	7440-09-7	
Sodium	1320000	ug/L	2500	104	5	03/07/16 15:30	03/10/16 11:52	7440-23-5	
2540C Total Dissolved Solids	Analytical	Method: SM 25	540C						
Total Dissolved Solids	10800	mg/L	5.0	5.0	1		03/05/16 14:15		
353.2 Nitrogen, NO2/NO3 unpres	Analytical	Method: EPA 3	53.2						
Nitrogen, Nitrate	ND	mg/L	0.10	0.012	1		03/04/16 13:30		
Nitrogen, Nitrite	ND	mg/L	0.10	0.010	1		03/04/16 13:30		



Project: BP Byrd Pump Site Investigatio

Pace Project No.: 60214252

Sample: MW-DUP-030316	Lab ID:	60214252005	Collected: 03/03/16 00:00			Received: 03/			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical	Method: EPA 8	015B Prep	aration Met	hod: EF	PA 3510C			
TPH-DRO Surrogates	0.46	mg/L	0.45	0.23	1	03/09/16 00:00	03/10/16 10:59		
p-Terphenyl (S)	98	%	18-135		1	03/09/16 00:00	03/10/16 10:59	92-94-4	
n-Tetracosane (S)	94	%	21-121		1	03/09/16 00:00	03/10/16 10:59	646-31-1	
6010 MET ICP	Analytical	Method: EPA 6	010 Prepa	ration Meth	od: EPA	A 3010			
Calcium	1010000	ug/L	500	40.7	5	03/07/16 15:30	03/10/16 11:48	7440-70-2	
Magnesium	544000	ug/L	250	79.0	5	03/07/16 15:30	03/10/16 11:48	7439-95-4	
Potassium	11600	ug/L	2500	643	5	03/07/16 15:30	03/10/16 11:48	7440-09-7	
Sodium	1350000	ug/L	2500	104	5	03/07/16 15:30	03/10/16 11:48	7440-23-5	
2540C Total Dissolved Solids	Analytical	Method: SM 25	540C						
Total Dissolved Solids	10400	mg/L	5.0	5.0	1		03/05/16 14:16		
353.2 Nitrogen, NO2/NO3 unpres	Analytical	Method: EPA 3	53.2						
Nitrogen, Nitrate	ND	mg/L	0.10	0.012	1		03/04/16 13:31		
Nitrogen, Nitrite	ND	mg/L	0.10	0.010	1		03/04/16 13:31		



Project: BP Byrd Pump Site Investigatio

Pace Project No.: 60214252

QC Batch:	MPRF	//35094	Analysis Method:	EPA 6010
QC Batch Method:	EPA 3	010	Analysis Description:	6010 MET
Associated Lab Samp	les:	60214252001, 60214252002, 60	214252003, 60214252004,	, 60214252005

 METHOD BLANK:
 1720695
 Matrix:
 Water

 Associated Lab Samples:
 60214252001, 60214252002, 60214252003, 60214252004, 60214252005

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Calcium	ug/L	62.0J	100	8.1	03/10/16 10:24	
Magnesium	ug/L	ND	50.0	15.8	03/10/16 10:24	
Potassium	ug/L	ND	500	129	03/10/16 10:24	
Sodium	ug/L	ND	500	20.7	03/10/16 10:24	

LABORATORY CONTROL SAMPLE: 1720696

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	ug/L	10000	9880	99	80-120	
Magnesium	ug/L	10000	10500	105	80-120	
Potassium	ug/L	10000	10100	101	80-120	
Sodium	ug/L	10000	10200	102	80-120	

MATRIX SPIKE & MATRIX SPIK		CATE: 17206	97		1720698							
Parameter	Units	60214252001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	ug/L	1100000	10000	10000	1180000	1160000	800	590	75-125	2	20	M1
Magnesium	ug/L	486000	10000	10000	522000	518000	352	316	75-125	1	20	M1
Potassium	ug/L	11100	10000	10000	22800	22500	118	114	75-125	1	20	
Sodium	ug/L	980000	10000	10000	1060000	1040000	830	625	75-125	2	20	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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|--|

Pace Project No.: 60214252

QC Batch:	OEXT/53388	Analysis Method:	EPA 8015B
QC Batch Method:	EPA 3510C	Analysis Description:	EPA 8015B
Associated Lab Sam	oles: 60214252001 60214252002 60	0214252003 60214252004	60214252005

METHOD BLANK: 172176	<u>}9</u>	Matrix: Water	
Associated Lab Samples:	60214252001, 60214252002	2, 60214252003, 60214252004, 60214	252005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
TPH-DRO	mg/L	ND	0.50	0.25	03/10/16 09:42	
n-Tetracosane (S)	%	115	21-121		03/10/16 09:42	
p-Terphenyl (S)	%	100	18-135		03/10/16 09:42	
LABORATORY CONTROL SAMPLE:	1721770					

Parameter	Units	Spike	LCS Result	LCS % Rec	% Rec	Qualifiers
				70 1100		Qualificity
TPH-DRO	mg/L	12.5	12.2	97	53-107	
n-Tetracosane (S)	%			113	21-121	
p-Terphenyl (S)	%			108	18-135	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1721771					1721772							
			MS	MSD								
	60214252001		Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
TPH-DRO	mg/L	0.59	11.4	11.4	12.8	11.6	108	97	24-128	10	35	
n-Tetracosane (S)	%						115	104	21-121		30	
p-Terphenyl (S)	%						126	114	18-135		30	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.


QUALITY CONTROL DATA

Project: E	BP Byrd Pump Sit	te Investigatio							
Pace Project No.: 6	60214252								
QC Batch:	WET/60440		Analysis M	lethod:	SM 2540C				
QC Batch Method:	SM 2540C		Analysis D	escription:	2540C Total Di	issolved Solids			
Associated Lab Samp	oles: 60214252	2001, 6021425200	2, 60214252003	, 60214252004,	60214252005				
METHOD BLANK:	1720234		Matri	x: Water					
Associated Lab Samp	oles: 60214252	2001, 6021425200	2, 60214252003	, 60214252004,	60214252005				
Deven		l la ita	Blank	Reporting		A is a h is	l	Qualifiana	
Parame	eter	Units	Result		MDL	Anaiyz	ea	Qualifiers	
Total Dissolved Solids	6	mg/L	NI	D 5	.0	5.0 03/05/16	14:08		
LABORATORY CONT	FROL SAMPLE:	1720235				_			
Parame	eter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qua	alifiers	
Total Dissolved Solids	3	mg/L	1000	950	95	80-120			
SAMPLE DUPLICATE	E: 1720236								
			60214081001	Dup		Max			
Parame	eter	Units	Result	Result	RPD	RPD		Qualifiers	
Total Dissolved Solids	3	mg/L	1120	0 1060	00	6	10		
	. 4700040								
SAMPLE DUPLICATE	E. 1720240		60214252001	Dup		Мах			
Parame	eter	Units	Result	Result	RPD	RPD		Qualifiers	
Total Dissolved Solids	3	mg/L	1110	0 1220	00	9	10		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project:	BP Byrd Pump Si	te Investigatio						
Pace Project No.:	60214252							
QC Batch:	WETA/38365		Analysis Me	ethod:	EPA 353.2			
QC Batch Method:	EPA 353.2		Analysis De	scription:	353.2 Nitrate + N	litrite, Unpres.		
Associated Lab Sar	mples: 60214252	2001, 60214252002	, 60214252003,	60214252004,	60214252005			
METHOD BLANK:	1719792		Matrix	: Water				
Associated Lab Sar	mples: 60214252	2001, 60214252002	, 60214252003,	60214252004,	60214252005			
			Blank	Reporting				
Paran	neter	Units	Result	Limit	MDL	Analyzed	Qualifiers	i
Nitrogen, Nitrate		mg/L	ND	0.1	0.01	2 03/04/16 13:22	:	
Nitrogen, Nitrite		mg/L	ND	0.1	10 0.01	0 03/04/16 13:22	:	
LABORATORY COI	NTROL SAMPLE:	1719793						
			Spike	LCS	LCS	% Rec		
Paran	neter	Units	Conc.	Result	% Rec	Limits Qu	alifiers	
Nitrogen, Nitrate		mg/L	1.6	1.7	106	85-115		
Nitrogen, Nitrite		mg/L	.4	0.38	95	90-110		
MATRIX SPIKE SAI	MPLE:	1719794						
			6021425200	1 Spike	MS	MS	% Rec	
Paran	neter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Nitrogen, Nitrate		mg/L	I	ND 1.6	1.8	111	85-115	
Nitrogen, Nitrite		mg/L	I	ND .4	0.38	95	90-110	
SAMPLE DUPLICA	TE: 1719795							
			60214252003	Dup		Max		
Paran	neter	Units	Result	Result	RPD	RPD	Qualifiers	
Nitrogen, Nitrate		mg/L	ND	Ν	ID	20		
Nitrogen, Nitrite		mg/L	ND	Ν	ID	20		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: BP Byrd Pump Site Investigatio

