

GW-028

RO Reject Water
Discharge Fields Site
Investigation

April 2013



Navajo Refining Company

**Reverse Osmosis Reject Water
Discharge Fields Site
Investigation
First Quarter 2013 Interim Report
OCD Discharge Permit GW-028**

Artesia Refinery
Artesia, New Mexico

April 2013



A handwritten signature in blue ink, appearing to read "Pamela Krueger", positioned above a horizontal line.

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Discharge Fields Site
Investigation First Quarter
2013 Interim Report**

Prepared for:
New Mexico Environment Department
Hazardous Waste Bureau
and
New Mexico Energy, Minerals and
Natural Resources Department - Oil
Conservation Division

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Acronyms and Abbreviations

ARCADIS	ARCADIS U.S., Inc.
CGWSL	Critical Groundwater Screening Level
COC	constituent of concern
DRO	diesel-range organics
ft bgs	feet below ground surface
GRO	gasoline-range organics
GW-28	Discharge Permit GW-028
MCL	Maximum Contaminant Level
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
Navajo	Navajo Refining Company
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
OCD	New Mexico Energy, Minerals and Natural Resources Department – Oil Conservation Division
ORO	oil-range organics
PCC Permit	Post-Closure Care Permit
pci/g	picocuries per gram
PSH	phase-separated hydrocarbon
QA/QC	quality assurance/quality control
refinery	Artesia Refinery
RO	reverse osmosis
SOP	Standard Operating Procedure
SSL	soil screening level
SVOC	semivolatile organic compound

TPH	total petroleum hydrocarbon
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound
Work Plan	Reverse Osmosis Reject Water Discharge Fields Site Investigation Work Plan
WQCC	Water Quality Control Commission

Executive Summary

Navajo Refining Company (Navajo) owns and operates the Artesia Refinery (refinery) in Artesia, New Mexico (Figure 1). The refinery has been in operation since the 1920s and processes crude oil into asphalt, fuel oil, gasoline, diesel, jet fuel, and liquefied petroleum gas. Navajo maintains a groundwater monitoring program according to the requirements of the Post-Closure Care Permit (PCC Permit), which is administered by the New Mexico Environment Department (NMED) Hazardous Waste Bureau, and Discharge Permit GW-028 (GW-028) which is administered by the Oil Conservation Division (OCD) of the New Mexico Energy, Minerals and Natural Resources Department.

Navajo operates a reverse osmosis (RO) unit that processes fresh water as a means to remove contaminants such as minerals and salts. The fresh water is a blend of fresh groundwater and publicly supplied water from the City of Artesia. The RO unit is a pretreatment step in the production of cooling tower makeup water and boiler grade feedwater. The RO unit produces two effluent streams: the RO permeate stream, which is the purified water, and the RO reject water stream, which contains the concentrated salts and minerals that cannot pass through the RO membranes. The RO reject water stream is discharged to the surface of one of two vacant fields located northeast of the refinery operations areas to water native grass in those fields (Figure 2). This discharge occurs in accordance with the April 1993 approved GW-028, issued by OCD.

On August 22, 2012, OCD issued a renewal and update to GW-028 for the refinery (OCD 2012). Section 6.D of GW-028 requires an investigation of groundwater beneath the two RO reject water discharge fields to determine if impacts to groundwater quality have occurred as a result of the discharge of RO fluid. Section 6.D.3 requires a Final Site Investigation Report to be submitted within 90 days following the completion of the fourth quarter sampling event and quarterly interim reports to be submitted 30 days following the receipt of analytical data during each event. This document presents the results from the first quarter sampling event.

The activities performed during the first quarter 2013 site investigation and monitoring event include collection of soil samples at discrete depth intervals at seven boring locations (Figure 3) within the north and south RO reject fields, construction of six permanent monitoring wells at six of the seven drilled boreholes, and collection of groundwater samples at the six monitoring well locations. Section 2 provides a summary of all field activities conducted during the first quarter of 2013.

Section 4 provides the analytical results from soil and groundwater samples collected during the first quarter of 2013. The following conclusions are based upon the information obtained from site investigation and monitoring activities:

- Concentrations of organic constituents in soil were below reporting limits or screening levels in all samples collected. Concentrations of inorganic constituents including arsenic and fluoride were detected above soil leachate screening levels at various subsurface locations in both the northern and southern RO reject discharge fields. No reported concentrations exceeded the industrial/commercial screening levels in shallow soils.
- Radium-226 and radium-228 were detected at each soil boring location; however, soil screening levels are not available for radium and thus no exceedances were observed.
- Groundwater concentrations of organic constituents were below reporting limits or screening levels in all samples collected. Concentrations of several inorganic metals were detected above screening levels, including arsenic, boron, manganese, and uranium. Concentrations of anions including chloride, fluoride, and sulfate were detected above screening levels.

According to the requirements of Section 6.D.3 of GW-028, three additional quarterly monitoring events will be conducted, an interim report will be submitted 30 days following the receipt of analytical data from the second and third quarter 2013 sampling events, and a final report will be submitted 90 days after the fourth quarter sampling event has been completed.

1. Introduction

Navajo Refining Company (Navajo) owns and operates the Artesia Refinery (refinery) in Artesia, New Mexico (Figure 1). The refinery has been in operation since the 1920s and processes crude oil into asphalt, fuel oil, gasoline, diesel, jet fuel, and liquefied petroleum gas. Navajo maintains a groundwater monitoring program according to the requirements of the Post-Closure Care Permit (PCC Permit), which is administered by the New Mexico Environment Department (NMED) Hazardous Waste Bureau, and Discharge Permit GW-028 (GW-028) which is administered by the Oil Conservation Division (OCD) of the New Mexico Energy, Minerals and Natural Resources Department.

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2. Scope of Services

This section describes site investigation and subsequent groundwater monitoring activities performed during the first quarter sampling event. The objective of the site investigation activities was to further define the geology and hydrogeology, the vertical and horizontal extent and magnitude of vadose zone and groundwater contamination, and the rate and direction of contaminant migration. Field activities, consisting of drilling of soil borings, soil sample collection, monitoring well construction, and subsequent groundwater monitoring, are discussed in the following subsections.

2.1 Monitoring Well Installation

Between January 28 and February 4, 2013, three soil borings were drilled and permanent monitoring wells were constructed within each of the RO reject fields, as required in Section 6.D.2 of the GW-028 permit. Monitoring wells MW-117 and MW-114 were drilled in the vicinity of the RO point of discharge in the northern and southern discharge fields, respectively as requested by OCD on December 4, 2012. At the request of NMED, an additional soil boring was drilled in the northwestern portion of the northern discharge field to provide background moisture content values for soil in an unsaturated area near the discharge fields. Soil boring logs and well construction details are included in Appendix A.

Survey information was not collected during the first quarter reporting period; therefore, approximate boring locations are shown on Figure 3. The well locations will be surveyed during the second quarter of 2013 and actual locations will be adjusted, as necessary, on the figures provided in future reports.

2.1.1 Drilling Activities

Prior to initiating drilling operations, ARCADIS and Navajo personnel inspected and cleared the proposed boring locations of all potential hazards and subsurface utilities. Additionally, ARCADIS notified public utilities and the refinery safety coordinator to obtain clearance and determine site-specific health and safety protocols.

On January 28, 2013, ARCADIS personnel mobilized to the site with National Drilling to commence drilling and monitoring well installation. Each location was manually cleared using a hand auger to a depth of 5 feet below ground surface (ft bgs) in the south RO reject field and to a depth of 10 ft bgs in the north RO reject field.

Drilling operations were conducted using a truck-mounted hollow-stem auger rig. Boreholes were drilled to a maximum depth of 25 feet below ground surface (ft bgs) at locations MW-115 through MW-119 and to a depth of 35 ft bgs at MW-114. An additional soil boring (RO-SB-1) was drilled to a depth of 35 ft bgs for characterization and sample collection but was not converted to a monitoring well. Soil boring depths are presented in Table 1; boring logs are included in Appendix A.

Drilling and sampling equipment was decontaminated between each use to prevent cross-contamination at boring locations. Augers and drilling tools were washed in a bath of non-phosphate soap (AlconoxTM) and water then rinsed with distilled water.

2.1.2 Soil Sample Collection Methods

Subsurface samples were collected continuously ahead of the auger flight using a split spoon sampler. Total volatile organic compound (VOC) concentrations were measured at discrete depths along the collected soil core using a photo-ionization detector and were noted in field boring logs and well completion diagrams included as Appendix A.

Soil samples were selected from discrete intervals at each boring location for laboratory analysis based on the following guidelines:

- **Surface soil:** A surface sample was collected from 0 to 1 ft bgs at each location and analyzed for all parameters listed in Table 2.
- **2-Foot Intervals:** Soil samples were collected at every 2-foot interval throughout the boring depth and submitted for analysis of moisture content.
- **5-Foot Intervals:** Soil samples were collected at every 5-foot interval throughout the boring depth and analyzed for inorganic parameters listed in Table 2. Soil samples from the shallowest and deepest intervals, and any intervals where field screening indicated the potential presence of hydrocarbon impacts, were also analyzed for the organic parameters listed in Table 2.

Soil samples selected for laboratory analyses were labeled and placed in ice-packed coolers for submittal to the analytical laboratory. All laboratory analysis was conducted in accordance with the laboratory analytical methods referenced in Table 2.

2.1.3 Quality Assurance/Quality Control

Quality assurance/quality control (QA/QC) samples were to be collected during drilling and sampling activities to ensure the validity of the soil sample collection procedures. However, no field duplicate soil samples were collected during the well installation effort. Trip blank samples were included with each shipping container that contained samples to be analyzed for VOCs, as required by the work plan.

2.1.4 Well Construction

Following drilling operations, all boreholes were converted to permanent monitoring wells with the exception of boring RO-SB-1. Monitoring wells were constructed with 2-inch PVC well casings with 15 feet of 0.010-inch slotted PVC screens. Wells were constructed with 20/40 silica sand filter pack within the annular space to 2 feet above the screened interval, sealed with a 4-foot bentonite seal, and grouted to the surface using a tremie pipe. Well construction details are included in Table 1.

Each well was completed with a stickup riser extending between 2 and 3 feet above the ground surface and a steel outer protective casing. Protective casings were constructed with a surrounding 4-foot by 4-foot by 4-inch thick concrete pad, sloped away from the protective casing.

Survey information was not collected during the first quarter reporting period; therefore, approximate boring locations are shown on Figure 3. Elevations and locations of all wells will be measured by a registered surveyor during second quarter 2013 sampling activities.

2.2 Monitoring Well Development

All wells installed as part of this investigation were developed through bailing to remove fine grained materials accumulated in the well casing until the bottom of the well casing was reached. Field parameters including conductivity, pH, and temperature were monitored throughout the development process to determine groundwater conditions. The development process was ceased at each location when parameters stabilized (i.e., less than 10% variability between readings) or at least three well casing volumes were removed. All fluids produced during development were collected and disposed of on-site in the process wastewater system, upstream of the oil-water separator.

2.3 Post-Installation Groundwater Sampling

Groundwater samples were collected from monitoring wells MW-114 through MW-117 on February 3, 2013 and from MW-118 and MW-119 on February 5, 2013 following well development. Field logs for the purging and sample collection from each well are provided in Appendix B, and final water quality parameters are summarized in Table 3.

Prior to collection of samples, each monitoring well was purged using low-flow procedures with a peristaltic pump and newly installed dedicated tubing. During the well purging process, water quality parameters, including pH, conductivity, temperature, and turbidity, were measured at regular intervals using a YSI multiparameter water quality meter with a flow-through cell. Purging continued until water quality parameters stabilized for at least four consecutive readings, indicating that collected water was characteristic of the surrounding formation.

Collected samples were placed in padded packing sleeves to prevent breakage and packed with ice in shipping containers. Samples were submitted to ALS Laboratory in Houston, Texas with chain-of-custody documentation and analyzed in accordance with the laboratory analytical methods referenced in Table 2. Copies of the chain-of-custody forms are included in Appendix C with the analytical data reports.

2.3.1 Quality Assurance/Quality Control Samples

QA/QC samples were to be collected during groundwater sampling activities to ensure activities were conducted according to standard sample collection procedures. No field duplicates of soil samples were collected and no field duplicates of the initial groundwater samples were collected. Trip blank samples were included in each shipping container that contained samples to be analyzed for VOCs, as required.

2.3.2 Decontamination Procedures

All sampling equipment in contact with groundwater (downhole probes) was decontaminated between each sampling location to prevent cross-contamination. The equipment was washed in a bath of non-phosphate soap (such as AlconoxTM) and water then rinsed with distilled water.

2.4 Investigation-Derived Waste Disposal

During investigation and subsequent sampling activities, all solid investigation-derived waste was collected temporarily in a roll-off bin for disposal pending waste characterization results. The solid waste was subsequently disposed of off-site as nonhazardous waste. Waste disposal records are maintained at the refinery.

All collected water from equipment decontamination, well development, and purging was collected and subsequently disposed of within the refinery process wastewater system, upstream of the oil-water separator.

2.5 Deviations from Site Investigation Work Plan

There were no field duplicate samples collected from the soil samples or from the initial groundwater samples. This deviation occurred as a result of misunderstanding on the part of the field crew. Field duplicate samples will be collected for the groundwater samples collected during all future monitoring events.

3. Regulatory Criteria

This section presents the sources of screening levels used to evaluate investigation analytical results.

3.1 Soil Screening Levels

Navajo has followed guidance provided by NMED to develop soil screening levels (SSLs) to determine the nature and extent of potential COCs within the RO discharge fields. The primary source of soil screening levels is the NMED risk-based soil screening guidance document *Risk Assessment Guidance for Site Investigations and Remediation* (NMED, 2012a). Soil screening values are presented in Table A-1 of that document, and were updated on June 14, 2012 (NMED, 2012b) for the following scenarios:

- Residential Exposure;
- Industrial/Occupational Exposure;
- Construction Worker Exposure; and
- Dilution Attenuation Factor of 20 (DAF20) for protection of groundwater from soil to groundwater leaching.

To adequately characterize the risk to various receptors anticipated within the RO discharge fields, separate screening levels were developed for surface (0 to 1 ft bgs) and subsurface (>1 ft bgs) soil samples. The RO discharge fields are within the refinery area, which is limited to personnel approved to enter the refinery, which includes employees and contractors who have met the safety requirements for entry into the refinery. Additionally, no land use change is anticipated from the current industrial use; therefore, the surface soil SSL for each analyte was determined to be the lowest value from the following sources:

- Table A-1, Industrial/Occupational Exposure; or
- Table A-1, Construction Worker Exposure.

The SSL for subsurface soils up to a depth of 10 feet was set to the Construction Worker Exposure SSL.

The SSL for subsurface soils at a depth of greater than 10 feet was set to the DAF-20 SSL.

TPH DRO and ORO were compared to the screening level values for “unknown oil” obtained from Table 6-2 of the *Risk Assessment Guidance for Site Investigations and Remediation* (NMED, 2012a).

Soil screening levels are presented in Table 4 with soil analytical results.

3.2 Groundwater Screening Levels

Groundwater data collected during RO investigation activities were evaluated using screening levels established for the facility-wide groundwater monitoring program. Regulatory standards used to evaluate analytical results are based on the presumption that the shallow groundwater might be used as a source of drinking water. The screening level value used for each COC is the lower value of either the New Mexico Water Quality Control Commission (WQCC) standards from 20.6.2.3103 New Mexico Administrative Code (NMAC) or the Maximum Contaminant Level (MCL) from the National Primary Drinking Water Standards. For COCs where neither a WQCC standard or MCL exists, the screening level value used is the NMED Tap Water Standard listed in the updated Table A-1 (NMED, 2012b) of the *Risk Assessment Guidance for Site Investigations and Remediation* (NMED, 2012a). For TPH, the TPH Screening Guidelines for Potable Groundwater for unknown oil included in Table 6-2 of the *Risk Assessment Guidance for Site Investigations and Remediation* (NMED, 2012a) were used, as corrected by subsequent correspondence from the NMED.

The Critical Groundwater Screening Level (CGWSL) for each COC. is provided in the groundwater data summary table (Table 5).

4. Analytical Results and Discussion

Soil and groundwater samples were collected during field activities according to the Work Plan. As discussed previously, soil samples were collected at discrete depth intervals at boring locations as shown on Figure 3. Following monitoring well development activities, groundwater samples were collected from the six monitoring wells installed within the investigation area and a sample of the RO discharge was collected from the point of discharge, as required by the Discharge Permit (OCD 2012).

4.1 Soil Analytical Results

Soil samples collected at the boring locations were analyzed for site COCs and percent moisture to delineate the extent of RO discharge seepage from the discharge fields. Validated results from soil samples collected are included in Table 4.

4.1.1 Laboratory Analytical Methods

As discussed previously, collected soil samples were analyzed for COCs in accordance with the laboratory analytical methods referenced in Table 2.

4.1.2 Data Validation

ARCADIS performed data validation of soil and groundwater analytical results in accordance with U.S. Environmental Protection Agency (USEPA) guidance (USEPA 1999; 2004). Validated soil analytical data are presented in Table 4. Laboratory analytical results are attached in Appendix C, and the data validation reports are included as Appendix D. Data qualifier flags have been appended to laboratory results based on data evaluation and are presented in Table 4.

The overall assessment of analytical results indicates that the data are acceptable and usable. The sample collected at 25 ft bgs from boring MW-115 was qualified as non-detected at the reporting limit for fluoride due to method blank contamination; however, no systemic field or laboratory QC issues were identified during validation, thus all data are considered usable for the purpose intended.

4.1.3 Results and Discussion

Concentrations of TPH, VOCs, and polycyclic aromatic hydrocarbons (PAHs) were either not detected above laboratory reporting limits or were below screening levels for all soil samples collected during well installation. Exceedances of screening levels at the sampled locations are discussed by analytical group in detail in the following subsections.

4.1.3.1 *Total Metals*

Concentrations of metals above SSLs were detected in subsurface samples collected from all soil boring locations. Exceedances were primarily limited to arsenic detections above the DAF 20 SSL; however, manganese was additionally detected in a sample collected at boring location MW-119 above the construction worker SSLs. Exceedances of SSLs observed for arsenic as follows:

- Arsenic was detected above the DAF 20 SSL of 0.262 milligrams per kilogram (mg/kg) in subsurface samples at all soil boring locations. No exceedances of the construction worker soil SSL (53 mg/kg) and/or the industrial/occupational SSL (17.7 mg/kg) were observed in the surface or subsurface samples collected during the investigation. The concentrations of arsenic detected above reporting limits ranged from 0.526 mg/kg (MW-117; 25 ft bgs) to 7.29 mg/kg (MW-117; 15 ft bgs).

Concentrations of the remaining metals were not detected above the applicable SSLs in subsurface soils. No exceedances of SSLs were observed for metals in surface soil.

4.1.3.2 *Anions*

Concentrations of fluoride above the SSL were detected in subsurface samples collected from boring locations MW-116, MW-118, MW-119, and RO-SB-1, as follows:

- Fluoride was detected above the DAF 20 SSL (8.37 mg/kg) in samples collected from MW-116 at 15 ft bgs, MW-118 at 15 ft bgs, MW-119 at 15 ft bgs, and RO-SB-1 at 5, 10, 15, 20, and 25 ft bgs. Detected concentrations above the DAF 20 SSL ranged from 8.59 mg/kg (MW-118; 15 ft bgs) to 21.5 mg/kg (RO-SB-1; 10 ft bgs). Exceedances at RO-SB-1 were greatest within the top 15 feet; however, no

significant increasing or decreasing trend in concentrations is observed within the interval above the SSL.

No SSLs are available for chloride and sulfate; however, these two compounds are of interest to OCD. The concentrations of these two compounds were as follows:

- Chloride was detected above laboratory reporting limits in all samples collected during the investigation. Concentrations of chloride ranged from 6.56 mg/kg (RO-SB-1; 1 ft bgs) to 247 mg/kg (RO-SB-1; 5 ft bgs).
- Sulfate was detected above laboratory reporting limits in all samples collected during the investigation. Concentrations of sulfate ranged from 204 mg/kg (RO-SB-1; 1 ft bgs) to 10,700 mg/kg (MW-118; 5 ft bgs).

Concentrations of the remaining anions were not detected above SSLs. No exceedances of SSLs were observed for anions in surface soil.

4.1.3.3 Radium

No SSLs have been developed for radium, which was present in soil samples, as follows:

- Radium-226 was detected in samples collected at all soil boring locations. Concentrations of radium-226 ranged from 0.5 picocuries per gram (pci/g; MW-117; 5 ft bgs) to 1.9 pci/g (MW-114; 5 ft bgs).
- Radium-228 was detected in samples collected at all soil boring locations. Concentrations of radium-228 ranged from 0.75 pci/g (MW-115; 25 ft bgs) to 1.4 pci/g (MW-116; 10 ft bgs).

4.2 Groundwater Analytical Results

Groundwater samples collected were analyzed for site COCs to delineate the extent of potential groundwater impacts underlying the RO discharge fields. Validated results from groundwater samples collected are included in Table 5. In addition, the analytical results for the sample of RO discharge water collected from the discharge point are presented in Table 5 and are discussed below.

4.2.1 Laboratory Analytical Methods

As discussed previously, collected samples were analyzed for COCs in accordance with the laboratory analytical methods referenced in Table 2. The laboratory analytical reports are included in electronic format in Appendix C.

4.2.2 Data Validation

Data validation results and a discussion of any data quality exceptions are included in Appendix D. Data qualifier flags have been appended to laboratory results based on data evaluation and are presented in Table 5.

The overall assessment of analytical results indicates that the data are acceptable and usable. A portion of the data collected from monitoring wells MW-116, MW-118, and MW-119 was qualified due to method blank contamination, expired hold times (for nitrate samples only), and spiked analyte results that were outside QC limits. A complete discussion of data validation is provided in Appendix D; however, no systemic field or laboratory QC issues were identified during validation, thus all data are considered usable for the purpose intended.

4.2.3 Results and Discussion

Concentrations of radium, TPH, VOCs, and SVOCs were either not detected above laboratory reporting limits or were below screening levels for all samples collected in the first quarter 2013 reporting period. Exceedances of screening levels at the sampled locations are discussed by analytical group in detail in the following subsections.

4.2.3.1 Total Metals

Concentrations of metals above CGWSLs were detected in samples collected from monitoring wells MW-114, MW-115, MW-116, and MW-118. Exceedances of CGWSLs were as follows:

- The reported concentration of arsenic (0.011 milligrams per liter [mg/L]) exceeded the CGWSL (0.01 mg/L) in the sample collected from monitoring well MW-118. The concentrations of arsenic at all other monitoring locations were below the CGWSL. The arsenic concentration in the RO discharge water was also below the CGWSL.

- The reported concentration of boron (0.865 mg/L) exceeded the CGWSL (0.75 mg/L) in the sample collected from monitoring well MW-115. The concentrations of boron at all other monitoring locations were below the CGWSL. The boron concentration in the RO discharge water was also below the CGWSL.
- The reported concentrations of manganese exceeded the CGWSL (0.2 mg/L) in samples collected from monitoring wells MW-114 (1.51 mg/L) and MW-115 (0.255 mg/L). The concentrations of manganese at all other monitoring locations were below the CGWSL. The manganese concentration in the RO discharge water was also below the CGWSL.
- The reported concentrations of uranium exceeded the CGWSL (0.03 mg/L) in samples collected from monitoring wells MW-115 (0.0843 mg/L), MW-116 (0.0331 mg/L), and MW-118 (0.037 mg/L). The concentrations of uranium at all other monitoring locations were below the CGWSL. The uranium concentration in the RO discharge water was also below the CGWSL.

Concentrations of metals at monitoring wells MW-117 and MW-119 and in the sample collected from the RO discharge point were either not detected above laboratory reporting limits or were below the CGWSLs.

4.2.3.2 Anions

Concentrations of anions above CGWSLs were detected in all samples collected during the monitoring event. Exceedances of CGWSLs observed for chloride, fluoride, and sulfate are detailed below.

- The reported concentrations of chloride exceeded the CGWSL (250 mg/L) in samples collected from monitoring wells MW-115, MW-116, and MW-118, with the maximum concentration (422 mg/L) detected at MW-115. The concentrations of chloride at all other monitoring locations were below the CGWSL. The chloride concentration reported for the RO discharge water sample was below the chloride concentration in all of the monitoring well samples.
- The reported concentrations of fluoride exceeded the CGWSL (1.6 mg/L) in samples collected from monitoring wells MW-114, MW-117, MW-118, MW-119, and the RO discharge, with the maximum concentration (5.16 mg/L) detected at MW-118. The concentrations of fluoride at all other monitoring locations were below the CGWSL.

- The reported concentrations of sulfate exceeded the CGWSL (600 mg/L) in all samples collected during the first quarter 2013 monitoring event. Concentrations detected varied from 1690 mg/L (RO discharge) to 2790 mg/L (MW-115).

5. Summary and Conclusions

Field activities conducted to support further delineation of soil and groundwater beneath the RO reject water discharge fields included the installation of six monitoring wells within the investigation area, installation of a background boring, collection of 47 soil samples from seven locations at various depth intervals, and collection of six groundwater samples from newly installed monitoring locations and one grab sample from the RO discharge.

Review of field and validated laboratory analytical data indicates the following:

- Concentrations of organic constituents in soil were below reporting limits or screening levels in all samples collected. Concentrations of organic constituents in groundwater samples were below reporting limits or screening levels in all samples collected. These results confirm that no impacts from hydrocarbons have occurred as a result of discharge of the RO reject stream to the two fields.
- Concentrations of arsenic were detected above soil leachate screening levels in all subsurface samples collected. However, the arsenic concentration in five of the six wells was below the screening level and the concentration of arsenic (0.011 mg/L) in the sixth well (MW-118) was only slightly above the screening level of 0.01 mg/L. The concentration of arsenic in the RO discharge sample was below the screening level.
- The reported concentrations of manganese were below the applicable screening levels; however, the reported concentrations of manganese in wells MW-114 and MW-115 were above the screening level. The concentration of manganese in the RO discharge sample was below the screening level.
- The concentrations of boron and uranium in soil samples were all below the screening levels; however, the concentrations of boron and uranium in the groundwater sample from MW-115 were above the screening level. The concentrations of uranium in the groundwater sample collected from MW-116 and MW-118 were also above the screening level. The concentrations of boron and uranium in the RO discharge sample were below the screening levels.

- There is no soil screening level for chloride, but chloride was present in all of the soil samples collected. The reported concentrations of chloride in groundwater exceeded the screening level in samples collected from monitoring wells MW-115, MW-116, and MW-118. The concentration of chloride in the RO discharge sample was below the screening level.
- Concentrations of fluoride in soil samples were detected above the soil leachate screening level at locations MW-116, MW-118, MW-119, and RO-SB-1. The reported concentrations of fluoride in groundwater samples collected from MW-114, MW-117, MW-118, and MW-119 exceeded the screening level for fluoride. The concentration of fluoride in the RO discharge sample was above the screening level.
- There is no soil screening level for sulfate, but sulfate was present in all of the soil samples collected. The reported concentrations of sulfate in groundwater exceeded the screening level in all samples collected during the first quarter monitoring event. The concentration of sulfate in the RO discharge sample was above the screening level.
- There is no soil screening level for radium-226 or for radium-228, but both compounds were present in all of the soil samples collected. Radium-226 and radium-228 were present in three of the six groundwater samples at concentrations below the screening level.

The initial sampling event has been completed. Three additional quarterly groundwater sampling events will be performed in order to establish trends in concentration and evaluate potential impacts due to historic discharge.

A thorough comparison of the data from the four quarterly monitoring events will be presented in the final report along with an evaluation of potential impacts and potential sources of any impacts identified.

6. References

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U.S. Environmental Protection Agency (USEPA). 1999. Contract Laboratory Program National Functional Guidelines for Organic Data Review. U.S. Environmental Protection Agency.

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Tables

Table 1 - Well Construction Details
First Quarter 2013 Interim Report
Navajo Refining Company, Artesia Refinery, New Mexico

Well ID	Date Installed	Drilling Method	Borehole Depth (feet bgs)	Screen Interval (feet bgs)	Screen Material	Screen Slot Size	Filter Pack Depth (feet bgs)	Bentonite Depth (feet bgs)	Casing Diameter (inches)	Casing Material
MW-114	2/5/2013	hollow-stem	35	20-35	slotted PVC	0.002	18-35	14-18	2	PVC
MW-115	2/5/2013	hollow-stem	25	10-25	slotted PVC	0.002	8-25	4-8	2	PVC
MW-116	2/5/2013	hollow-stem	25	10-25	slotted PVC	0.002	8-25	4-8	2	PVC
MW-117	2/5/2013	hollow-stem	25	10-25	slotted PVC	0.002	8-25	4-8	2	PVC
MW-118	2/5/2013	hollow-stem	25	10-25	slotted PVC	0.002	8-25	4-8	2	PVC
MW-119	2/5/2013	hollow-stem	25	10-25	slotted PVC	0.002	8-25	4-8	2	PVC

Notes:

bgs = below ground surface

hollow-stem = hollow-stem auger

MW = monitoring well

Table 2 - Laboratory Analytical Methods for Soil and Groundwater Samples

First Quarter 2013 Interim Report

Navajo Refining Company, Artesia Refinery, New Mexico

Sample Matrix	Method	Analyte Group	Specific Compounds
Soil / Groundwater / RO Reject Water	8015 Mod	Total Petroleum Hydrocarbons	Gasoline Range Organics Diesel Range Organics Oil Range Organics
Soil / Groundwater / RO Reject Water	6020 and 7470/7471	Metals (Dissolved Metals for Groundwater and RO Reject Water Samples)	Aluminum Arsenic Barium Boron Cadmium Calcium Chromium Cobalt Copper Iron Lead Manganese Mercury Molybdenum Nickel Potassium Selenium Silver Sodium Uranium Zinc
Soil / Groundwater / RO Reject Water	8260	Volatile Organic Compounds	Target Compound List to include specific compounds listed in 20.6.2.7(WW), 20.6.2.3103.A, 20.6.2.3103.B, and 20.6.2.3103.C
Soil / Groundwater / RO Reject Water	8270	Semivolatile Organic Compounds	Target Compound List to include specific compounds listed in 20.6.2.7(WW), 20.6.2.3103.A, 20.6.2.3103.B, and 20.6.2.3103.C
Soil / Groundwater / RO Reject Water	9014	Cyanide	Cyanide
Soil / Groundwater / RO Reject Water	300	Anions/Cations	Chloride Fluoride Sulfate Nitrite/Nitrate
Soil / Groundwater / RO Reject Water	903.1	Radioactive Parameters	Radioactivity (combined Radium-226 and Radium-228)
Soil	2540	Moisture	Percent Moisture
Soil / Groundwater / RO Reject Water	2540C	Water Quality	Total Dissolved Solids
Soil / Groundwater / RO Reject Water	Field instrument	Water Quality	pH

Note:

RO = reverse osmosis

Table 3 - Well Purging and Water Quality Measurement Data
First Quarter 2013 Interim Report
Navajo Refining Company, Artesia Refinery, New Mexico

Well	Date	Time	Purge Method	DTW (ft brp)	Temperature (°C)	Conductivity (S/m)	pH (std units)	Turbidity (NTU)
MW-114	02/03/2013	11:15	Low Flow	8.61	18.88	4.14	6.49	37.8
MW-115	02/03/2013	12:15	Low Flow	7.49	16.83	4.53	6.83	59.0
MW-116	02/03/2013	13:05	Low Flow	9.93	14.03	4.88	6.69	75.2
MW-117	02/03/2013	9:40	Low Flow	7.08	18.85	4.29	6.36	62.0
MW-118	02/05/2013	14:15	Low Flow	3.74	16.11	4.93	6.72	26.8
MW-119	02/05/2013	13:05	Low Flow	6.63	9.42	4.00	6.87	144

Notes:

°C = degrees Celsius

DTW = depth-to-water

ft brp = feet below reference point

NTU = nephelometric turbidity units

S/m = Siemens per meter

std units = standard pH units

Low Flow = peristaltic pump with dedicated tubing, purged until parameters stabilized

Table 4 - Summary of Soil Sampling Analytical Results
First Quarter 2013 Interim Report
Navajo Refining Company, Artesia Refinery, New Mexico

Boring Location (Depth)				MW-114 (1)			MW-114 (5)			MW-114 (10)			MW-114 (15)			MW-114 (20)			MW-114 (25)		
Depth:				1			5			10			15			20			25		
Date:				1/28/2013			1/28/2013			1/28/2013			1/28/2013			1/28/2013			1/28/2013		
Analyte	Industrial/ Occupational SSL (mg/kg)	Construction Worker SSL (mg/kg)	DAF 20 SSL (mg/kg)	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL
Moisture (%)																					
Percent Moisture	---	---	---	17.9		0.01	28		0.01	25.2		0.01	19.9		0.01	27		0.01	23.6		0.01
Metals (mg/kg)																					
Aluminum	1.13E+06	4.07E+04	1.10E+06	13900		117	5490		117	8230		113	8150		99.8	8460		120	10100		124
Arsenic	1.77E+01	5.30E+01	2.62E-01	4.67		0.58	2.19		0.58	3.1		0.56	3.48		0.5	2.97		0.6	3.14		1.24
Barium	2.23E+05	4.35E+03	6.03E+03	115		0.58	99.2		0.58	131		0.56	50.7		0.5	191		0.6	27		0.62
Boron	2.27E+05	4.65E+04	4.80E+02	5.29		2.92	5.78	J	5.84	6.34		5.64	7.64		4.99	3.21		3	5.2	J	6.18
Cadmium	8.97E+02	2.77E+02	2.75E+01	0.403	J	0.58	0.0884	J	0.58	0.126	J	0.56	0.149	J	0.5	0.186	J	0.6	0.279	J	0.62
Calcium	---	---	---	58900		5840	150000		5840	141000		5640	146000		4990	120000		6000	138000		6180
Chromium	1.70E+06	4.65E+05	1.97E+09	14.3		0.58	5.44		1.17	7.76		1.13	9.03		1	3.77		0.6	11.2		1.24
Cobalt	---	---	---	4.91		0.58	1.3		0.58	2.14		0.56	2.92		0.5	2.65		0.6	4.08		1.24
Copper	4.54E+04	1.24E+04	1.03E+03	26.4		0.58	1.67		0.58	2.82		0.56	3.34		0.5	3.97		0.6	3.57		1.24
Iron	7.95E+05	2.17E+05	1.29E+04	9110		58.4	3330		58.4	4890		56.4	5630		49.9	5630		60	9390		124
Lead	8.00E+02	8.00E+02		37.3		0.58	2.59		0.58	3.86		0.56	4.96		0.5	4.37		0.6	6.42		0.62
Manganese	2.67E+04	4.40E+02	1.14E+03	192		0.58	45.8		0.58	78		0.56	129		0.5	137		0.6	125		1.24
Mercury	7.36E+01	1.36E+01	6.54E-01	0.0199		0		U	0	0.00371	J	0	0.00127	J	0		U	0	0.00738		0
Molybdenum	5.68E+03	1.55E+03	7.40E+01	0.58	J	0.58	0.273	J	0.58	0.406	J	0.56	0.808		0.5	0.594	J	0.6	0.592	J	0.62
Nickel	2.25E+04	6.19E+03	9.53E+02	10.7		0.58	3.16		0.58	4.48		0.56	6.38		0.5	5.71		0.6	5.62		1.24
Potassium	---	---	---	3520		58.4	1060		58.4	1650		56.4	1240		49.9	1610		60	1660		61.8
Selenium	5.68E+03	1.55E+03	1.93E+01	1.12		0.58	0.307	J	0.58	0.64		0.56	0.537		0.5	0.453	J	0.6		U	1.24
Silver	5.68E+03	1.55E+03	3.13E+01		U	0.58		U	0.58		U	0.56		U	0.5		U	0.6		U	0.62
Sodium	---	---	---	157		58.4	110		58.4	136		56.4	113		49.9	108		60	181		124
Uranium	3.41E+03	9.29E+02	9.86E+02		U	0.58		U	0.58		U	0.56		U	0.5		U	0.6		U	0.62
Zinc	3.41E+05	9.29E+04	1.36E+04	40		0.58	9.61		0.58	14.9		0.56	16.1		0.5	18.2		0.6	23		1.24
Anions (mg/kg)																					
Chloride	---	---	---	21		6.06	24.9		6.93	20.6		6.56	27.8		6.22	24.6		6.78	19.8		6.52
Fluoride (F-, Anion)	4.54E+04	1.24E+04	8.37E+00	11.1		1.21	7.73		1.39	5.02		1.31	7.12		1.24	4.19		1.36	4.63		1.3
Nitrate-N	1.82E+06	4.96E+05	3.35E+02		U	1.21		U	1.39		U	1.31		U	1.24		U	1.36		U	1.3
Nitrite	1.14E+05	3.10E+04	2.09E+01		U	1.21		U	1.39		U	1.31		U	1.24		U	1.36		U	1.3
Sulfate	---	---	---	1120		6.06	796		6.93	6970		65.6	1270		6.22	320		6.78	390		6.52
Cyanide	6.81E+02	1.86E+02	4.41E+00		U	2.41		U	2.66		U	2.46		U	2.29		U	2.5		U	2.49
Radium (pci/g)																					
Radium-226	---	---	---	1.83	G	0.65	1.9	G	0.38	1.13	G	0.41	0.9	LT,G	0.43	0.94	LT,G	0.46	0.8	LT,G	0.45
Radium-228	---	---	---		U,G	0.99	1.12	G,NQ	1		U,G	0.66		U,G	0.89	1.06	G,NQ	0.77		U,G	0.73