Pace Project No.: 60214252

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BP Byrd Pump Site Investigatio

Pace Project No.: 60214252

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60214252001	MW-PS1-030316	EPA 3510C	OEXT/53388	EPA 8015B	GCSV/20645
60214252002	MW-PS2-030316	EPA 3510C	OEXT/53388	EPA 8015B	GCSV/20645
60214252003	MW-PS3-030316	EPA 3510C	OEXT/53388	EPA 8015B	GCSV/20645
60214252004	MW-PS4-030316	EPA 3510C	OEXT/53388	EPA 8015B	GCSV/20645
60214252005	MW-DUP-030316	EPA 3510C	OEXT/53388	EPA 8015B	GCSV/20645
60214252001	MW-PS1-030316	EPA 3010	MPRP/35094	EPA 6010	ICP/25702
60214252002	MW-PS2-030316	EPA 3010	MPRP/35094	EPA 6010	ICP/25702
60214252003	MW-PS3-030316	EPA 3010	MPRP/35094	EPA 6010	ICP/25702
60214252004	MW-PS4-030316	EPA 3010	MPRP/35094	EPA 6010	ICP/25702
60214252005	MW-DUP-030316	EPA 3010	MPRP/35094	EPA 6010	ICP/25702
60214252001	MW-PS1-030316	SM 2540C	WET/60440		
60214252002	MW-PS2-030316	SM 2540C	WET/60440		
60214252003	MW-PS3-030316	SM 2540C	WET/60440		
60214252004	MW-PS4-030316	SM 2540C	WET/60440		
60214252005	MW-DUP-030316	SM 2540C	WET/60440		
60214252001	MW-PS1-030316	EPA 353.2	WETA/38365		
60214252002	MW-PS2-030316	EPA 353.2	WETA/38365		
60214252003	MW-PS3-030316	EPA 353.2	WETA/38365		
60214252004	MW-PS4-030316	EPA 353.2	WETA/38365		
60214252005	MW-DUP-030316	EPA 353.2	WETA/38365		

REPORT OF LABORATORY ANALYSIS

Pace Analytical

Sample Condition Upon Receipt ESI Tech Spec Client

WO#:60214252

Client Name: RP Ston +PC	Optional
	Pace Other Client Proj Due Date:
Tracking #: 6000/652247 Pace Shipping Label	Ised? Yes D No D Proi Name:
Custody Seal on Cooler/Box Present: Yes No Seals intact:	/est No D
Packing Material: Bubble Wrap Bubble Bags Foam	□ None □ Other □
Thermometer Used: T-239 (T-262) Type of Ice: Wet BI	ue None D Samples received on ice, cooling process has begun.
Cooler Temperature: <u>3.</u> (circle	Date and initials of person examining
Temperature should be above freezing to 6°C	10 3/9/16
Chain of Custody present:	1
Chain of Custody filled out:	2
Chain of Custody relinquished:	3.
Sampler name & signature on COC:	4.
Samples arrived within holding time:	5
Short Hold Time analyses (<72hr):	6. NOZ NOZ
Rush Turn Around Time requested:	7
Sufficient volume:	8.
Correct containers used:	
Pace containers used:	9
Containers intact:	10.
Unpreserved 5035A soils frozen w/in 48hrs?	11,
Filtered volume received for dissolved tests?	12.
Sample labels match COC:	
Includes date/time/ID/analyses Matrix:	13.
All containers needing preservation have been checked.	
All containers needing preservation are found to be in compliance $M_{es} \square N_0 \square N/A$	14.
Exceptions: VOA. Coliform, O&G, WI-DRO (water)	Initial when Lot # of added
Trip Blank present:	
Pace Trip Blank lot # (if purchased)	15.
Headspace in VOA vials (>6mm):	J
	16.
	17 List State:
Additional labels attached to 5035A vials in the field?	18
Client Notification/ Resolution: Copy COC to Client?	Field Data Required? Y / N
Person Contacted: Date/Time:	Temp Log: Record start and finish times when unpacking cooler, if >20 min, recheck
Comments/ Resolution:	sample temps.
	Start: 69 40 Start:
Ann	End: 943 End:
Project Manager Review:	Date: 74 110 [Temp: Temp: E-KS-C-004-Rev 4_30.lune 2013

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<		C	Q
8		-	

Laboratory Management Program LaMP Chain of Custody Record U021435 Page 1 of 1

 Investigation
Bvrd Pump Site
RC Project Name:
A

	O A BP affiliated company	BP/ARC Fac	ility No:	Byrd Pump S	fe				Lab	Work	Order	Mumb	Le						
Lab N	ame: Pace Analytical Services, Inc.			BP/ARC Facility	/ Address:	15 J	oanne La	ē				Cons	sultant/(Contract	or:	Stant	ec Consulting		
Lab A	ddress: 9608 Loiret Blvd			City, State, ZIP	Code:	Mon	ument, NI	5				Cons	sultant/(Contract	or Proje	ct No:			182630008
Lab F	M: Alice Flanagan			Lead Regulator	y Agency:	ŴN	G					Addr	ess:	1770 GL	ion Rd.	Ste B	Indianapolis, IN 462	268	
Lab F	hone: 916-563-1409			California Globs	al ID No.	AN						Cons	sultant/(contract	or PM:	Susa	n Hall		
Lab S	hipping Accnt:			Enfos Proposal	No:	1600	D-002					Phor	iei iei	17-876	-8375				
Lab E	ottle Order No:			Accounting Mod	le:	Provision	×	DOC-BU	8	C-RM	Ĩ	Emai	I EDD .	o: su	sn.hall@	stante	c.com		
Other	Info:			Stage: 4_Exe	ecute	Activity:	Projec	t Spend				Invoi	ce To:		3P/ARC	×	Contractor	l	
BP/A	3C EBM: Sergio Morescalchi			Matrix	No.	Contair	ers / Pr	eservati	/e		Req	ueste	d Anal	yses			Report Ty	pe & QC L	evel
EBM	Phone: 925-487-0940				s	_			_			7.84	0.00	501			Sta	ndard 🗙	
EBM	Email: Sergio.Morescalchi@bp.com				ainer				89	88	8	C / 5	ate) 3	K 60.	00.11		Full Data Pa	ckage	
Lab No.	Sample Description	Date	Time	Soil / Solid Water / Liquid Air / Vapor	Total Number of Coni	H ⁵ 2O [¢]	°ONH	Nethanol	108 OAG-H9T	гоя ояо-нат	BTEX 8260E	RCRA METALS 6010	Anions (Br, Cl, Fl,Sulf	Nitrate / Nitriate 9056/	TDS 160, 1/SM 2540C	マヌロリシロ	Cor Note: If sample not c Sample" in comment and initial any prepri	mments collected, indic is and single-s	ate "No titrike out escription.
	MW-PSI-030316	3310	1435	X	123	~~	2		X					$\widehat{\times}$	\times	\times	(METW 3BP311	38/30	
	MW-PSZ-030316		1323	Ι X Ι	[4] ·	3	1		X					XX	×		2 AG4 NB PBUN	1893N ²⁻	0
	MW-P53-030316		1545		h	2	-		X					XIS	イン				
	MW-754-030316		1216	X	네	2	1		X					(X)	X				
	MW-DUP-030316			X X	141	2	ļ		X					X	X		4 4	*	
	TTA Blanc				6	+		6	+	T	\star		1	-			# 33	110	
	7					_			_										
						+			+										
Samp	iers Name: Tuler Hear	1.85			linquishe	d By / /	Vffiliatio			ate	Time			Accep	led By	/ Affii	iation	Date	Time
Samp	ler's Company:	2		4ª	A	1240	4		3 3	116	1730		FE		3			Ĉ	1
Shipn	ient Method: FED EX	Ship Date: 3	3/6			E	X	4	,		(Э	Q	22	b	NN	T	3/4/16	0480
Shipa	ient Tracking No:								_										
Spec	dal Instructions:														q				
	THIS LINE - LAB USE ONLY: Custoc	dy Seals In Plac	e(Yes)/No	Temp Blank	Veg/ No	0	ooler Ter	np on Rec	eipt 3	-	°F/C	T	ip Blan	: Yes	(ON	MS	/MSD Sample Subi	mitted: Yes	(Z
														ĺ			BP/ARC LaMI	P COC Rev. 6	01/01/2009

BYRD PUMP SITE OCD #1R0034

Appendix C Field Notes May 17, 2016

Appendix C FIELD NOTES





Clean Stock Pile

Sample ID 🗛 屋	Date	Time	Northing	Easting	Depth	PID	Comments
SAMPLE - 1A	1113/2010	0857	577446.92	858306.32	Surface	6.4	5s-2A
SAMPLE - 18	3	0859				0.0	55-2B
SAMPLE 1C2		0901				0:2	55-2B94+55-2(
SAMPLE - 102		0903	\mathbf{V}			0.0	55-20
AII	v						
SAMPLE - 2A 1	1/13/2014	0919	5774:05.2	858233,99	Surface	0.0	55-1A
SAMPLE 28 1	3	0922				0.0	SS-1B
SAMPLE - 2C 1		0923				0.0	55-1C
SAMPLE - 2D 1D		09.28	\checkmark	\sim		0.0	SS-ID
(18				a			
SAMPLE - 3A	1/12/10	1540	577403.09	858290.36	Surface	2.3	Labeled "SS-3A"
SAMPLE - 3B		1542				5.1	labeled "SS-3B"
SAMPLE -3C		1545				4,7	labeled 55-30
SAMPLE -3D	V	1548	\checkmark			5.6	labeled 55-3D
SAMPLE - 4A	1/12/16	1522	577330.84	858226.29	Surface	2.5	labeled 55-344 55-4A
SAMPLE - 4B		1525				1.2	labeled 55-413
SAMPLE - 4C		1527				2.3	labeled 55-4C
SAMPLE - 4D		1530	\checkmark	\checkmark		2.5	labeled 55-4D
SAMPLE - 5A	1/12/10	1508	577312,90	858332.30	Surface	0.0	labeled 55-574
SAMPLE - 5B		1509	1			1.7	labeled ss-5B
SAMPLE - 5C		1511				1.4	labeled 55-5C
SAMPLE - 5D	\downarrow	1513		\checkmark		1.9	labeled SS-5D
		_		858294.407			
SAMPLE - 6A	1/12/10	1455	577282.76	858299 AHV	Surface	0.0	labeled SS-6A
SAMPLE - 6B	1	1456				1.2	labeled ss-6B
SAMPLE - 6C		1457 1457				0.2	labeled ss-6C
SAMPLE - 6D		at 300 1500	\vee	V		0.0	Lubeled 55-6D

Stantec

Landfarm Stock Pile

Sample ID	Date	Time	Northing	Easting	Depth	PID	Comments
SAMPLE - 7A	1+7+13+ 1/13/1	6 0950	577098.39	858102.70	Surface	0.01	55-7A, MSI/MSDI taken
SAMPLE - 7B	1113/2016	0452				0.2	SS-7B
SAMPLE - 7C	and the second s	0954				0.6	SS-7C
SAMPLE - 7D		0955	\checkmark	$ $ \forall		0.2	55-717
	1		1				
SAMPLE - 8A	1/13/2010	iclo	577014.70	858089.08	Surface	0.0	55-8A
SAMPLE - 8B	1	1020				0.4	55-8B
SAMPLE - 8C		1022				00	55-9C
SAMPLE - 8D		1024	\bigvee	V		0.0	55-80
SAMPLE - 9A	1/13/2014	1037	576958.17	858092.23	Surface	0.0	55-9A
SAMPLE - 9B		1043				0.2	SS-9B
SAMPLE - 9C		1044				0.0	55-90
SAMPLE - 9D	L V	1045	V	V		0.4	SS-9D
SAMPLE - 10A	1/13/2010	11010	576891.20	85 80 80 . 81	Surface	0.2	55-10A, DUP2 Fakin
SAMPLE - 10B		1109				0.0	55-10B
SAMPLE - 10C		1112				0.0	SS-10C
SAMPLE - 10D	J.	1114	\vee	\square		0.2	55-100
							1.
SAMPLE - 11A	1/13/2010	1132	576804.54	858056.40	Surface	8.0	55-114
SAMPLE - 11B	1	1134		t		0.8	SS-11B
SAMPLE - 11C		1137		د ا		0.0	SS-11C
SAMPLE - 11D	\vee	1140	V	V		0.0	SS-IID





Sample ID	Date	Time	Northing	Easting	Depth	PID	Comments
SAMPLE - 12A	1/13/2010	1155	57671941	858051.84	Surface	0.2	55-12A
SAMPLE - 12B		1158				0.4	55-12B
SAMPLE - 12C		1159				D.D	55-120
SAMPLE - 12D		1201	V	,V		0.0	55-12D
	· · · · ·	1,000					
SAMPLE - 13A	11312410	1225	576670.99	858107.107	Surface	0.0	55-13A
SAMPLE - 13B		1228				0.0	55-13B
SAMPLE - 13C		1231				0.0	55-130
SAMPLE - 13D	V	1232	LY			0.0	55-13D
			<u>, , , , , , , , , , , , , , , , , , , </u>	858183.042			
SAMPLE - 14A	111312010	123211	44 57101040.6	1 158184.16	Surface	0.0	55-14A
SAMPLE - 14B		1245			k.	0.0	SS-14B
SAMPLE - 14C		1249			1	0.0	\$5-14C
SAMPLE - 14D	J	1251	V			0.0	55-14D
				1 P			
SAMPLE - 15A	1113/2010	1302	576622,54	858285.10	Surface 🕓	0.0	SS-IGA
SAMPLE - 15B		1304				0,0	55-1513
SAMPLE - 15C		1308				0.0	55-150
SAMPLE - 15D		1310	\mathbf{V}		0	0.0	55-10alt 55-15D
SAMPLE - 16A	113240	1320	576693.20	858288.4=	- Surface	0.0	55-16A
SAMPLE - 16B		1322				0.0	55-110B
SAMPLE - 16C	NO	1328				0.0	55-106
SAMPLE - 16D	V	1320	\bigvee	V		7.0	SS-110D