Table 4 - Summary of Soil Sampling Analytical Results
First Quarter 2013 Interim Report
Navajo Refining Company, Artesia Refinery, New Mexico

Boring Location (Depth) Depth: Date:				MW-114 (1)			MW-114 (5)			MW-114 (10)			MW-114 (15)			MW-114 (20)			MW-114 (25)		
				1			5			10			15			20			25		
				1/28/2013			1/28/2013			1/28/2013			1/28/2013			1/28/2013			1/28/2013		
Analyte	Industrial/ Occupational SSL (mg/kg)	Construction Worker SSL (mg/kg)	DAF 20 SSL (mg/kg)	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL
TPH (mg/kg)																					
Gasoline Range Organics	---	---	---		U	0.06	NA			NA			NA			NA			NA		
Diesel Range Organics	1.00E+03	---	---		U	2.1	NA			NA			NA			NA			NA		
Motor Oil Range Organics	1.00E+03	---	---	0.83	J	4.1	NA			NA			NA			NA			NA		
VOCs (mg/kg)																					
1,1,1-Trichloroethane	7.89E+04	1.48E+04	5.82E+01		U	0.01	NA			NA			NA			NA			NA		
1,1,2,2-Tetrachloroethane	4.35E+01	2.21E+02	4.26E-03		U	0.01	NA			NA			NA			NA			NA		
1,1,2-Trichloroethane	1.33E+01	4.72E+02	2.23E-03		U	0.01	NA			NA			NA			NA			NA		
1,1-Dichloroethane	3.59E+02	1.70E+03	1.20E-01		U	0.01	NA			NA			NA			NA			NA		
1,1-Dichloroethene	2.29E+03	4.32E+02	2.32E+00		U	0.01	NA			NA			NA			NA			NA		
1,2-Dibromoethane	3.22E+00	1.60E+01	3.08E-04		U	0.01	NA			NA			NA			NA			NA		
1,2-Dichloroethane	4.35E+01	5.87E+01	7.11E-03		U	0.01	NA			NA			NA			NA			NA		
Benzene	8.47E+01	1.38E+02	3.45E-02		U	0.01	NA			NA			NA			NA			NA		
Carbon Tetrachloride	5.98E+01	2.26E+02	3.21E-02		U	0.01	NA			NA			NA			NA			NA		
Chloroform	3.27E+01	1.54E+02	9.18E-03		U	0.01	NA			NA			NA			NA			NA		
Dichloromethane	4.70E+03	1.12E+03	8.24E-01	0.0032	J	0.01	NA			NA			NA			NA			NA		
Ethylbenzene	3.78E+02	1.83E+03	2.60E-01		U	0.01	NA			NA			NA			NA			NA		
Tetrachloroethene	3.66E+01	2.12E+02	8.61E-03		U	0.01	NA			NA			NA			NA			NA		
Toluene	5.77E+04	1.34E+04	2.53E+01		U	0.01	NA			NA			NA			NA			NA		
Total Xylenes	3.98E+03	7.43E+02	3.13E+00		U	0.02	NA			NA			NA			NA			NA		
Trichloroethene	4.13E+01	7.68E+00	2.11E-02		U	0.01	NA			NA			NA			NA			NA		
Vinyl Chloride	2.61E+01	1.49E+02	1.08E-03		U	0	NA			NA			NA			NA			NA		
PAHs (mg/kg)																					
1-Methylnaphthalene	---	---	---		U	0.01	NA			NA			NA			NA			NA		
2-Methylnaphthalene	---	---	---		U	0.01	NA			NA			NA			NA			NA		
Benzo(a)Pyrene	2.34E+00	2.13E+01	5.20E-01		U	0.01	NA			NA			NA			NA			NA		
Naphthalene	2.41E+02	1.58E+02	7.13E-02		U	0.01	NA			NA			NA			NA			NA		

Table 4 - Summary of Soil Sampling Analytical Results
First Quarter 2013 Interim Report
Navajo Refining Company, Artesia Refinery, New Mexico

Boring Location (Depth)				MW-114 (29)			MW-114 (30)			MW-114 (35)			MW -115 (1)			MW- 115 (5)		
Depth:				29			30			35			1			5		
Date:				1/28/2013			1/28/2013			1/28/2013			1/29/2013			1/29/2013		
Analyte	Industrial/ Occupational SSL (mg/kg)	Construction Worker SSL (mg/kg)	DAF 20 SSL (mg/kg)	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL
Moisture (%)																		
Percent Moisture	---	---	---	NA			27.4		0.01	17.5		0.01	19		0.01	26.9		0.01
Metals (mg/kg)																		
Aluminum	1.13E+06	4.07E+04	1.10E+06	NA			11100		118	8660		88.4	13800		118	13200		120
Arsenic	1.77E+01	5.30E+01	2.62E-01	NA			1.13	J	1.18	1.09		0.442	3.6		0.591	2.42		0.6
Barium	2.23E+05	4.35E+03	6.03E+03	NA			111		0.59	75.2		0.442	147		0.591	79.7		0.6
Boron	2.27E+05	4.65E+04	4.80E+02	NA			3.95	J	5.92	2.39		2.21	6.45		2.95	9.03		5.99
Cadmium	8.97E+02	2.77E+02	2.75E+01	NA			0.183	J	0.59	0.129	J	0.442	0.39	J	0.591	0.257	J	0.6
Calcium	---	---	---	NA			146000		5920	50400		4420	64700		5910	90500		5990
Chromium	1.70E+06	4.65E+05	1.97E+09	NA			11.4		1.18	7.82		0.442	12.8		0.591	13		0.6
Cobalt	---	---	---	NA			3.6		1.18	2.38		0.442	4.78		0.591	4.55		0.6
Copper	4.54E+04	1.24E+04	1.03E+03	NA			5.59		1.18	2.71		0.442	11.4		0.591	7.86		0.6
Iron	7.95E+05	2.17E+05	1.29E+04	NA			8870		118	5410		44.2	9060		59.1	8880		59.9
Lead	8.00E+02	8.00E+02		NA			5.54		0.59	4.82		0.442	23.7		0.591	8.22		0.6
Manganese	2.67E+04	4.40E+02	1.14E+03	NA			217		59.2	88.1		0.442	357		59.1	211		0.6
Mercury	7.36E+01	1.36E+01	6.54E-01	NA				U	0		U	0.0041	0.0182		0.0044	0.00569		0
Molybdenum	5.68E+03	1.55E+03	7.40E+01	NA			0.289	J	0.59	0.187	J	0.442	0.742		0.591	0.68		0.6
Nickel	2.25E+04	6.19E+03	9.53E+02	NA			6.9		1.18	5.19		0.442	9.67		0.591	8.77		0.6
Potassium	---	---	---	NA			1840		59.2	1860		44.2	3360		59.1	2630		59.9
Selenium	5.68E+03	1.55E+03	1.93E+01	NA				U	1.18	0.258	J	0.442	0.949		0.591	0.843		0.6
Silver	5.68E+03	1.55E+03	3.13E+01	NA				U	0.59		U	0.442		U	0.591		U	0.6
Sodium	---	---	---	NA			208		118	125		44.2	327		59.1	216		59.9
Uranium	3.41E+03	9.29E+02	9.86E+02	NA				U	0.59		U	0.442		U	0.591	0.856		0.6
Zinc	3.41E+05	9.29E+04	1.36E+04	NA			23.4		1.18	14.4		0.442	33.8		0.591	31.4		0.6
Anions (mg/kg)																		
Chloride	---	---	---	NA			20.8		6.87	19.6		6.01	58.8		6.14	51.5		6.79
Fluoride (F-, Anion)	4.54E+04	1.24E+04	8.37E+00	NA			2.25		1.37	3.2		1.2	5.2		1.23	5.92		1.36
Nitrate-N	1.82E+06	4.96E+05	3.35E+02	NA				U	1.37		U	1.2		U	1.23		U	1.36
Nitrite	1.14E+05	3.10E+04	2.09E+01	NA				U	1.37		U	1.2		U	1.23		U	1.36
Sulfate	---	---	---	NA			338		6.87	259		6.01	1160		6.14	1070		6.79
Cyanide	6.81E+02	1.86E+02	4.41E+00	NA				U	2.7		U	2.18		U	2.3		U	2.71
Radium (pci/g)																		
Radium-226	---	---	---	NA			0.73	LT,G,TI	0.38	0.82	LT,G	0.5	1.62	G	0.6	1.29	G	0.41
Radium-228	---	---	---	NA			0.86	LT,G,TI	0.57	0.99	LT,G,TI	0.88	1.25	G,TI	0.83	0.78	LT,G,TI	0.7

Table 4 - Summary of Soil Sampling Analytical Results
First Quarter 2013 Interim Report
Navajo Refining Company, Artesia Refinery, New Mexico

Boring Location (Depth)				MW-114 (29)			MW-114 (30)			MW-114 (35)			MW -115 (1)			MW- 115 (5)		
Depth:				29			30			35			1			5		
Date:				1/28/2013			1/28/2013			1/28/2013			1/29/2013			1/29/2013		
Analyte	Industrial/ Occupational SSL (mg/kg)	Construction Worker SSL (mg/kg)	DAF 20 SSL (mg/kg)	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL
TPH (mg/kg)																		
Gasoline Range Organics	---	---	---	NA			NA				U	0.061		U	0.062	NA		
Diesel Range Organics	1.00E+03	---	---	NA			NA				U	2.1		U	2.1	NA		
Motor Oil Range Organics	1.00E+03	---	---	NA			NA			0.63	J	0.63	1.4	J	1.4	NA		
VOCs (mg/kg)																		
1,1,1-Trichloroethane	7.89E+04	1.48E+04	5.82E+01		U	0.005	NA				U	0.0061		U	0.0062	NA		
1,1,2,2-Tetrachloroethane	4.35E+01	2.21E+02	4.26E-03		U	0.005	NA				U	0.0061		U	0.0062	NA		
1,1,2-Trichloroethane	1.33E+01	4.72E+02	2.23E-03		U	0.005	NA				U	0.0061		U	0.0062	NA		
1,1-Dichloroethane	3.59E+02	1.70E+03	1.20E-01		U	0.005	NA				U	0.0061		U	0.0062	NA		
1,1-Dichloroethene	2.29E+03	4.32E+02	2.32E+00		U	0.005	NA				U	0.0061		U	0.0062	NA		
1,2-Dibromoethane	3.22E+00	1.60E+01	3.08E-04		U	0.005	NA				U	0.0061		U	0.0062	NA		
1,2-Dichloroethane	4.35E+01	5.87E+01	7.11E-03		U	0.005	NA				U	0.0061		U	0.0062	NA		
Benzene	8.47E+01	1.38E+02	3.45E-02		U	0.005	NA				U	0.0061		U	0.0062	NA		
Carbon Tetrachloride	5.98E+01	2.26E+02	3.21E-02		U	0.005	NA				U	0.0061		U	0.0062	NA		
Chloroform	3.27E+01	1.54E+02	9.18E-03		U	0.005	NA				U	0.0061		U	0.0062	NA		
Dichloromethane	4.70E+03	1.12E+03	8.24E-01	0.003	J	0.0025	NA			0.004	J	0.0038		U	0.012	NA		
Ethylbenzene	3.78E+02	1.83E+03	2.60E-01		U	0.005	NA				U	0.0061		U	0.0062	NA		
Tetrachloroethene	3.66E+01	2.12E+02	8.61E-03		U	0.005	NA				U	0.0061		U	0.0062	NA		
Toluene	5.77E+04	1.34E+04	2.53E+01		U	0.005	NA				U	0.0061		U	0.0062	NA		
Total Xylenes	3.98E+03	7.43E+02	3.13E+00		U	0.015	NA				U	0.018		U	0.019	NA		
Trichloroethene	4.13E+01	7.68E+00	2.11E-02		U	0.005	NA				U	0.0061		U	0.0062	NA		
Vinyl Chloride	2.61E+01	1.49E+02	1.08E-03		U	0.002	NA				U	0.0024		U	0.0025	NA		
PAHs (mg/kg)																		
1-Methylnaphthalene	---	---	---	NA			NA				U	0.008		U	0.0081	NA		
2-Methylnaphthalene	---	---	---	NA			NA				U	0.008		U	0.0081	NA		
Benzo(a)Pyrene	2.34E+00	2.13E+01	5.20E-01	NA			NA				U	0.008		U	0.0081	NA		
Naphthalene	2.41E+02	1.58E+02	7.13E-02	NA			NA				U	0.008		U	0.0081	NA		

Table 4 - Summary of Soil Sampling Analytical Results
First Quarter 2013 Interim Report
Navajo Refining Company, Artesia Refinery, New Mexico

Boring Location (Depth)				MW- 115 (10)			MW- 115 (15)			MW -115 (20)			MW-115 (25)			MW-116 (1)			MW-116 (5)		
Depth:				10			15			20			25			1			5		
Date:				1/29/2013			1/29/2013			1/29/2013			1/29/2013			1/29/2013			1/29/2013		
Analyte	Industrial/ Occupational SSL (mg/kg)	Construction Worker SSL (mg/kg)	DAF 20 SSL (mg/kg)	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL
Moisture (%)																					
Percent Moisture	---	---	---	19.9		0.01	16.3		0.01	18.9		0.01	20.9		0.01	17.9		0.01	16.1		0.01
Metals (mg/kg)																					
Aluminum	1.13E+06	4.07E+04	1.10E+06	12100		117	4980		110	10300		115	5210		112	14600		82.6	9770		76.4
Arsenic	1.77E+01	5.30E+01	2.62E-01	2.9		0.59	0.893		0.55	2.53		0.57	1.05		0.558	4.38		0.413	3.65		0.38
Barium	2.23E+05	4.35E+03	6.03E+03	120		0.59	458		54.9	179		0.57	68		0.558	130		0.413	155		38.2
Boron	2.27E+05	4.65E+04	4.80E+02	6.04		2.94	3.78	J	5.49	4.85	J	5.73		U	13.9	7.77		4.13	7.48		3.82
Cadmium	8.97E+02	2.77E+02	2.75E+01	0.449	J	0.59	0.117	J	0.55	0.251	J	0.57	0.173	J	0.558	0.407	J	0.413	0.156	J	0.38
Calcium	---	---	---	63400		5870	157000		5490	161000		5730	219000		5580	60800		4130	122000		3820
Chromium	1.70E+06	4.65E+05	1.97E+09	14.3		0.59	5.84		1.1	9.21		1.15	5.52		2.79	14		0.413	8.46		0.38
Cobalt	---	---	---	4.7		0.59	1.62		0.55	3.7		0.57	1.33		0.558	5.52		0.413	2.94		0.38
Copper	4.54E+04	1.24E+04	1.03E+03	15.5		0.59	1.31		0.55	3.3		0.57	1.19		0.558	11.1		0.413	4.05		0.38
Iron	7.95E+05	2.17E+05	1.29E+04	8210		58.7	3200		54.9	7710		57.3	2980		55.8	10100		41.3	6240		38.2
Lead	8.00E+02	8.00E+02		44.9		0.59	3.28		0.55	7.03		0.57	3.73		0.558	14.7		0.413	4.47		0.38
Manganese	2.67E+04	4.40E+02	1.14E+03	175		0.59	62.9		0.55	132		0.57	48		0.558	375		41.3	163		38.2
Mercury	7.36E+01	1.36E+01	6.54E-01	0.0146		0		U	0		U	0		U	0.0045	0.0081		0.0035	0.00677		0
Molybdenum	5.68E+03	1.55E+03	7.40E+01	0.614		0.59		U	0.55	0.228	J	0.57		U	0.558	0.585		0.413	0.485		0.38
Nickel	2.25E+04	6.19E+03	9.53E+02	9.68		0.59	3.12		0.55	6.69		0.57	2.74		0.558	11.6		0.413	6.19		0.38
Potassium	---	---	---	3490		58.7	860		54.9	1690		57.3	773		55.8	3770		82.6	2130		38.2
Selenium	5.68E+03	1.55E+03	1.93E+01	1.2		0.59	0.348	J	0.55	0.699		0.57	0.428	J	0.558	0.95		0.413	0.485		0.38
Silver	5.68E+03	1.55E+03	3.13E+01	0.11	J	0.59		U	0.55		U	0.57		U	0.558		U	0.413		U	0.38
Sodium	---	---	---	288		58.7	122		54.9	186		57.3	129		55.8	135		82.6	156		38.2
Uranium	3.41E+03	9.29E+02	9.86E+02		U	0.59		U	0.55		U	0.57		U	0.558		U	0.413	0.523		0.38
Zinc	3.41E+05	9.29E+04	1.36E+04	37.9		0.59	8.52		0.55	20.5		0.57	8.99		0.558	37.3		0.413	19		0.38
Anions (mg/kg)																					
Chloride	---	---	---	55		6.17	49.1		5.93	51.6		6.15	50.4		6.2	22.2		4.99	29.8		4.96
Fluoride (F-, Anion)	4.54E+04	1.24E+04	8.37E+00	7.73		1.23	3.85		1.19	5.04		1.23	0	UB	3.55	14.7		0.999	4.51		0.99
Nitrate-N	1.82E+06	4.96E+05	3.35E+02		U	1.23		U	1.19		U	1.23		U	1.24	2.63		0.999		U	0.99
Nitrite	1.14E+05	3.10E+04	2.09E+01		U	1.23		U	1.19		U	1.23		U	1.24		U	0.999		U	0.99
Sulfate	---	---	---	722		6.17	383		5.93	463		6.15	326		6.2	330		4.99	234		4.96
Cyanide	6.81E+02	1.86E+02	4.41E+00		U	2.43		U	2.3		U	2.3		U	2.52		U	1.94		U	1.8
Radium (pci/g)																					
Radium-226	---	---	---	1.39	G	0.64	0.57	LT,G	0.47	0.58	LT,G,TI	0.49		U,G	0.51	1.87	G	0.53	0.86	LT,G	0.51
Radium-228	---	---	---	1.03	G,NQ	0.91		U,G	0.63		U,G	0.81	0.75	NQ	0.68	1.2	G,TI	0.64		U,G	0.8

Table 4 - Summary of Soil Sampling Analytical Results
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Navajo Refining Company, Artesia Refinery, New Mexico

Boring Location (Depth) Depth: Date:				MW- 115 (10)			MW- 115 (15)			MW -115 (20)			MW-115 (25)			MW-116 (1)			MW-116 (5)			
				10			15			20			25			1			5			
				1/29/2013			1/29/2013			1/29/2013			1/29/2013			1/29/2013			1/29/2013			
Analyte	Industrial/ Occupational SSL (mg/kg)	Construction Worker SSL (mg/kg)	DAF 20 SSL (mg/kg)	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	
TPH (mg/kg)																						
Gasoline Range Organics	---	---	---	NA			NA			NA				U	0.063		U	0.05	NA			
Diesel Range Organics	1.00E+03	---	---	NA			NA			NA				U	2.1	0.53	J	0.53	NA			
Motor Oil Range Organics	1.00E+03	---	---	NA			NA			NA			0.77	J	0.77	4.7		4.7	NA			
VOCs (mg/kg)																						
1,1,1-Trichloroethane	7.89E+04	1.48E+04	5.82E+01	NA			NA			NA				U	0.0063		U	0.005	NA			
1,1,2,2-Tetrachloroethane	4.35E+01	2.21E+02	4.26E-03	NA			NA			NA				U	0.0063		U	0.005	NA			
1,1,2-Trichloroethane	1.33E+01	4.72E+02	2.23E-03	NA			NA			NA				U	0.0063		U	0.005	NA			
1,1-Dichloroethane	3.59E+02	1.70E+03	1.20E-01	NA			NA			NA				U	0.0063		U	0.005	NA			
1,1-Dichloroethene	2.29E+03	4.32E+02	2.32E+00	NA			NA			NA				U	0.0063		U	0.005	NA			
1,2-Dibromoethane	3.22E+00	1.60E+01	3.08E-04	NA			NA			NA				U	0.0063		U	0.005	NA			
1,2-Dichloroethane	4.35E+01	5.87E+01	7.11E-03	NA			NA			NA				U	0.0063		U	0.005	NA			
Benzene	8.47E+01	1.38E+02	3.45E-02	NA			NA			NA				U	0.0063		U	0.005	NA			
Carbon Tetrachloride	5.98E+01	2.26E+02	3.21E-02	NA			NA			NA				U	0.0063		U	0.005	NA			
Chloroform	3.27E+01	1.54E+02	9.18E-03	NA			NA			NA				U	0.0063		U	0.005	NA			
Dichloromethane	4.70E+03	1.12E+03	8.24E-01	NA			NA			NA				U	0.013		U	0.01	NA			
Ethylbenzene	3.78E+02	1.83E+03	2.60E-01	NA			NA			NA				U	0.0063		U	0.005	NA			
Tetrachloroethene	3.66E+01	2.12E+02	8.61E-03	NA			NA			NA				U	0.0063		U	0.005	NA			
Toluene	5.77E+04	1.34E+04	2.53E+01	NA			NA			NA				U	0.0063		U	0.005	NA			
Total Xylenes	3.98E+03	7.43E+02	3.13E+00	NA			NA			NA				U	0.019		U	0.015	NA			
Trichloroethene	4.13E+01	7.68E+00	2.11E-02	NA			NA			NA				U	0.0063		U	0.005	NA			
Vinyl Chloride	2.61E+01	1.49E+02	1.08E-03	NA			NA			NA				U	0.0025		U	0.002	NA			
PAHs (mg/kg)																						
1-Methylnaphthalene	---	---	---	NA			NA			NA				U	0.0083		U	0.0066	NA			
2-Methylnaphthalene	---	---	---	NA			NA			NA				U	0.0083		U	0.0066	NA			
Benzo(a)Pyrene	2.34E+00	2.13E+01	5.20E-01	NA			NA			NA				U	0.0083		U	0.0066	NA			
Naphthalene	2.41E+02	1.58E+02	7.13E-02	NA			NA			NA				U	0.0083		U	0.0066	NA			

Table 4 - Summary of Soil Sampling Analytical Results
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Boring Location (Depth)				MW-116 (10)			MW-116 (15)			MW-116 (20)			MW-116 (25)			MW-117 (1)			MW-117 (5)		
Depth:				10			15			20			25			1			5		
Date:				1/30/2013			1/30/2013			1/30/2013			1/30/2013			1/31/2013			1/31/2013		
Analyte	Industrial/ Occupational SSL (mg/kg)	Construction Worker SSL (mg/kg)	DAF 20 SSL (mg/kg)	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL
Moisture (%)																					
Percent Moisture	---	---	---	16.4		0.01	15.3		0.01	19.2		0.01	23.2		0.01	22.5		0.01	19		0.01
Metals (mg/kg)																					
Aluminum	1.13E+06	4.07E+04	1.10E+06	7550		86.4	3970		89.6	8370		92	7960		81.8	15200		127	5020		119
Arsenic	1.77E+01	5.30E+01	2.62E-01	2.48		0.43	2.83		0.45	6.28		0.46	3.22		0.409	4.74		0.634	1.4		0.59
Barium	2.23E+05	4.35E+03	6.03E+03	43.5		0.43	19		0.45	19.9		0.46	181		40.9	182		0.634	62.2		0.59
Boron	2.27E+05	4.65E+04	4.80E+02	9.23	J	10.8	6.99	J	11.2	4.74		4.6	7.57		4.09	8.67		6.34	7.89		5.93
Cadmium	8.97E+02	2.77E+02	2.75E+01	0.114	J	0.43	0.102	J	0.45	0.283	J	0.46	0.205	J	0.409	0.374	J	0.634	0.133	J	0.59
Calcium	---	---	---	166000		4320	216000		4480	104000		4600	76500		4090	83700		6340	151000		5930
Chromium	1.70E+06	4.65E+05	1.97E+09	6.73		0.43	3.86		0.45	7.41		0.46	6.81		0.409	15.4		0.634	7.26		0.59
Cobalt	---	---	---	2.58		0.43	2.7		0.45	2.95		0.46	2.49		0.409	5.45		0.634	1.54		0.59
Copper	4.54E+04	1.24E+04	1.03E+03	2.97		0.43	2.53		0.45	4.92		0.46	4.45		0.409	9.7		0.634	2.51		0.59
Iron	7.95E+05	2.17E+05	1.29E+04	4720		43.2	2880		44.8	7120		46	5710		40.9	10800		63.4	3570		59.3
Lead	8.00E+02	8.00E+02		3.63		0.43	2.03		0.45	7.08		0.46	5.57		0.409	11.9		0.634	2.9		0.59
Manganese	2.67E+04	4.40E+02	1.14E+03	139		0.43	351		44.8	251		46	169		40.9	410		63.4	105		0.59
Mercury	7.36E+01	1.36E+01	6.54E-01	0.00774		0	0.000647	J	0	0.00829		0	0.000757	J	0.0034	0.00702		0.0046	0	U	0
Molybdenum	5.68E+03	1.55E+03	7.40E+01	0.331	J	0.43	0.645		0.45	0.837		0.46	0.381	J	0.409	1.01		0.634	0.457	J	0.59
Nickel	2.25E+04	6.19E+03	9.53E+02	4.51		0.43	5.57		0.45	7.79		0.46	6.75		0.409	11.4		0.634	3.48		0.59
Potassium	---	---	---	1620		43.2	956		44.8	1280		46	1700		40.9	3310		63.4	1110		59.3
Selenium	5.68E+03	1.55E+03	1.93E+01	0.353	J	0.43	0.252	J	0.45	0.512		0.46	0.433		0.409	0.98		0.634	0.415	J	0.59
Silver	5.68E+03	1.55E+03	3.13E+01		U	0.43		U	0.45		U	0.46		U	0.409		U	0.634		U	0.59
Sodium	---	---	---	121		43.2	108		44.8	142		46	120		40.9	332		127	164		119
Uranium	3.41E+03	9.29E+02	9.86E+02	0.45		0.43		U	0.45		U	0.46		U	0.409		U	0.634		U	0.59
Zinc	3.41E+05	9.29E+04	1.36E+04	14.2		0.43	7.87		0.45	19.8		0.46	17.8		0.409	38.7		0.634	11.6		0.59
Anions (mg/kg)																					
Chloride	---	---	---	8.03		4.98	31.6		4.92	33.3		4.99	47.6		5	81.1		6.38	37.5		6.07
Fluoride (F-, Anion)	4.54E+04	1.24E+04	8.37E+00	5.76		1	8.7		0.98	3.92		1	1.91		1	15.4		1.28	8.01		1.21
Nitrate-N	1.82E+06	4.96E+05	3.35E+02	0.896	J	1		U	0.98		U	1		U	1	0.804	J	1.28		U	1.21
Nitrite	1.14E+05	3.10E+04	2.09E+01		U	1		U	0.98		U	1		U	1		U	1.28		U	1.21
Sulfate	---	---	---	82.1		4.98	891		4.92	310		4.99	254		5	777		6.38	3960		60.7
Cyanide	6.81E+02	1.86E+02	4.41E+00		U	1.96		U	1.82		U	1.96		U	1.9		U	2.52		U	2.2
Radium (pci/g)																					
Radium-226	---	---	---	1.75	G	0.61	0.66	LT,G	0.46	0.94	LT,G	0.5	0.78	LT,G	0.37	1.55	G	0.57	0.5	LT,TI	0.46
Radium-228	---	---	---	1.4	M3,G	1.05		U,G	0.75	1.06	G,TI	0.6		U,G	0.85		U,G	0.93		U	0.82

Table 4 - Summary of Soil Sampling Analytical Results
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Navajo Refining Company, Artesia Refinery, New Mexico

Boring Location (Depth)				MW-116 (10)			MW-116 (15)			MW-116 (20)			MW-116 (25)			MW-117 (1)			MW-117 (5)		
Depth:				10			15			20			25			1			5		
Date:				1/30/2013			1/30/2013			1/30/2013			1/30/2013			1/31/2013			1/31/2013		
Analyte	Industrial/ Occupational SSL (mg/kg)	Construction Worker SSL (mg/kg)	DAF 20 SSL (mg/kg)	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL
TPH (mg/kg)																					
Gasoline Range Organics	---	---	---	NA			NA			NA				U	0.05		U	0.065	NA		
Diesel Range Organics	1.00E+03	---	---	NA			NA			NA				U	1.7		U	2.2	NA		
Motor Oil Range Organics	1.00E+03	---	---	NA			NA			NA				U	3.4		U	4.4	NA		
VOCs (mg/kg)																					
1,1,1-Trichloroethane	7.89E+04	1.48E+04	5.82E+01	NA			NA			NA				U	0.005		U	0.0065	NA		
1,1,2,2-Tetrachloroethane	4.35E+01	2.21E+02	4.26E-03	NA			NA			NA				U	0.005		U	0.0065	NA		
1,1,2-Trichloroethane	1.33E+01	4.72E+02	2.23E-03	NA			NA			NA				U	0.005		U	0.0065	NA		
1,1-Dichloroethane	3.59E+02	1.70E+03	1.20E-01	NA			NA			NA				U	0.005		U	0.0065	NA		
1,1-Dichloroethene	2.29E+03	4.32E+02	2.32E+00	NA			NA			NA				U	0.005		U	0.0065	NA		
1,2-Dibromoethane	3.22E+00	1.60E+01	3.08E-04	NA			NA			NA				U	0.005		U	0.0065	NA		
1,2-Dichloroethane	4.35E+01	5.87E+01	7.11E-03	NA			NA			NA				U	0.005		U	0.0065	NA		
Benzene	8.47E+01	1.38E+02	3.45E-02	NA			NA			NA				U	0.005		U	0.0065	NA		
Carbon Tetrachloride	5.98E+01	2.26E+02	3.21E-02	NA			NA			NA				U	0.005		U	0.0065	NA		
Chloroform	3.27E+01	1.54E+02	9.18E-03	NA			NA			NA				U	0.005		U	0.0065	NA		
Dichloromethane	4.70E+03	1.12E+03	8.24E-01	NA			NA			NA				U	0.01	0.0086	J	0.0086	NA		
Ethylbenzene	3.78E+02	1.83E+03	2.60E-01	NA			NA			NA				U	0.005		U	0.0065	NA		
Tetrachloroethene	3.66E+01	2.12E+02	8.61E-03	NA			NA			NA				U	0.005		U	0.0065	NA		
Toluene	5.77E+04	1.34E+04	2.53E+01	NA			NA			NA				U	0.005		U	0.0065	NA		
Total Xylenes	3.98E+03	7.43E+02	3.13E+00	NA			NA			NA				U	0.015		U	0.019	NA		
Trichloroethene	4.13E+01	7.68E+00	2.11E-02	NA			NA			NA				U	0.005		U	0.0065	NA		
Vinyl Chloride	2.61E+01	1.49E+02	1.08E-03	NA			NA			NA				U	0.002		U	0.0026	NA		
PAHs (mg/kg)																					
1-Methylnaphthalene	---	---	---	NA			NA			NA				U	0.0066		U	0.0085	NA		
2-Methylnaphthalene	---	---	---	NA			NA			NA				U	0.0066		U	0.0085	NA		
Benzo(a)Pyrene	2.34E+00	2.13E+01	5.20E-01	NA			NA			NA				U	0.0066		U	0.0085	NA		
Naphthalene	2.41E+02	1.58E+02	7.13E-02	NA			NA			NA				U	0.0066		U	0.0085	NA		

Table 4 - Summary of Soil Sampling Analytical Results
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Navajo Refining Company, Artesia Refinery, New Mexico