Sample ID	Date	Time	Northing	Easting	Depth	PID	Comments
SAMPLE - 17A	113 201	1338	576762.48	858 282.14	Surface	0.0	55-17-74
SAMPLE - 17B	1	1340				0.0	55-17B
SAMPLE - 17C		13410				0.2	SS-17C
SAMPLE - 17D		1349	1	\downarrow		0.0	SS-17D
			Y	(858291.104			
SAMPLE - 18A	1/13/2016	1358	576847.42	\$59,278.09 A	* Surface	0.0	55-18A
SAMPLE - 18B	i i	1402				0.2	55-18B
SAMPLE - 18C		-140AH 140	10			0.0	SS-18C
SAMPLE - 18D	V	1408				0.0	55-18D
				, i			
SAMPLE - 19A	1/13/2016	1418	576912,49	858303.40	Surface	0.0	55 - 19A
SAMPLE - 19B	1.1.21	1421	1			0.0	55 - 19B
SAMPLE - 19C		1420				0.0	55 - 19C
SAMPLE - 19D	V	1420		V		0.0	55-19D
SAMPLE - 20A	1113 2010	1444	5710972.72	858315.55	Surface	0.0	SS-20A DUP3 taken
SAMPLE - 20B	1	1441				0.0	55-20 B'
SAMPLE - 20C		1448				0.0	55-20C
SAMPLE - 20D	1	1452	V	V		1.0	SS-20D
	V	art					
SAMPLE - 21A	1/12/2010	13508	577035.41	858254.72	Surface	0.0	55-21A, MS2/MD2 taken
SAMPLE - 21B	1.0,000	1510				6.0	55-21B
SAMPLE - 21C		1512				0.0	55-216
SAMPLE - 21D	>/	1514	V/			0.0	55-21D



BYRD PUMP SITE OCD #1R0034

Appendix D Groundwater Sampling Field Data Sheets May 17, 2016

Appendix D GROUNDWATER SAMPLING FIELD DATA SHEETS



•	Ground	dwater Developm	nent, Monitorir	ng & Sa	mpling Form	n [ESPA-3	305
Stantec	WELLD	MALY DEL	Client B	P			Rev. 2.1 J	lan 2014
•		141111-421	Project #	1826	S	ite BPS		
Field Pers A Harling		Date 114/10	Time	DAON		Temp	,26°7	3
Sample ID MUL-PSI		Weather sunny- Po	art.Cldy - OverCast -	fog - Rain	- Snow (circle)	Wind	(vel/dir)	1 Nest
CASING DIAMETER (1 casing v	ol (gal/linear f 1	" (0.04) (2" (0.17) 3" (0.3	37) 4" (0.65) 5" (1	02) 6" (1.	.47) 6.5" (1.7) 8'	(2.61) 1	0" (4.10)	()
Well Material PVC 👿 Ire	on 🗌 SS 📋	Other	Stick up X Flu	sh Mount	PLEASE		VELL DIAMETEI	R
DEPTH TO BOTTOM (feet) =	201AH UL	1981	CASING	OLUME (a	ab = i 8	0		
			CALCINA			5	INT ALL	
	2001		CALCULA		- VOL (gai) -	1 10	ur gal	
DEPTH IO WATER (feet) =	_ 33.80		ACTUAL P	URGE VOL	(gal) =	2.10	gai	
WATER COLUMN HEIGHT (feet)	= 11.12 te	et	PID UPON	OPENING	WELL (ppm) =	-	(**	
TIME VOL. DT	W pH	CONDUCT. TURBID.	DO TEMP.	ORP	COLOR	COM	NENTS / OTHER	s
(2400hr) (gal) (ff)	(no units)	(mmhos/cm) (Vls/NTU)	(%C)	(mg/L)	(visual)	(fe, ID	5,)	
S 0949 1.58 3	1.01 (1.13	<u>14.2</u> 105.9	6.13 16.79	90	chung			
0952 1.08 34	01 6.73	14.3 01.3	6.64 16.81	85	cloudy			
0455 1.79 H	.01 11.72	14.5 13.1	10.61 16.85	83	cloud	L		
Stabilization is project sp	ecific or complete	e when 3 successive read	lings are within the fo	ollowing lin	hits: pH ± 0.1, Con	± 5%, Te	mp. ± 0.5%, Tu	rb. ± 10%
	HI- INSTAL	RT (2400br) 11900	END (2400br)	IDAC	- Countral	94		
SEDIMENT THICKNESS (sto	int)	<u>(100)</u>	SEDIMFNT	THICKNES			[[[otioisat.wo	ter column1
Bladder Pump		Bailer (Teflon)	Co	alcul of me	ax draw down at	time of s	amplina:	X0.8=
Centrifugal Pump		Bailer (PVC)	Di	sposal me	thod			
Submersible Pump		Bailer (Stainless Steel	I)					
	20.0	Dedicated / Disposo	alde					
Pump/Tubing Depth (ft)	39.3	<u>.</u>						
Other equ., (surge block, air filling,)		(Identity analytes sampled with which equipment)						
	114/10	SAMPLE TIME (2	400hr) (UO(_			
	water 🕅 Surface	Water 🗍 Treatment II		her				
	TAKEN	39 31 DRAW DO	WN LESS THAN 0.4	% OF INIT	IAI WI	DTW at so	imple 211	m) *
S COLOR double					on Munit			
	10 0011			INCOF OD	OR NOIVE	3		××
ANALYSIS	V PAH	INGTAN KIED	6 1-minurist	and m	nityTOS	-		
	AVI	HINO3 A AL	I NA	-			<u> </u>	~
AND CONTAINER TYPE	mL 100m	L 250ml 4/1.	1 250ml.			-		
	1 10	2 4	2					
		Vac N						
		<u>165 IV</u>	<u> </u>	<u> </u>) ÷		
	<u> </u>	<u>, </u>	<u> </u>				· · · · ·	~
NOTES (incl. deviation fro	om pian) MG	IMSD taken	= Extra	Volu	me			
LOCK KEY #			Yes No	Comment	s			1
Well identification num	ber clearly mar	ked?						
ls the concrete pad an	n good conditio	on and secure?						
Are soils surrounding the	e well pad erod	led?		-				
Is there standing water	in the flush mou	unt?		-			,	
Is the PVC well casing i	n good conditio	on?		-				
Is the measuring point of	on PVC casing v	well marked?						
Does DTB sounded com Wall according to the standard	respond with ori	ginal well completion	DTB? 🙀 🗖					
weil coordinates:								
Others: instructions to fi	nd well, missing	bolts (size), need retar	oing, other repair:					
				-	,			
	THK	INTORMATICN FOR AUT	HORIZED COMPANY	USE ONLY	A44			

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STANTEC CONSULTING

	Ground	lwater Dev	elopmer	nt, Monitori	ng & Sa	mpling Fo	orm	ESPA	-305
Stantec	WELLID	0.1.1.0	()		Rev. 2.1	Jan 2014			
	WELL I.D.	MW-P	SL	Project #	18263	9000		Site BP S	
Field Pers A. Harris	5	Date ///	14/2011	0 Time	1305		Ter	np 101°F	
Sample ID		Weather	sunny Part.C	Cldy - OverCast	- fog - Rain	- Snow (circle) Wir	nd (vel/dir) 🕅	nd from h
CASING DIAMETER (1 casing v	vol (gal/linear f 1"	(0.04) 2" (0.1	71 3" (0.37)	4" (0.65) 5" (.02) 6" (1.	47) 6.5" (1.7	8" (2.61)	10 " (4.10)	" ()
Well Material PVC 💢 Ira	on 🗌 SS 📋	Other	St	ick up 💢 🛛 F	ush Mount	PLE PLE	ASE CIRCL	E WELL DIAME	TER
DEPTH TO BOTTOM (feet) =	48.39'			CASING	VOLUME (g	al) = 🥋	.36		
DEPTH TO PRODUCT (feet) =	-			CALCUL	TED PURGE	VOL (gal) =	7.	08 gal	3
DEPTH TO WATER (feet) =	24.5'			ACTUAL	URGE VOL	(gal) =	22	00	
NATER COLUMN HEIGHT (feet	1 = 12 0.0	l.				WELL (ppm) :		2	
		CONDUCT.	TURBID.	O TEMP.	ORP	COLOR	<u> </u>		EDS
(1400hr) (gal) (ff) (no units)	(mmhos/cm)	(Vis/NTU) (%	6) (°C)	(mg/L)	(visual)	(Fe,	TDS,)	L'NO
2 1352 197 3	4.60 1090	10.2	1.0 8.	07 19.09	5 57	cloud	th	eddish	- brown
1355 2.10 7	1.60 1.90	in 3	DAR	03 190	3 57	dinie	ly 1 p	eddisn-	brown
1258 2 23 3	160 1090	10.3	10 8	15 190	10 510	Marsd	tuita	oddich.	-hvor
Stabilization is project sn	pecific or complete	when 3 succe	ssive reading	are within the	following lin	hits: $pH + 0.1$	ond, + 5%	Temp. + 0.5%	Turb. ± 10%
		T (24006-1	70		JUMA		s en 1991 - 070,	·	
SEDIMENT THICKNESS (44	office STAR		507	SEDIMEN				Heridinal	water column1
Bladder Pump		Bailer (Teflo	n)	JEDIMEN (alcul of m	ax draw dow	n at time c	of sampling:	X0.8=
Centrifugal Pump		Bailer (PVC)	C	isposal me	thod			
Submersible Pump		Bailer (Stain	less Steel)						
	IL F	Dealcatea	/ Disposable						1
Pump/Tubing Depth (ff) Other equal burge	41.0	/Idenlify analytes so	moled						
Diock, or Ming)		with which equipme	ent)						
	14/2016	SAMPL	E TIME (2400	hr) <u>140</u>	0				
SAMPLE TYPE Ground	water 🕅 Surface	Water 🗌 Tr	eatment INF [EFF 🗌 🔇	ther				
DEPTH AT WHICH SAMPLE	E TAKEN	41.5' 0	RAW DOWN		% OF INIT	IAL WL	DTW a	Ime <u>34</u>	.100'
5 COLOR readish	Ibrown	ODOR Faint [URE OF OD	OR NOV	le l	SHEEN Y	N 🕅
ANALYSIS 60	O PAH	Metals	Brex	Anionsle	I Enlin	ht TDr		-	-
	1 None	HADD	HIT	None	1 - DAL	0	~		~
	A L have	1000	1/0 1	000					·
	Int 100ml	L DOWL	March	25Unl	<u> </u>				
호 # OF CONT.	5 2		3		<u>~</u> =	<u> </u>			
FILTERED (Y/N)	V N	<u> </u>	/V	N			_		
QA/QC	\bigvee N	N	N	N	-	~	~		-
NOTES (incl. deviation fro	om plan)								
LOCK KEY #				Yes No	Commen	ts			
Well identification num	nber clearly marl	ked?		X D	\sim				
Well covers and locks	in good conditio	on and secure	ç Kara	A D	~				
 Is the concrete pad at Are soils surrounding the 	na surrace seal i ne well pad erod	n gooa condi Ied?	lion¢						
Is there standing wate	r in the flush mou	unt?			NA				
Is the PVC well casing	in good conditio	\$nç							
Is the measuring point	on PVC casing v	well marked?			-				
Does DTB sounded con Well coordinates:	rrespond with ori	ginal well cor	npletion DTE	38 🗌 🗌	~				
	Be also a barro barro barro	h a tha (-!)		atheres '					
Others: Instructions to t	tina well, missing	doits (size), ne	eea retaping	y, omer repail	• ~ -				
	TH	INFORMATION		RIZED COMPAN	Y LIGE ONL	¥			

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STANTEC CONSULTING

	Groundwater Dev	elopment, Monitori	ng & Sampling	Form ESPA-	305		
Stantec	WELL I.D. MILL PC	Client 3	Client 30				
	1110-15	Project #	182630000	Site 3PS			
Field Pers A. Hungins	Date ////	Time	1100	Temp 45°	P		
Sample ID MW - 153	Weather	sonny - Part.Cldy - OverCast -	fog - Rain - Snow (circ	cle) Wind (vel/dir) 🚶	I shely-		
CASING DIAMETER (1 casing vo	01 (gal/linear 1 1" (0.04) 2" (0.17	3 " (0.37) 4 " (0.65) 5 " (1	.02) 6" (1.47) 6.5" (1	.7) 8" (2.61) 10" (4.10)	." (ED		
DEPTH TO BOTTOM (feet) =	45.0	CASING \	/OLUME (gal) =	1.79 gal			
DEPTH TO PRODUCT (feet) ≠	22.441	CALCULA	TED PURGE VOL (gal)	5.97			
DEPTH TO WATER (feet) =	33.29	ACTUAL P	URGE VOL (gal) =	Loga			
WATER COLUMN HEIGHT (feet) =	= 11.71	PID UPON	OPENING WELL (ppm) =			
	V pH CONDUCT.	TURBID. DO TEMP.	ORP COLOR	COMMENTS / OTHER	RS		
2 1125 140 23	28 Lota In U			dia monthigh 1	NI ch		
	19.10 19.1	140 444 1070	1010	real real profe	ncorr		
W 1141 114 22	281020 15 E	15 2 10 MI 18 30					
	a0 0.71 _D. 5_	10 2 (0 11) 10:10					
Stabilization is project spec	citic or complete when 3 succes	ssive readings are within the t	ollowing limits: pH ± 0.1	, Cond. ± 5%, Temp. ± 0.5%, T	Urb, ± 10		
	START (2400hr)	END (2400hr)	1195 THICKNESS (and)	-			
Bladder Pump	Bailer (Teflo	n) C	alcul of max draw do	wn at time of sampling:	X0.8=		
te Centrifugal Pump	Bailer (PVC)	D	sposal method				
Submersible Pump	Bailer (Stain Dedicated	less Steel) / Disposable					
Pump/Tubing Depth (ff)	~29 0'	,					
Olher equ., (surge	(Idenlify analyles sa with which eautome	mpled					
				DTW at sample 22	28		
			Lin Linity 1700				
	THE HERE	BION AMONTO IL	141191123				
	Nove HIVOZ	HU Nore _			1.00		
AND CONTENANCE	nt 100ml 250ml	LIUML 25UML			-		
	<u>d</u>	3_1					
별 FILTERED (Y/N)	-N	N_N_			_		
AVAC	<u>N</u> N	N N			~		
NOTES (incl. deviation from	n plan)						
LOCK KEY #		Yes No	Comments				
Well identification numb	per clearly marked?				_		
is the concrete pad and	d surface seal in good condit	ion?	-				
▲ Are soils surrounding the	well pad eroded?	Atta A	No.				
Is there standing water in	n the flush mount?		NA				
Is the PVC well casing in	n BAC casing well marked?						
- Is the measuring point or	The second of the LUCING VICE						
Is the measuring point of Does DTB sounded corre	espond with original well com	npletion DTB? 🛛 🖾 🔲	~				
Does DTB sounded corre Well coordinates:	espond with original well com	npletion DTB? 🛛 🖾 🗖					

(a)