Boring Location (Depth)				MW-117 (10)			MW-117 (15)			MW-117 (20)			MW-117 (25)			MW-118 (1)			MW-118 (5)		
Depth:				10			15			20			25			1			5		
Date:				1/31/2013			1/31/2013			1/31/2013			1/31/2013			2/4/2013			2/4/2013		
Analyte	Industrial/ Occupational SSL (mg/kg)	Construction Worker SSL (mg/kg)	DAF 20 SSL (mg/kg)	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL
Moisture (%)																					
Percent Moisture	---	---	---	26.4		0.01	23.9		0.01	20.7		0.01	21		0.01	25.7		0.01	34.8		0.01
Metals (mg/kg)																					
Aluminum	1.13E+06	4.07E+04	1.10E+06	6140		133	5400		121	11200		121	8180		126	14300		117	8560		143
Arsenic	1.77E+01	5.30E+01	2.62E-01	2.48		0.67	7.29		0.61	1.12		0.6	0.526	J	0.631	4.08		0.585	3.53		0.72
Barium	2.23E+05	4.35E+03	6.03E+03	49.2		0.67	8.33		0.61	23.2		0.6	6.58		0.631	105		0.585	85.6		0.72
Boron	2.27E+05	4.65E+04	4.80E+02	5.92	J	6.65	2.96	J	3.03	2.45	J	3.01		U	3.16	7.25		5.85	7.21		7.15
Cadmium	8.97E+02	2.77E+02	2.75E+01	0.195	J	0.67		U	0.61	0.234	J	0.6		U	0.631	0.353	J	0.585	0.13	J	0.72
Calcium	---	---	---	119000		6650	26700		6070	95400		6030	2810		63.1	55400		5850	115000		7150
Chromium	1.70E+06	4.65E+05	1.97E+09	8.28		0.67	6.81		0.61	11.9		0.6	7.67		0.631	14.1		0.585	8.08		0.72
Cobalt	---	---	---	2.23		0.67	3.54		0.61	3.43		0.6	2.05		0.631	4.33		0.585	2.15		0.72
Copper	4.54E+04	1.24E+04	1.03E+03	2.09		0.67	2.2		0.61	4.44		0.6	3.35		0.631	21.3		0.585	3.19		0.72
Iron	7.95E+05	2.17E+05	1.29E+04	5340		66.5	8050		60.7	6600		60.3	4590		63.1	9280		58.5	5220		71.5
Lead	8.00E+02	8.00E+02		4.46		0.67	3.04		0.61	7.99		0.6	4.74		0.631	295		58.5	3.67		0.72
Manganese	2.67E+04	4.40E+02	1.14E+03	69.2		0.67	91		0.61	72		0.6	37.5		0.631	261		58.5	62.9		0.72
Mercury	7.36E+01	1.36E+01	6.54E-01	0.00201	J	0	0.0011	J	0	0.0033	J	0	0	U	0.0044	0.0401		0.0046	0.00739		0.01
Molybdenum	5.68E+03	1.55E+03	7.40E+01	0.276	J	0.67	0.606	J	0.61		U	0.6		U	0.631	0.627		0.585	0.416	J	0.72
Nickel	2.25E+04	6.19E+03	9.53E+02	3.85		0.67	5.09		0.61	6.31		0.6	4.4		0.631	9.1		0.585	4.78		0.72
Potassium	---	---	---	1310		66.5	1230		60.7	1760		60.3	1490		63.1	3020		58.5	1610		71.5
Selenium	5.68E+03	1.55E+03	1.93E+01	0.422	J	0.67		U	0.61	0.699		0.6		U	0.631	0.652		0.585	0.286	J	0.72
Silver	5.68E+03	1.55E+03	3.13E+01		U	0.67		U	0.61		U	0.6		U	0.631		U	0.585		U	0.72
Sodium	---	---	---	119	J	133	154		60.7	208		60.3	153		63.1	152		58.5	248		71.5
Uranium	3.41E+03	9.29E+02	9.86E+02		U	0.67		U	0.61		U	0.6		U	0.631		U	0.585	0.953		0.72
Zinc	3.41E+05	9.29E+04	1.36E+04	12.2		0.67	10.1		0.61	22		0.6	14.5		0.631	37.5		0.585	13.5		0.72
Anions (mg/kg)																					
Chloride	---	---	---	28.7		6.76	33.5		6.54	24.4		6.29	26.3		6.29	34		6.08	56.9		7.67
Fluoride (F-, Anion)	4.54E+04	1.24E+04	8.37E+00	6.49		1.35	5.93		1.31	5.11		1.26	5.18		1.26	5.27		1.22	4.29		1.53
Nitrate-N	1.82E+06	4.96E+05	3.35E+02		U	1.35		U	1.31	0.415	J	1.26	0.566	J	1.26		U	1.22		U	1.53
Nitrite	1.14E+05	3.10E+04	2.09E+01		U	1.35		U	1.31		U	1.26		U	1.26		U	1.22		U	1.53
Sulfate	---	---	---	1790		67.6	2100		65.4	349		6.29	396		6.29	3100		60.8	10700		76.7
Cyanide	6.81E+02	1.86E+02	4.41E+00		U	2.53		U	2.53		U	2.45		U	2.23		U	2.5		U	2.83
Radium (pci/g)																					
Radium-226	---	---	---	0.68	LT,TG	0.38		U,G	0.44	0.87	LT,G	0.48	0.51	LT,G	0.37	1.5	G	0.58	1.64	G	0.55
Radium-228	---	---	---		U,G	0.81		U,G	0.73		U,G	0.75	0.82	LT,G,TI	0.64	0.89	NQ, G	0.86	0.96	NQ, G	0.84

Table 4 - Summary of Soil Sampling Analytical Results
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Boring Location (Depth)				MW-117 (10)			MW-117 (15)			MW-117 (20)			MW-117 (25)			MW-118 (1)			MW-118 (5)		
Depth:				10			15			20			25			1			5		
Date:				1/31/2013			1/31/2013			1/31/2013			1/31/2013			2/4/2013			2/4/2013		
Analyte	Industrial/ Occupational SSL (mg/kg)	Construction Worker SSL (mg/kg)	DAF 20 SSL (mg/kg)	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL
TPH (mg/kg)																					
Gasoline Range Organics	---	---	---	NA			NA			NA				U	0.063		U	0.067	NA		
Diesel Range Organics	1.00E+03	---	---	NA			NA			NA				U	2.1		U	2.3	NA		
Motor Oil Range Organics	1.00E+03	---	---	NA			NA			NA				U	4.3		U	4.6	NA		
VOCs (mg/kg)																					
1,1,1-Trichloroethane	7.89E+04	1.48E+04	5.82E+01	NA			NA			NA				U	0.0063		U	0.0067	NA		
1,1,2,2-Tetrachloroethane	4.35E+01	2.21E+02	4.26E-03	NA			NA			NA				U	0.0063		U	0.0067	NA		
1,1,2-Trichloroethane	1.33E+01	4.72E+02	2.23E-03	NA			NA			NA				U	0.0063		U	0.0067	NA		
1,1-Dichloroethane	3.59E+02	1.70E+03	1.20E-01	NA			NA			NA				U	0.0063		U	0.0067	NA		
1,1-Dichloroethene	2.29E+03	4.32E+02	2.32E+00	NA			NA			NA				U	0.0063		U	0.0067	NA		
1,2-Dibromoethane	3.22E+00	1.60E+01	3.08E-04	NA			NA			NA				U	0.0063		U	0.0067	NA		
1,2-Dichloroethane	4.35E+01	5.87E+01	7.11E-03	NA			NA			NA				U	0.0063		U	0.0067	NA		
Benzene	8.47E+01	1.38E+02	3.45E-02	NA			NA			NA				U	0.0063		U	0.0067	NA		
Carbon Tetrachloride	5.98E+01	2.26E+02	3.21E-02	NA			NA			NA				U	0.0063		U	0.0067	NA		
Chloroform	3.27E+01	1.54E+02	9.18E-03	NA			NA			NA				U	0.0063		U	0.0067	NA		
Dichloromethane	4.70E+03	1.12E+03	8.24E-01	NA			NA			NA			0.007	J	0.0069		U	0.0083	NA		
Ethylbenzene	3.78E+02	1.83E+03	2.60E-01	NA			NA			NA				U	0.0063		U	0.0067	NA		
Tetrachloroethene	3.66E+01	2.12E+02	8.61E-03	NA			NA			NA				U	0.0063		U	0.0067	NA		
Toluene	5.77E+04	1.34E+04	2.53E+01	NA			NA			NA				U	0.0063		U	0.0067	NA		
Total Xylenes	3.98E+03	7.43E+02	3.13E+00	NA			NA			NA				U	0.019		U	0.02	NA		
Trichloroethene	4.13E+01	7.68E+00	2.11E-02	NA			NA			NA				U	0.0063		U	0.0067	NA		
Vinyl Chloride	2.61E+01	1.49E+02	1.08E-03	NA			NA			NA				U	0.0025		U	0.0027	NA		
PAHs (mg/kg)																					
1-Methylnaphthalene	---	---	---	NA			NA			NA				U	0.0083		U	0.0088	NA		
2-Methylnaphthalene	---	---	---	NA			NA			NA				U	0.0083		U	0.0088	NA		
Benzo(a)Pyrene	2.34E+00	2.13E+01	5.20E-01	NA			NA			NA				U	0.0083		U	0.0088	NA		
Naphthalene	2.41E+02	1.58E+02	7.13E-02	NA			NA			NA				U	0.0083		U	0.0088	NA		

Table 4 - Summary of Soil Sampling Analytical Results
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Boring Location (Depth)				MW-118 (10)			MW-118 (15)			MW-118 (20)			MW-118 (25)			MW-119 (1)			MW-119 (5)		
Depth:				10			15			20			25			1			5		
Date:				2/4/2013			2/4/2013			2/4/2013			2/4/2013			2/4/2013			2/4/2013		
Analyte	Industrial/ Occupational SSL (mg/kg)	Construction Worker SSL (mg/kg)	DAF 20 SSL (mg/kg)	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL
Moisture (%)																					
Percent Moisture	---	---	---	29.3		0.01	27.2		0.01	17.9		0.01	21		0.01	22.3		0.01	23		0.01
Metals (mg/kg)																					
Aluminum	1.13E+06	4.07E+04	1.10E+06	7230		127	2930		127	3230		118	9540		119	13800		119	13300		109
Arsenic	1.77E+01	5.30E+01	2.62E-01	2.53		0.64	0.76	J	3.17	1.02	J	2.94	3.21		1.19	3.39		1.19	4.21		1.09
Barium	2.23E+05	4.35E+03	6.03E+03	84		0.64	8.93		3.17	6.44		2.94	32.6		1.19	89.9		1.19	108		1.09
Boron	2.27E+05	4.65E+04	4.80E+02	4.16	J	6.35		U	15.8		U	14.7		U	5.95	6.94		5.94	5.63		5.43
Cadmium	8.97E+02	2.77E+02	2.75E+01	0.172	J	0.64	0.335	J	3.17	0.457	J	2.94	0.22	J	1.19	0.483	J	1.19	0.295	J	1.09
Calcium	---	---	---	187000		6350	245000		6330	249000		5880	99200		5950	77800		5940	103000		5430
Chromium	1.70E+06	4.65E+05	1.97E+09	7.53		0.64	3.62		3.17	3.22		2.94	9.08		1.19	13		1.19	11.1		1.09
Cobalt	---	---	---	1.81		0.64	0.487	J	3.17	0.982	J	2.94	2.15		1.19	4.37		1.19	3.77		1.09
Copper	4.54E+04	1.24E+04	1.03E+03	3.38		0.64		U	3.17	0.614	J	2.94	4.53		1.19	12.1		1.19	5.81		1.09
Iron	7.95E+05	2.17E+05	1.29E+04	4430		63.5	1620		317	1960		294	7200		119	8910		119	8220		109
Lead	8.00E+02	8.00E+02		6.52		1.27	2.99	J	3.17	3.71		2.94	4.81		1.19	61		1.19	6.75		1.09
Manganese	2.67E+04	4.40E+02	1.14E+03	98.8		0.64	36.3		3.17	58.4		2.94	95.7		1.19	131		1.19	204		1.09
Mercury	7.36E+01	1.36E+01	6.54E-01	0.00351	J	0.01	0.0013	J	0	0.000827	J	0	0.0028	J	0.0042	0.0207		0.0044	0.00731		0
Molybdenum	5.68E+03	1.55E+03	7.40E+01	0.464	J	0.64		U	0.63		U	2.94	0.545	J	1.19	0.593	J	1.19	0.743	J	1.09
Nickel	2.25E+04	6.19E+03	9.53E+02	4.37		0.64	1.58	J	3.17	2.51	J	2.94	7.1		1.19	9.34		1.19	8.08		1.09
Potassium	---	---	---	1530		63.5	561		63.3	603		294	1740		119	3310		119	2680		109
Selenium	5.68E+03	1.55E+03	1.93E+01	0.344	J	0.64	1.49	J	3.17	1.38	J	2.94	0.724	J	1.19	1.18	J	1.19	0.895	J	1.09
Silver	5.68E+03	1.55E+03	3.13E+01		U	0.64		U	0.63		U	2.94		U	1.19		U	1.19		U	1.09
Sodium	---	---	---	158		63.5	90.4		63.3	73.1	J	294	226		119	149		119	131		109
Uranium	3.41E+03	9.29E+02	9.86E+02		U	0.64		U	0.63		U	2.94		U	1.19		U	1.19		U	1.09
Zinc	3.41E+05	9.29E+04	1.36E+04	13.7		0.64	6.21		3.17	6.61		2.94	22.8		1.19	56.8		1.19	27.1		1.09
Anions (mg/kg)																					
Chloride	---	---	---	74.6		6.83	52		6.08	66.2		5.49	NA			NA			29.2		6.06
Fluoride (F-, Anion)	4.54E+04	1.24E+04	8.37E+00	3.8		1.37	8.59		1.22	7.71		1.1	NA			NA			12.3		1.21
Nitrate-N	1.82E+06	4.96E+05	3.35E+02		U	1.37		U	1.22		U	1.1	NA			NA				U	1.21
Nitrite	1.14E+05	3.10E+04	2.09E+01		U	1.37		U	1.22		U	1.1	NA			NA				U	1.21
Sulfate	---	---	---	3020		68.3	777		6.08	681		5.49	NA			NA			1680		60.6
Cyanide	6.81E+02	1.86E+02	4.41E+00		U	2.67		U	2.51		U	2.29	NA			NA				U	2.36
Radium (pci/g)																					
Radium-226	---	---	---	0.62	LT, G, TI	0.48		U,G	0.36		U,G	0.52	0.74	LT,G	0.44	1.41	G	0.45	1.14	G	0.46
Radium-228	---	---	---		U,G	0.74		U,G	0.57		U,G	0.89	1.04	G, TI	0.63		U,G	0.9		U,G	0.67

Table 4 - Summary of Soil Sampling Analytical Results
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Boring Location (Depth)				MW-118 (10)			MW-118 (15)			MW-118 (20)			MW-118 (25)			MW-119 (1)			MW-119 (5)		
Depth:				10			15			20			25			1			5		
Date:				2/4/2013			2/4/2013			2/4/2013			2/4/2013			2/4/2013			2/4/2013		
Analyte	Industrial/ Occupational SSL (mg/kg)	Construction Worker SSL (mg/kg)	DAF 20 SSL (mg/kg)	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL
TPH (mg/kg)																					
Gasoline Range Organics	---	---	---	NA			NA			NA				U	0.063		U	0.064	NA		
Diesel Range Organics	1.00E+03	---	---	NA			NA			NA				U	2.1		U	2.2	NA		
Motor Oil Range Organics	1.00E+03	---	---	NA			NA			NA				U	4.3	1.1	J	1.1	NA		
VOCs (mg/kg)																					
1,1,1-Trichloroethane	7.89E+04	1.48E+04	5.82E+01	NA			NA			NA				U	0.0063		U	0.0064	NA		
1,1,2,2-Tetrachloroethane	4.35E+01	2.21E+02	4.26E-03	NA			NA			NA				U	0.0063		U	0.0064	NA		
1,1,2-Trichloroethane	1.33E+01	4.72E+02	2.23E-03	NA			NA			NA				U	0.0063		U	0.0064	NA		
1,1-Dichloroethane	3.59E+02	1.70E+03	1.20E-01	NA			NA			NA				U	0.0063		U	0.0064	NA		
1,1-Dichloroethene	2.29E+03	4.32E+02	2.32E+00	NA			NA			NA				U	0.0063		U	0.0064	NA		
1,2-Dibromoethane	3.22E+00	1.60E+01	3.08E-04	NA			NA			NA				U	0.0063		U	0.0064	NA		
1,2-Dichloroethane	4.35E+01	5.87E+01	7.11E-03	NA			NA			NA				U	0.0063		U	0.0064	NA		
Benzene	8.47E+01	1.38E+02	3.45E-02	NA			NA			NA				U	0.0063		U	0.0064	NA		
Carbon Tetrachloride	5.98E+01	2.26E+02	3.21E-02	NA			NA			NA				U	0.0063		U	0.0064	NA		
Chloroform	3.27E+01	1.54E+02	9.18E-03	NA			NA			NA				U	0.0063		U	0.0064	NA		
Dichloromethane	4.70E+03	1.12E+03	8.24E-01	NA			NA			NA				U	0.0083		U	0.013	NA		
Ethylbenzene	3.78E+02	1.83E+03	2.60E-01	NA			NA			NA				U	0.0063		U	0.0064	NA		
Tetrachloroethene	3.66E+01	2.12E+02	8.61E-03	NA			NA			NA				U	0.0063		U	0.0064	NA		
Toluene	5.77E+04	1.34E+04	2.53E+01	NA			NA			NA				U	0.0063		U	0.0064	NA		
Total Xylenes	3.98E+03	7.43E+02	3.13E+00	NA			NA			NA				U	0.019		U	0.019	NA		
Trichloroethene	4.13E+01	7.68E+00	2.11E-02	NA			NA			NA				U	0.0063		U	0.0064	NA		
Vinyl Chloride	2.61E+01	1.49E+02	1.08E-03	NA			NA			NA				U	0.0025		U	0.0026	NA		
PAHs (mg/kg)																					
1-Methylnaphthalene	---	---	---	NA			NA			NA				U	0.0083		U	0.0085	NA		
2-Methylnaphthalene	---	---	---	NA			NA			NA				U	0.0083		U	0.0085	NA		
Benzo(a)Pyrene	2.34E+00	2.13E+01	5.20E-01	NA			NA			NA			0.0026	J	0.0026		U	0.0085	NA		
Naphthalene	2.41E+02	1.58E+02	7.13E-02	NA			NA			NA				U	0.0083		U	0.0085	NA		

Table 4 - Summary of Soil Sampling Analytical Results
First Quarter 2013 Interim Report
Navajo Refining Company, Artesia Refinery, New Mexico

Boring Location (Depth)				MW-119 (10)			MW-119 (15)			MW-119 (20)			MW-119 (25)			RO-SB-1 (1)		
Depth:				10			15			20			25			1		
Date:				2/4/2013			2/4/2013			2/4/2013			2/4/2013			1/31/2013		
Analyte	Industrial/ Occupational SSL (mg/kg)	Construction Worker SSL (mg/kg)	DAF 20 SSL (mg/kg)	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL
Moisture (%)																		
Percent Moisture	---	---	---	24.8		0.01	26		0.01	20.7		0.01	19.3		0.01	17.7		0.01
Metals (mg/kg)																		
Aluminum	1.13E+06	4.07E+04	1.10E+06	9390		126	5700		134	10300		120	11600		123	10800		117
Arsenic	1.77E+01	5.30E+01	2.62E-01	6.34		1.26	2.98	J	3.34	2.8		0.6	2.38		1.23	4.07		0.583
Barium	2.23E+05	4.35E+03	6.03E+03	50.7		1.26	47.3		3.34	208		0.6	18.2		1.23	149		0.583
Boron	2.27E+05	4.65E+04	4.80E+02	6.02	J	6.3	11.9	J	16.7	4.44		3	6.19		6.13	6.67		2.92
Cadmium	8.97E+02	2.77E+02	2.75E+01	0.167	J	1.26		U	3.34	0.188	J	0.6	0.218	J	1.23	0.266	J	0.583
Calcium	---	---	---	89200		6300	246000		6680	65300		5990	124000		6130	105000		5830
Chromium	1.70E+06	4.65E+05	1.97E+09	9.37		1.26	4.79		3.34	8.86		0.6	9.42		1.23	10.6		0.583
Cobalt	---	---	---	3.84		1.26	2.05	J	3.34	2.77		0.6	4.83		1.23	4.17		0.583
Copper	4.54E+04	1.24E+04	1.03E+03	4.42		1.26	2.39	J	3.34	3.91		0.6	4.7		1.23	8.25		0.583
Iron	7.95E+05	2.17E+05	1.29E+04	7850		126	4080		334	6080		59.9	8790		123	8020		58.3
Lead	8.00E+02	8.00E+02		6.14		1.26	2.84	J	3.34	4.36		0.6	5.31		1.23	10.6		0.583
Manganese	2.67E+04	4.40E+02	1.14E+03	252		1.26	523		3.34	88.8		0.6	184		1.23	236		58.3
Mercury	7.36E+01	1.36E+01	6.54E-01	0.00912		0	0.00611		0	0.00501		0	0.00225	J	0.0042	0.00979		0.0043
Molybdenum	5.68E+03	1.55E+03	7.40E+01	0.858	J	1.26	2.16	J	3.34	0.302	J	0.6		U	1.23	0.495	J	0.583
Nickel	2.25E+04	6.19E+03	9.53E+02	9.28		1.26	8.56		3.34	6.69		0.6	8.83		1.23	8.27		0.583
Potassium	---	---	---	2500		126	1280		334	1650		59.9	2210		123	2690		58.3
Selenium	5.68E+03	1.55E+03	1.93E+01	0.644	J	1.26	1.32	J	3.34	0.62		0.6	0.663	J	1.23	0.655		0.583
Silver	5.68E+03	1.55E+03	3.13E+01		U	1.26		U	3.34		U	0.6		U	1.23		U	0.583
Sodium	---	---	---	134		126		U	334	130		59.9	140		123	132		58.3
Uranium	3.41E+03	9.29E+02	9.86E+02		U	1.26		U	3.34		U	0.6		U	1.23		U	0.583
Zinc	3.41E+05	9.29E+04	1.36E+04	21.7		1.26	11.8		3.34	19.7		0.6	23.2		1.23	31.7		0.583
Anions (mg/kg)																		
Chloride	---	---	---	22.6		6.07	18.9		6.39	33.4		5.46	34.4		5.66	6.56		6.06
Fluoride (F-, Anion)	4.54E+04	1.24E+04	8.37E+00	5.94		1.21	5.87		1.28	4.97		1.09	3.28		1.13	16.4		1.21
Nitrate-N	1.82E+06	4.96E+05	3.35E+02		U	1.21		U	1.28		U	1.09		U	1.13		U	1.21
Nitrite	1.14E+05	3.10E+04	2.09E+01		U	1.21		U	1.28		U	1.09		U	1.13		U	1.21
Sulfate	---	---	---	1080		6.07	1310		6.39	849		5.46	495		5.66	204		6.06
Cyanide	6.81E+02	1.86E+02	4.41E+00		U	2.58		U	2.58		U	2.4		U	0.57		U	2.36
Radium (pci/g)																		
Radium-226	---	---	---	1.44	G	0.55	0.56	LT,G	0.37	1.07	G	0.48	0.66	LT,G,TI	0.64	1.32	G	0.46
Radium-228	---	---	---	0.8	LT,G,TI	0.68		U,G	0.97	0.9	LT,G	0.65		U,G	0.72		U,G	0.9

Table 4 - Summary of Soil Sampling Analytical Results
First Quarter 2013 Interim Report
Navajo Refining Company, Artesia Refinery, New Mexico

Boring Location (Depth)				MW-119 (10)			MW-119 (15)			MW-119 (20)			MW-119 (25)			RO-SB-1 (1)		
Depth:				10			15			20			25			1		
Date:				2/4/2013			2/4/2013			2/4/2013			2/4/2013			1/31/2013		
Analyte	Industrial/ Occupational SSL (mg/kg)	Construction Worker SSL (mg/kg)	DAF 20 SSL (mg/kg)	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL
TPH (mg/kg)																		
Gasoline Range Organics	---	---	---	NA			NA			NA				U	0.062		U	0.061
Diesel Range Organics	1.00E+03	---	---	NA			NA			NA				U	2.1		U	2.1
Motor Oil Range Organics	1.00E+03	---	---	NA			NA			NA				U	4.2		U	4.1
VOCs (mg/kg)																		
1,1,1-Trichloroethane	7.89E+04	1.48E+04	5.82E+01	NA			NA			NA				U	0.0062		U	0.0061
1,1,2,2-Tetrachloroethane	4.35E+01	2.21E+02	4.26E-03	NA			NA			NA				U	0.0062		U	0.0061
1,1,2-Trichloroethane	1.33E+01	4.72E+02	2.23E-03	NA			NA			NA				U	0.0062		U	0.0061
1,1-Dichloroethane	3.59E+02	1.70E+03	1.20E-01	NA			NA			NA				U	0.0062		U	0.0061
1,1-Dichloroethene	2.29E+03	4.32E+02	2.32E+00	NA			NA			NA				U	0.0062		U	0.0061
1,2-Dibromoethane	3.22E+00	1.60E+01	3.08E-04	NA			NA			NA				U	0.0062		U	0.0061
1,2-Dichloroethane	4.35E+01	5.87E+01	7.11E-03	NA			NA			NA				U	0.0062		U	0.0061
Benzene	8.47E+01	1.38E+02	3.45E-02	NA			NA			NA				U	0.0062		U	0.0061
Carbon Tetrachloride	5.98E+01	2.26E+02	3.21E-02	NA			NA			NA				U	0.0062		U	0.0061
Chloroform	3.27E+01	1.54E+02	9.18E-03	NA			NA			NA				U	0.0062		U	0.0061
Dichloromethane	4.70E+03	1.12E+03	8.24E-01	NA			NA			NA				U	0.012	0.007	J	0.0070
Ethylbenzene	3.78E+02	1.83E+03	2.60E-01	NA			NA			NA				U	0.0062		U	0.0061
Tetrachloroethene	3.66E+01	2.12E+02	8.61E-03	NA			NA			NA				U	0.0062		U	0.0061
Toluene	5.77E+04	1.34E+04	2.53E+01	NA			NA			NA				U	0.0062		U	0.0061
Total Xylenes	3.98E+03	7.43E+02	3.13E+00	NA			NA			NA				U	0.019		U	0.018
Trichloroethene	4.13E+01	7.68E+00	2.11E-02	NA			NA			NA				U	0.0062		U	0.0061
Vinyl Chloride	2.61E+01	1.49E+02	1.08E-03	NA			NA			NA				U	0.0025		U	0.0024
PAHs (mg/kg)																		
1-Methylnaphthalene	---	---	---	NA			NA			NA				U	0.0082	0.0074	J	0.0074
2-Methylnaphthalene	---	---	---	NA			NA			NA				U	0.0082	0.008	J	0.0080
Benzo(a)Pyrene	2.34E+00	2.13E+01	5.20E-01	NA			NA			NA				U	0.0082		U	0.008
Naphthalene	2.41E+02	1.58E+02	7.13E-02	NA			NA			NA				U	0.0082		U	0.008

Table 4 - Summary of Soil Sampling Analytical Results
First Quarter 2013 Interim Report
Navajo Refining Company, Artesia Refinery, New Mexico

Boring Location (Depth) Depth: Date:				RO-SB-1 (5)			RO-SB-1 (10)			RO-SB-1 (15)			RO-SB-1 (20)			RO-SB-1 (25)		
				5			10			15			20			25		
				1/31/2013			1/31/2013			2/1/2013			2/1/2013			2/1/2013		
Analyte	Industrial/ Occupational SSL (mg/kg)	Construction Worker SSL (mg/kg)	DAF 20 SSL (mg/kg)	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL
Moisture (%)																		
Percent Moisture	---	---	---	22.7		0.01	31		0.01	23.5		0.01	20.3		0.01	20.9		0.01
Metals (mg/kg)																		
Aluminum	1.13E+06	4.07E+04	1.10E+06	7110		122	4110		127	8520		110	6090		121	18600		124
Arsenic	1.77E+01	5.30E+01	2.62E-01	3.42		0.61	2.03		0.64	1.68		0.55	2.91		0.61	3.12		0.62
Barium	2.23E+05	4.35E+03	6.03E+03	180		0.61	186		0.64	95.7		0.55	268		60.6	16.5		0.62
Boron	2.27E+05	4.65E+04	4.80E+02	4.3		3.06	4.47	J	6.35	5.8		5.49	3.56		3.03	3.76		3.1
Cadmium	8.97E+02	2.77E+02	2.75E+01	0.085	J	0.61	0.103	J	0.64	0.262	J	0.55	0.245	J	0.61		U	0.62
Calcium	---	---	---	87900		6120	184000		6350	204000		5490	252000		6060	11500		62.1
Chromium	1.70E+06	4.65E+05	1.97E+09	6.49		0.61	5.94		0.64	6.96		0.55	6.61		0.61	9.2		0.62
Cobalt	---	---	---	2.59		0.61	1.28		0.64	3.65		0.55	1.2		0.61	6.52		0.62
Copper	4.54E+04	1.24E+04	1.03E+03	2.64		0.61	2.52		0.64	3.94		0.55	2.38		0.61	6.56		0.62
Iron	7.95E+05	2.17E+05	1.29E+04	4780		61.2	2390		63.5	5050		54.9	3230		60.6	9750		62.1
Lead	8.00E+02	8.00E+02		3.75		0.61	2.02		0.64	7.03		0.55	4.04		0.61	12		0.62
Manganese	2.67E+04	4.40E+02	1.14E+03	55.2		0.61	32.3		0.64	76.1		0.55	35.3		0.61	193		0.62
Mercury	7.36E+01	1.36E+01	6.54E-01	0.00395	J	0	0.00167	J	0	0.00335	J	0	0.00102	J	0	0.0274		0
Molybdenum	5.68E+03	1.55E+03	7.40E+01	0.205	J	0.61		U	0.64	0.165	J	0.55		U	0.61	0.42	J	0.62
Nickel	2.25E+04	6.19E+03	9.53E+02	4.83		0.61	2.4		0.64	5.53		0.55	3.95		0.61	10.4		0.62
Potassium	---	---	---	1430		61.2	808		63.5	1740		54.9	1250		60.6	3560		62.1
Selenium	5.68E+03	1.55E+03	1.93E+01	0.542	J	0.61	0.276	J	0.64	0.943		0.55	0.62		0.61	0.414	J	0.62
Silver	5.68E+03	1.55E+03	3.13E+01		U	0.61		U	0.64		U	0.55		U	0.61		U	0.62
Sodium	---	---	---	183		61.2	125		63.5	123		54.9	101		60.6	105		62.1
Uranium	3.41E+03	9.29E+02	9.86E+02		U	0.61		U	0.64		U	0.55		U	0.61		U	0.62
Zinc	3.41E+05	9.29E+04	1.36E+04	14.4		0.61	9.11		0.64	20		0.55	9.84		0.61	30.7		0.62
Anions (mg/kg)																		
Chloride	---	---	---	247		6.44	180		7.15	80.6		6.52	71.5		6.18	108		6.27
Fluoride (F-, Anion)	4.54E+04	1.24E+04	8.37E+00	12.5		1.29	21.5		1.43	15.3		1.3	9.85		1.24	14.6		1.25
Nitrate-N	1.82E+06	4.96E+05	3.35E+02	0.515	J	1.29		U	1.43	0.94	J	1.3	0.84	J	1.24		U	1.25
Nitrite	1.14E+05	3.10E+04	2.09E+01		U	1.29		U	1.43		U	1.3		U	1.24		U	1.25
Sulfate	---	---	---	2350		32.2	1900		35.7	832		6.52	703		6.18	851		6.27
Cyanide	6.81E+02	1.86E+02	4.41E+00		U	2.39		U	2.71		U	2.35	0.788	J	2.42	0.747	J	2.49
Radium (pci/g)																		
Radium-226	---	---	---	1.09	G	0.54	0.89	LT,G,TI	0.58	0.87	LT,G	0.38	0.58	LT,G,TI	0.51	1.07	G	0.45
Radium-228	---	---	---	1.17	M,G,NQ	1.03		U,G	0.93		U,G	0.82	0.99	NQ,G	0.81	1.11	G,TI	0.64

Table 4 - Summary of Soil Sampling Analytical Results
First Quarter 2013 Interim Report
Navajo Refining Company, Artesia Refinery, New Mexico

Boring Location (Depth) Depth: Date:				RO-SB-1 (5)			RO-SB-1 (10)			RO-SB-1 (15)			RO-SB-1 (20)			RO-SB-1 (25)		
				5			10			15			20			25		
				1/31/2013			1/31/2013			2/1/2013			2/1/2013			2/1/2013		
Analyte	Industrial/ Occupational SSL (mg/kg)	Construction Worker SSL (mg/kg)	DAF 20 SSL (mg/kg)	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL
TPH (mg/kg)																		
Gasoline Range Organics	---	---	---	NA			NA			NA			NA			NA		
Diesel Range Organics	1.00E+03	---	---	NA			NA			NA			NA			NA		
Motor Oil Range Organics	1.00E+03	---	---	NA			NA			NA			NA			NA		
VOCs (mg/kg)																		
1,1,1-Trichloroethane	7.89E+04	1.48E+04	5.82E+01	NA			NA			NA			NA			NA		
1,1,2,2-Tetrachloroethane	4.35E+01	2.21E+02	4.26E-03	NA			NA			NA			NA			NA		
1,1,2-Trichloroethane	1.33E+01	4.72E+02	2.23E-03	NA			NA			NA			NA			NA		
1,1-Dichloroethane	3.59E+02	1.70E+03	1.20E-01	NA			NA			NA			NA			NA		
1,1-Dichloroethene	2.29E+03	4.32E+02	2.32E+00	NA			NA			NA			NA			NA		
1,2-Dibromoethane	3.22E+00	1.60E+01	3.08E-04	NA			NA			NA			NA			NA		
1,2-Dichloroethane	4.35E+01	5.87E+01	7.11E-03	NA			NA			NA			NA			NA		
Benzene	8.47E+01	1.38E+02	3.45E-02	NA			NA			NA			NA			NA		
Carbon Tetrachloride	5.98E+01	2.26E+02	3.21E-02	NA			NA			NA			NA			NA		
Chloroform	3.27E+01	1.54E+02	9.18E-03	NA			NA			NA			NA			NA		
Dichloromethane	4.70E+03	1.12E+03	8.24E-01	NA			NA			NA			NA			NA		
Ethylbenzene	3.78E+02	1.83E+03	2.60E-01	NA			NA			NA			NA			NA		
Tetrachloroethene	3.66E+01	2.12E+02	8.61E-03	NA			NA			NA			NA			NA		
Toluene	5.77E+04	1.34E+04	2.53E+01	NA			NA			NA			NA			NA		
Total Xylenes	3.98E+03	7.43E+02	3.13E+00	NA			NA			NA			NA			NA		
Trichloroethene	4.13E+01	7.68E+00	2.11E-02	NA			NA			NA			NA			NA		
Vinyl Chloride	2.61E+01	1.49E+02	1.08E-03	NA			NA			NA			NA			NA		
PAHs (mg/kg)																		
1-Methylnaphthalene	---	---	---	NA			NA			NA			NA			NA		
2-Methylnaphthalene	---	---	---	NA			NA			NA			NA			NA		
Benzo(a)Pyrene	2.34E+00	2.13E+01	5.20E-01	NA			NA			NA			NA			NA		
Naphthalene	2.41E+02	1.58E+02	7.13E-02	NA			NA			NA			NA			NA		

Table 4 - Summary of Soil Sampling Analytical Results
First Quarter 2013 Interim Report
Navajo Refining Company, Artesia Refinery, New Mexico