		Ground	Groundwater Development, Monitoring & Sampling Form								A-305
[(Stantec			ril	Cli	ent B	P			Rev. 2.1 Jan 2014	
		WELL I.D.	MN-1	24	Pro	iect #	82103	30008		Site BP	\$
Field	d Born A Hawk	i'm (Deta 1/	DALLIA.	<u>م</u>	Time	1510	COULT	Tom	n 1020	I
rien Carr	and ID Matal DC	1112	Weather	PILL PO	rt Cldy _ O	unic ast	fog Pain	Show (circle)	Win		112
CAS		ol (gal/linear fi1)	10.041 (2" (0	171 13" 10.3	7) 1 4 " 10 6	5) 5" ().	02) 6" (1.4	17) 6.5" (1.7) 8"	(2.61)	10" (4,10)	NC
Well	Material PVC M Inc	on \square SS \square	Other	11 0 10.0	Stick up	FIL	Jsh Mount	PLEASE	CIRCLE	WELL DIAM	ETER
	<u>A</u>	wil2 Rt	111.00					- 	2.	- 1	
DEPI	TH TO BOTTOM (feet) =	ANT	44.40		c	ASING V	OLUME (go		2010	21	iv
DEPI	IH TO PRODUCT (feet) =				c	ALCULA	TED PURGE	VOL (gal) =	6.	18	
DEPI	DEPTH TO WATER (feet) = $31.89'$ ACTUAL PURGE VOL (gal) = $1.69a$										
WAT	ER COLUMN HEIGHT (feet)= 13.09			P	ID UPON	OPENING	WELL (ppm) =	-	_	
	TIME VOL. DI	ГW рН	CONDUCT.	TURBID.	DO	TEMP.	ORP	COLOR	CON	MENTS / OT	HERS
ORIBA	(2400hr) (gal) (lt)	(no units)	(mmhos/cm)	(Vis/NTU)	(%)	(°C)	(mg/L)	(visual)	(Fe, 1	íDS,)	
SS (Y	1531 1.12 3	1.95 4.98	14.7	49,3	10.36	18.01	Cox	cloudy		<u>نہ</u>	
	1534 1.28 31	195 4.98	14.9	49.5	10,39	18.03	102	10		<u></u> .	1
RAN	1537 1.44 3	1.95 10.97	15.0	49.2	10.31	18.64	102			~	~
A	Stabilization is project sp	ecific or complete	e when 3 succ	essive read	inas are wi	thin the f	ollowing lim	its: pH ± 0.1. Con	d. ± 5%, 1	emp. ± 0.5%	. Turb, ± 10%
E		16 5741	PT (2400br)	:FID	END /	2400brl	1CLED				
ging	SEDIMENT THICKNESS (de	JU STAI	(1 (2400m)	1510			THICKNESS		_	/Levicine	lugler esture)
L Pu	Bladder Pump		Bailer (Tef	lonì		C		x draw down at	time of	samplina:	X0.8=
Ę	Centrifugal Pump		Bailer (PV	C)		Di	sposal met	hod		samping.	
l ec	Submersible Pump		Bailer (Sta	inless Steel							
ā	Peristalic Pump		Dedicate	d / Disposa	ble						
Se	Pump/Tubing Depth (ft)	38.5	<u>) </u>								
ľ	Other equ., (surge block, alt lifting,)		lidentily analytes with which equip	nampled ment)							
	DATE SAMPLED	114/16	SAM	PLE TIME (24	100hr)	151	40				
NG N	SAMPLE TYPE Ground	water Surface	Water	Treatment IN			ther	-			
WPL	DEPTH AT WHICH SAMPLE	TAKEN	38.5'	DRAW DOV	VN LESS TH	IAN 0,2	% OF INITI	AL WL	DTW at	sample 3	951
DF S/	COLOR CLURAVI-	NOAN	ODOR Egist					OR None		SHEEN Y	
Ale O		20 DEEX	DO CTAL					nc <u>100100</u>			
VII I	ANALYSIS	LU BIEN	ITTO HL	S THH	PIVIO	nSTHIK	11mg/1	1/3 -			
N		M HU	FTV03	None	N	<u>n-e</u>	<u>~ "</u> .			<u>.</u>	
IATIC	AND CONTENANCE	Iml 40m	250m	100 m	1 250	mL	4	-	~		-
ORV	# OF CONT.	0 - 10	2	4	2		-			-	-
L R				N	- <u> </u>		-	e			
MPLI		21-Lad Ougu	100014	1 0.0.1	Det our	1 d w	-)(
SA		-Taw purre	DA DAY-1-60	DIA	<u>n var</u> Gul	1.010				¢	
┝─	NOTES (Incl. deviation fro	om plan)	P-1-61	the	r.v.	(as No	Comment				
	Well identification num	ber clearly mar	ked?		X		Comment	5			
	Well covers and locks	in good conditio	on and secur	eŝ		X D					
	Is the concrete pad ar	nd surface seal i	n good cond	dition?							
È	Are soils surrounding th	e well pad eroc	led?		[
l S	Is there standing water	r in the flush mo	unt?		-		NA				
Į Į	is the PVC well casing	in good condition	one woll markod!	>	1	처음					
MELL	Does DTB sounded cor	tespond with or	iainal well co	, mpletion I	DIRS 🥇	3 6					
	Well coordinates:		J								
	Others: instructions to f	ind well, missing	bolts (size), r	need retar	oing, othe	r repair:					
			V- 11-				NA.				
			-	N-FOD-AUT		OHDIN	LIOCON	(

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		Ground	water De	evelopme	ent, Monito	oring	& Sam	pling Form		E	SPA-305
0	Stantec			0(1	Client		BP			Rev. 2.	1 Jan 2014
9		WELL I.D.	MW-1	13	Projec	#	18260	TH 18263000	8	Site	synd
Field	Pers Tyler He	enning	Date	3/3/16	7 Ti	ne	134	16	Ten	np (6°F
Sam	nle ID $M (1 - PS)$	1-030316	Weathe	suriny - Pa	rt.Cldy - OverCa	st - fog	- Rain - Sno	ow (circle)	Wir	nd (vel/dir)	10 mph (non
CASIN	NG DIAMETER (1 casing	vol (gal/linear ft)]1"	(0.04) 2" (0	0.17) 3" (0.3	37) 4" (0.65)	5" (1.0)2) 6" (1.4	7) 6.5" (1.7) 8"	(2.61)	10" (4.10))
Nell I	Waterial PVC	on [] SS []	Other		Stick up	Flus	sh Mount	PLEASE	CIRC	LE WELL	DIAMETER
DEPT	H TO BOTTOM (feet) =		44.91		CASI	NG VC	DLUME (ga	I) =	_],	86	
DEPT	H TO PRODUCT (feet) =				CAL	ULAT	ED PURG	E VOL (gal) =		5,58	
DEPT	H TO WATER (feet) =		33,95		ACTI		URGE VOL	(gal) =		3,5	
NATE	ER COLUMN HEIGHT (fe	et) =	10,96		PID L	PON	OPENING	WELL (ppm) =		0.0)
PARAMETERS (YORIBA)	TIME VOL. D (2400hr) (gal) (ff 1424 1 2 1431 V 1 1434 3.6 1 Stabilization is project s 1 1	TW pH (no units) 401 6.44 6.43 6.45 pecific or complete	CONDUCT. (mmhos/cm) /3.7 /3.8 /3.9 when 3 succ	TURBID (VIS/NTU) 147 143 139 essive readin	$ \begin{array}{c} DO & TE \\ (\%) & (°C \\ \frac{3,06}{2,97} & 2C \\ \frac{2,97}{2,94} & 2 \\ \hline gs are within th $	MP. 0.05 0.13 0.27	ORP (mg/L) <u>476</u> <u>475</u> <u>474</u> wing limits:	COLOR (visual) <u>Cleer</u> <u>PH±0.1, Cond.±</u>	COM (Fe,	AMENTS / TDS,)	OTHERS
5	DATE PURGED 3	316 STA	RT (2400hr)	1356	END (240)hr)	1434				
rgin	SEDIMENT THICKNESS	(start)			SED	MENT	THICKNE	SS (end)	-	(10	iginal water column
P.	Bladder Pump		Bailer (Te	eflon)		Cal	lcul of max	draw down at time	of san	npling:	X0.8=
t a	Submersible Pump		Bailer (P	tainless Steel	1) -1	Dis	posar metri	Un-Si	te	35 g	el Orun
Ē	Peristalic Pump	- 1	Dedicate	🗗 Disposabl	le Tubiy						
svel	Pump/Tubing Depth (ft)	~34.4	<u>3</u>		\bigcirc						
ă	block, air lifting,		equipment)	WINCR							
υ	DATE SAMPLED	33/16	SA	MPLE TIME	(2400hr)	14:	35				
PLIN	SAMPLE TYPE Ground	dwater 🗘 Surfac	e Water 🗔	Treatment		Ot	her		34.0	51	
SAM	DEPTH AT WHICH SAM	PLE TAKEN	~39.43	BRAW-D C	WN-LESS THA	N		HTIAL WL	DTW	at sample time	
Ь	COLOR CP	05	ODOR Fe	int Ivediu		NATU	JRE OF OD	OR NONE		SHEEN	Y INK
Ž	ANALYSIS THE	NO Notate	TDS	Catu	¥5						
F				1/NO2							
N N	AND /)	21	160	2/20							
SMA.	CONTENANCE	ome on	LOOML	_ 5/250)9L						
ŌIJ	# OF CONT		N.								
Ē	FILTERED (Y/N)			$- \frac{N}{N}$		-					
AMF	QA/QC	MS MSD					C .=				
<i>"</i>	NOTES (incl. deviation	from plan)							-		
WELL INTEGRITY	LOCK KEY # Well identification nur Well covers and locks Is the concrete pad a Are soils surrounding Is there standing wate Is the PVC well casin Is the measuring poir Does DTB sounded of Well coordinates:	mber clearly man s in good conditi nd surface seal the well pad ero er in the flush m ig in good condit to n PVC casing correspond with	rked? on and sec in good cor oded? ount? ion? g well mark original wel	ed? I completio	n DTB?			5			
WELL	Well coordinates: Others: instructions to	o find well, miss	ing bolts (s	ize), need I	retaping, othe			,			

		Ground	lwater Dev	velopme	nt, Mo	nitoring	& Sam	pling Forn	1	ESPA-305
	Stantec	WELLED	24 0		Cli	ent B	P			Rev. 2.1 Jan 2014
	9	WELL I.D.	MW-P	SZ.	Pro	ject# /	8213000	56	_	Site Byrd
Fiel	d Pers Tyler He	nntry	Date 3	3/3/14		Time	1234		Ten	p GG°F
San	nple ID MW-PS7	1-030316	Weather	Sunny - Part	Cldy - Ove	erCast - fog	- Rain - Sn	ow (circle)	Win	d (vel/dir) 10 apr (North
CAS	ING DIAMETER (1 casing	vol (gal/linear ft))1'	(0.04) 2 (0.	12) 3" (0.3	7) 4" (0.6	5) 5" (1.0	2) 6" (1.4	7) 6.5" (1.7) 8	" (2.61)	10" (4.10)" ()
Wel	Material PVC	n 🗋 ss 🗌	Other		Stick up	占 Flus	h Mount] PLEAS	SE CIRC	LE WELL DIAMETER
DEP	TH TO BOTTOM (feet) =		48.20		c	ASING VO	LUME (ga	l) =	2,31	
DEP	TH TO PRODUCT (feet) =		-		c	ALCULAT	ED PURGI	E VOL (gal) =	_6	,93
DEF	TH TO WATER (feet) =	3	4.62		Å		JRGE VOL	(gal) =	1	3.0
WA'	TER COLUMN HEIGHT (fe	et) = /3	3.58		F		OPENING	WELL (ppm) =	C	7,0
PARAMETERS (YORIBA)	TIMEVOL.D $(2400hr)$ (gal)(ft) 1310 2 1319 2 1327 3.0Stabilization is project specific	TW pH (no units) H TZ (0.5Z) L (0.5Z) L (0.5Z) pecific or complete	CONDUCT. (mmhos/cm) 12.2 12.3 12.4 when 3 succes	TURBID. (Vis/NTU) [7.6 [7.5] [6.9] ssive reading	DO (%) 2.20 2.16 2.17 as are with	TEMP. 19.42 19.43 19.47 in the follow	ORP (mg/L) <u>389</u> <u>384</u> <u>383</u> ving limits:	COLOR (visual) Clear	CON (Fe, 	MENTS / OTHERS TDS,)
Ð	DATE PURGED 3	3/16 STA	RT (2400hr)	1250	END (2400hr)	1322	<u>.</u>		
Development / Purgi	SEDIMENT THICKNESS Bladder Pump Centrifugal Pump Submersible Pump Peristalic Pump Pump/Tubing Depth (ft) Other equ., (surge block, air lifting,	(start)	Bailer (Tef Bailer (PV Bailer (Sta Dedicate 4) sampled with v equipment)	lon) C) inless Steel) / Disposable _{vhich}	Tut	Cal Dis	THICKNE cul of max posal meth	SS (end) $\underline{}$	ne of sam	(loriginal water column) ppling: X0.8= 55-991 Orum
SAMPLE INFORMATION AT TIMIE OF SAMPLING	DATE SAMPLED SAMPLE TYPE Ground DEPTH AT WHICH SAMP COLOR ANALYSIS PRESERVATIVE AND CONTENANCE # OF CONT FILTERED (Y/N) QA/QC NOTES (incl. deviation f	3/3/16 Iwater A. Surfac PLE TAKEN 20 20 20 20 20 20 20 20 20 20	SAM e Water 	PLE TIME (2 Treatment I BRAW DOT Lafte HN0 J250 N	2400hr) NF EF WN LESS M 5 3 M M			HTTAL-WL- DOR <u>NOM</u>	<u>94,7</u> ртw рЕ	Z
WELL INTEGRITY	LOCK KEY # Well identification num Well covers and locks Is the concrete pad an Are soils surrounding Is there standing wate Is the PVC well casing Is the measuring poin Does DTB sounded co Well coordinates: Others: instructions to	nber clearly man in good conditi nd surface seal the well pad erce er in the flush man g in good condit t on PVC casing porrespond with o find well, missi	rked? on and secu in good cond oded? ount? ion? g well marke original well ing bolts (siz	re? tition? d? completior e), need re	n DTB? etaping, c	Yes No	ir:	§		