Boring Location (Depth)				RO-SB-1 (30)			RO-SB-1 (35)		
Depth:				30			35		
Date:				2/1/2013			2/1/2013		
Analyte	Industrial/ Occupational SSL (mg/kg)	Construction Worker SSL (mg/kg)	DAF 20 SSL (mg/kg)	Result	Qual	RL	Result	Qual	RL
Moisture (%)									
Percent Moisture	---	---	---	26.6		0.01	16		0.01
Metals (mg/kg)									
Aluminum	1.13E+06	4.07E+04	1.10E+06	7810		134	4280		113
Arsenic	1.77E+01	5.30E+01	2.62E-01	2.01		0.67	1.82		0.564
Barium	2.23E+05	4.35E+03	6.03E+03	40.7		0.67	72.7		0.564
Boron	2.27E+05	4.65E+04	4.80E+02	3.67		3.35	2.01	J	2.82
Cadmium	8.97E+02	2.77E+02	2.75E+01	0.151	J	0.67	0.0817	J	0.564
Calcium	---	---	---	95500		6690	73200		5640
Chromium	1.70E+06	4.65E+05	1.97E+09	6.41		0.67	4.22		0.564
Cobalt	---	---	---	1.97		0.67	1.87		0.564
Copper	4.54E+04	1.24E+04	1.03E+03	2.72		0.67	1.7		0.564
Iron	7.95E+05	2.17E+05	1.29E+04	4870		66.9	3220		56.4
Lead	8.00E+02	8.00E+02		4.05		0.67	2.92		0.564
Manganese	2.67E+04	4.40E+02	1.14E+03	78.8		0.67	58.1		0.564
Mercury	7.36E+01	1.36E+01	6.54E-01	0.000638	J	0		U	0.0041
Molybdenum	5.68E+03	1.55E+03	7.40E+01	0.22	J	0.67	0.198	J	0.564
Nickel	2.25E+04	6.19E+03	9.53E+02	4.51		0.67	3.34		0.564
Potassium	---	---	---	1450		66.9	932		56.4
Selenium	5.68E+03	1.55E+03	1.93E+01	0.539	J	0.67	0.332	J	0.564
Silver	5.68E+03	1.55E+03	3.13E+01		U	0.67		U	0.564
Sodium	---	---	---	100		66.9	53.7	J	56.4
Uranium	3.41E+03	9.29E+02	9.86E+02		U	0.67		U	0.564
Zinc	3.41E+05	9.29E+04	1.36E+04	14.9		0.67	8.89		0.564
Anions (mg/kg)									
Chloride	---	---	---	134		6.72	46.7		5.87
Fluoride (F-, Anion)	4.54E+04	1.24E+04	8.37E+00	5.24		1.34	5.8		1.17
Nitrate-N	1.82E+06	4.96E+05	3.35E+02		U	1.34		U	1.17
Nitrite	1.14E+05	3.10E+04	2.09E+01		U	1.34		U	1.17
Sulfate	---	---	---	763		6.72	614		5.87
Cyanide	6.81E+02	1.86E+02	4.41E+00		U	2.48	0.672	J	2.24
Radium (pci/g)									
Radium-226	---	---	---	0.56	LT,G,TI	0.49	0.72	LT	0.38
Radium-228	---	---	---		U,G	0.94		U	0.59

Table 4 - Summary of Soil Sampling Analytical Results
First Quarter 2013 Interim Report
Navajo Refining Company, Artesia Refinery, New Mexico

Boring Location (Depth)				RO-SB-1 (30)			RO-SB-1 (35)		
Depth:				30			35		
Date:				2/1/2013			2/1/2013		
Analyte	Industrial/ Occupational SSL (mg/kg)	Construction Worker SSL (mg/kg)	DAF 20 SSL (mg/kg)	Result	Qual	RL	Result	Qual	RL
TPH (mg/kg)									
Gasoline Range Organics	---	---	---	NA				U	0.059
Diesel Range Organics	1.00E+03	---	---	NA				U	2
Motor Oil Range Organics	1.00E+03	---	---	NA				U	4
VOCs (mg/kg)									
1,1,1-Trichloroethane	7.89E+04	1.48E+04	5.82E+01	NA				U	0.0059
1,1,2,2-Tetrachloroethane	4.35E+01	2.21E+02	4.26E-03	NA				U	0.0059
1,1,2-Trichloroethane	1.33E+01	4.72E+02	2.23E-03	NA				U	0.0059
1,1-Dichloroethane	3.59E+02	1.70E+03	1.20E-01	NA				U	0.0059
1,1-Dichloroethene	2.29E+03	4.32E+02	2.32E+00	NA				U	0.0059
1,2-Dibromoethane	3.22E+00	1.60E+01	3.08E-04	NA				U	0.0059
1,2-Dichloroethane	4.35E+01	5.87E+01	7.11E-03	NA				U	0.0059
Benzene	8.47E+01	1.38E+02	3.45E-02	NA				U	0.0059
Carbon Tetrachloride	5.98E+01	2.26E+02	3.21E-02	NA				U	0.0059
Chloroform	3.27E+01	1.54E+02	9.18E-03	NA				U	0.0059
Dichloromethane	4.70E+03	1.12E+03	8.24E-01	NA			0.0056	J	0.0056
Ethylbenzene	3.78E+02	1.83E+03	2.60E-01	NA				U	0.0059
Tetrachloroethene	3.66E+01	2.12E+02	8.61E-03	NA				U	0.0059
Toluene	5.77E+04	1.34E+04	2.53E+01	NA				U	0.0059
Total Xylenes	3.98E+03	7.43E+02	3.13E+00	NA				U	0.018
Trichloroethene	4.13E+01	7.68E+00	2.11E-02	NA				U	0.0059
Vinyl Chloride	2.61E+01	1.49E+02	1.08E-03	NA				U	0.0024
PAHs (mg/kg)									
1-Methylnaphthalene	---	---	---	NA				U	0.0078
2-Methylnaphthalene	---	---	---	NA				U	0.0078
Benzo(a)Pyrene	2.34E+00	2.13E+01	5.20E-01	NA				U	0.0078
Naphthalene	2.41E+02	1.58E+02	7.13E-02	NA				U	0.0078

Table 4 - Summary of Soil Sampling Analytical Results
First Quarter 2013 Interim Report
Navajo Refining Company, Artesia Refinery, New Mexico

Notes:

Screening hierarchy is as follows:
Samples from 1 foot depth interval are screened against lower of Ind/Occ SSL or CW SSL.
Samples from >1 to 10 foot depth interval are screened against CW SSL.
Samples from >10 foot depth interval are screened against DAF 20 SSL.
TPH results are screened against the "unknown oil" SSL from Table 6-2, 2012 NMED Risk Asssment Guidance.
Bold, italic font with yellow highlighting indicates a result reported above the appropriate SSL.
RLs shown in italics font with gray highlighting exceed the appropriate SSL for that compound and depth.
Blank cells in the "Results" column indicate a non-detect value for that compound.

Abbreviations:

--- = no SSL available
DAF = dilution attenuation factor
G = sample density differs by more than 15% of LCS density
J = estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).
LCS = laboratory control sample
LT = the sample has a detection above the achieved minimum detectable concentration but below the requested.
mg/kg = milligrams per kilogram
M3 = the requested MDC was not met, but the reported activity is greater than the reported MDC
NA = not applicable
ND = indicates the compound was analyzed for but not detected
NQ = net quantified
PAH = polycyclic aromatic hydrocarbon
pci/g = average picocuries per gram
qual = qualifier
RL = reporting limit
SVOC = semivolatile organic compound
SSL = soil screening level
TI = the analyte is tentatively identified
TPH = total petroleum hydrocarbons
U = Indicates the compound was analyzed for but not detected

Table 5 - Summary of Groundwater Sampling Analytical Results

First Quarter 2013 Interim Report

Navajo Refining Company, Artesia Refinery, New Mexico

		Location ID:	MW-114			MW-115			MW-116			MW-117			MW-118			MW-119			RO Discharge		
		Date:	2/3/2013			2/3/2013			2/3/2013			2/3/2013			2/5/2013			2/5/2013			2/3/2013		
Analyte	CGWSL	CGWSL Source	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL
Metals (mg/L)																							
Aluminum	5.00E+00	20.6.2.3103.C	0.0265		0.01	0.00888	J	0.01	0.00797	J	0.01	0.0289		0.01	0.0146		0.01	0.00994	J	0.01	0.00668	J	0.01
Arsenic	1.00E-02	USEPA MCL	0.00561		0.005	0.00499	J	0.005	0.00274	J	0.005	0.00498	J	0.005	0.011		0.005	0.00294	J	0.005	0.00494	J	0.005
Barium	1.00E+00	20.6.2.3103.A	0.0204		0.005	0.0309		0.005	0.0161		0.005	0.0235		0.005	0.0145		0.005	0.00981		0.005	0.0628		0.005
Boron	7.50E-01	20.6.2.3103.C	0.139		0.1	0.865		0.5	0.22		0.1	0.207		0.1	0.226		0.05	0.0987		0.05	0.143		0.1
Cadmium	5.00E-03	USEPA MCL		U	0.002		U	0.002		U	0.002		U	0.002		U	0.002		U	0.002		U	0.002
Calcium	---	---	600		5	518		5	624		10	568		5	563		10	494		10	625		25
Chromium	5.00E-02	20.6.2.3103.A		U	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U	0.005
Cobalt	5.00E-02	20.6.2.3103.C	0.00738		0.005	0.0029	J	0.005		U	0.005	0.00256	J	0.005		U	0.005	0.000871	J	0.005		U	0.005
Copper	1.00E+00	20.6.2.3103.B		U	0.005	0.00704	<0.005	0.005		U	0.005	0.0141		0.005	0.00156	J	0.005	0.00309	J	0.005	0.00177	J	0.005
Iron	1.00E+00	20.6.2.3103.B		U	0.2		U	0.2		U	0.2		U	0.2		U	0.2		U	0.2		U	0.2
Lead	1.50E-02	USEPA MCL		U	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U	0.005
Manganese	2.00E-01	20.6.2.3103.B	1.51		0.005	0.255		0.005	0.0437		0.005	0.108		0.005	0.0232		0.005	0.0424		0.005		U	0.005
Mercury	2.00E-03	20.6.2.3103.A		U	0.0002		U	0.0002	0.000131	J	0.0002		U	0.0002	0.000042	J	0.0002		U	0.0002		U	0.0002
Molybdenum	1.00E+00	20.6.2.3103.C	0.0103		0.005	0.00877		0.005	0.00348	J	0.005	0.0112		0.005	0.0195		0.005	0.0083		0.005	0.0125		0.005
Nickel	2.00E-01	20.6.2.3103.C	0.00651		0.005	0.00483	J	0.005	0.0012	J	0.005	0.00413	J	0.005	0.00173	J	0.005	0.00174	J	0.005	0.00264	J	0.005
Potassium	---	---	2.86		0.2	1.78		0.2	1.06		0.2	6.92		0.2	7.95		0.2	0.87		0.2	4.41		0.2
Selenium	5.00E-02	20.6.2.3103.A	0.00222	J	0.005	0.0081		0.005	0.00203	J	0.005	0.00427	J	0.005	0.00861		0.005	0.00246	J	0.005	0.013		0.005
Silver	5.00E-02	20.6.2.3103.A		U	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U	0.005
Sodium	---	---	146		0.2	199		2	206		4	176		0.2	218		4	127		4	65.4		0.2
Uranium	3.00E-02	20.6.2.3103.A	0.0156		0.005	0.0843		0.005	0.0331		0.005	0.0263		0.005	0.037		0.005	0.0244		0.005	0.00601		0.005
Zinc	1.00E+01	20.6.2.3103.B	0.00343	J	0.005	0.00973		0.005	0.00291	J	0.005	0.0123		0.005		U	0.005		U	0.005	0.0132		0.005
Anions (mg/L)																							
Chloride	2.50E+02	20.6.2.3103.B	158		25	422		25	389		25	154		25	296		25	116		25	67.5		0.5
Fluoride (F-, Anion)	1.60E+00	20.6.2.3103.A	1.76		0.1	1.1		0.1	1.31		0.1	2.73		0.1	5.16		0.1	2.36		0.1	3.32		0.1
Nitrate-N	1.00E+01	20.6.2.3103.A	1.43	H	0.1	0.821	H	0.1	1.37	H	0.1	0	HU	0.1	2.39		0.1	2.35		0.1	3.22	H	0.1
Nitrite	---	---		HU	0.1	0.141	H	0.1		HU	0.1		HU	0.1		U	0.1		U	0.1		HU	0.1
Sulfate	6.00E+02	20.6.2.3103.B	2,200		25	2,790		25	2,250		25	2,310		25	2,450		25	2,090		25	1,690		25
Cyanide	2.00E-01	20.6.2.3103.A		U	0.02		U	0.02		U	0.02		U	0.02		U	0.02		U	0.02		U	0.02
Radium (pci/L)																							
Radium-228	---	---	0.74	LT	0.49		U	0.52		U	0.55	0.89	LT	0.48	0.87	Y1,LT	0.49		U	0.52	NA		
Radium-226	---	---	0.43	LT	0.23		U	0.23		U	0.32	0.54	LT	0.09	0.38	Y1,LT	0.21		U	0.25	NA		
Radium-226 & Radium-228	3.00E+01	20.6.2.3103.A	1.17									1.43			1.25								
Total Dissolved Solids (mg/L)																							
Residue, filterable	1.00E+04	20.6.2.3103	3,760		10	4,960		10	3,650		10	3,910		10	4,610		10	3,670		10	3,150		10
TPH (mg/L)																							
Gasoline Range Organics	---	---		U	0.05		U	0.05		U	0.05		U	0.05	0.0436	J	0.05	0.0371	J	0.05		U	0.05
Diesel Range Organics	2.00E-01	NMED RA		U	0.052		U	0.051		U	0.051		U	0.052		U	0.052		U	0.051		U	0.052
Oil Range Organics	2.00E-01	NMED RA		U	0.1		U	0.1		U	0.1		U	0.1		U	0.1		U	0.1	0.17		0.1

Table 5 - Summary of Groundwater Sampling Analytical Results

First Quarter 2013 Interim Report

Navajo Refining Company, Artesia Refinery, New Mexico

Location ID:			MW-114			MW-115			MW-116			MW-117			MW-118			MW-119			RO Discharge		
Date:			2/3/2013			2/3/2013			2/3/2013			2/3/2013			2/5/2013			2/5/2013			2/3/2013		
Analyte	CGWSL	CGWSL Source	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL
VOCs (mg/L)																							
1,1,1-Trichloroethane	6.00E+01	20.6.2.3103.A		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001
1,1,2,2-Tetrachloroethane	1.00E+01	20.6.2.3103.A		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001
1,1,2-Trichloroethane	5.00E+00	USEPA MCL		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001
1,1-Dichloroethane	2.50E+01	20.6.2.3103.A		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001
1,1-Dichloroethene	7.00E+00	USEPA MCL		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001
1,2-Dibromoethane	5.00E-02	USEPA MCL		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001
1,2-Dichloroethane	5.00E+00	USEPA MCL		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001
Benzene	5.00E+00	USEPA MCL		U	0.001		U	0.001		U	0.001		U	0.001	0.0042		0.001	0.0036		0.001		U	0.001
Carbon Tetrachloride	5.00E+00	USEPA MCL		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001
Chloroform	8.00E+01	USEPA MCL		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001
Dichloromethane	5.00E+00	USEPA MCL		U	0.002		U	0.002		U	0.002		U	0.002		U	0.002		U	0.002		U	0.002
Ethylbenzene	7.00E+02	USEPA MCL		U	0.001		U	0.001		U	0.001		U	0.001	0.0024		0.001	0.0021		0.001		U	0.001
Tetrachloroethene	5.00E+00	USEPA MCL		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001
Toluene	7.50E+02	20.6.2.3103.A		U	0.001		U	0.001		U	0.001		U	0.001	0.0033		0.001	0.0027		0.001		U	0.001
Total Xylenes	6.20E+02	20.6.2.3103.A		U	0.001		U	0.001		U	0.001		U	0.001	0.0047		0.001	0.0037		0.001		U	0.001
Trichloroethene	5.00E+00	USEPA MCL		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001
Vinyl Chloride	1.00E+00	20.6.2.3103.A		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001
PAHs (mg/L)																							
1-Methylnaphthalene	---	---		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002
2-Methylnaphthalene	---	---		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002
Naphthalene	---	---		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002
Total PAHs	3.00E+01	20.6.2.3103.A																					
Benzo(a)Pyrene	2.00E-01	USEPA MCL		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002

Notes:

CGWSL is the lowest of the following sources:

New Mexico Water Quality Standards found in NMAC 20.6.2.3103.

If no value in NMAC 20.6.2.3103 was available, then the EPA Federal MCL was used.

TPH results are screened against the "unknown oil" SSL from Table 6-2, 2012 NMED RAG.

Bold, italic font with yellow highlighting indicates a result reported above the CGWSL.

RLs shown in italics font with gray highlighting exceed the CGWSL for that compound.

Screening level for radium is for combined Radium-226 and Radium-228. Detected values were added to obtain the combined value for screening. Non-detect results were treated as a value of 0.

Total PAHs are defined in NMAC 20.6.2.3103 as naphthalene plus mono-methylnaphthalenes. Although no detected values were present, if concentrations had been reported for 1-Methylnaphthalene, 2-Methylnaphthalene, and Naphthalene, the values would have been added to obtain the Total PAHs concentration.

Abbreviations:

--- = not available

CGWSL = Critical Groundwater Screening Level

H = analyzed outside of holding time

J = estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).

LCS = laboratory control sample

LT = the sample has a detection above the achieved minimum detectable concentration but below the requested.

MCL = Maximum contaminant level

mg/L = milligrams per liter

NA = Not Applicable

NMAC = New Mexico Administrative Code

NMED RAG = 2012 New Mexico Environment Department Risk Assessment Guidance

PAH = Polycyclic Aromatic Hydrocarbons

pci/L = average picocuries per liter

Qual = Qualifier from laboratory or data validation

RL = Reporting Limit

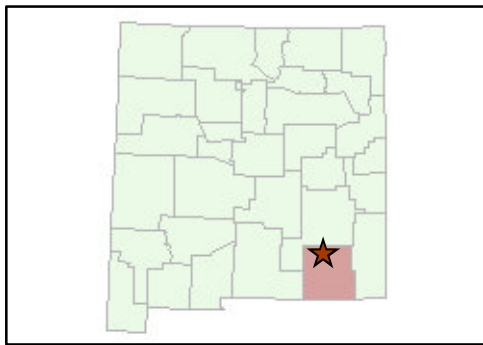
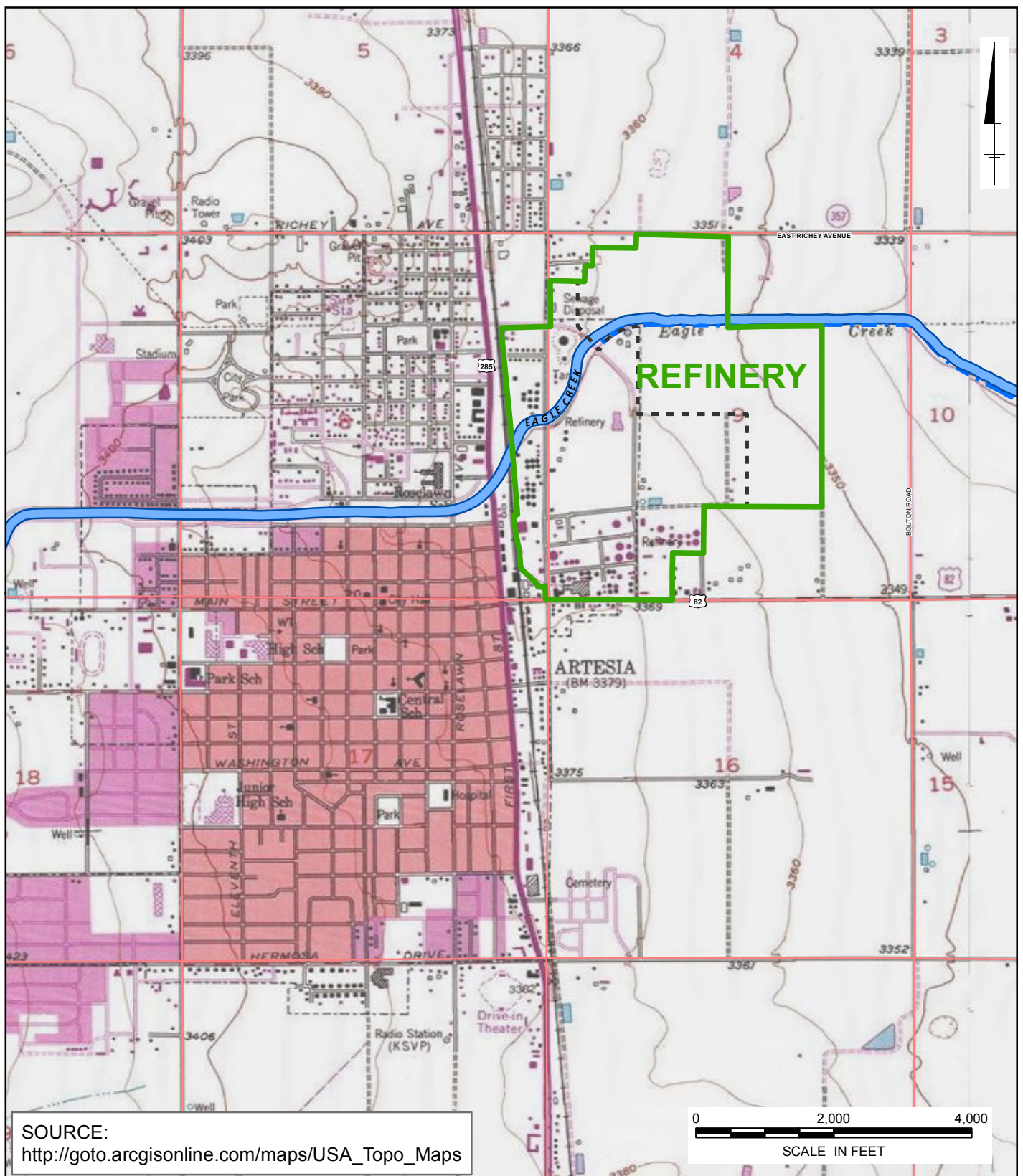
VOC = Volatile Organic Compounds

TPH = Total Petroleum Hydrocarbons

U = Indicates the compound was analyzed for but not detected

USEPA = United States Environmental Protection Agency

Figures



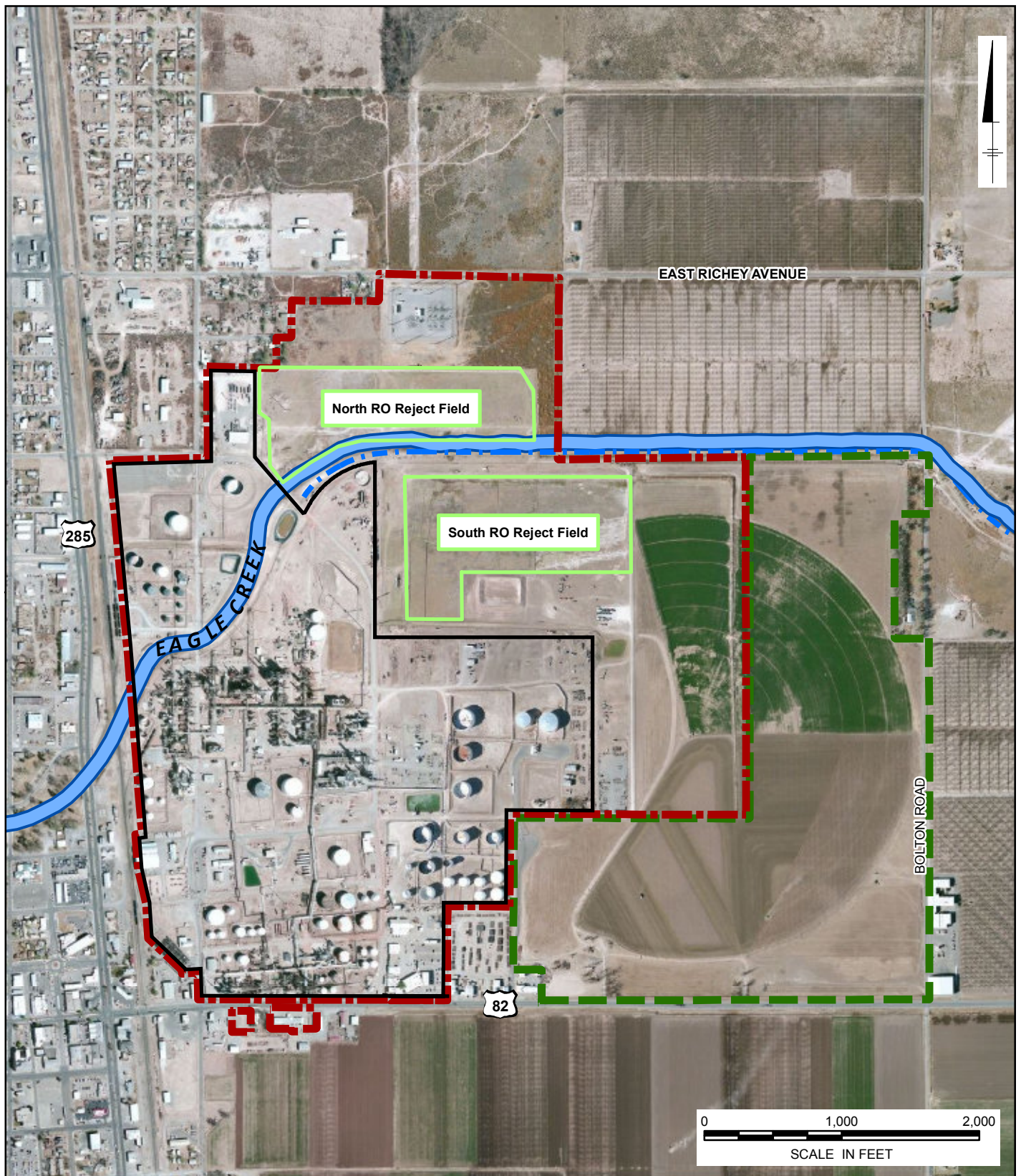
NAVAJO REFINING COMPANY
ARTESIA REFINERY, EDDY COUNTY, NEW MEXICO

SITE LOCATION MAP









FIGURE

1



LEGEND:

-  REFINERY FENCELINE
-  REJECT FIELD
-  NAVAJO REFINING PROPERTY LINE
-  MONTANA REFINING PROPERTY LINE
-  APPROXIMATE LOCATION OF FORMER THREE-MILE DITCH AND EXISTING UNDERGROUND DISCHARGE PIPING
-  WATERWAYS

NAVAJO REFINING COMPANY
 ARTESIA REFINERY, EDDY COUNTY, NEW MEXICO

RO REJECT FIELDS SITE INVESTIGATION

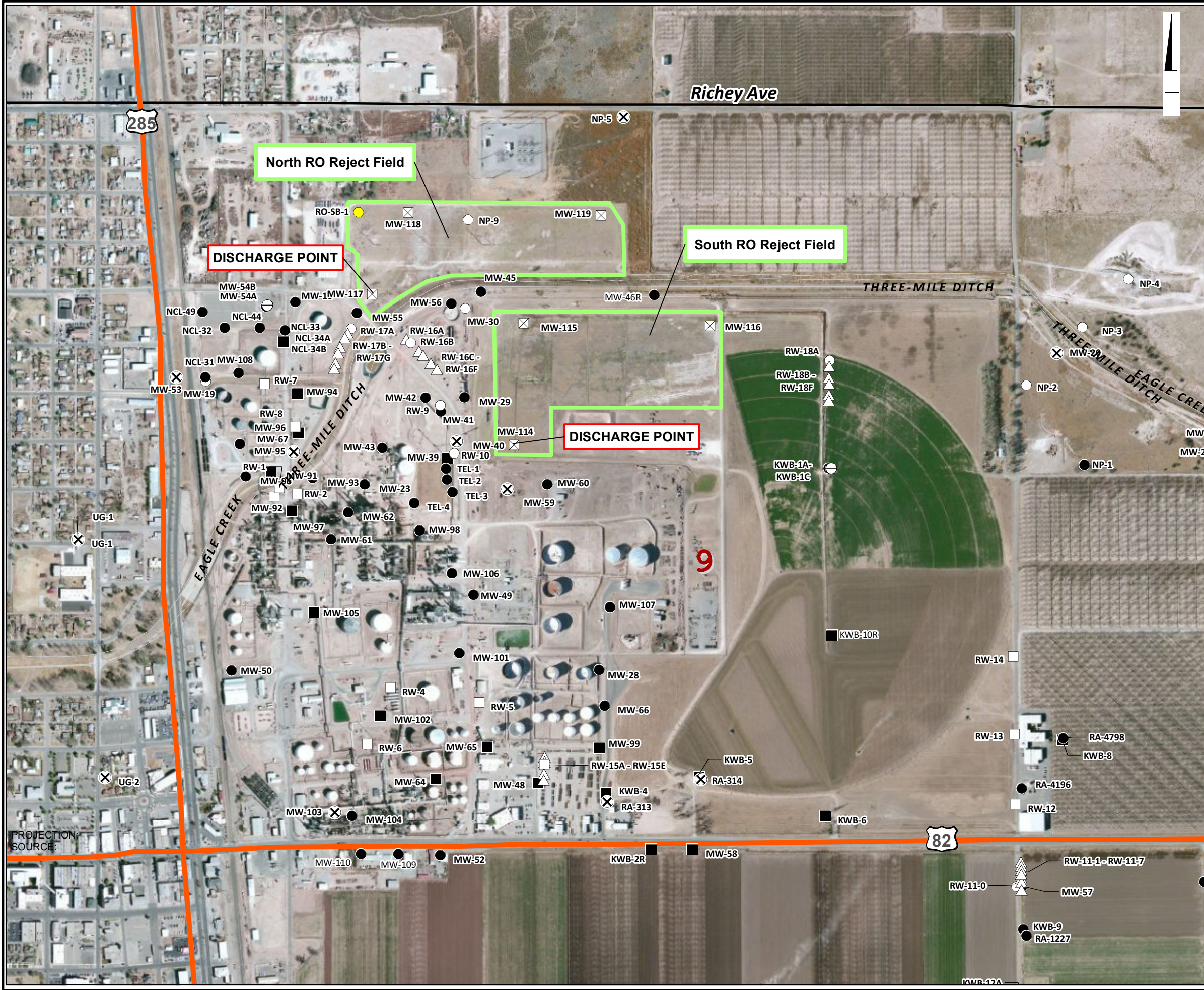
SITE FEATURES



FIGURE

2

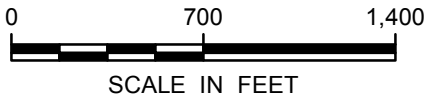
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Legend

- SOIL BORING LOCATION
- NOT SAMPLED AS PART OF ROUTINE MONITORING PROGRAM
- ⊗ SAMPLES TO BE COLLECTED QUARTERLY
- ⊖ SAMPLES COLLECTED BIENNIALY
- ⊗ SAMPLES COLLECTED ANNUALLY
- SAMPLES COLLECTED SEMIANNUALLY
- SAMPLES COLLECTED ANNUALLY IF PSH <0.03 FT
- SAMPLES COLLECTED SEMIANNUALLY IF PSH <0.03 FT
- △ RECOVERY TRENCH WELL LOCATION NOT SAMPLED AS PART OF ROUTINE MONITORING PROGRAM
- US HIGHWAY
- LOCAL ROADS
- REJECT FIELD

- NOTES:
1. SEE FACILITY WIDE GROUNDWATER MONITORING WORK PLAN FOR ANALYTICAL SUITE
 2. PSH = PHASE SEPARATED HYDROCARBONS



NAVAJO REFINING COMPANY
ARTESIA REFINERY, EDDY COUNTY, NEW MEXICO
RO REJECT FIELDS SITE INVESTIGATION

**SOIL BORING
AND MONITORING WELL LOCATIONS**






Appendix A

Boring Logs

Date Start/Finish: 1/28/2013 Drilling Company: National Drilling Driller's Name: Gerald Becker Drilling Method: Hollow Stem Auger Sampling Method: Split Spoon Rig Type: CME 85	Northing: Easting: Casing Elevation: Borehole Depth: 35' bgs Surface Elevation: Descriptions By: Ben McKenna	Well/Boring ID: MW-114 Client: Navajo Refining Company Location: Navajo Refinery Artesia, New Mexico
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
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0	0								Stick-up (3' ags)
		1	HA	5		X			
						X			
5	-5				0	X		SILTY CLAY (0,0,20,80), light reddish brown (5YR6/4), moist, medium-high plasticity, trace caliche 0.5-1 cm, firm, no odor	
		2	SS	3	0	X		No Recovery	
									PVC Riser (0'-20' bgs)
10	-10				1.1	X		SILTY CLAY (0,0,20,80), pink (5YR 7/3), firm, moist, medium plasticity, caliche gravels 0.5-1 cm, no odor	
		3	SS	5	0	X		Silty Clay with caliche (0,0,20,80), red (2.5YR 4/6), soft, moist, low plasticity, no odor, caliche gravels 0.25-0.5 cm	
					0	X			
					0	X			
15	-15				0	X		Silty Clay (0,0,45,55), light gray (5YR 7/1), soft, dry, low-med plasticity, no odor, caliche gravels 0.25-.5 cm	
		4	SS	5	0	X			Bentonite Seal (14'-18' bgs)
					0	X			
					0	X			
20	-20				0	X			

	Remarks: bgs = below ground surface; amsl = above mean sea level; HA = Hand Auger; ppm = parts per million; NA = not applicable/available; SS = split spoon, ags = above ground surface Lithology is described as percentage of (Gravel, Sand, Silt, Clay)
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Date Start/Finish: 1/28/2013 Drilling Company: National Drilling Driller's Name: Gerald Becker Drilling Method: Hollow Stem Auger Sampling Method: Split Spoon Rig Type: CME 85	Northing: Easting: Casing Elevation: Borehole Depth: 35' bgs Surface Elevation: Descriptions By: Ben McKenna	Well/Boring ID: MW-114 Client: Navajo Refining Company Location: Navajo Refinery Artesia, New Mexico
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
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20	-20	5	SS	5	0	X		SILTY SAND (0,,65,35,0), pale brown (10YR6/3), damp, firm, fine to very fine grain, well sorted, orange mottling, no odor	
						X		GRAVELY SAND (40,50,10,0), pale brown (10YR 6/3), damp, loose, rounded to sub rounded, 2-4 cm, fine grained	
						X		SILTY CLAY, (0,0,10,90) white (7.5YR 8/1), firm dry, no plasticity, orange mottling, no odor	
25	-25	6	SS	5	0	X			
					0	X			
					0	X			
					0	X			
30	-30	7	SS	5	0	X		Silty Clay with caliche, light brown (7.5YR 5/4), loose, damp, low plasticity, caliche gravel 0.1-0.25cm	
					0	X			
					0	X			
					0	X		Silty Clay (0,0,20,80), brown (7.5YR 3/4), firm, dry, no plasticity, no odor, white mottling	
35	-35					X			

20/40 Silica Sand Pack (18'-35' bgs)


2" OD 0.010" Slot Screen (20'-35' bgs)

	Remarks: bgs = below ground surface; amsl = above mean sea level; HA = Hand Auger; ppm = parts per million; NA = not applicable/available; SS = split spoon, ags = above ground surface Lithology is described as percentage of (Gravel, Sand, Silt, Clay)
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Date Start/Finish: 1/29/2013 Drilling Company: National Drilling Driller's Name: Gerald Becker Drilling Method: Hollow Stem Auger Sampling Method: Split Spoon Rig Type: CME 85	Northing: Easting: Casing Elevation: Borehole Depth: 25' bgs Surface Elevation: Descriptions By: Ben McKenna	Well/Boring ID: MW-115 Client: Navajo Refining Company Location: Navajo Refinery Artesia, New Mexico
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
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0	0								Stick-up (3' ags)
1		1	HA	5	0	X		SILTY CLAY (0,0,20,80), dark reddish brown (1.5YR3/3), soft, dry, no plasticity, no odor, trace organics	
2		2	HA	3.5	0	X		Silty Clay (0,0,20,80), reddish brown (2.5YR5/4), soft, wet, no plasticity, no odor	2" OD PVC Casing
3		3	SS	5		X		No Recovery	PVC Riser (0'-10' bgs)
4		4	SS	5	0.5	X		Silty Clay (0,0,10,90), dark reddish brown (5YR3/2), firm, moist, medium-high plasticity, no odor	Bentonite Seal (4'-8' bgs)
5		5	SS	5	0.6	X		Silty Clay (0,0,40,60), light reddish brown (5YR6/3), wet, soft, no plasticity, no odor	
6					0.6	X		Silty Clay (0,0,20,80), light gray (7.5YR7/1), firm, damp, low plasticity	
7					0.8	X		Silty Clay (0,0,30,70), white (7.5YR8/1), firm, moist, low plasticity, no odor, orange mottling	
8					0.8	X		Silty Clay (0,0,45,55), white (7.5YR 8/1), loose, damp, low-medium plasticity, orange mottling, trace caliche gravels	
9					0.8	X		Silty Clay (0,0,25,75), pinkish gray (7.5YR 8/1), loose, damp, low-medium plasticity, caliche gravels 1-4 cm, no odor	20/40 Silica Sand Pack (8'-25' bgs)
10					0.8	X		Silty Clay (0,0,35,65), light brown (7.5YR 6/4), dry, soft, no plasticity, no odor, white mottling	2" OD 0.010" Slot Screen (10'-25' bgs)
11					0.8	X		Silty Clay (0,0,10,90), brown (7.5YR5/4), dry, firm, low-medium plasticity, no odor	
12					0.8	X		Silty Clay (0,0,30,70), light brown (7.5YR 6/3), dry, firm, no plasticity, no odor, trace caliche gravels	
13					1.9	X			
14						X			
15						X			
16						X			
17						X			
18						X			
19						X			
20						X			
21						X			
22						X			
23						X			
24						X			
25						X			

	Remarks: bgs = below ground surface; amsl = above mean sea level; HA = Hand Auger; ppm = parts per million; NA = not applicable/available; SS = split spoon, ags = above ground surface Lithology is described as percentage of (Gravel, Sand, Silt, Clay)
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Date Start/Finish: 1/29/2013 Drilling Company: National Drilling Driller's Name: Gerald Becker Drilling Method: Hollow Stem Auger Sampling Method: Split Spoon Rig Type: CME 85	Northing: Easting: Casing Elevation: Borehole Depth: 25' bgs Surface Elevation: Descriptions By: Ben McKenna	Well/Boring ID: MW-115 Client: Navajo Refining Company Location: Navajo Refinery Artesia, New Mexico
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
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— 25 — 25 —

	Remarks: bgs = below ground surface; amsl = above mean sea level; HA = Hand Auger; ppm = parts per million; NA = not applicable/available; SS = split spoon, ags = above ground surface Lithology is described as percentage of (Gravel, Sand, Silt, Clay)
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Date Start/Finish: 1/30/2013 Drilling Company: National Drilling Driller's Name: Gerald Becker Drilling Method: Hollow Stem Auger Sampling Method: Split Spoon Rig Type: CME 85	Northing: Easting: Casing Elevation: Borehole Depth: 25' bgs Surface Elevation: Descriptions By: Ben McKenna	Well/Boring ID: MW-116 Client: Navajo Refining Company Location: Navajo Refinery Artesia, New Mexico
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
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0	0								Stick-up (3' ags)
1		1	HA	5		X		SILTY CLAY (0,0,20,80), dark reddish brown (2.5YR2/3), loose, dry, low plasticity, no odor, trace organics	
						X		Silty Clay (0,0,35,65), light reddish brown (3.5YR6/4), damp, soft, high plasticity, no odor	2" OD PVC Casing
5	-5					X		Silty Clay (0,0,40,60), pink (7.5YR8/1), soft, moist, low-medium plasticity, no odor	PVC Riser (0'-10' bgs)
		2	HA	3.5		X		No Recovery	Bentonite Seal (4'-8' bgs)
					0.4	X		GRAVELLY CLAY (35, 0, 10, 55), pink (7.5YR8/4), moist, loose, no plasticity, caliche gravels 0.5-6 cm, no odor	
10	-10					X		Gravelly Clay (45,0,0,55), caliche cobbles 1-8 cm	
		3	SS	5	0.4	X		Clayey Gravels (65,0,0,35), black (10YR2/1), wet, loose, poorly sorted, angular to subangular, no odor	
					0.6	X			
15	-15					X		SILTY CLAY (0,0,10,90), light reddish brown (5YR6/4), stiff, dry, low-medium plasticity, pink mottling	
		4	SS	5	0.8	X		Silty Clay (5,0,15,80), reddish brown (5YR4/4), firm, dry, medium plasticity, no odor, trace gravels 0.5-3 centimeters	20/40 Silica Sand Pack (8'-25' bgs)
20	-20					X		Silty Clay (0,0,10,90), light reddish brown (5YR6/4), stiff, dry, low plasticity, pink mottling, no odor	2" OD 0.010" Slot Screen (10'-25' bgs)
		5	SS	5	0.2	X		Silty Clay (0,0,40,60), light reddish brown (5YR6/3), soft, damp, low-medium plasticity, no odor	
					0.3	X		Silty Clay (0,0,20,80), pinkish gray (7.5YR7/2), dry, firm, med-high plasticity, no odor, brown mottling	
25	-25					✓			

	Remarks: bgs = below ground surface; amsl = above mean sea level; HA = Hand Auger; ppm = parts per million; NA = not applicable/available; SS = split spoon, ags = above ground surface Lithology is described as percentage of (Gravel, Sand, Silt, Clay)
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Date Start/Finish: 1/30/2013 Drilling Company: National Drilling Driller's Name: Gerald Becker Drilling Method: Hollow Stem Auger Sampling Method: Split Spoon Rig Type: CME 85	Northing: Easting: Casing Elevation: Borehole Depth: 25' bgs Surface Elevation: Descriptions By: Ben McKenna	Well/Boring ID: MW-116 Client: Navajo Refining Company Location: Navajo Refinery Artesia, New Mexico
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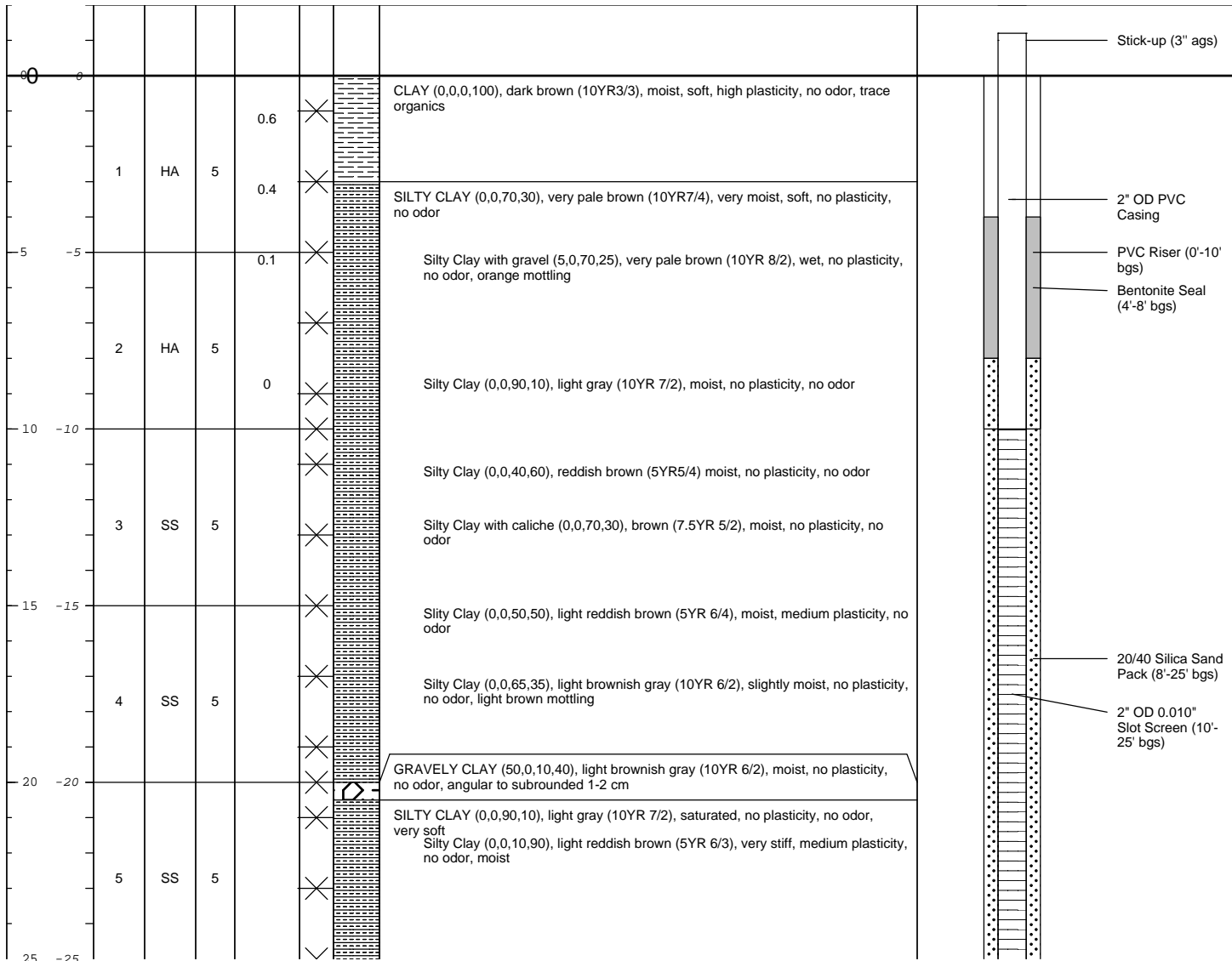
DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
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— 25 — 25 —

	Remarks: bgs = below ground surface; amsl = above mean sea level; HA = Hand Auger; ppm = parts per million; NA = not applicable/available; SS = split spoon, ags = above ground surface Lithology is described as percentage of (Gravel, Sand, Silt, Clay)
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Date Start/Finish: 1/31/2013 Drilling Company: National Drilling Driller's Name: Gerald Becker Drilling Method: Hollow Stem Auger Sampling Method: Split Spoon Rig Type: CME 85	Northing: Easting: Casing Elevation: Borehole Depth: 25' bgs Surface Elevation: Descriptions By: Eric Bergersen	Well/Boring ID: MW-117 Client: Navajo Refining Company Location: Navajo Refinery Artesia, New Mexico
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
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	Remarks: bgs = below ground surface; amsl = above mean sea level; HA = Hand Auger; ppm = parts per million; NA = not applicable/available; SS = split spoon, ags = above ground surface Lithology is described as percentage of (Gravel, Sand, Silt, Clay)
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Date Start/Finish: 1/31/2013 Drilling Company: National Drilling Driller's Name: Gerald Becker Drilling Method: Hollow Stem Auger Sampling Method: Split Spoon Rig Type: CME 85	Northing: Easting: Casing Elevation: Borehole Depth: 25' bgs Surface Elevation: Descriptions By: Eric Bergersen	Well/Boring ID: MW-117 Client: Navajo Refining Company Location: Navajo Refinery Artesia, New Mexico
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
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— 25 — 25 —

	Remarks: bgs = below ground surface; amsl = above mean sea level; HA = Hand Auger; ppm = parts per million; NA = not applicable/available; SS = split spoon, ags = above ground surface Lithology is described as percentage of (Gravel, Sand, Silt, Clay)
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Date Start/Finish: 2/4/2013 Drilling Company: National Drilling Driller's Name: Gerald Becker Drilling Method: Hollow Stem Auger Sampling Method: Split Spoon Rig Type: CME 85	Northing: Easting: Casing Elevation: Borehole Depth: 25' bgs Surface Elevation: Descriptions By: Ben McKenna	Well/Boring ID: MW-118 Client: Navajo Refining Company Location: Navajo Refinery Artesia, New Mexico
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
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0	0								Stick-up (3' ags)
		1	HA	5		X		SILTY CLAY (0,0,30,70), dark brown (7.5YR 3/4), medium plasticity, moist, no odor	
5	-5					X		Silty Clay with trace caliche (0,0,65,35), brown (7.5YR5/4), saturated, loose, no plasticity, no odor	2" OD PVC Casing
		2	HA	5		X			PVC Riser (0'-10' bgs)
						X			Bentonite Seal (4'-8' bgs)
10	-10				0	X		Silty Clay (0,0,20,80), white (5YR 8/1), firm, moist, medium plasticity	
					0	X		Silty Clay (0,0,40,60) light reddish brown (5YR 6/3), loose, damp, no plasticity, no odor, trace caliche gravels	
		3	SS	5	0	X			
					0	X			
15	-15				0	X		Silty Clay (0,0,10,90), reddish yellow (5YR 6/6), dry, stiff, no plasticity, no odor	
					0	X		Silty Clay (0,0,30,70), reddish brown (5YR 4/4), moist, firm, low-medium plasticity, no odor	
		4	SS	5	0	X			20/40 Silica Sand Pack (8'-25' bgs)
					0	X		Silty Clay with gravels (5,0,5,90), reddish yellow (5YR 6/6), dry stiff, no plastiicty, no odor, caliche 0.5-3 cm	2" OD 0.010" Slot Screen (10'-25' bgs)
20	-20				0	X		Silty Clay with gravels (5,0,10,85), yellowish red (5YR 5/6), stiff, dry, no plasticity, no odor, gravels subangular 0.5-3 cm	
		5	SS	5	0	X			
					0	X			
25	-25				0	X		SILTY SAND (0,60,40,0), yellowish red (5YR 5/6), loose, damp, poorly sorted, fine grained, no odor	

	Remarks: bgs = below ground surface; amsl = above mean sea level; HA = Hand Auger; ppm = parts per million; NA = not applicable/available; SS = split spoon, ags = above ground surface Lithology is described as percentage of (Gravel, Sand, Silt, Clay)
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Date Start/Finish: 2/4/2013 Drilling Company: National Drilling Driller's Name: Gerald Becker Drilling Method: Hollow Stem Auger Sampling Method: Split Spoon Rig Type: CME 85	Northing: Easting: Casing Elevation: Borehole Depth: 25' bgs Surface Elevation: Descriptions By: Ben McKenna	Well/Boring ID: MW-118 Client: Navajo Refining Company Location: Navajo Refinery Artesia, New Mexico
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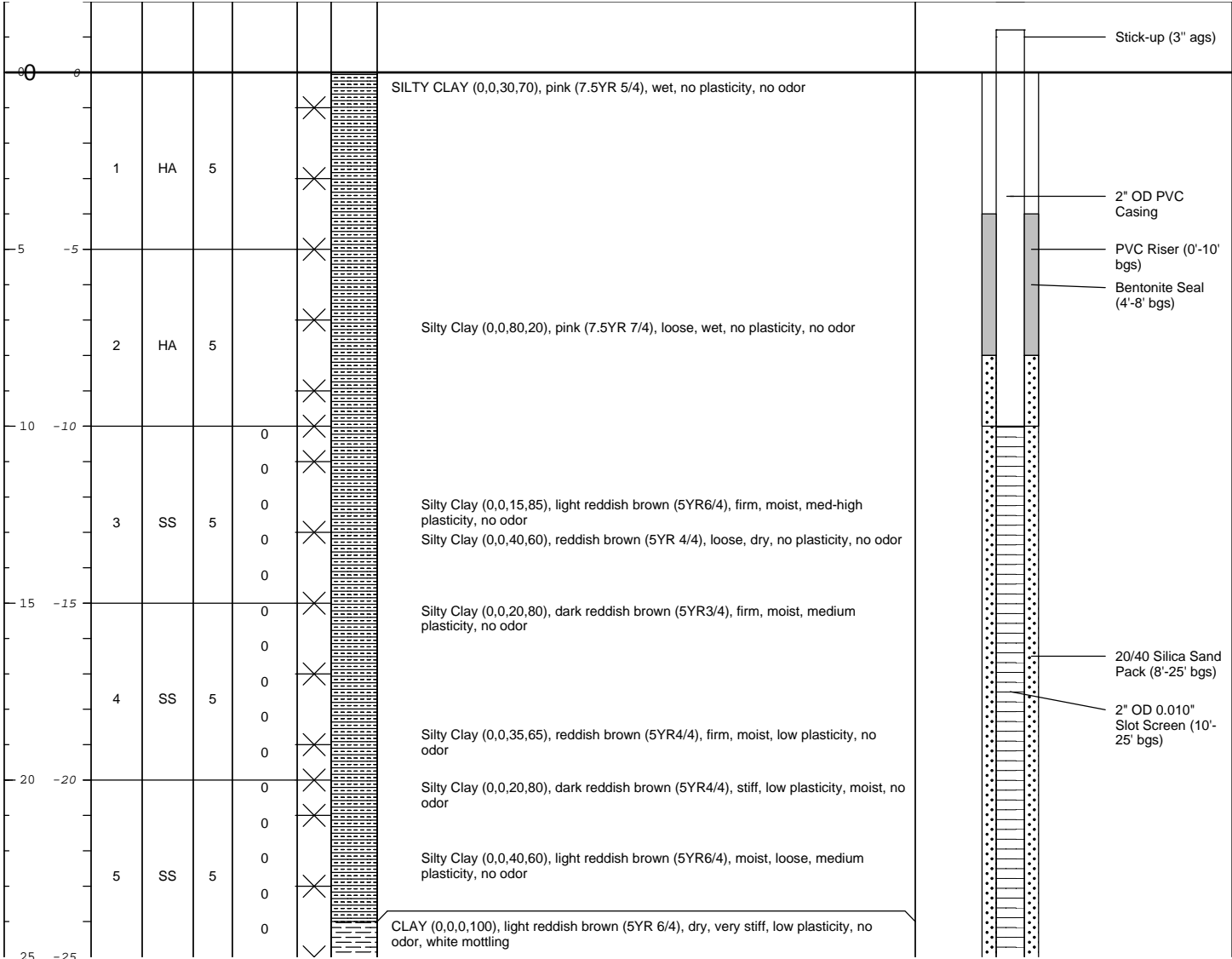
DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
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— 25 — 25 —

	Remarks: bgs = below ground surface; amsl = above mean sea level; HA = Hand Auger; ppm = parts per million; NA = not applicable/available; SS = split spoon, ags = above ground surface Lithology is described as percentage of (Gravel, Sand, Silt, Clay)
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Date Start/Finish: 2/4/2013 Drilling Company: National Drilling Driller's Name: Gerald Becker Drilling Method: Hollow Stem Auger Sampling Method: Split Spoon Rig Type: CME 85	Northing: Easting: Casing Elevation: Borehole Depth: 25' bgs Surface Elevation: Descriptions By: Ben McKenna	Well/Boring ID: MW-119 Client: Navajo Refining Company Location: Navajo Refinery Artesia, New Mexico
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
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	Remarks: bgs = below ground surface; amsl = above mean sea level; HA = Hand Auger; ppm = parts per million; NA = not applicable/available; SS = split spoon, ags = above ground surface Lithology is described as percentage of (Gravel, Sand, Silt, Clay)
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Date Start/Finish: 2/4/2013 Drilling Company: National Drilling Driller's Name: Gerald Becker Drilling Method: Hollow Stem Auger Sampling Method: Split Spoon Rig Type: CME 85	Northing: Easting: Casing Elevation: Borehole Depth: 25' bgs Surface Elevation: Descriptions By: Ben McKenna	Well/Boring ID: MW-119 Client: Navajo Refining Company Location: Navajo Refinery Artesia, New Mexico
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
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— 25 — 25 —

	Remarks: bgs = below ground surface; amsl = above mean sea level; HA = Hand Auger; ppm = parts per million; NA = not applicable/available; SS = split spoon, ags = above ground surface Lithology is described as percentage of (Gravel, Sand, Silt, Clay)
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Date Start/Finish: 2/4/2013 Drilling Company: National Drilling Driller's Name: Gerald Becker Drilling Method: Hollow Stem Auger Sampling Method: Split Spoon Rig Type: CME 85	Northing: Easting: Casing Elevation: Borehole Depth: 35' bgs Surface Elevation: Descriptions By: Ben McKenna	Well/Boring ID: RO-SB-1 Client: Navajo Refining Company Location: Navajo Refinery Artesia, New Mexico
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
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0	0							SILTY CLAY (0,0,20,80), dark brown (7.5YR 3/3), loose, dry, low plasticity, no odor, trace organics	
		1	HA	5	0	X		Silty Clay (0,0,20,80), light brown (7.5YR 6/3), moist, firm, medium-high plasticity, no odor	
-5	-5				3.3	X			
		2	HA	5	0.7	X		Silty Clay (0,0,35,65), pink (5YR8/4), moist, firm, medium-high plasticity, no odor	
					0.3	X			
-10	-10				0	X		No Recovery	
		3	SS	3	0	X		Silty Clay (0,0,35,65), pink (5YR8/4), damp, loose, no plastiicty, trace gravels, no odor	
					0	X		Silty Clay (0,0,10,90), pink (5YR 8/4), dry, stiff, no plasticity, no odor	
-15	-15				0	X			
		4	SS	5	1.4	X		Silty Clay with gravels (15, 0, 20, 65), pink (5YR 7/4), loose, moist, no plasticity, no odor, angular to subangular, caliche gravels 0.5-3 cm	
					0	X		Silty Clay with Gravels (15,0,20,65), pink (5YR 7/4), wet, loose, no plasticity, no odor	
20	-20				0	X		Silty Clay (0,0,10,90), reddish yellow (5YR6/6), dry, stiff, no plasticity, no odor	

	Remarks: bgs = below ground surface; amsl = above mean sea level; HA = Hand Auger; ppm = parts per million; NA = not applicable/available; SS = split spoon, ags = above ground surface Lithology is described as percentage of (Gravel, Sand, Silt, Clay)
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Date Start/Finish: 2/4/2013 Drilling Company: National Drilling Driller's Name: Gerald Becker Drilling Method: Hollow Stem Auger Sampling Method: Split Spoon Rig Type: CME 85	Northing: Easting: Casing Elevation: Borehole Depth: 35' bgs Surface Elevation: Descriptions By: Ben McKenna	Well/Boring ID: RO-SB-1 Client: Navajo Refining Company Location: Navajo Refinery Artesia, New Mexico
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
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20	-20				0	X		No Recovery	
		5	SS	3	0	X		SILTY CLAY (0,0,10,90), red (2.5YR 5/6), dry, firm, low-medium plasticity, no odor	
					0.5	X		SILTY CLAY with GRAVELS (15,0,20,65), pink (5YR 7/4), wet, loose, no plasticity, no odor	
25	-25				0	X		SILTY CLAY (0,0,10,90), pink (5YR 7/4), firm, dry, medium plasticity, no odor	
		6	SS	5	0	X		Silty Clay with Gravels (10,0,30,60), reddish brown (5YR 5/4), dry, loose, no plasticity, no odor	
					0.1	X			
					0	X		Silty Clay (0,0,10,90), reddish brown (5YR 5/4), stiff, dry, no plasticity, no odor	
30	-30				0	X			
		7	SS	5	1.2	X		Gravelly Clay Seam	
					0	X			
					0	X		Silty Clay (0,0,20,80), light gray (5YR 7/1), loose, dry, low plasticity, no odor	
35	-35					X			

	Remarks: bgs = below ground surface; amsl = above mean sea level; HA = Hand Auger; ppm = parts per million; NA = not applicable/available; SS = split spoon, ags = above ground surface Lithology is described as percentage of (Gravel, Sand, Silt, Clay)
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Appendix B

Groundwater Sampling Field Data
Sheets

RO Reject Discharge Fields Wells (MW-114 through MW-119)

Item	Work Plan Requirement	Initials	NAO	Sfi
1	Confirm soil-boring location is properly staked. Confirm accessibility to rig.		✓	✓
2	Confirm utility clearance and proper dig permits have been obtained.		✓	✓
3	Confirm that PID is available and calibrated. Confirm that equipment to conduct headspace analysis of soil samples is available.		✓	✓
4	Confirm drilling/sampling equipment is decontaminated.		✓	✓
5	Collect 0-1 ft sample with hand auger.		✓	✓
6	Continue clearance to 5 ft bgs with hydrovac and/or hand auger.		✓	✓
7	Collect continuous samples using split spoon or core barrel. Screen each sample via PID, visual and odor. Note results on field form along with sample length, sampling tool, percent recovery. Retain samples until most impacted sample identified.		✓	✓
8	Continue sampling until 5 feet below saturated zone. If the saturated zone is not reached within 50 ft bgs, then halt sampling 5 feet below last observed soil contamination.		✓	✓
9	Screen all soil samples (PID, visual, olfactory), then select appropriate samples for laboratory analyses (see below).		✓	✓
10	Collect soil moisture samples at 2 ft intervals throughout. <i>Analytical suite @ 5 ft intervals</i>		✓	✓
11	Gauge depth to groundwater through hollow stem auger to determine well screen interval.		✓	✓
12	Set 10 to 20-ft well screen across anticipated water table and casing to surface. Place 8/12 or 10/20 sand pack around screen to 2 feet above top of scree. Transition with 2 feet of 20/40 sand. Place 2 foot bentonite seal and hydrate for 30 minutes. Place grout from bentonite to near surface.		✓	✓
13	Set protective outer casing and well pad. Install locking cap. Ensure cap and casing are secured.		✓	✓
14	Develop well by purging until parameters stabilize (<10% variability between readings). All fluids to be contained and disposed of in process wastewater system upstream of API separator.		✓	✓
15	Collect groundwater sample.		✓	✓
16	Confirm that GPS coordinates have been collected for this well		✓	✓

Analytical Suite as per attached Table 3 of Work Plan PLUS moisture content for soil at every 2 ft interval.

Install soil boring RO-SB01 in northwest corner of North RO Reject Discharge Field and collect soil samples at same rate as for wells.

ARCADIS U.S.

WATER SAMPLE FIELD DATA SHEET

PROJECT #: _____ PURGED BY: JM WELL I.D.: MW-114
 CLIENT NAME: Navejo SAMPLED BY: JM SAMPLE I.D.: _____
 LOCATION: Artesia, NM QA SAMPLES: _____

DATE PURGED 2-3-13 START (2400hr) 1050 END (2400hr) 1115
 DATE SAMPLED 2-3-13 SAMPLE TIME (2400hr) 1130
 SAMPLE TYPE: Groundwater ☒ Surface Water _____ Treatment Effluent _____ Other _____

CASING DIAMETER: 2" ☒ 3" _____ 4" _____ 5" _____ 6" _____ 8" _____ Other _____
 Casing Volume: (gallons per foot) 2" (0.17) 3" (0.38) 4" (0.67) 5" (1.02) 6" (1.50) 8" (2.60) Other ()

DEPTH TO BOTTOM (feet) = 38.20 CASING VOLUME (gal) = 5.02
 DEPTH TO WATER (feet) = 8.59 CALCULATED PURGE (gal) = _____
 WATER COLUMN HEIGHT (feet) = 29.61 ACTUAL PURGE (gal) = _____

FIELD MEASUREMENTS

DATE	TIME (2400hr)	VOLUME (gal)	TEMP. (degrees [°] C)	CONDUCTIVITY (uMhos/cm)	pH (units)	COLOR (visual)	TURBIDITY (NTU)
<u>2/3/13</u>	<u>1050</u>		<u>12.64</u>	<u>4.16</u>	<u>6.58</u>	<u>Clear</u>	<u>38.2</u>
	<u>1053</u>		<u>12.60</u>	<u>4.17</u>	<u>6.48</u>	<u>"</u>	<u>22.6</u>
	<u>1056</u>		<u>12.66</u>	<u>4.14</u>	<u>6.48</u>	<u>"</u>	<u>28.7</u>
	<u>1100</u>		<u>12.73</u>	<u>4.14</u>	<u>6.47</u>	<u>"</u>	<u>31.7</u>
	<u>1105</u>		<u>12.81</u>	<u>4.14</u>	<u>6.47</u>	<u>"</u>	<u>33.4</u>
	<u>1110</u>		<u>12.82</u>	<u>4.14</u>	<u>6.47</u>	<u>"</u>	<u>35.1</u>
	<u>1115</u>		<u>12.88</u>	<u>4.14</u>	<u>6.48</u>	<u>"</u>	<u>32.8</u>

SAMPLE DEPTH TO WATER: 8.61 SAMPLE INFORMATION SAMPLE TURBIDITY: _____

80% RECHARGE: ☒ YES ☐ NO ANALYSES: See COC
 ODOR: _____ SAMPLE VESSEL / PRESERVATIVE: Multiph

PURGING EQUIPMENT

____ Bladder Pump _____ Bailer (Teflon)
 ____ Centrifugal Pump _____ Bailer (PVC)
 ____ Submersible Pump _____ Bailer (Stainless Steel)
☒ Peristaltic Pump _____ Dedicated _____

Other: _____

Pump Depth: _____

SAMPLING EQUIPMENT

____ Bladder Pump _____ Bailer (Teflon)
 ____ Centrifugal Pump _____ Bailer (_____ PVC or _____ disposable)
 ____ Submersible Pump _____ Bailer (Stainless Steel)
☒ Peristaltic Pump _____ Dedicated _____

Other: _____

WELL INTEGRITY: Good New LOCK#: _____

REMARKS: _____

SIGNATURE: _____

Page ____ of ____

ARCADIS U.S.

WATER SAMPLE FIELD DATA SHEET

PROJECT #: _____ PURGED BY: DM WELL I.D.: MW-115
 CLIENT NAME: Navajo SAMPLED BY: EB SAMPLE I.D.: _____
 LOCATION: Artesia, NM QA SAMPLES: _____

DATE PURGED 2/3/13 START (2400hr) 1145 END (2400hr) 1215
 DATE SAMPLED 2/3/13 SAMPLE TIME (2400hr) 1230
 SAMPLE TYPE: Groundwater ☒ Surface Water _____ Treatment Effluent _____ Other _____

CASING DIAMETER: 2" ☒ 3" _____ 4" _____ 5" _____ 6" _____ 8" _____ Other _____
 Casing Volume: (gallons per foot) (0.17) (0.38) (0.67) (1.02) (1.50) (2.60) ()

DEPTH TO BOTTOM (feet) = 27.54 CASING VOLUME (gal) = 3.41
 DEPTH TO WATER (feet) = 7.49 CALCULATED PURGE (gal) = _____
 WATER COLUMN HEIGHT (feet) = 20.05 ACTUAL PURGE (gal) = _____

FIELD MEASUREMENTS

DATE	TIME (2400hr)	VOLUME (gal)	TEMP. °C (degrees F)	CONDUCTIVITY (µmhos/cm)	pH (units)	COLOR (visual)	TURBIDITY (NTU)
<u>2/3/13</u>	<u>1145</u>		<u>17.60</u>	<u>3.01</u>	<u>7.13</u>	<u>Clear</u>	<u>85.6</u>
	<u>1150</u>		<u>17.41</u>	<u>4.30</u>	<u>7.02</u>	<u>"</u>	<u>76.3</u>
	<u>1155</u>		<u>17.19</u>	<u>4.38</u>	<u>6.93</u>	<u>"</u>	<u>71.2</u>
	<u>1200</u>		<u>17.11</u>	<u>4.40</u>	<u>6.91</u>	<u>"</u>	<u>65.6</u>
	<u>1205</u>		<u>16.95</u>	<u>4.51</u>	<u>6.86</u>	<u>"</u>	<u>61.8</u>
	<u>1210</u>		<u>16.87</u>	<u>4.52</u>	<u>6.84</u>	<u>"</u>	<u>58.1</u>
	<u>1215</u>		<u>16.83</u>	<u>4.53</u>	<u>6.83</u>	<u>"</u>	<u>59.0</u>

SAMPLE DEPTH TO WATER: 7.49 SAMPLE INFORMATION SAMPLE TURBIDITY: _____

80% RECHARGE: _____ YES _____ NO ANALYSES: _____

ODOR: _____ SAMPLE VESSEL / PRESERVATIVE: _____

PURGING EQUIPMENT

_____ Bladder Pump _____ Bailer (Teflon)
 _____ Centrifugal Pump _____ Bailer (PVC)
 _____ Submersible Pump _____ Bailer (Stainless Steel)
☒ Peristaltic Pump _____ Dedicated _____

Other: _____

Pump Depth: ≈ 25'

SAMPLING EQUIPMENT

_____ Bladder Pump _____ Bailer (Teflon)
 _____ Centrifugal Pump _____ Bailer (_____ PVC or _____ disposable)
 _____ Submersible Pump _____ Bailer (Stainless Steel)
☒ Peristaltic Pump _____ Dedicated _____

Other: _____

WELL INTEGRITY: Brand New LOCK#: _____

REMARKS: _____

SIGNATURE: _____ Page _____ of _____

ARCADIS U.S.

WATER SAMPLE FIELD DATA SHEET

PROJECT #: _____ PURGED BY: JM WELL I.D.: MW-116
 CLIENT NAME: Navajo SAMPLED BY: EB SAMPLE I.D.: _____
 LOCATION: Artesia, NM QA SAMPLES: _____

DATE PURGED 2-3-13 START (2400hr) 1236 END (2400hr) 1305
 DATE SAMPLED 2-3-13 SAMPLE TIME (2400hr) 1315
 SAMPLE TYPE: Groundwater ☒ Surface Water _____ Treatment Effluent _____ Other _____

CASING DIAMETER: 2" ☒ 3" _____ 4" _____ 5" _____ 6" _____ 8" _____ Other _____
 Casing Volume: (gallons per foot) (0.17) (0.38) (0.67) (1.02) (1.50) (2.60) ()

DEPTH TO BOTTOM (feet) = 27.29 CASING VOLUME (gal) = 3.04
 DEPTH TO WATER (feet) = 9.91 CALCULATED PURGE (gal) = _____
 WATER COLUMN HEIGHT (feet) = 17.88 ACTUAL PURGE (gal) = _____

FIELD MEASUREMENTS

DATE	TIME (2400hr)	VOLUME (gal)	TEMP. C (degrees F)	CONDUCTIVITY (umhos /cm)	pH (units)	COLOR (visual)	TURBIDITY (NTU)
<u>2-3-13</u>	<u>1236</u>		<u>14.68</u>	<u>4.99</u>	<u>6.79</u>	<u>Clear</u>	<u>67.1</u>
	<u>1240</u>		<u>13.98</u>	<u>4.90</u>	<u>6.73</u>	<u>"</u>	<u>67.1</u>
	<u>1245</u>		<u>13.94</u>	<u>4.89</u>	<u>6.71</u>	<u>"</u>	<u>76.0</u>
	<u>1250</u>		<u>14.00</u>	<u>4.88</u>	<u>6.74</u>	<u>"</u>	<u>75.8</u>
	<u>1300</u>		<u>14.01</u>	<u>4.88</u>	<u>6.69</u>	<u>"</u>	<u>75.8</u>
	<u>1305</u>		<u>14.03</u>	<u>4.88</u>	<u>6.69</u>	<u>"</u>	<u>75.2</u>

SAMPLE INFORMATION

SAMPLE DEPTH TO WATER: 9.93 SAMPLE TURBIDITY: _____

80% RECHARGE: _____ YES _____ NO ANALYSES: See COC

ODOR: _____ SAMPLE VESSEL / PRESERVATIVE: Multiphase

PURGING EQUIPMENT

SAMPLING EQUIPMENT

____ Bladder Pump _____ Bailer (Teflon)
 ____ Centrifugal Pump _____ Bailer (PVC)
 ____ Submersible Pump _____ Bailer (Stainless Steel)
☒ Peristaltic Pump _____ Dedicated _____

____ Bladder Pump _____ Bailer (Teflon)
 ____ Centrifugal Pump _____ Bailer (____ PVC or ____ disposable)
 ____ Submersible Pump _____ Bailer (Stainless Steel)
☒ Peristaltic Pump _____ Dedicated _____

Other: _____

Other: _____

Pump Depth: ≈ 25

WELL INTEGRITY: Brand New LOCK#: _____

REMARKS: _____

SIGNATURE: _____

Page ____ of ____

ARCADIS U.S.