			1	Ground	water De	velopme	nt, Moi		ESPA-305				
10	Sta	anteo				22	Clie	ent	BP			Rev. 2.1	Jan 2014
			WEI	L I.D.	Mw-t	5)	Pro	ject # / <	\$ 2630	008		Site B _f	re
Fiel	d Pore	IVP	r Henni	n	Date	33/14)	Time	143	51	Ten	np 68	SF
Can	ureis opio ID	MUL	PX3-01	30316	Weather	Gunny - Par	Cldy - Ove	erCast - fog	- Rain - Sno	ow (circle)	Win	d (vel/dir)	uph /www
CAS	ING DIAME	TER (1 ca	sing vol (gal/l	inear ft)] 1"	(0.04) (0	17) 3" (0.3	7) 4" (0.6	5) 5" (1.02	2) 6" (1.4	7) 6.5" (1.7) 8"	(2.61)	10" (4.10)	" ()
Well	Material	PVC	, }_⊭on []	ss 🗌	Other		Stick up	Flus	h Mount] PLEASI	ECIRC	LE WELL DI	AMETER
DEP	TH TO BOT	TOM (fee	t) =	(18.41		C	ASING VO	LUME (ga	l) =	2	.57	
DEP	TH TO PRO	DUCT (fe	et) =				C	ALCULAT		E VOL (gal) =	-	7:71	
DEP	DEPTH TO WATER (feet) = 33.30 ACTUAL PURGE VOL (gal) = 3.5												
WA	TER COLUM	IN HEIGH	 T (feet) =		151		F		OPENING	WELL (ppm) =		0.0	
	TIME	VOL.	DTW	pН	CONDUCT.	TURBID.	DO	TEMP.	ORP	COLOR	CON	MMENTS / OT	HERS
ORIBA	(2400hr)	(gal)	(ft)	(no units)	(mmhos/cm)	(Vis/NTU)	(%) 1100	(°C)	(mg/L)	(visual) /	(Fe,	TDS,)	
SS 3	1538		3346	6.42	20.4	226	9.90	20/39	456	Clear			
	1541	<u></u>		6.41	26.7	21.4	4,87	20,86	455		÷		
SAMI	1544	3,5	V	6.41	26.8	20.9	4.77	20.80	455				
PAI	Stabiliza	tion is proj	ect specific c	r complete	when 3 succe	essive reading	gs are with	in the follow	/ing limits:-	H ± 0 1, Cond +	<u>5%, T</u>	emp. ± 0.5%,	Tarb. ± 10%
	DATE PUR	RGED	3316	STA	.RT (2400hr)	1503	END	(2400hr)	1544				
rgin	SEDIMEN	T THICKN	ESS (start)					SEDIMENT	THICKNE	SS (end)		(Lorigin	al water column)
Pu	Bladder Pu	ımp			Bailer (Te	eflon)		Cal	cul of max	draw down at time	e of sar	npling:	(0.8=
E	Centrifuga	Pump			Bailer (P) Bailer (St	VC) ainless Steel)	Dis	posal meth	on On-site	DA	om (55-	-ga)
bne	Peristalic F	Pump			pedicate	Disposabl	Tubin	<					
eloi	Bump/Tul	ning Denti	h (ft)	~40;	25		-	5					
De	Other equ., (surge	. ()		sampled with equipment)	n which							
-	DATE CAL		23	110	SA		2400hr)	154	5				
NI SN	DATE SA		<u></u>			Troatment			ver	33.	46		
MPL	SAMPLE	TYPE G	roundwater		Un.45						DTW	at sample	~
E S/	DEPTH A	TWHICH	SAMPLETA		-101 0					$\Lambda \lambda$	15		
	COLOR		CLOCK	Nitrate	ODOR Fa	fint Mediur		T NATU	IRE OF OL		<u>vc</u>	SHEEN	
NE L	ANALYSI	S	PH-DRO	Warile	142	- Cation	<u> </u>						
N A	PRESER					- HNO	3						
ATIO	AND CONTEN	ANCE	2/100mL	1	250mL	1/250	wnL						
N N N	# OF COM	JT.	·										
INF	EU TERE		N		J	N							
JPLE	PIETERE	e (m)	NIA	-	~~								
SAN	QAVGC		<u></u>									A	
-	NOTES (ncı. devia	uon from pl	a(1)		in the second		Yes No	Comment	s			
	Well ide	ntificatio	n number c	learly ma	rked?								
	Well cov	vers and	locks in go	od condit	ion and sec	ure?							
	Is the co	oncrete p	ad and sur	tace seal	in good coi nded?	naition?							
È	Is there	re soils surrounding the well pad eroded? s there standing water in the flush mount?							NA				
EGR	Is the P	VC well o	casing in go	od condi	tion?	12			1				
E	Is the m	easuring	point on P	VC casin	g well mark	ed? Il completic	n DTR?						
	Well co	ordinates	ieu corresp :		onginal we	n completio			0				
Š	Othere	instructio	ne ta find :	vell mice	ina halts (s	ize), need i	etapina	other repa	air:				
	oulers.	11981 4081	19 (Y 111) 19 (Y 111)	പപ്പിര്			1.						
				Th	IS INFORMA	TION FOR AL	THORIZED	COMPANY	USE ONL	Y			the state of the state of the

		Ground	water Developme	nt, Monitoring	g & Sampling Forr	m ESPA-305
C	Stantec		MU PCIL	Client	BP	Rev. 2.1 Jan 2014
		WELL I.D.	1110-134	Project #	182630008	Site Byrd
Field	Pers Tyler Ha	MAN	Date 3/2/1/0	Time	1176	Temp 62°F
Sam	nle ID 1/1/1-P<4-	030216	Weather Summy Part	Cldy - OverCast - for	- Rain - Snow (circle)	Wind (vel/dir) 13 uph (wat
CASI	NG DIAMETER (1 casing	vol (gal/linear ft)] 1"	(0.04) 2" (0.17) 3" (0.3	7) 4'' (0.65) 5'' (1.	02) 6" (1.47) 6.5" (1.7)	8" (2.61) 10" (4.10)" (
Well	Material PVC	on 🗌 SS 🗌	Other	Stick up	ish Mount 🗌 🛛 PLEA	ASE CIRCLE WELL DIAMETER
DEP.	TH TO BOTTOM (feet) =	4	6,13	CASING V	OLUME (gal) =	2.41
DEP.	TH TO PRODUCT (feet) =			CALCULA	TED PURGE VOL (gal) =	7.23
DEP	TH TO WATER (feet) =	21	95	ACTUAL F	URGE VOL (nal) =	3,5
DEP	TO WATER (reet) -		1110			0.0
WAT		et) -		DO TEMP		
RIBA)	(2400hr) (gal) (ft	ivv pri ;) (no units)	(mmhos/cm) (Vis/NTU)	(%). (°C)	(mg/L) (visual)	(Fe, TDS,)
ο ν δ	1209 1 3	12.07 6.70	16.2 14.1	6.00 19.87	450 clear	51. petrol odor
E	1712 1 3	2.68 1270	16.0 13.6	6,68 19.64	450	
AME	1716 3.5 2	2.04 6.74	15.9 13.4	6.13 19.79	457	
PAR				a gra within the fello	wing limits: at >0 1. Cond	+ 50% Torte + 40%
	Stabilization is project s	pecific or complete				
ling		3 HC STA	RT (2400hr)	END (2400hr)	THICKNESS (and)	(Lexisten) webs adumn)
urg	SEDIMENT THICKNESS	(start)	Bailer (Teflon)	SEDIMEN	alcul of max draw down at tir	me of sampling: X0.8=
ť, F	Centrifugal Pump		Bailer (PVC)	Di	sposal method	ito Steal Drum
nen	Submersible Pump		Bailer (Stainless Steel)	Taba	- On - C	
lop	Peristalic Pump	22	Dedicated / Disposable	Thomas		
eve	Pump/Tubing Depth (ft) Other equ., (surge	~ 39.0	4 sampled with which	-		
	block, air lifting,		equipment)			
υ	DATE SAMPLED	3316	SAMPLE TIME (2	2400hr) <u>121</u>	6	
FLN	SAMPLE TYPE Ground	dwater 🕅 Surface	e Water 🔲 🛛 Treatment I		ther <u>3</u>	2.08
SAM	DEPTH AT WHICH SAME	PLE TAKEN	~39.04 DRAWLDON	WH LESS THAN	% OF INITIAL WL	DTW at sample
R	COLOR (1	205	ODOR Faint Medium		URE OF ODOR Petro	. SHEEN Y IN N
IMIE		IDPO Nitrate	TDS Cation	4		
ATT		NHUS NHUS	- HNO			
NO	AND		7/100	2		
MAT	CONTENANCE 21	bomh /	250mL 1/25	omL		
FOR	# OF CONT.					
N N	FILTERED (Y/N)) /	V N			
Wibr	QA/QC	MW-DUP	-030316			
SA	NOTES (incl. deviation f	from plan)				
	LOCK KEY #			Yes No	Comments	
	Well identification nur	nber clearly mar	ked?			
	Well covers and locks	s in good condition	on and secure?	% 🛛		
	Are soils surrounding	no surrace seal i the well pad erro	n good condition? ded?			
L L	Is there standing wate	er in the flush mo	punt?		MA	
LEGI	Is the PVC well casin	g in good conditi	on?			
IN	Does DTB sounded c	orrespond with o	riginal well completion		2	
VELL	Well coordinates:			,	-	
2	Others: instructions to	o find well, missi	ng bolts (size), need re	ataping, other repart	air:	
	L	THI	S INFORMATION FOR AUT	HORIZED COMPAN	Y USE ONLY	Pare 1 of 2

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