WATER SAMPLE FIELD DATA SHEET

PROJECT #: _____ PURGED BY: BM WELL I.D.: MP-117
 CLIENT NAME: Navy SAMPLED BY: BM SAMPLE I.D.: _____
 LOCATION: Arteria, NM QA SAMPLES: _____

DATE PURGED 2.3.13 START (2400hr) 0926 END (2400hr) 0940
 DATE SAMPLED 2.3.13 SAMPLE TIME (2400hr) 1000
 SAMPLE TYPE: Groundwater ☒ Surface Water _____ Treatment Effluent _____ Other _____

CASING DIAMETER: 2" ☒ 3" _____ 4" _____ 5" _____ 6" _____ 8" _____ Other _____
 Casing Volume: (gallons per foot) 2" (0.17) 3" (0.38) 4" (0.67) 5" (1.02) 6" (1.50) 8" (2.60) Other ()

DEPTH TO BOTTOM (feet) = 27.65 CASING VOLUME (gal) = 3.49
 DEPTH TO WATER (feet) = 7.07 CALCULATED PURGE (gal) = _____
 WATER COLUMN HEIGHT (feet) = 20.58 ACTUAL PURGE (gal) = ~ 4.0 gal

FIELD MEASUREMENTS

DATE	TIME (2400hr)	VOLUME (gal)	TEMP. (degrees)	CONDUCTIVITY (umhos/cm)	pH (units)	COLOR (visual)	TURBIDITY (NTU)
<u>2/3/13</u>	<u>0926</u>	<u>---</u>	<u>11.97</u>	<u>4.48</u>	<u>6.36</u>	<u>Clear</u>	<u>123</u>
	<u>0930</u>	<u>---</u>	<u>18.51</u>	<u>4.30</u>	<u>6.34</u>	<u>cl</u>	<u>---</u>
	<u>0933</u>	<u>2.75</u>	<u>18.71</u>	<u>4.30</u>	<u>6.34</u>	<u>cl</u>	<u>78.5</u>
	<u>0936</u>	<u>2.75</u>	<u>18.23</u>	<u>4.29</u>	<u>6.36</u>	<u>cl</u>	<u>78.5</u>
	<u>0938</u>	<u>2.75</u>	<u>18.83</u>	<u>4.29</u>	<u>6.36</u>	<u>cl</u>	<u>71.2</u>
	<u>0940</u>	<u>---</u>	<u>18.85</u>	<u>4.29</u>	<u>6.36</u>	<u>cl</u>	<u>62.0</u>

SAMPLE DEPTH TO WATER: 7.08 SAMPLE INFORMATION SAMPLE TURBIDITY: _____

80% RECHARGE: ☒ YES ☐ NO ANALYSES: See COC

ODOR: _____ SAMPLE VESSEL / PRESERVATIVE: Multiple

PURGING EQUIPMENT

SAMPLING EQUIPMENT

____ Bladder Pump _____ Bailer (Teflon)
 ____ Centrifugal Pump _____ Bailer (PVC)
 ____ Submersible Pump _____ Bailer (Stainless Steel)
☒ Peristaltic Pump _____ Dedicated _____

____ Bladder Pump _____ Bailer (Teflon)
 ____ Centrifugal Pump _____ Bailer (____ PVC or ____ disposable)
 ____ Submersible Pump _____ Bailer (Stainless Steel)
☒ Peristaltic Pump _____ Dedicated _____

Other: _____

Other: _____

Pump Depth: _____

WELL INTEGRITY: Brand New LOCK#: _____

REMARKS: _____

SIGNATURE: _____ Page ____ of ____

ARCADIS U.S.

WATER SAMPLE FIELD DATA SHEET

PROJECT #: _____

PURGED BY: B. McKennaWELL I.D.: MW-118CLIENT NAME: NavajoSAMPLED BY: B. McKenna

SAMPLE I.D.: _____

LOCATION: Antesita, NM

QA SAMPLES: _____

DATE PURGED 2-8-13START (2400hr) 1345END (2400hr) 1415DATE SAMPLED 2-8-13SAMPLE TIME (2400hr) 1425SAMPLE TYPE: Groundwater ☒ x

Surface Water _____

Treatment Effluent _____

Other _____

CASING DIAMETER:

2" ☒ X

3" _____

4" _____

5" _____

6" _____

8" _____

Other _____

Casing Volume: (gallons per foot)

(0.17)

(0.38)

(0.67)

(1.02)

(1.50)

(2.60)

()

DEPTH TO BOTTOM (feet) = 28.51CASING VOLUME (gal) = 4.22DEPTH TO WATER (feet) = 13.71

CALCULATED PURGE (gal) = _____

WATER COLUMN HEIGHT (feet) = 24.80ACTUAL PURGE (gal) = ≈ 4.5 gal

FIELD MEASUREMENTS

DATE	TIME (2400hr)	VOLUME (gal)	TEMP. °C (degrees X)	CONDUCTIVITY Mc (umhos/cm)	pH (units)	COLOR (visual)	TURBIDITY (NTU)
2/5/13	1345		13.95	4.85	7.10	Clear	159
	1350		14.55	4.84	7.01	"	90.2
	1355		15.07	4.78	6.93	"	51.6
	1400		15.81	4.97	6.81	"	37.8
	1405		16.00	4.96	6.74	"	30.9
	1410		16.06	4.95	6.73	"	29.3
	1415		16.11	4.93	6.72	"	26.8

SAMPLE INFORMATION

SAMPLE DEPTH TO WATER: 3.74

SAMPLE TURBIDITY: _____

80% RECHARGE: ☒ YES ☐ NOANALYSES: See COCODOR: NoneSAMPLE VESSEL / PRESERVATIVE: Multiple

PURGING EQUIPMENT

☐ Bladder Pump
☐ Centrifugal Pump
☐ Submersible Pump
☒ Peristaltic Pump

☐ Bailer (Teflon)
☐ Bailer (PVC)
☐ Bailer (Stainless Steel)
☐ Dedicated

Other: _____

Pump Depth: ≈ 20'

SAMPLING EQUIPMENT

☐ Bladder Pump
☐ Centrifugal Pump
☐ Submersible Pump
☒ Peristaltic Pump

☐ Bailer (Teflon)
☐ Bailer (☐ PVC or ☐ disposable)
☐ Bailer (Stainless Steel)
☐ Dedicated

Other: _____

WELL INTEGRITY: Brand New

LOCK#: _____

REMARKS: _____

SIGNATURE: _____

Page ____ of ____

ARCADIS U.S.

WATER SAMPLE FIELD DATA SHEET

PROJECT #: _____ PURGED BY: B. McKenna WELL I.D.: MW-119
 CLIENT NAME: Navajo SAMPLED BY: B. McKenna SAMPLE I.D.: _____
 LOCATION: Antesana, NM QA SAMPLES: _____

DATE PURGED 2-5-13 START (2400hr) 1240 END (2400hr) 1305
 DATE SAMPLED 2-5-13 SAMPLE TIME (2400hr) 1315
 SAMPLE TYPE: Groundwater ☒ Surface Water _____ Treatment Effluent _____ Other _____

CASING DIAMETER: 2" ☒ 3" _____ 4" _____ 5" _____ 6" _____ 8" _____ Other _____
 Casing Volume: (gallons per foot) (0.17) (0.38) (0.67) (1.02) (1.50) (2.60) ()

DEPTH TO BOTTOM (feet) = 28.35 CASING VOLUME (gal) = 3.70
 DEPTH TO WATER (feet) = 6.61 CALCULATED PURGE (gal) = _____
 WATER COLUMN HEIGHT (feet) = 21.74 ACTUAL PURGE (gal) = ≈ 4 gal

FIELD MEASUREMENTS

DATE	TIME (2400hr)	VOLUME (gal)	TEMP. °C (degrees X ^F)	CONDUCTIVITY (umhos/cm)	pH (units)	COLOR (visual)	TURBIDITY (NTU)
<u>2/5/13</u>	<u>1240</u>	_____	<u>16.98</u>	<u>3.22</u>	<u>7.20</u>	<u>Clear</u>	<u>139</u>
<u> </u>	<u>1245</u>	_____	<u>16.54</u>	<u>3.21</u>	<u>7.03</u>	<u>"</u>	<u>133</u>
<u> </u>	<u>1250</u>	_____	<u>9.14</u>	<u>4.00</u>	<u>6.99</u>	<u>"</u>	<u>208</u>
<u> </u>	<u>1250</u>	_____	<u>9.02</u>	<u>4.02</u>	<u>6.97</u>	<u>"</u>	<u>173</u>
<u> </u>	<u>1258</u>	_____	<u>9.09</u>	<u>4.02</u>	<u>6.97</u>	<u>"</u>	<u>173</u>
<u> </u>	<u>1300</u>	_____	<u>9.26</u>	<u>4.01</u>	<u>6.91</u>	<u>"</u>	<u>152</u>
<u>✓</u>	<u>1305</u>	<u>≈ 4 gal</u>	<u>9.42</u>	<u>4.00</u>	<u>6.87</u>	<u>"</u>	<u>144</u>

SAMPLE DEPTH TO WATER: 6.63 SAMPLE INFORMATION SAMPLE TURBIDITY: _____

80% RECHARGE: ☒ YES ☐ NO ANALYSES: _____

ODOR: No SAMPLE VESSEL / PRESERVATIVE: _____

PURGING EQUIPMENT

_____ Bladder Pump _____ Bailer (Teflon)
 _____ Centrifugal Pump _____ Bailer (PVC)
 _____ Submersible Pump _____ Bailer (Stainless Steel)
☒ Peristaltic Pump _____ Dedicated _____

Other: _____

Pump Depth: ≈ 20'

SAMPLING EQUIPMENT

_____ Bladder Pump _____ Bailer (Teflon)
 _____ Centrifugal Pump _____ Bailer (_____ PVC or _____ disposable)
 _____ Submersible Pump _____ Bailer (Stainless Steel)
☒ Peristaltic Pump _____ Dedicated _____

Other: _____

WELL INTEGRITY: Brand New LOCK#: _____

REMARKS: _____

SIGNATURE: _____

Page ____ of ____



Appendix C

Laboratory Analytical Reports



13-Feb-2013

Robert Combs
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 746-5382
Fax: (575) 746-5421

Re: RO Discharge Sampling

Work Order: **1301997**

Dear Robert,

ALS Environmental received 16 samples on 31-Jan-2013 09:10 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 49.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in black ink that reads "Sonia West".

Electronically approved by: Jumoke M. Lawal

Sonia West
Project Manager



Certificate No: T104704231-12-10

ADDRESS 10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 | PHONE (281) 530-5656 | FAX (281) 530-5887

DOV#T UR X S#K VD /#R U S#Sdu#h i#hch#DOV#T ur xs##D q#DOV#Dp i#hg#F rp s dq |

Environmental

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 1301997

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1301997-01	MW -115 (1)	Soil		1/29/2013 14:25	1/31/2013 09:10	<input type="checkbox"/>
1301997-02	MW -115 (3)	Soil		1/29/2013 14:30	1/31/2013 09:10	<input type="checkbox"/>
1301997-03	MW- 115 (5)	Soil		1/29/2013 14:35	1/31/2013 09:10	<input type="checkbox"/>
1301997-04	MW -115 (7)	Soil		1/29/2013 15:02	1/31/2013 09:10	<input type="checkbox"/>
1301997-05	MW- 115 (9)	Soil		1/29/2013 15:02	1/31/2013 09:10	<input type="checkbox"/>
1301997-06	MW- 115 (10)	Soil		1/29/2013 16:10	1/31/2013 09:10	<input type="checkbox"/>
1301997-07	MW -115 (11)	Soil		1/29/2013 16:12	1/31/2013 09:10	<input type="checkbox"/>
1301997-08	MW -115 (13)	Soil		1/29/2013 16:12	1/31/2013 09:10	<input type="checkbox"/>
1301997-09	MW- 115 (15)	Soil		1/29/2013 15:20	1/31/2013 09:10	<input type="checkbox"/>
1301997-10	MW -115 (17)	Soil		1/29/2013 15:22	1/31/2013 09:10	<input type="checkbox"/>
1301997-11	MW -115 (19)	Soil		1/29/2013 15:22	1/31/2013 09:10	<input type="checkbox"/>
1301997-12	MW -115 (20)	Soil		1/29/2013 16:00	1/31/2013 09:10	<input type="checkbox"/>
1301997-13	MW -115 (21)	Soil		1/29/2013 15:30	1/31/2013 09:10	<input type="checkbox"/>
1301997-14	MW- 115 (23)	Soil		1/29/2013 15:30	1/31/2013 09:10	<input type="checkbox"/>
1301997-15	MW-115 (25)	Soil		1/29/2013 15:45	1/31/2013 09:10	<input type="checkbox"/>
1301997-16	Trip Blank 011813-29	Water		1/29/2013	1/31/2013 09:10	<input type="checkbox"/>

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 1301997

Case Narrative

Your samples received for Radium 226 and Radium 228 are reported on ALS workorder 1302400.

Batch 67579, TPH DRO/ORO, Sample 1302018-01: MS/MSD is for an unrelated sample.

Batch 67523, Metals, Sample 13011005-01: MS/MSD is for an unrelated sample.

Batch 67523, Metals, Sample 13011005-01: Duplicate RPD is for an unrelated sample.

Batch 67656, Low-Level Semivolatile Organics, Sample 1302140-04: MS/MSD is for an unrelated sample.

Batch 67656, Low-Level Semivolatile Organics, Sample 1302140-04: MS/MSD RPD is for an unrelated sample.

Batch R141995, Volatile Organics, Sample MW- 115 (1): MS/MSD recoveries were outside the control limits for Toluene. The associated LCS recoveries and MS/MSD RPD were within the control limits.

Batch R142113, Volatile Organics, Sample 1302069-01: MS/MSD is for an unrelated sample.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW -115 (1)
Collection Date: 1/29/2013 02:25 PM

Work Order: 1301997
Lab ID: 1301997-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3541 / 2/5/13 Analyst: KMB							
TPH (Oil Range)	1.4	J	0.62	4.2	mg/Kg-dry	1	2/6/2013 14:40
TPH (Diesel Range)	U		0.62	2.1	mg/Kg-dry	1	2/6/2013 14:40
Surr: 2-Fluorobiphenyl	62.8			60-135	%REC	1	2/6/2013 14:40
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: KKP							
Gasoline Range Organics	U		0.025	0.062	mg/Kg-dry	1	2/5/2013 16:49
Surr: 4-Bromofluorobenzene	94.5			70-130	%REC	1	2/5/2013 16:49
MERCURY - SW7471B Method: SW7471A Prep: SW7471A / 2/5/13 Analyst: OFO							
Mercury	18.2		0.36	4.39	µg/Kg-dry	1	2/5/2013 16:05
METALS Method: SW6020 Prep: SW3050A / 2/4/13 Analyst: SKS							
Aluminum	13,800		24	118	mg/Kg-dry	100	2/6/2013 15:31
Arsenic	3.60		0.12	0.591	mg/Kg-dry	1	2/5/2013 16:25
Barium	147		0.094	0.591	mg/Kg-dry	1	2/5/2013 16:25
Boron	6.45		1.7	2.95	mg/Kg-dry	1	2/6/2013 13:16
Cadmium	0.390	J	0.059	0.591	mg/Kg-dry	1	2/5/2013 16:25
Calcium	64,700		1,200	5,910	mg/Kg-dry	100	2/6/2013 15:31
Chromium	12.8		0.11	0.591	mg/Kg-dry	1	2/5/2013 16:25
Cobalt	4.78		0.083	0.591	mg/Kg-dry	1	2/5/2013 16:25
Copper	11.4		0.12	0.591	mg/Kg-dry	1	2/5/2013 16:25
Iron	9,060		12	59.1	mg/Kg-dry	1	2/5/2013 16:25
Lead	23.7		0.059	0.591	mg/Kg-dry	1	2/5/2013 16:25
Manganese	357		12	59.1	mg/Kg-dry	100	2/6/2013 15:31
Molybdenum	0.742		0.18	0.591	mg/Kg-dry	1	2/5/2013 16:25
Nickel	9.67		0.11	0.591	mg/Kg-dry	1	2/5/2013 16:25
Potassium	3,360		15	59.1	mg/Kg-dry	1	2/5/2013 16:25
Selenium	0.949		0.21	0.591	mg/Kg-dry	1	2/5/2013 16:25
Silver	U		0.094	0.591	mg/Kg-dry	1	2/5/2013 16:25
Sodium	327		13	59.1	mg/Kg-dry	1	2/5/2013 16:25
Uranium	U		0.59	0.591	mg/Kg-dry	1	2/5/2013 16:25
Zinc	33.8		0.30	0.591	mg/Kg-dry	1	2/5/2013 16:25
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3541 / 2/7/13 Analyst: LG							
1-Methylnaphthalene	U		2.0	8.1	µg/Kg-dry	1	2/7/2013 17:49
2-Methylnaphthalene	U		2.0	8.1	µg/Kg-dry	1	2/7/2013 17:49
Benzo(a)pyrene	U		2.0	8.1	µg/Kg-dry	1	2/7/2013 17:49
Naphthalene	U		2.0	8.1	µg/Kg-dry	1	2/7/2013 17:49
Surr: 2,4,6-Tribromophenol	59.9			36-126	%REC	1	2/7/2013 17:49
Surr: 2-Fluorobiphenyl	77.2			43-125	%REC	1	2/7/2013 17:49

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW -115 (1)
Collection Date: 1/29/2013 02:25 PM

Work Order: 1301997
Lab ID: 1301997-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	72.3			37-125	%REC	1	2/7/2013 17:49
Surr: 4-Terphenyl-d14	92.5			32-125	%REC	1	2/7/2013 17:49
Surr: Nitrobenzene-d5	79.6			37-125	%REC	1	2/7/2013 17:49
Surr: Phenol-d6	76.1			40-125	%REC	1	2/7/2013 17:49
VOLATILES - SW8260C			Method: SW8260			Analyst: WLR	
1,1,1-Trichloroethane	U		2.1	6.2	µg/Kg-dry	1	2/1/2013 11:23
1,1,2,2-Tetrachloroethane	U		0.62	6.2	µg/Kg-dry	1	2/1/2013 11:23
1,1,2-Trichloroethane	U		2.5	6.2	µg/Kg-dry	1	2/1/2013 11:23
1,1-Dichloroethane	U		0.62	6.2	µg/Kg-dry	1	2/1/2013 11:23
1,1-Dichloroethene	U		1.9	6.2	µg/Kg-dry	1	2/1/2013 11:23
1,2-Dibromoethane	U		0.86	6.2	µg/Kg-dry	1	2/1/2013 11:23
1,2-Dichloroethane	U		0.74	6.2	µg/Kg-dry	1	2/1/2013 11:23
Benzene	U		0.74	6.2	µg/Kg-dry	1	2/1/2013 11:23
Carbon tetrachloride	U		1.5	6.2	µg/Kg-dry	1	2/1/2013 11:23
Chloroform	U		2.2	6.2	µg/Kg-dry	1	2/1/2013 11:23
Ethylbenzene	U		1.1	6.2	µg/Kg-dry	1	2/1/2013 11:23
Methylene chloride	U		3.1	12	µg/Kg-dry	1	2/1/2013 11:23
Tetrachloroethene	U		1.2	6.2	µg/Kg-dry	1	2/1/2013 11:23
Toluene	U		0.86	6.2	µg/Kg-dry	1	2/1/2013 11:23
Trichloroethene	U		2.0	6.2	µg/Kg-dry	1	2/1/2013 11:23
Vinyl chloride	U		1.2	2.5	µg/Kg-dry	1	2/1/2013 11:23
Xylenes, Total	U		3.2	19	µg/Kg-dry	1	2/1/2013 11:23
Surr: 1,2-Dichloroethane-d4	93.0			70-128	%REC	1	2/1/2013 11:23
Surr: 4-Bromofluorobenzene	101			73-126	%REC	1	2/1/2013 11:23
Surr: Dibromofluoromethane	105			71-128	%REC	1	2/1/2013 11:23
Surr: Toluene-d8	101			73-127	%REC	1	2/1/2013 11:23
ANIONS - EPA 300.0 (1993)			Method: E300			Prep: E300 / 2/5/13	
Chloride	58.8		2.5	6.14	mg/Kg-dry	1	2/5/2013 21:07
Fluoride	5.20		0.37	1.23	mg/Kg-dry	1	2/5/2013 21:07
Nitrogen, Nitrate (As N)	U		0.37	1.23	mg/Kg-dry	1	2/5/2013 21:07
Nitrogen, Nitrite (As N)	U		0.37	1.23	mg/Kg-dry	1	2/5/2013 21:07
Sulfate	1,160		2.5	6.14	mg/Kg-dry	1	2/5/2013 21:07
Surr: Selenate (surr)	87.1			85-115	%REC	1	2/5/2013 21:07
CYANIDE			Method: SW9014			Prep: SW9010C / 2/5/13	
Cyanide	U		0.69	2.30	mg/Kg-dry	1	2/5/2013 16:30
MOISTURE			Method: SW3550			Analyst: KAH	
Percent Moisture	19.0		0.010	0.0100	wt%	1	2/4/2013 14:30

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW -115 (3)
Collection Date: 1/29/2013 02:30 PM

Work Order: 1301997
Lab ID: 1301997-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	26.2		0.010	0.0100	wt%	1	2/4/2013 14:30

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW- 115 (5)
Collection Date: 1/29/2013 02:35 PM

Work Order: 1301997
Lab ID: 1301997-03
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
Method: SW7471A				Prep: SW7471A / 2/5/13		Analyst: OFO	
Mercury	5.69		0.40	4.90	µg/Kg-dry	1	2/5/2013 16:17
METALS							
Method: SW6020				Prep: SW3050A / 2/4/13		Analyst: SKS	
Aluminum	13,200		24	120	mg/Kg-dry	100	2/6/2013 15:33
Arsenic	2.42		0.12	0.599	mg/Kg-dry	1	2/5/2013 16:27
Barium	79.7		0.096	0.599	mg/Kg-dry	1	2/5/2013 16:27
Boron	9.03		3.4	5.99	mg/Kg-dry	2	2/6/2013 13:18
Cadmium	0.257	J	0.060	0.599	mg/Kg-dry	1	2/5/2013 16:27
Calcium	90,500		1,200	5,990	mg/Kg-dry	100	2/6/2013 15:33
Chromium	13.0		0.11	0.599	mg/Kg-dry	1	2/5/2013 16:27
Cobalt	4.55		0.084	0.599	mg/Kg-dry	1	2/5/2013 16:27
Copper	7.86		0.12	0.599	mg/Kg-dry	1	2/5/2013 16:27
Iron	8,880		12	59.9	mg/Kg-dry	1	2/5/2013 16:27
Lead	8.22		0.060	0.599	mg/Kg-dry	1	2/5/2013 16:27
Manganese	211		0.12	0.599	mg/Kg-dry	1	2/5/2013 16:27
Molybdenum	0.680		0.18	0.599	mg/Kg-dry	1	2/5/2013 16:27
Nickel	8.77		0.11	0.599	mg/Kg-dry	1	2/5/2013 16:27
Potassium	2,630		16	59.9	mg/Kg-dry	1	2/5/2013 16:27
Selenium	0.843		0.22	0.599	mg/Kg-dry	1	2/5/2013 16:27
Silver	U		0.096	0.599	mg/Kg-dry	1	2/5/2013 16:27
Sodium	216		13	59.9	mg/Kg-dry	1	2/5/2013 16:27
Uranium	0.856		0.60	0.599	mg/Kg-dry	1	2/5/2013 16:27
Zinc	31.4		0.30	0.599	mg/Kg-dry	1	2/5/2013 16:27
ANIONS - EPA 300.0 (1993)							
Method: E300				Prep: E300 / 2/5/13		Analyst: JKP	
Chloride	51.5		2.7	6.79	mg/Kg-dry	1	2/5/2013 21:22
Fluoride	5.92		0.41	1.36	mg/Kg-dry	1	2/5/2013 21:22
Nitrogen, Nitrate (As N)	U		0.41	1.36	mg/Kg-dry	1	2/5/2013 21:22
Nitrogen, Nitrite (As N)	U		0.41	1.36	mg/Kg-dry	1	2/5/2013 21:22
Sulfate	1,070		2.7	6.79	mg/Kg-dry	1	2/5/2013 21:22
Surr: Selenate (surr)	86.1			85-115	%REC	1	2/5/2013 21:22
CYANIDE							
Method: SW9014				Prep: SW9010C / 2/5/13		Analyst: EDG	
Cyanide	U		0.81	2.71	mg/Kg-dry	1	2/5/2013 16:30
MOISTURE							
Method: SW3550				Analyst: KAH			
Percent Moisture	26.9		0.010	0.0100	wt%	1	2/4/2013 14:30

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW -115 (7)
Collection Date: 1/29/2013 03:02 PM

Work Order: 1301997
Lab ID: 1301997-04
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	20.9		0.010	0.0100	wt%	1	2/4/2013 14:30

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW- 115 (9)
Collection Date: 1/29/2013 03:02 PM

Work Order: 1301997
Lab ID: 1301997-05
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	20.8		0.010	0.0100	wt%	1	2/4/2013 14:30

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW- 115 (10)
Collection Date: 1/29/2013 04:10 PM

Work Order: 1301997
Lab ID: 1301997-06
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
			Method: SW7471A		Prep: SW7471A / 2/5/13		Analyst: OFO
Mercury	14.6		0.34	4.22	µg/Kg-dry	1	2/5/2013 16:19
METALS							
			Method: SW6020		Prep: SW3050A / 2/4/13		Analyst: SKS
Aluminum	12,100		23	117	mg/Kg-dry	100	2/6/2013 15:35
Arsenic	2.90		0.12	0.587	mg/Kg-dry	1	2/5/2013 16:34
Barium	120		0.094	0.587	mg/Kg-dry	1	2/5/2013 16:34
Boron	6.04		1.6	2.94	mg/Kg-dry	1	2/6/2013 13:21
Cadmium	0.449	J	0.059	0.587	mg/Kg-dry	1	2/5/2013 16:34
Calcium	63,400		1,200	5,870	mg/Kg-dry	100	2/6/2013 15:35
Chromium	14.3		0.11	0.587	mg/Kg-dry	1	2/6/2013 13:21
Cobalt	4.70		0.082	0.587	mg/Kg-dry	1	2/5/2013 16:34
Copper	15.5		0.12	0.587	mg/Kg-dry	1	2/5/2013 16:34
Iron	8,210		12	58.7	mg/Kg-dry	1	2/5/2013 16:34
Lead	44.9		0.059	0.587	mg/Kg-dry	1	2/5/2013 16:34
Manganese	175		0.12	0.587	mg/Kg-dry	1	2/5/2013 16:34
Molybdenum	0.614		0.18	0.587	mg/Kg-dry	1	2/5/2013 16:34
Nickel	9.68		0.11	0.587	mg/Kg-dry	1	2/5/2013 16:34
Potassium	3,490		15	58.7	mg/Kg-dry	1	2/5/2013 16:34
Selenium	1.20		0.21	0.587	mg/Kg-dry	1	2/5/2013 16:34
Silver	0.110	J	0.094	0.587	mg/Kg-dry	1	2/5/2013 16:34
Sodium	288		13	58.7	mg/Kg-dry	1	2/5/2013 16:34
Uranium	U		0.59	0.587	mg/Kg-dry	1	2/5/2013 16:34
Zinc	37.9		0.29	0.587	mg/Kg-dry	1	2/5/2013 16:34
ANIONS - EPA 300.0 (1993)							
			Method: E300		Prep: E300 / 2/5/13		Analyst: JKP
Chloride	55.0		2.5	6.17	mg/Kg-dry	1	2/5/2013 22:05
Fluoride	7.73		0.37	1.23	mg/Kg-dry	1	2/5/2013 22:05
Nitrogen, Nitrate (As N)	U		0.37	1.23	mg/Kg-dry	1	2/5/2013 22:05
Nitrogen, Nitrite (As N)	U		0.37	1.23	mg/Kg-dry	1	2/5/2013 22:05
Sulfate	722		2.5	6.17	mg/Kg-dry	1	2/5/2013 22:05
Surr: Selenate (surr)	88.8			85-115	%REC	1	2/5/2013 22:05
CYANIDE							
			Method: SW9014		Prep: SW9010C / 2/5/13		Analyst: EDG
Cyanide	U		0.73	2.43	mg/Kg-dry	1	2/5/2013 16:30
MOISTURE							
			Method: SW3550		Analyst: KAH		
Percent Moisture	19.9		0.010	0.0100	wt%	1	2/4/2013 14:30

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW -115 (11)
Collection Date: 1/29/2013 04:12 PM

Work Order: 1301997
Lab ID: 1301997-07
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	12.6		0.010	0.0100	wt%	1	2/4/2013 14:30

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW -115 (13)
Collection Date: 1/29/2013 04:12 PM

Work Order: 1301997
Lab ID: 1301997-08
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	24.8		0.010	0.0100	wt%	1	2/4/2013 14:30

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW- 115 (15)
Collection Date: 1/29/2013 03:20 PM

Work Order: 1301997
Lab ID: 1301997-09
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
			Method: SW7471A		Prep: SW7471A / 2/5/13		Analyst: OFO
Mercury	U		0.34	4.15	µg/Kg-dry	1	2/5/2013 16:21
METALS							
			Method: SW6020		Prep: SW3050A / 2/4/13		Analyst: SKS
Aluminum	4,980		22	110	mg/Kg-dry	100	2/6/2013 15:38
Arsenic	0.893		0.11	0.549	mg/Kg-dry	1	2/5/2013 16:37
Barium	458		8.8	54.9	mg/Kg-dry	100	2/6/2013 15:38
Boron	3.78	J	3.1	5.49	mg/Kg-dry	2	2/6/2013 13:23
Cadmium	0.117	J	0.055	0.549	mg/Kg-dry	1	2/5/2013 16:37
Calcium	157,000		1,100	5,490	mg/Kg-dry	100	2/6/2013 15:38
Chromium	5.84		0.20	1.10	mg/Kg-dry	2	2/6/2013 13:23
Cobalt	1.62		0.077	0.549	mg/Kg-dry	1	2/5/2013 16:37
Copper	1.31		0.11	0.549	mg/Kg-dry	1	2/5/2013 16:37
Iron	3,200		11	54.9	mg/Kg-dry	1	2/5/2013 16:37
Lead	3.28		0.055	0.549	mg/Kg-dry	1	2/5/2013 16:37
Manganese	62.9		0.11	0.549	mg/Kg-dry	1	2/5/2013 16:37
Molybdenum	U		0.16	0.549	mg/Kg-dry	1	2/5/2013 16:37
Nickel	3.12		0.099	0.549	mg/Kg-dry	1	2/5/2013 16:37
Potassium	860		14	54.9	mg/Kg-dry	1	2/5/2013 16:37
Selenium	0.348	J	0.20	0.549	mg/Kg-dry	1	2/5/2013 16:37
Silver	U		0.088	0.549	mg/Kg-dry	1	2/5/2013 16:37
Sodium	122		12	54.9	mg/Kg-dry	1	2/5/2013 16:37
Uranium	U		0.55	0.549	mg/Kg-dry	1	2/5/2013 16:37
Zinc	8.52		0.27	0.549	mg/Kg-dry	1	2/5/2013 16:37
ANIONS - EPA 300.0 (1993)							
			Method: E300		Prep: E300 / 2/5/13		Analyst: JKP
Chloride	49.1		2.4	5.93	mg/Kg-dry	1	2/5/2013 22:20
Fluoride	3.85		0.36	1.19	mg/Kg-dry	1	2/5/2013 22:20
Nitrogen, Nitrate (As N)	U		0.36	1.19	mg/Kg-dry	1	2/5/2013 22:20
Nitrogen, Nitrite (As N)	U		0.36	1.19	mg/Kg-dry	1	2/5/2013 22:20
Sulfate	383		2.4	5.93	mg/Kg-dry	1	2/5/2013 22:20
Surr: Selenate (surr)	85.2			85-115	%REC	1	2/5/2013 22:20
CYANIDE							
			Method: SW9014		Prep: SW9010C / 2/5/13		Analyst: EDG
Cyanide	U		0.69	2.30	mg/Kg-dry	1	2/5/2013 16:30
MOISTURE							
			Method: SW3550		Analyst: KAH		
Percent Moisture	16.3		0.010	0.0100	wt%	1	2/4/2013 14:30

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW -115 (17)
Collection Date: 1/29/2013 03:22 PM

Work Order: 1301997
Lab ID: 1301997-10
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	21.1		0.010	0.0100	wt%	1	2/4/2013 14:30

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW -115 (19)
Collection Date: 1/29/2013 03:22 PM

Work Order: 1301997
Lab ID: 1301997-11
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	20.9		0.010	0.0100	wt%	1	2/4/2013 14:30

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW -115 (20)
Collection Date: 1/29/2013 04:00 PM

Work Order: 1301997
Lab ID: 1301997-12
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
Method: SW7471A				Prep: SW7471A / 2/5/13		Analyst: OFO	
Mercury	U		0.35	4.35	µg/Kg-dry	1	2/5/2013 16:23
METALS							
Method: SW6020				Prep: SW3050A / 2/4/13		Analyst: SKS	
Aluminum	10,300		23	115	mg/Kg-dry	100	2/6/2013 15:40
Arsenic	2.53		0.11	0.573	mg/Kg-dry	1	2/5/2013 16:39
Barium	179		0.092	0.573	mg/Kg-dry	1	2/5/2013 16:39
Boron	4.85	J	3.2	5.73	mg/Kg-dry	2	2/6/2013 13:26
Cadmium	0.251	J	0.057	0.573	mg/Kg-dry	1	2/5/2013 16:39
Calcium	161,000		1,100	5,730	mg/Kg-dry	100	2/6/2013 15:40
Chromium	9.21		0.21	1.15	mg/Kg-dry	2	2/6/2013 13:26
Cobalt	3.70		0.080	0.573	mg/Kg-dry	1	2/5/2013 16:39
Copper	3.30		0.11	0.573	mg/Kg-dry	1	2/5/2013 16:39
Iron	7,710		11	57.3	mg/Kg-dry	1	2/5/2013 16:39
Lead	7.03		0.057	0.573	mg/Kg-dry	1	2/5/2013 16:39
Manganese	132		0.11	0.573	mg/Kg-dry	1	2/5/2013 16:39
Molybdenum	0.228	J	0.17	0.573	mg/Kg-dry	1	2/5/2013 16:39
Nickel	6.69		0.10	0.573	mg/Kg-dry	1	2/5/2013 16:39
Potassium	1,690		15	57.3	mg/Kg-dry	1	2/5/2013 16:39
Selenium	0.699		0.21	0.573	mg/Kg-dry	1	2/5/2013 16:39
Silver	U		0.092	0.573	mg/Kg-dry	1	2/5/2013 16:39
Sodium	186		13	57.3	mg/Kg-dry	1	2/5/2013 16:39
Uranium	U		0.57	0.573	mg/Kg-dry	1	2/5/2013 16:39
Zinc	20.5		0.29	0.573	mg/Kg-dry	1	2/5/2013 16:39
ANIONS - EPA 300.0 (1993)							
Method: E300				Prep: E300 / 2/5/13		Analyst: JKP	
Chloride	51.6		2.5	6.15	mg/Kg-dry	1	2/5/2013 22:34
Fluoride	5.04		0.37	1.23	mg/Kg-dry	1	2/5/2013 22:34
Nitrogen, Nitrate (As N)	U		0.37	1.23	mg/Kg-dry	1	2/5/2013 22:34
Nitrogen, Nitrite (As N)	U		0.37	1.23	mg/Kg-dry	1	2/5/2013 22:34
Sulfate	463		2.5	6.15	mg/Kg-dry	1	2/5/2013 22:34
Surr: Selenate (surr)	86.1			85-115	%REC	1	2/5/2013 22:34
CYANIDE							
Method: SW9014				Prep: SW9010C / 2/5/13		Analyst: EDG	
Cyanide	U		0.69	2.30	mg/Kg-dry	1	2/5/2013 16:30
MOISTURE							
Method: SW3550				Analyst: KAH			
Percent Moisture	18.9		0.010	0.0100	wt%	1	2/4/2013 14:30

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW -115 (21)
Collection Date: 1/29/2013 03:30 PM

Work Order: 1301997
Lab ID: 1301997-13
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE							
			Method: SW3550				Analyst: KAH
Percent Moisture	26.3		0.010	0.0100	wt%	1	2/4/2013 14:30

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW- 115 (23)
Collection Date: 1/29/2013 03:30 PM

Work Order: 1301997
Lab ID: 1301997-14
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	25.0		0.010	0.0100	wt%	1	2/4/2013 14:30

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-115 (25)
Collection Date: 1/29/2013 03:45 PM

Work Order: 1301997
Lab ID: 1301997-15
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3541 / 2/5/13 Analyst: KMB							
TPH (Oil Range)	0.77	J	0.63	4.3	mg/Kg-dry	1	2/6/2013 15:03
TPH (Diesel Range)	U		0.63	2.1	mg/Kg-dry	1	2/6/2013 15:03
Surr: 2-Fluorobiphenyl	66.7			60-135	%REC	1	2/6/2013 15:03
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: KKP							
Gasoline Range Organics	U		0.025	0.063	mg/Kg-dry	1	2/5/2013 17:08
Surr: 4-Bromofluorobenzene	95.3			70-130	%REC	1	2/5/2013 17:08
MERCURY - SW7471B Method: SW7471A Prep: SW7471A / 2/5/13 Analyst: OFO							
Mercury	U		0.36	4.49	µg/Kg-dry	1	2/5/2013 16:25
METALS Method: SW6020 Prep: SW3050A / 2/4/13 Analyst: SKS							
Aluminum	5,210		22	112	mg/Kg-dry	100	2/6/2013 15:43
Arsenic	1.05		0.11	0.558	mg/Kg-dry	1	2/5/2013 16:42
Barium	68.0		0.089	0.558	mg/Kg-dry	1	2/5/2013 16:42
Boron	U		7.8	13.9	mg/Kg-dry	5	2/6/2013 13:28
Cadmium	0.173	J	0.056	0.558	mg/Kg-dry	1	2/5/2013 16:42
Calcium	219,000		1,100	5,580	mg/Kg-dry	100	2/6/2013 15:43
Chromium	5.52		0.50	2.79	mg/Kg-dry	5	2/6/2013 13:28
Cobalt	1.33		0.078	0.558	mg/Kg-dry	1	2/5/2013 16:42
Copper	1.19		0.11	0.558	mg/Kg-dry	1	2/5/2013 16:42
Iron	2,980		11	55.8	mg/Kg-dry	1	2/5/2013 16:42
Lead	3.73		0.056	0.558	mg/Kg-dry	1	2/5/2013 16:42
Manganese	48.0		0.11	0.558	mg/Kg-dry	1	2/5/2013 16:42
Molybdenum	U		0.17	0.558	mg/Kg-dry	1	2/5/2013 16:42
Nickel	2.74		0.10	0.558	mg/Kg-dry	1	2/5/2013 16:42
Potassium	773		15	55.8	mg/Kg-dry	1	2/5/2013 16:42
Selenium	0.428	J	0.20	0.558	mg/Kg-dry	1	2/5/2013 16:42
Silver	U		0.089	0.558	mg/Kg-dry	1	2/5/2013 16:42
Sodium	129		12	55.8	mg/Kg-dry	1	2/5/2013 16:42
Uranium	U		0.56	0.558	mg/Kg-dry	1	2/5/2013 16:42
Zinc	8.99		0.28	0.558	mg/Kg-dry	1	2/5/2013 16:42
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3541 / 2/7/13 Analyst: LG							
1-Methylnaphthalene	U		2.0	8.3	µg/Kg-dry	1	2/7/2013 18:11
2-Methylnaphthalene	U		2.0	8.3	µg/Kg-dry	1	2/7/2013 18:11
Benzo(a)pyrene	U		2.0	8.3	µg/Kg-dry	1	2/7/2013 18:11
Naphthalene	U		2.0	8.3	µg/Kg-dry	1	2/7/2013 18:11
Surr: 2,4,6-Tribromophenol	42.0			36-126	%REC	1	2/7/2013 18:11
Surr: 2-Fluorobiphenyl	57.7			43-125	%REC	1	2/7/2013 18:11

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-115 (25)
Collection Date: 1/29/2013 03:45 PM

Work Order: 1301997
Lab ID: 1301997-15
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	46.4			37-125	%REC	1	2/7/2013 18:11
Surr: 4-Terphenyl-d14	71.0			32-125	%REC	1	2/7/2013 18:11
Surr: Nitrobenzene-d5	59.5			37-125	%REC	1	2/7/2013 18:11
Surr: Phenol-d6	55.0			40-125	%REC	1	2/7/2013 18:11
VOLATILES - SW8260C			Method: SW8260			Analyst: WLR	
1,1,1-Trichloroethane	U		2.1	6.3	µg/Kg-dry	1	2/1/2013 12:55
1,1,2,2-Tetrachloroethane	U		0.63	6.3	µg/Kg-dry	1	2/1/2013 12:55
1,1,2-Trichloroethane	U		2.5	6.3	µg/Kg-dry	1	2/1/2013 12:55
1,1-Dichloroethane	U		0.63	6.3	µg/Kg-dry	1	2/1/2013 12:55
1,1-Dichloroethene	U		1.9	6.3	µg/Kg-dry	1	2/1/2013 12:55
1,2-Dibromoethane	U		0.89	6.3	µg/Kg-dry	1	2/1/2013 12:55
1,2-Dichloroethane	U		0.76	6.3	µg/Kg-dry	1	2/1/2013 12:55
Benzene	U		0.76	6.3	µg/Kg-dry	1	2/1/2013 12:55
Carbon tetrachloride	U		1.5	6.3	µg/Kg-dry	1	2/1/2013 12:55
Chloroform	U		2.3	6.3	µg/Kg-dry	1	2/1/2013 12:55
Ethylbenzene	U		1.1	6.3	µg/Kg-dry	1	2/1/2013 12:55
Methylene chloride	U		3.2	13	µg/Kg-dry	1	2/1/2013 12:55
Tetrachloroethene	U		1.3	6.3	µg/Kg-dry	1	2/1/2013 12:55
Toluene	U		0.89	6.3	µg/Kg-dry	1	2/1/2013 12:55
Trichloroethene	U		2.0	6.3	µg/Kg-dry	1	2/1/2013 12:55
Vinyl chloride	U		1.3	2.5	µg/Kg-dry	1	2/1/2013 12:55
Xylenes, Total	U		3.3	19	µg/Kg-dry	1	2/1/2013 12:55
Surr: 1,2-Dichloroethane-d4	84.3			70-128	%REC	1	2/1/2013 12:55
Surr: 4-Bromofluorobenzene	88.2			73-126	%REC	1	2/1/2013 12:55
Surr: Dibromofluoromethane	96.3			71-128	%REC	1	2/1/2013 12:55
Surr: Toluene-d8	101			73-127	%REC	1	2/1/2013 12:55
ANIONS - EPA 300.0 (1993)			Method: E300			Prep: E300 / 2/5/13	
Chloride	50.4		2.5	6.20	mg/Kg-dry	1	2/5/2013 22:49
Fluoride	3.55		0.37	1.24	mg/Kg-dry	1	2/5/2013 22:49
Nitrogen, Nitrate (As N)	U		0.37	1.24	mg/Kg-dry	1	2/5/2013 22:49
Nitrogen, Nitrite (As N)	U		0.37	1.24	mg/Kg-dry	1	2/5/2013 22:49
Sulfate	326		2.5	6.20	mg/Kg-dry	1	2/5/2013 22:49
Surr: Selenate (surr)	85.6			85-115	%REC	1	2/5/2013 22:49
CYANIDE			Method: SW9014			Prep: SW9010C / 2/5/13	
Cyanide	U		0.76	2.52	mg/Kg-dry	1	2/5/2013 16:30
MOISTURE			Method: SW3550			Analyst: KAH	
Percent Moisture	20.9		0.010	0.0100	wt%	1	2/4/2013 14:30

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: Trip Blank 011813-29
Collection Date: 1/29/2013

Work Order: 1301997
Lab ID: 1301997-16
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/4/2013 16:55
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	2/4/2013 16:55
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/4/2013 16:55
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/4/2013 16:55
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	2/4/2013 16:55
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	2/4/2013 16:55
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/4/2013 16:55
Benzene	U		0.00020	0.0010	mg/L	1	2/4/2013 16:55
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	2/4/2013 16:55
Chloroform	U		0.00030	0.0010	mg/L	1	2/4/2013 16:55
Ethylbenzene	U		0.00030	0.0010	mg/L	1	2/4/2013 16:55
Methylene chloride	U		0.00040	0.0020	mg/L	1	2/4/2013 16:55
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	2/4/2013 16:55
Toluene	U		0.00030	0.0010	mg/L	1	2/4/2013 16:55
Trichloroethene	U		0.00020	0.0010	mg/L	1	2/4/2013 16:55
Vinyl chloride	U		0.00040	0.0010	mg/L	1	2/4/2013 16:55
Xylenes, Total	U		0.00030	0.0010	mg/L	1	2/4/2013 16:55
Surr: 1,2-Dichloroethane-d4	91.5			71-125	%REC	1	2/4/2013 16:55
Surr: 4-Bromofluorobenzene	96.6			70-125	%REC	1	2/4/2013 16:55
Surr: Dibromofluoromethane	99.5			74-125	%REC	1	2/4/2013 16:55
Surr: Toluene-d8	98.6			78-123	%REC	1	2/4/2013 16:55

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Work Order: 1301997
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67579** Instrument ID **FID-7** Method: **SW8015M**

MBLK	Sample ID: FBLKS1-130205-67579				Units: mg/Kg		Analysis Date: 2/6/2013 11:56 AM			
Client ID:	Run ID: FID-7_130206A				SeqNo: 3104153		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Oil Range)	U	3.4								
TPH (Diesel Range)	U	1.7								
<i>Surr: 2-Fluorobiphenyl</i>	2.092	0.10	3.33	0	62.8	60-135	0			

LCS	Sample ID: FLCSS1-130205-67579				Units: mg/Kg		Analysis Date: 2/6/2013 12:19 PM			
Client ID:	Run ID: FID-7_130206A				SeqNo: 3104154		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Oil Range)	27.05	3.4	33.33	0	81.2	70-130	0			
TPH (Diesel Range)	35.72	1.7	33.33	0	107	70-130	0			
<i>Surr: 2-Fluorobiphenyl</i>	2.536	0.10	3.33	0	76.2	60-135	0			

MS	Sample ID: 1302018-01BMS				Units: mg/Kg		Analysis Date: 2/6/2013 01:06 PM			
Client ID:	Run ID: FID-7_130206A				SeqNo: 3104156		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Oil Range)	229.1	3.4	33.23	219.8	28.1	70-130	0			SEO
TPH (Diesel Range)	80.52	1.7	33.23	75.45	15.3	70-130	0			SE
<i>Surr: 2-Fluorobiphenyl</i>	2.284	0.10	3.32	0	68.8	60-135	0			

MSD	Sample ID: 1302018-01BMSD				Units: mg/Kg		Analysis Date: 2/6/2013 01:29 PM			
Client ID:	Run ID: FID-7_130206A				SeqNo: 3104157		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Oil Range)	207.2	3.4	33.24	219.8	-37.7	70-130	229.1	10	30	SEO
TPH (Diesel Range)	76.56	1.7	33.24	75.45	3.32	70-130	80.52	5.05	30	SE
<i>Surr: 2-Fluorobiphenyl</i>	2.311	0.10	3.321	0	69.6	60-135	2.284	1.17	30	

The following samples were analyzed in this batch:

1301997-01D	1301997-15D
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 1 of 23

Client: Navajo Refining Company
Work Order: 1301997
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142225** Instrument ID **FID-9** Method: **SW8015**

MBLK	Sample ID: GBLKS-130205-R142225				Units: mg/Kg		Analysis Date: 2/5/2013 01:02 PM			
Client ID:	Run ID: FID-9_130205A				SeqNo: 3103619		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	U	0.050								
<i>Surr: 4-Bromofluorobenzene</i>	0.08374	0.0050	0.1	0	83.7	70-130	0			

LCS	Sample ID: GLCSS-130205-R142225				Units: mg/Kg		Analysis Date: 2/5/2013 12:25 PM			
Client ID:	Run ID: FID-9_130205A				SeqNo: 3103613		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.942	0.050	1	0	94.2	70-130	0			
<i>Surr: 4-Bromofluorobenzene</i>	0.09701	0.0050	0.1	0	97	70-130	0			

LCSD	Sample ID: GLCSDS-130205-R142225				Units: mg/Kg		Analysis Date: 2/5/2013 12:44 PM			
Client ID:	Run ID: FID-9_130205A				SeqNo: 3103616		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.9525	0.050	1	0	95.2	70-130	0.942	1.11	30	
<i>Surr: 4-Bromofluorobenzene</i>	0.09686	0.0050	0.1	0	96.9	70-130	0.09701	0.146	30	

MS	Sample ID: 1302018-04ZMS				Units: mg/Kg		Analysis Date: 2/5/2013 04:11 PM			
Client ID:	Run ID: FID-9_130205A				SeqNo: 3103628		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.8005	0.050	1	0	80	70-130	0			
<i>Surr: 4-Bromofluorobenzene</i>	0.08728	0.0050	0.1	0	87.3	70-130	0			

MSD	Sample ID: 1302018-04ZMSD				Units: mg/Kg		Analysis Date: 2/5/2013 04:30 PM			
Client ID:	Run ID: FID-9_130205A				SeqNo: 3103632		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.8125	0.050	1	0	81.2	70-130	0.8005	1.49	30	
<i>Surr: 4-Bromofluorobenzene</i>	0.08872	0.0050	0.1	0	88.7	70-130	0.08728	1.64	30	

The following samples were analyzed in this batch:

1301997-01B	1301997-15B
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1301997
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67523** Instrument ID **ICPMS05** Method: **SW6020**

MBLK Sample ID: **MBLKS1-020113-67523** Units: **mg/Kg** Analysis Date: **2/5/2013 03:05 PM**

Client ID: Run ID: **ICPMS05_130205A** SeqNo: **3102200** Prep Date: **2/4/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.4165	1.0								J
Arsenic	U	0.50								
Barium	U	0.50								
Cadmium	U	0.50								
Calcium	U	50								
Chromium	U	0.50								
Cobalt	U	0.50								
Copper	U	0.50								
Iron	U	50								
Lead	U	0.50								
Manganese	U	0.50								
Molybdenum	U	0.50								
Nickel	U	0.50								
Potassium	U	50								
Selenium	U	0.50								
Silver	U	0.50								
Uranium	U	0.50								
Zinc	U	0.50								

MBLK Sample ID: **MBLKS1-020113-67523** Units: **mg/Kg** Analysis Date: **2/6/2013 12:35 PM**

Client ID: Run ID: **ICPMS05_130206A** SeqNo: **3103603** Prep Date: **2/4/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	U	2.5								
Sodium	U	50								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1301997
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67523** Instrument ID **ICPMS05** Method: **SW6020**

LCS Sample ID: **MLCSS1-020113-67523** Units: **mg/Kg** Analysis Date: **2/5/2013 03:08 PM**

Client ID: Run ID: **ICPMS05_130205A** SeqNo: **3102201** Prep Date: **2/4/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	10.68	1.0	10	0	107	80-120	0			
Arsenic	9.673	0.50	10	0	96.7	80-120	0			
Barium	10.35	0.50	10	0	104	80-120	0			
Cadmium	9.748	0.50	10	0	97.5	80-120	0			
Calcium	992.3	50	1000	0	99.2	80-120	0			
Chromium	9.832	0.50	10	0	98.3	80-120	0			
Cobalt	9.927	0.50	10	0	99.3	80-120	0			
Copper	10.12	0.50	10	0	101	80-120	0			
Iron	974.8	50	1000	0	97.5	80-120	0			
Lead	9.786	0.50	10	0	97.9	80-120	0			
Manganese	9.681	0.50	10	0	96.8	80-120	0			
Molybdenum	9.985	0.50	10	0	99.8	80-120	0			
Nickel	9.83	0.50	10	0	98.3	80-120	0			
Potassium	956.7	50	1000	0	95.7	80-120	0			
Selenium	9.813	0.50	10	0	98.1	80-120	0			
Silver	10.22	0.50	10	0	102	80-120	0			
Uranium	9.429	0.50	10	0	94.3	80-120	0			
Zinc	9.937	0.50	10	0	99.4	80-120	0			

LCS Sample ID: **MLCSS1-020113-67523** Units: **mg/Kg** Analysis Date: **2/6/2013 12:38 PM**

Client ID: Run ID: **ICPMS05_130206A** SeqNo: **3103604** Prep Date: **2/4/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	47.92	2.5	50	0	95.8	80-120	0			
Sodium	981.7	50	1000	0	98.2	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1301997
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67523** Instrument ID **ICPMS05** Method: **SW6020**

MS		Sample ID: 13011005-01DMS				Units: mg/Kg		Analysis Date: 2/5/2013 03:22 PM		
Client ID:		Run ID: ICPMS05_130205A				SeqNo: 3102207		Prep Date: 2/4/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	13710	0.84	8.429	12570	13500	75-125	0			SEO
Arsenic	11.71	0.42	8.429	4.385	86.9	75-125	0			
Barium	138.7	0.42	8.429	129.6	107	75-125	0			O
Cadmium	8.001	0.42	8.429	0.4065	90.1	75-125	0			
Calcium	57470	42	842.9	57640	-19.7	75-125	0			SEO
Chromium	22.67	0.42	8.429	14.02	103	75-125	0			
Cobalt	13.02	0.42	8.429	5.519	89	75-125	0			
Copper	18.8	0.42	8.429	11.12	91.1	75-125	0			
Iron	11500	42	842.9	10120	164	75-125	0			SO
Lead	22.81	0.42	8.429	14.66	96.6	75-125	0			
Manganese	381.8	0.42	8.429	383.5	-20	75-125	0			SEO
Molybdenum	6.315	0.42	8.429	0.5853	68	75-125	0			S
Nickel	19.09	0.42	8.429	11.62	88.6	75-125	0			
Selenium	7.95	0.42	8.429	0.9501	83	75-125	0			
Silver	8.085	0.42	8.429	0.05106	95.3	75-125	0			
Uranium	8.095	0.42	8.429	0.408	91.2	75-125	0			
Zinc	46.05	0.42	8.429	37.34	103	75-125	0			O

MS		Sample ID: 13011005-01DMS				Units: mg/Kg		Analysis Date: 2/6/2013 12:50 PM		
Client ID:		Run ID: ICPMS05_130206A				SeqNo: 3103618		Prep Date: 2/4/2013		DF: 2
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	39.78	4.2	42.14	60.18	-48.4	75-125	0			S
Potassium	4808	84	842.9	3553	149	75-125	0			SO
Sodium	914.3	84	842.9	168.4	88.5	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1301997
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67523** Instrument ID **ICPMS05** Method: **SW6020**

MSD		Sample ID: 13011005-01DMSD				Units: mg/Kg		Analysis Date: 2/5/2013 03:25 PM		
Client ID:		Run ID: ICPMS05_130205A				SeqNo: 3102208		Prep Date: 2/4/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	12110	0.80	7.956	12570	-5790	75-125	13710	12.4	25	SEO
Arsenic	11.34	0.40	7.956	4.385	87.4	75-125	11.71	3.25	25	
Barium	134	0.40	7.956	129.6	54.7	75-125	138.7	3.43	25	SO
Cadmium	7.562	0.40	7.956	0.4065	89.9	75-125	8.001	5.64	25	
Calcium	52910	40	795.6	57640	-594	75-125	57470	8.27	25	SEO
Chromium	20.95	0.40	7.956	14.02	87.1	75-125	22.67	7.88	25	
Cobalt	12.38	0.40	7.956	5.519	86.3	75-125	13.02	5.05	25	
Copper	17.82	0.40	7.956	11.12	84.3	75-125	18.8	5.32	25	
Iron	10370	40	795.6	10120	31.2	75-125	11500	10.3	25	SO
Lead	22.24	0.40	7.956	14.66	95.2	75-125	22.81	2.51	25	
Manganese	389.4	0.40	7.956	383.5	74	75-125	381.8	1.96	25	SEO
Molybdenum	5.373	0.40	7.956	0.5853	60.2	75-125	6.315	16.1	25	S
Nickel	18.17	0.40	7.956	11.62	82.4	75-125	19.09	4.89	25	
Selenium	7.14	0.40	7.956	0.9501	77.8	75-125	7.95	10.7	25	
Silver	7.509	0.40	7.956	0.05106	93.7	75-125	8.085	7.4	25	
Uranium	7.518	0.40	7.956	0.408	89.4	75-125	8.095	7.39	25	
Zinc	44.04	0.40	7.956	37.34	84.2	75-125	46.05	4.46	25	O

MSD		Sample ID: 13011005-01DMSD				Units: mg/Kg		Analysis Date: 2/6/2013 12:52 PM		
Client ID:		Run ID: ICPMS05_130206A				SeqNo: 3103621		Prep Date: 2/4/2013		DF: 2
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	37.07	4.0	39.78	60.18	-58.1	75-125	39.78	7.06	25	S
Potassium	4552	80	795.6	3553	126	75-125	4808	5.48	25	SO
Sodium	855.4	80	795.6	168.4	86.4	75-125	914.3	6.65	25	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1301997
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67523** Instrument ID **ICPMS05** Method: **SW6020**

DUP		Sample ID: 13011005-01DDUP				Units: mg/Kg		Analysis Date: 2/5/2013 03:20 PM		
Client ID:		Run ID: ICPMS05_130205A				SeqNo: 3102206		Prep Date: 2/4/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	4.109	0.42	0	0	0	0-0	4.385	6.5	25	
Barium	122.9	0.42	0	0	0	0-0	129.6	5.34	25	
Cadmium	0.3587	0.42	0	0	0	0-0	0.4065	0	25	J
Chromium	13.06	0.42	0	0	0	0-0	14.02	7.09	25	
Cobalt	5.04	0.42	0	0	0	0-0	5.519	9.08	25	
Copper	10.23	0.42	0	0	0	0-0	11.12	8.3	25	
Iron	9434	42	0	0	0	0-0	10120	7.01	25	
Lead	14.13	0.42	0	0	0	0-0	14.66	3.72	25	
Molybdenum	0.5423	0.42	0	0	0	0-0	0.5853	7.63	25	
Nickel	10.65	0.42	0	0	0	0-0	11.62	8.76	25	
Selenium	0.8324	0.42	0	0	0	0-0	0.9501	13.2	25	
Silver	U	0.42	0	0	0	0-0	0.05106	0	25	
Uranium	U	0.42	0	0	0		0.408	0	25	
Zinc	34.3	0.42	0	0	0	0-0	37.34	8.48	25	

DUP		Sample ID: 13011005-01DDUP				Units: mg/Kg		Analysis Date: 2/6/2013 12:47 PM		
Client ID:		Run ID: ICPMS05_130206A				SeqNo: 3103614		Prep Date: 2/4/2013		DF: 2
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	6.159	4.2	0	0	0	0-0	60.18	163	25	R
Potassium	3479	83	0	0	0	0-0	3553	2.09	25	
Sodium	122.9	83	0	0	0	0-0	168.4	31.2	25	R

DUP		Sample ID: 13011005-01DDUP				Units: mg/Kg		Analysis Date: 2/6/2013 03:01 PM		
Client ID:		Run ID: ICPMS05_130206A				SeqNo: 3103960		Prep Date: 2/4/2013		DF: 100
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	13720	83	0	0	0	0-0	14570	6.05	25	
Calcium	56380	4,200	0	0	0	0-0	60800	7.55	25	
Manganese	355.2	42	0	0	0	0-0	374.9	5.4	25	

The following samples were analyzed in this batch:

1301997-01D	1301997-03D	1301997-06D
1301997-09D	1301997-12D	1301997-15D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1301997
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67585** Instrument ID **HG02** Method: **SW7471A**

MBLK Sample ID: **GBLKS1-020513-67585** Units: **µg/Kg** Analysis Date: **2/5/2013 04:01 PM**

Client ID: Run ID: **HG02_130205A** SeqNo: **3102354** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	3.3								

LCS Sample ID: **GLCSS1-020513-67585** Units: **µg/Kg** Analysis Date: **2/5/2013 04:03 PM**

Client ID: Run ID: **HG02_130205A** SeqNo: **3102355** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	332.7	3.3	333.3	0	99.8	85-115	0			

MS Sample ID: **1301997-01DMS** Units: **µg/Kg** Analysis Date: **2/5/2013 04:09 PM**

Client ID: **MW -115 (1)** Run ID: **HG02_130205A** SeqNo: **3102358** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	376.9	3.5	354.9	14.76	102	85-115	0			

MSD Sample ID: **1301997-01DMSD** Units: **µg/Kg** Analysis Date: **2/5/2013 04:11 PM**

Client ID: **MW -115 (1)** Run ID: **HG02_130205A** SeqNo: **3102359** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	375.1	3.5	354.5	14.76	102	85-115	376.9	0.484	20	

DUP Sample ID: **1301997-01DDUP** Units: **µg/Kg** Analysis Date: **2/5/2013 04:07 PM**

Client ID: **MW -115 (1)** Run ID: **HG02_130205A** SeqNo: **3102357** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	15.21	3.6	0	0	0		14.76	3.04	20	

The following samples were analyzed in this batch:

1301997-01D	1301997-03D	1301997-06D
1301997-09D	1301997-12D	1301997-15D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1301997
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67656** Instrument ID **SV-6** Method: **SW8270**

MBLK Sample ID: **SBLKS2-130207-67656** Units: **µg/Kg** Analysis Date: **2/7/2013 04:24 PM**

Client ID: Run ID: **SV-6_130207A** SeqNo: **3106635** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	U	6.6								
2-Methylnaphthalene	U	6.6								
Benzo(a)pyrene	U	6.6								
Naphthalene	U	6.6								
<i>Surr: 2,4,6-Tribromophenol</i>	104.3	6.6	166.7	0	62.6	36-126	0			
<i>Surr: 2-Fluorobiphenyl</i>	132.1	6.6	166.7	0	79.2	43-125	0			
<i>Surr: 2-Fluorophenol</i>	126.1	6.6	166.7	0	75.7	37-125	0			
<i>Surr: 4-Terphenyl-d14</i>	166.2	6.6	166.7	0	99.7	32-125	0			
<i>Surr: Nitrobenzene-d5</i>	134.1	6.6	166.7	0	80.4	37-125	0			
<i>Surr: Phenol-d6</i>	130.7	6.6	166.7	0	78.4	40-125	0			

LCS Sample ID: **SLCSS2-130207-67656** Units: **µg/Kg** Analysis Date: **2/7/2013 04:45 PM**

Client ID: Run ID: **SV-6_130207A** SeqNo: **3106636** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	131.8	6.6	166.7	0	79.1	50-120	0			
2-Methylnaphthalene	133.3	6.6	166.7	0	80	50-120	0			
Benzo(a)pyrene	148.1	6.6	166.7	0	88.8	50-130	0			
Naphthalene	128.1	6.6	166.7	0	76.9	50-125	0			
<i>Surr: 2,4,6-Tribromophenol</i>	125.4	6.6	166.7	0	75.2	36-126	0			
<i>Surr: 2-Fluorobiphenyl</i>	128.4	6.6	166.7	0	77	43-125	0			
<i>Surr: 2-Fluorophenol</i>	122.2	6.6	166.7	0	73.3	37-125	0			
<i>Surr: 4-Terphenyl-d14</i>	159.7	6.6	166.7	0	95.8	32-125	0			
<i>Surr: Nitrobenzene-d5</i>	126.5	6.6	166.7	0	75.9	37-125	0			
<i>Surr: Phenol-d6</i>	122.6	6.6	166.7	0	73.5	40-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1301997
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67656** Instrument ID **SV-6** Method: **SW8270**

MS Sample ID: **1302140-04DMS** Units: **µg/Kg** Analysis Date: **2/7/2013 07:35 PM**
 Client ID: Run ID: **SV-6_130207A** SeqNo: **3106643** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	129.4	6.6	166.5	6.178	74	50-120	0			
2-Methylnaphthalene	107.7	6.6	166.5	6.039	61	50-120	0			
Benzo(a)pyrene	224.3	6.6	166.5	160.5	38.3	50-130	0			S
Naphthalene	102.2	6.6	166.5	5.73	57.9	50-125	0			
<i>Surr: 2,4,6-Tribromophenol</i>	91.94	6.6	166.5	0	55.2	36-126	0			
<i>Surr: 2-Fluorobiphenyl</i>	106.7	6.6	166.5	0	64.1	43-125	0			
<i>Surr: 2-Fluorophenol</i>	91.1	6.6	166.5	0	54.7	37-125	0			
<i>Surr: 4-Terphenyl-d14</i>	124.5	6.6	166.5	0	74.8	32-125	0			
<i>Surr: Nitrobenzene-d5</i>	105.2	6.6	166.5	0	63.2	37-125	0			
<i>Surr: Phenol-d6</i>	85.27	6.6	166.5	0	51.2	40-125	0			

MSD Sample ID: **1302140-04DMSD** Units: **µg/Kg** Analysis Date: **2/7/2013 07:56 PM**
 Client ID: Run ID: **SV-6_130207A** SeqNo: **3106644** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	183.4	6.6	166.4	6.178	106	50-120	129.4	34.5	30	R
2-Methylnaphthalene	143.5	6.6	166.4	6.039	82.6	50-120	107.7	28.5	30	
Benzo(a)pyrene	307.6	6.6	166.4	160.5	88.4	50-130	224.3	31.3	30	R
Naphthalene	132.9	6.6	166.4	5.73	76.4	50-125	102.2	26.1	30	
<i>Surr: 2,4,6-Tribromophenol</i>	101.8	6.6	166.4	0	61.2	36-126	91.94	10.2	30	
<i>Surr: 2-Fluorobiphenyl</i>	123.6	6.6	166.4	0	74.2	43-125	106.7	14.6	30	
<i>Surr: 2-Fluorophenol</i>	108.3	6.6	166.4	0	65.1	37-125	91.1	17.3	30	
<i>Surr: 4-Terphenyl-d14</i>	150.5	6.6	166.4	0	90.4	32-125	124.5	18.9	30	
<i>Surr: Nitrobenzene-d5</i>	124.3	6.6	166.4	0	74.7	37-125	105.2	16.7	30	
<i>Surr: Phenol-d6</i>	101.4	6.6	166.4	0	60.9	40-125	85.27	17.3	30	

The following samples were analyzed in this batch:

1301997-01D 1301997-15D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1301997
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R141995** Instrument ID **VOA5** Method: **SW8260**

MBLK		Sample ID: VBLKS1-020113-R141995				Units: µg/Kg		Analysis Date: 2/1/2013 09:52 AM		
Client ID:		Run ID: VOA5_130201A				SeqNo: 3098471		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	5.0								
1,1,2,2-Tetrachloroethane	U	5.0								
1,1,2-Trichloroethane	U	5.0								
1,1-Dichloroethane	U	5.0								
1,1-Dichloroethene	U	5.0								
1,2-Dibromoethane	U	5.0								
1,2-Dichloroethane	U	5.0								
Benzene	U	5.0								
Carbon tetrachloride	U	5.0								
Chloroform	U	5.0								
Ethylbenzene	U	5.0								
Methylene chloride	U	10								
Tetrachloroethene	U	5.0								
Toluene	U	5.0								
Trichloroethene	U	5.0								
Vinyl chloride	U	2.0								
Xylenes, Total	U	15								
<i>Surr: 1,2-Dichloroethane-d4</i>	42.8	0	50	0	85.6	70-128	0			
<i>Surr: 4-Bromofluorobenzene</i>	46.86	0	50	0	93.7	73-126	0			
<i>Surr: Dibromofluoromethane</i>	48.11	0	50	0	96.2	71-128	0			
<i>Surr: Toluene-d8</i>	44.78	0	50	0	89.6	73-127	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1301997
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R141995** Instrument ID **VOA5** Method: **SW8260**

LCS		Sample ID: VLCSS1-020113-R141995				Units: µg/Kg		Analysis Date: 2/1/2013 08:43 AM		
Client ID:		Run ID: VOA5_130201A				SeqNo: 3098470		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	53.98	5.0	50	0	108	79-124	0			
1,1,2,2-Tetrachloroethane	53.32	5.0	50	0	107	75-123	0			
1,1,2-Trichloroethane	55.87	5.0	50	0	112	79-120	0			
1,1-Dichloroethane	52.6	5.0	50	0	105	75-124	0			
1,1-Dichloroethene	55.13	5.0	50	0	110	80-122	0			
1,2-Dibromoethane	57.09	5.0	50	0	114	79-120	0			
1,2-Dichloroethane	52.14	5.0	50	0	104	73-121	0			
Benzene	50.57	5.0	50	0	101	79-120	0			
Carbon tetrachloride	45.29	5.0	50	0	90.6	74-126	0			
Chloroform	55.04	5.0	50	0	110	78-120	0			
Ethylbenzene	54.99	5.0	50	0	110	80-122	0			
Methylene chloride	51.62	10	50	0	103	70-123	0			
Tetrachloroethene	47.09	5.0	50	0	94.2	80-121	0			
Toluene	49.54	5.0	50	0	99.1	79-120	0			
Trichloroethene	52.16	5.0	50	0	104	80-121	0			
Vinyl chloride	61.5	2.0	50	0	123	76-126	0			
Xylenes, Total	150.9	15	150	0	101	80-120	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	51.49	0	50	0	103	70-128	0			
<i>Surr: 4-Bromofluorobenzene</i>	47.86	0	50	0	95.7	73-126	0			
<i>Surr: Dibromofluoromethane</i>	51.61	0	50	0	103	71-128	0			
<i>Surr: Toluene-d8</i>	43.85	0	50	0	87.7	73-127	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1301997
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R141995** Instrument ID **VOA5** Method: **SW8260**

MS		Sample ID: 1301997-01AMS				Units: µg/Kg		Analysis Date: 2/1/2013 11:46 AM		
Client ID: MW -115 (1)		Run ID: VOA5_130201A				SeqNo: 3098546		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.53	5.0	50	0	103	79-124	0			
1,1,2,2-Tetrachloroethane	45.86	5.0	50	0	91.7	75-123	0			
1,1,2-Trichloroethane	56	5.0	50	0	112	79-120	0			
1,1-Dichloroethane	49.56	5.0	50	0	99.1	75-124	0			
1,1-Dichloroethene	54.01	5.0	50	0	108	80-122	0			
1,2-Dibromoethane	49.35	5.0	50	0	98.7	79-120	0			
1,2-Dichloroethane	51.25	5.0	50	0	103	73-121	0			
Benzene	52.11	5.0	50	0	104	79-120	0			
Carbon tetrachloride	46.06	5.0	50	0	92.1	74-126	0			
Chloroform	48.72	5.0	50	0	97.4	78-120	0			
Ethylbenzene	50.85	5.0	50	0	102	80-122	0			
Methylene chloride	48.37	10	50	0	96.7	70-123	0			
Tetrachloroethene	43.7	5.0	50	0	87.4	80-121	0			
Toluene	53.36	5.0	50	0	107	79-120	0			
Trichloroethene	51.31	5.0	50	0	103	80-121	0			
Vinyl chloride	55.22	2.0	50	0	110	76-126	0			
Xylenes, Total	146.8	15	150	0	97.9	80-120	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	49.29	0	50	0	98.6	70-128	0			
<i>Surr: 4-Bromofluorobenzene</i>	49	0	50	0	98	73-126	0			
<i>Surr: Dibromofluoromethane</i>	49.78	0	50	0	99.6	71-128	0			
<i>Surr: Toluene-d8</i>	51.55	0	50	0	103	73-127	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1301997
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R141995** Instrument ID **VOA5** Method: **SW8260**

MSD		Sample ID: 1301997-01AMSD				Units: µg/Kg		Analysis Date: 2/1/2013 12:09 PM		
Client ID: MW -115 (1)		Run ID: VOA5_130201A				SeqNo: 3098547		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	54.79	5.0	50	0	110	79-124	51.53	6.13	30	
1,1,2,2-Tetrachloroethane	44.09	5.0	50	0	88.2	75-123	45.86	3.93	30	
1,1,2-Trichloroethane	54.9	5.0	50	0	110	79-120	56	1.98	30	
1,1-Dichloroethane	51.87	5.0	50	0	104	75-124	49.56	4.56	30	
1,1-Dichloroethene	52.81	5.0	50	0	106	80-122	54.01	2.24	30	
1,2-Dibromoethane	48.8	5.0	50	0	97.6	79-120	49.35	1.12	30	
1,2-Dichloroethane	46.29	5.0	50	0	92.6	73-121	51.25	10.2	30	
Benzene	51.81	5.0	50	0	104	79-120	52.11	0.568	30	
Carbon tetrachloride	47.75	5.0	50	0	95.5	74-126	46.06	3.61	30	
Chloroform	53.56	5.0	50	0	107	78-120	48.72	9.45	30	
Ethylbenzene	55.58	5.0	50	0	111	80-122	50.85	8.9	30	
Methylene chloride	53.37	10	50	0	107	70-123	48.37	9.82	30	
Tetrachloroethene	45.21	5.0	50	0	90.4	80-121	43.7	3.39	30	
Toluene	61.14	5.0	50	0	122	79-120	53.36	13.6	30	S
Trichloroethene	51.76	5.0	50	0	104	80-121	51.31	0.863	30	
Vinyl chloride	58.35	2.0	50	0	117	76-126	55.22	5.51	30	
Xylenes, Total	157.7	15	150	0	105	80-120	146.8	7.13	30	
<i>Surr: 1,2-Dichloroethane-d4</i>	48.55	0	50	0	97.1	70-128	49.29	1.51	30	
<i>Surr: 4-Bromofluorobenzene</i>	46.51	0	50	0	93	73-126	49	5.21	30	
<i>Surr: Dibromofluoromethane</i>	48.96	0	50	0	97.9	71-128	49.78	1.67	30	
<i>Surr: Toluene-d8</i>	55.55	0	50	0	111	73-127	51.55	7.47	30	

The following samples were analyzed in this batch:

1301997-01A 1301997-15A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1301997
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142113** Instrument ID **VOA4** Method: **SW8260**

MBLK		Sample ID: VBLKW-130204-R142113				Units: µg/L		Analysis Date: 2/4/2013 11:16 AM		
Client ID:		Run ID: VOA4_130204A				SeqNo: 3100918		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichloroethane	U	1.0								
Benzene	U	1.0								
Carbon tetrachloride	U	1.0								
Chloroform	U	1.0								
Ethylbenzene	U	1.0								
Methylene chloride	U	2.0								
Tetrachloroethene	U	1.0								
Toluene	U	1.0								
Trichloroethene	U	1.0								
Vinyl chloride	U	1.0								
Xylenes, Total	U	1.0								
<i>Surr: 1,2-Dichloroethane-d4</i>	43.85	1.0	50	0	87.7	71-125	0			
<i>Surr: 4-Bromofluorobenzene</i>	49.08	1.0	50	0	98.2	70-125	0			
<i>Surr: Dibromofluoromethane</i>	48.08	1.0	50	0	96.2	74-125	0			
<i>Surr: Toluene-d8</i>	48.41	1.0	50	0	96.8	78-123	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1301997
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142113** Instrument ID **VOA4** Method: **SW8260**

LCS		Sample ID: VLCSW-130204-R142113				Units: µg/L		Analysis Date: 2/4/2013 10:03 AM		
Client ID:		Run ID: VOA4_130204A				SeqNo: 3100916		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	54.47	1.0	50	0	109	80-120	0			
1,1,2,2-Tetrachloroethane	46.02	1.0	50	0	92	74-123	0			
1,1,2-Trichloroethane	48.93	1.0	50	0	97.9	80-120	0			
1,1-Dichloroethane	46.62	1.0	50	0	93.2	80-120	0			
1,1-Dichloroethene	53.04	1.0	50	0	106	80-120	0			
1,2-Dibromoethane	53.39	1.0	50	0	107	80-120	0			
1,2-Dichloroethane	49.07	1.0	50	0	98.1	79-120	0			
Benzene	48.6	1.0	50	0	97.2	80-120	0			
Carbon tetrachloride	58.54	1.0	50	0	117	79-120	0			
Chloroform	46.57	1.0	50	0	93.1	80-120	0			
Ethylbenzene	48.8	1.0	50	0	97.6	80-120	0			
Methylene chloride	47.71	2.0	50	0	95.4	75-125	0			
Tetrachloroethene	53.4	1.0	50	0	107	80-120	0			
Toluene	48.37	1.0	50	0	96.7	80-121	0			
Trichloroethene	53.7	1.0	50	0	107	80-120	0			
Vinyl chloride	48.96	1.0	50	0	97.9	75-125	0			
Xylenes, Total	142.5	1.0	150	0	95	80-124	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	44.17	1.0	50	0	88.3	71-125	0			
<i>Surr: 4-Bromofluorobenzene</i>	52.31	1.0	50	0	105	70-125	0			
<i>Surr: Dibromofluoromethane</i>	49.72	1.0	50	0	99.4	74-125	0			
<i>Surr: Toluene-d8</i>	48.59	1.0	50	0	97.2	78-123	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1301997
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142113** Instrument ID **VOA4** Method: **SW8260**

LCSD		Sample ID: VLCS DW-130204-R142113				Units: µg/L		Analysis Date: 2/4/2013 10:27 AM		
Client ID:		Run ID: VOA4_130204A				SeqNo: 3100917		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.78	1.0	50	0	104	80-120	54.47	5.06	20	
1,1,2,2-Tetrachloroethane	46.55	1.0	50	0	93.1	74-123	46.02	1.14	20	
1,1,2-Trichloroethane	48.97	1.0	50	0	97.9	80-120	48.93	0.0875	20	
1,1-Dichloroethane	44.74	1.0	50	0	89.5	80-120	46.62	4.11	20	
1,1-Dichloroethene	51.9	1.0	50	0	104	80-120	53.04	2.16	20	
1,2-Dibromoethane	53.91	1.0	50	0	108	80-120	53.39	0.979	20	
1,2-Dichloroethane	48.06	1.0	50	0	96.1	79-120	49.07	2.09	20	
Benzene	47	1.0	50	0	94	80-120	48.6	3.35	20	
Carbon tetrachloride	56.1	1.0	50	0	112	79-120	58.54	4.26	20	
Chloroform	45.18	1.0	50	0	90.4	80-120	46.57	3.02	20	
Ethylbenzene	46.79	1.0	50	0	93.6	80-120	48.8	4.2	20	
Methylene chloride	46.38	2.0	50	0	92.8	75-125	47.71	2.83	20	
Tetrachloroethene	50.41	1.0	50	0	101	80-120	53.4	5.75	20	
Toluene	46.08	1.0	50	0	92.2	80-121	48.37	4.84	20	
Trichloroethene	52.04	1.0	50	0	104	80-120	53.7	3.14	20	
Vinyl chloride	46.66	1.0	50	0	93.3	75-125	48.96	4.81	20	
Xylenes, Total	138	1.0	150	0	92	80-124	142.5	3.19	20	
<i>Surr: 1,2-Dichloroethane-d4</i>	43.85	1.0	50	0	87.7	71-125	44.17	0.739	20	
<i>Surr: 4-Bromofluorobenzene</i>	51.57	1.0	50	0	103	70-125	52.31	1.41	20	
<i>Surr: Dibromofluoromethane</i>	48.7	1.0	50	0	97.4	74-125	49.72	2.09	20	
<i>Surr: Toluene-d8</i>	48.27	1.0	50	0	96.5	78-123	48.59	0.661	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1301997
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142113** Instrument ID **VOA4** Method: **SW8260**

MS		Sample ID: 1302069-01AMS				Units: µg/L		Analysis Date: 2/4/2013 01:41 PM		
Client ID:		Run ID: VOA4_130204A				SeqNo: 3100924		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	56.87	1.0	50	0	114	80-120	0			
1,1,2,2-Tetrachloroethane	45.23	1.0	50	0	90.5	74-123	0			
1,1,2-Trichloroethane	50.26	1.0	50	0	101	80-120	0			
1,1-Dichloroethane	48.56	1.0	50	0	97.1	80-120	0			
1,1-Dichloroethene	57.49	1.0	50	0	115	80-120	0			
1,2-Dibromoethane	53.79	1.0	50	0	108	80-120	0			
1,2-Dichloroethane	50.8	1.0	50	0	102	79-120	0			
Benzene	51.17	1.0	50	0	102	80-120	0			
Carbon tetrachloride	61.34	1.0	50	0	123	79-120	0			S
Chloroform	49.2	1.0	50	0	98.4	80-120	0			
Ethylbenzene	50.6	1.0	50	0	101	80-120	0			
Methylene chloride	49.13	2.0	50	0	98.3	75-125	0			
Tetrachloroethene	55.78	1.0	50	0	112	80-120	0			
Toluene	49.91	1.0	50	0	99.8	80-121	0			
Trichloroethene	57.43	1.0	50	0	115	80-120	0			
Vinyl chloride	53.66	1.0	50	0	107	75-125	0			
Xylenes, Total	148.5	1.0	150	0	99	80-124	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	44.59	1.0	50	0	89.2	71-125	0			
<i>Surr: 4-Bromofluorobenzene</i>	50.99	1.0	50	0	102	70-125	0			
<i>Surr: Dibromofluoromethane</i>	49.65	1.0	50	0	99.3	74-125	0			
<i>Surr: Toluene-d8</i>	48.21	1.0	50	0	96.4	78-123	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1301997
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142113** Instrument ID **VOA4** Method: **SW8260**

MSD	Sample ID: 1302069-01AMSD					Units: µg/L		Analysis Date: 2/4/2013 02:06 PM		
Client ID:	Run ID: VOA4_130204A				SeqNo: 3100925		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	59.48	1.0	50	0	119	80-120	56.87	4.49	20	
1,1,2,2-Tetrachloroethane	47.09	1.0	50	0	94.2	74-123	45.23	4.04	20	
1,1,2-Trichloroethane	51.43	1.0	50	0	103	80-120	50.26	2.29	20	
1,1-Dichloroethane	50.19	1.0	50	0	100	80-120	48.56	3.31	20	
1,1-Dichloroethene	60.32	1.0	50	0	121	80-120	57.49	4.82	20	S
1,2-Dibromoethane	56.01	1.0	50	0	112	80-120	53.79	4.04	20	
1,2-Dichloroethane	52.53	1.0	50	0	105	79-120	50.8	3.34	20	
Benzene	52.17	1.0	50	0	104	80-120	51.17	1.94	20	
Carbon tetrachloride	63.38	1.0	50	0	127	79-120	61.34	3.27	20	S
Chloroform	50.81	1.0	50	0	102	80-120	49.2	3.21	20	
Ethylbenzene	51.95	1.0	50	0	104	80-120	50.6	2.63	20	
Methylene chloride	51.27	2.0	50	0	103	75-125	49.13	4.28	20	
Tetrachloroethene	57.11	1.0	50	0	114	80-120	55.78	2.36	20	
Toluene	50.87	1.0	50	0	102	80-121	49.91	1.91	20	
Trichloroethene	58.72	1.0	50	0	117	80-120	57.43	2.21	20	
Vinyl chloride	54.84	1.0	50	0	110	75-125	53.66	2.17	20	
Xylenes, Total	151	1.0	150	0	101	80-124	148.5	1.7	20	
Surr: 1,2-Dichloroethane-d4	44.99	1.0	50	0	90	71-125	44.59	0.903	20	
Surr: 4-Bromofluorobenzene	50.73	1.0	50	0	101	70-125	50.99	0.509	20	
Surr: Dibromofluoromethane	50.29	1.0	50	0	101	74-125	49.65	1.28	20	
Surr: Toluene-d8	48.15	1.0	50	0	96.3	78-123	48.21	0.13	20	

The following samples were analyzed in this batch:

1301997-16A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1301997
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67583** Instrument ID **UV-2450** Method: **SW9014** **(Dissolve)**

MBLK	Sample ID: WBLKS1-020513-67583				Units: mg/Kg		Analysis Date: 2/5/2013 04:30 PM			
Client ID:	Run ID: UV-2450_130205C				SeqNo: 3103414		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	U	2.0								

LCS	Sample ID: WLCSS1-020513-67583				Units: mg/Kg		Analysis Date: 2/5/2013 04:30 PM			
Client ID:	Run ID: UV-2450_130205C				SeqNo: 3103415		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	9.05	2.0	10	0	90.5	80-120	0			

LCSD	Sample ID: WLCSDS1-020513-67583				Units: mg/Kg		Analysis Date: 2/5/2013 04:30 PM			
Client ID:	Run ID: UV-2450_130205C				SeqNo: 3103437		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	8.9	2.0	10	0	89	80-120	9.05	1.67	30	

MS	Sample ID: 1301997-09DMS				Units: mg/Kg		Analysis Date: 2/5/2013 04:30 PM			
Client ID: MW- 115 (15)	Run ID: UV-2450_130205C				SeqNo: 3103436		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	9.495	1.9	9.308	0.09611	101	75-125	0			

The following samples were analyzed in this batch:

1301997-01D	1301997-03D	1301997-06D
1301997-09D	1301997-12D	1301997-15D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1301997
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67633** Instrument ID **ICS2100** Method: **E300** (Dissolve)

MBLK Sample ID: **WBLKS1-67633** Units: **mg/Kg** Analysis Date: **2/5/2013 07:11 PM**

Client ID: Run ID: **ICS2100_130205C** SeqNo: **3103858** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	5.0								
Fluoride	0.64	1.0								J
Nitrogen, Nitrate (As N)	U	1.0								
Nitrogen, Nitrite (As N)	U	1.0								
Sulfate	U	5.0								
<i>Surr: Selenate (surr)</i>	45.24	1.0	50	0	90.5	85-115	0			

LCS Sample ID: **WLCSS1-67633** Units: **mg/Kg** Analysis Date: **2/5/2013 07:25 PM**

Client ID: Run ID: **ICS2100_130205C** SeqNo: **3103859** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	219.8	5.0	200	0	110	90-110	0			
Fluoride	37.72	1.0	40	0	94.3	90-110	0			
Nitrogen, Nitrate (As N)	43.14	1.0	40	0	108	90-110	0			
Nitrogen, Nitrite (As N)	43.82	1.0	40	0	110	90-110	0			
Sulfate	208.7	5.0	200	0	104	90-110	0			
<i>Surr: Selenate (surr)</i>	47.79	1.0	50	0	95.6	85-115	0			

MS Sample ID: **1302026-21DMS** Units: **mg/Kg** Analysis Date: **2/6/2013 01:29 AM**

Client ID: Run ID: **ICS2100_130205C** SeqNo: **3103884** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	126.4	5.0	98.97	16.2	111	75-125	0			
Fluoride	20.19	0.99	19.79	2.638	88.7	75-125	0			
Nitrogen, Nitrate (As N)	20.76	0.99	19.79	0	105	75-125	0			
Nitrogen, Nitrite (As N)	21.36	0.99	19.79	0	108	75-125	0			
Sulfate	319.3	5.0	98.97	213.5	107	75-125	0			
<i>Surr: Selenate (surr)</i>	42.66	0.99	49.48	0	86.2	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1301997
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67633** Instrument ID **ICS2100** Method: **E300** **(Dissolve)**

MSD		Sample ID: 1302026-21DMSD				Units: mg/Kg		Analysis Date: 2/6/2013 01:43 AM		
Client ID:		Run ID: ICS2100_130205C				SeqNo: 3103885		Prep Date: 2/5/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	124.6	4.9	98.65	16.2	110	75-125	126.4	1.49	20	
Fluoride	19.9	0.99	19.73	2.638	87.5	75-125	20.19	1.45	20	
Nitrogen, Nitrate (As N)	20.57	0.99	19.73	0	104	75-125	20.76	0.942	20	
Nitrogen, Nitrite (As N)	20.98	0.99	19.73	0	106	75-125	21.36	1.77	20	
Sulfate	315.2	4.9	98.65	213.5	103	75-125	319.3	1.29	20	
<i>Surr: Selenate (surr)</i>	42	0.99	49.33	0	85.1	80-120	42.66	1.58	20	

The following samples were analyzed in this batch:

1301997-01D	1301997-03D	1301997-06D
1301997-09D	1301997-12D	1301997-15D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1301997
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142151** Instrument ID **Balance1** Method: **SW3550** **(Dissolve)**

DUP Sample ID: **1301997-15DDUP** Units: **wt%** Analysis Date: **2/4/2013 02:30 PM**

Client ID: **MW-115 (25)** Run ID: **BALANCE1_130204C** SeqNo: **3101859** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Percent Moisture	21.35	0.010	0	0	0	0-0	20.91	2.09	20	

The following samples were analyzed in this batch:

1301997-01D	1301997-02A	1301997-03D
1301997-04A	1301997-05A	1301997-06D
1301997-07A	1301997-08A	1301997-09D
1301997-10A	1301997-11A	1301997-12D
1301997-13A	1301997-14A	1301997-15D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Project: RO Discharge Sampling
WorkOrder: 1301997

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
µg/Kg-dry	Micrograms per Kilogram - Dry weight corrected
mg/Kg-dry	Milligrams per Kilogram - Dry weight corrected
mg/L	Milligrams per Liter
wt%	

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**

Date/Time Received: **31-Jan-13 09:10**

Work Order: **1301997**

Received by: **RDH**

Checklist completed by Johanna B. Allen
eSignature

31-Jan-13
Date

Reviewed by: Patricia L. Lynch
eSignature

01-Feb-13
Date

Matrices: soil/water

Carrier name: FedEx Priority Overnight

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>1.2 C/uc</u> <u>IR 1</u>		
Cooler(s)/Kit(s):	<u>5414</u>		
Date/Time sample(s) sent to storage:	<u>1/31/13 14:50</u>		
Water - VOA vials have zero headspace?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes: Ra-226/228 & cyanide not on COC. Incorrect metals list on COC.

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



Chain of Custody Form

Page 1 of 2

COC ID: **41202**

- ☐ Cincinnati, OH
 +1 513 733 5336
☐ Everett, WA
 +1 425 356 2600
☐ Fort Collins, CO
 +1 970 490 1511

1301997

NAVAJO REFINING: Navajo Refining Company

Project: RO Discharge Sampling



ALS Project Manager:

Customer Information		Project Information		Parameter/Method Request for Analysis										
Purchase Order		Project Name	RO Discharge / Sampling	A	VOC (8260) NW GW List									
Work Order		Project Number	128823	B	GRO (8015 M)									
Company Name	Navajo Refining Co	Bill To Company	Navajo Refining Co	C	DRO (8015 M)									
Send Report To	Robert Combs	Invoice Attn.	Robert Combs	D	ORO (8015 M)									
Address	501 East Main	Address	501 East Main	E	16 SVOC (13270) NW GW List									
City/State/Zip	Artesia, NM	City/State/Zip	Artesia, NM	F	Total Metals (6020/7000) RCRA 8									
Phone		Phone	575-748-6733	G	Dissolved Metals (6020/7000) RCRA 8									
Fax		Fax	575-746-5421	H	TDS									
e-Mail Address		e-Mail Address		I	Moisture									
				J										

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW 115 (1)	1-29-13	1425	Soil	—	5	X	X	X	X	X	X	X		X		
2	MW 115 (3)		1430			1									X		
3	MW 115 (5)		1435			5	X	X	X	X	X	X	X		X		
4	MW 115 (7)		1502			1									X		
5	MW 115 (9)		1502			1									X		
6	MW 115 (10)		1610			5	X	X	X	X	X	X	X		X		
7	MW 115 (11)		1612			1									X		
8	MW 115 (13)		1612			1									X		
9	MW 115 (15)		1520			5	X	X	X	X	X	X	X		X		
10	MW 115 (17)		1522			1									X		

Sampler(s): Please Print & Sign <i>[Signature]</i>		Shipment Method:		Required Turnaround Time: <input checked="" type="checkbox"/> STD 10 Wk Days <input type="checkbox"/> 5 Wk Days <input type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour		Results Due Date:	
Relinquished by: <i>Eric Bergeresen</i>	Date: 1/30/13	Time: 1300	Received by: <i>[Signature]</i>		Notes: 10 Day TAT, Dissolved Metals Field Filtered		
Relinquished by:	Date:	Time:	Received by (Laboratory): <i>[Signature]</i> 1/31/13 0910		QC Package: (Check Box Below)		
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		<input checked="" type="checkbox"/> Level II: Standard QC <input type="checkbox"/> Level III: Std QC + Raw Data <input type="checkbox"/> Level IV: SW846 CLP-Like Other:		
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035							

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

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Chain of Custody Form

Page 2 of 2

COC ID: 72330

Houston, TX
+1 281 530 5656

Middletown, PA
+1 717 944 5541

Spring City, PA
+1 610 948 4903

Salt Lake City, UT
+1 801 266 7700

South Charleston, WV
+1 304 356 3168

York, PA
+1 717 505 5280

Customer Information				Project Information				Parameter/Method Request for Analysis											
Purchase Order		Project Name	RO Discharge/Sampling	A	VOC (8260) NW GW List														
Work Order		Project Number	128823	B	GRO (8015M)														
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	DRO (8015M)														
Send Report To	Robert Combs	Invoice Attn	Robert Combs	D	ORO (8015M)														
Address	501 East Main	Address	501 East Main	E	LL SVOC (8270) NM GW List														
				F	Total Metals (6020/7000) RCRA 8														
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	G	Dissolved Metals (6020/7000) RCRA 8														
Phone	(575) 748-6733	Phone	(575) 748-6733	H	TDS														
Fax	(575) 746-5421	Fax	(575) 746-5421	I	Moisture														
e-Mail Address		e-Mail Address		J	Fingerprint (PIANO/Sp Grav, Sim Dist)														

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW 115 (19)	1-29-13	1522	Soil	-	1									X		
2	MW 115 (20)		1600			5	X	X	X	X	X	X	X		X		
3	MW 115 (21)		1530			1									X		
4	MW 115 (23)		1530			1									X		
5	MW 115 (25)		1545			5	X	X	X	X	X	X	X		X		
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign		Shipment Method		Required Turnaround Time: (Check Box)				Results Due Date:	
<i>Eric Bergersen</i> Relinquished by: Eric Bergersen Relinquished by:				<input checked="" type="checkbox"/> Std 10 WK Days <input type="checkbox"/> 5 WK Days <input type="checkbox"/> Other 2 WK Days <input type="checkbox"/> 24 Hour					
Date: 1/30/13 Time: 1300		Received by: <i>ALH</i> Received by (Laboratory): Checked by (Laboratory):		Notes: 10 Day TAT. Dissolved Metals Field Filtered					
Logged by (Laboratory):		Date: Time:		Cooler ID Cooler Temp.		QC Package: (Check One Box Below) <input checked="" type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP CheckList <input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> TRRP Level IV <input type="checkbox"/> Level IV SW846/CLP <input type="checkbox"/> Other / EDD			
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035									

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
 2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
 3. The Chain of Custody is a legal document. All information must be completed accurately.

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T R R R
0215 8013 7025 1525

THU - 31 JAN A1
STANDARD OVERNIGHT

AB SGRA

77099
TX-US
IAH



637368 30JAN13 ROWA 51501/0F24/6F83



ALS Environmental

10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

Date:
Name:
Company:

CUSTODY SEAL

Date: 1-30-2013 Time: 1250
Name: B. McKenna
Company: ARCADIS

Seal Broken By:

Date: 1/31/13



13-Feb-2013

Robert Combs
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 746-5382
Fax: (575) 746-5421

Re: RO Discharge Sampling

Work Order: **1302026**

Dear Robert,

ALS Environmental received 22 samples on 31-Jan-2013 09:10 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 1 F.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in black ink that reads "Sonia West".

Electronically approved by: Sonia West

Sonia West
Project Manager



Certificate No: T104704231-12-10

ADDRESS 10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 | PHONE (281) 530-5656 | FAX (281) 530-5887

ALS GROUP USA, CORP. Part of the ALS Group An ALS Limited Company

Environmental A small version of the ALS logo, consisting of a blue triangle with a yellow flame.

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 1302026

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1302026-01	MW-114 (1)	Soil		1/28/2013 14:30	1/31/2013 09:10	<input type="checkbox"/>
1302026-02	MW-114 (3)	Soil		1/28/2013 14:40	1/31/2013 09:10	<input type="checkbox"/>
1302026-03	MW-114 (5)	Soil		1/28/2013 14:45	1/31/2013 09:10	<input type="checkbox"/>
1302026-04	MW-114 (7)	Soil		1/28/2013 15:30	1/31/2013 09:10	<input type="checkbox"/>
1302026-05	MW-114 (9)	Soil		1/28/2013 15:45	1/31/2013 09:10	<input type="checkbox"/>
1302026-06	MW-114 (10)	Soil		1/28/2013 15:30	1/31/2013 09:10	<input type="checkbox"/>
1302026-07	MW-114 (11)	Soil		1/28/2013 15:30	1/31/2013 09:10	<input type="checkbox"/>
1302026-08	MW-114 (13)	Soil		1/28/2013 15:50	1/31/2013 09:10	<input type="checkbox"/>
1302026-09	MW-114 (15)	Soil		1/28/2013 15:50	1/31/2013 09:10	<input type="checkbox"/>
1302026-10	MW-114 (17)	Soil		1/28/2013 16:00	1/31/2013 09:10	<input type="checkbox"/>
1302026-11	MW-114 (19)	Soil		1/28/2013 16:05	1/31/2013 09:10	<input type="checkbox"/>
1302026-12	MW-114 (20)	Soil		1/28/2013 16:10	1/31/2013 09:10	<input type="checkbox"/>
1302026-13	MW-114 (21)	Soil		1/28/2013 16:15	1/31/2013 09:10	<input type="checkbox"/>
1302026-14	MW-114 (23)	Soil		1/28/2013 16:15	1/31/2013 09:10	<input type="checkbox"/>
1302026-15	MW-114 (25)	Soil		1/28/2013 16:20	1/31/2013 09:10	<input type="checkbox"/>
1302026-16	MW-114 (27)	Soil		1/28/2013 16:25	1/31/2013 09:10	<input type="checkbox"/>
1302026-17	MW-114 (29)	Soil		1/28/2013 16:27	1/31/2013 09:10	<input type="checkbox"/>
1302026-18	MW-114 (30)	Soil		1/28/2013 16:00	1/31/2013 09:10	<input type="checkbox"/>
1302026-19	MW-114 (31)	Soil		1/28/2013 16:40	1/31/2013 09:10	<input type="checkbox"/>
1302026-20	MW-114 (33)	Soil		1/28/2013 16:40	1/31/2013 09:10	<input type="checkbox"/>
1302026-21	MW-114 (35)	Soil		1/28/2013 16:50	1/31/2013 09:10	<input type="checkbox"/>
1302026-22	Trip Blank 011813-19	Water		1/31/2013	1/31/2013 09:10	<input type="checkbox"/>

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 1302026

Case Narrative

Your samples received for Radium 226 and Radium 228 are reported on ALS workorder 1302400.

Batch R98939, TPH DRO/ORO, Sample 1302018-01: MS/MSD is for an unrelated sample.

Batch 67523, Metals, Sample 13011005-01: MS/MSD is for an unrelated sample.

Batch 67523, Metals, Sample 13011005-01: Duplicate RPD is for an unrelated sample.

Batch 67565, Metals, Sample 1302050-13: MS/MSD is for an unrelated sample.

Batch 67565, Metals, Sample 1302050-13: MS/MSD RPD is for an unrelated sample.

Batch 67565, Metals, Sample 1302050-13: Duplicate RPD is for an unrelated sample.

Batch 67656, Low-Level Semivolatile Organics, Sample 1302140-04: MS/MSD is for an unrelated sample.

Batch 67656, Low-Level Semivolatile Organics, Sample 1302140-04: MS/MSD RPD is for an unrelated sample.

Batch R141995, Volatile Organics, Sample 1301997-01: MS/MSD is for an unrelated sample.

Batch R142113, Volatile Organics, Sample 1302069-01: MS/MSD is for an unrelated sample.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (1)
Collection Date: 1/28/2013 02:30 PM

Work Order: 1302026
Lab ID: 1302026-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3541 / 2/5/13 Analyst: KMB							
TPH (Oil Range)	0.83	J	0.61	4.1	mg/Kg-dry	1	2/6/2013 15:27
TPH (Diesel Range)	U		0.61	2.1	mg/Kg-dry	1	2/6/2013 15:27
Surr: 2-Fluorobiphenyl	61.5			60-135	%REC	1	2/6/2013 15:27
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: KKP							
Gasoline Range Organics	U		0.024	0.061	mg/Kg-dry	1	2/5/2013 17:26
Surr: 4-Bromofluorobenzene	89.0			70-130	%REC	1	2/5/2013 17:26
MERCURY - SW7471B Method: SW7471A Prep: SW7471A / 2/5/13 Analyst: OFO							
Mercury	19.9		0.35	4.31	µg/Kg-dry	1	2/5/2013 16:27
METALS Method: SW6020 Prep: SW3050A / 2/4/13 Analyst: SKS							
Aluminum	13,900		23	117	mg/Kg-dry	100	2/6/2013 15:45
Arsenic	4.67		0.12	0.584	mg/Kg-dry	1	2/5/2013 16:44
Barium	115		0.093	0.584	mg/Kg-dry	1	2/5/2013 16:44
Boron	5.29		1.6	2.92	mg/Kg-dry	1	2/6/2013 13:30
Cadmium	0.403	J	0.058	0.584	mg/Kg-dry	1	2/5/2013 16:44
Calcium	58,900		1,200	5,840	mg/Kg-dry	100	2/6/2013 15:45
Chromium	14.3		0.11	0.584	mg/Kg-dry	1	2/6/2013 13:30
Cobalt	4.91		0.082	0.584	mg/Kg-dry	1	2/5/2013 16:44
Copper	26.4		0.12	0.584	mg/Kg-dry	1	2/5/2013 16:44
Iron	9,110		12	58.4	mg/Kg-dry	1	2/5/2013 16:44
Lead	37.3		0.058	0.584	mg/Kg-dry	1	2/5/2013 16:44
Manganese	192		0.12	0.584	mg/Kg-dry	1	2/5/2013 16:44
Molybdenum	0.580	J	0.18	0.584	mg/Kg-dry	1	2/5/2013 16:44
Nickel	10.7		0.11	0.584	mg/Kg-dry	1	2/5/2013 16:44
Potassium	3,520		15	58.4	mg/Kg-dry	1	2/5/2013 16:44
Selenium	1.12		0.21	0.584	mg/Kg-dry	1	2/5/2013 16:44
Silver	U		0.093	0.584	mg/Kg-dry	1	2/5/2013 16:44
Sodium	157		13	58.4	mg/Kg-dry	1	2/5/2013 16:44
Uranium	U		0.58	0.584	mg/Kg-dry	1	2/5/2013 16:44
Zinc	40.0		0.29	0.584	mg/Kg-dry	1	2/5/2013 16:44
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3541 / 2/7/13 Analyst: LG							
1-Methylnaphthalene	U		1.9	8.0	µg/Kg-dry	1	2/8/2013 12:51
2-Methylnaphthalene	U		1.9	8.0	µg/Kg-dry	1	2/8/2013 12:51
Benzo(a)pyrene	U		1.9	8.0	µg/Kg-dry	1	2/8/2013 12:51
Naphthalene	U		1.9	8.0	µg/Kg-dry	1	2/8/2013 12:51
Surr: 2,4,6-Tribromophenol	76.0			36-126	%REC	1	2/8/2013 12:51
Surr: 2-Fluorobiphenyl	75.4			43-125	%REC	1	2/8/2013 12:51

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (1)
Collection Date: 1/28/2013 02:30 PM

Work Order: 1302026
Lab ID: 1302026-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	52.2			37-125	%REC	1	2/8/2013 12:51
Surr: 4-Terphenyl-d14	98.4			32-125	%REC	1	2/8/2013 12:51
Surr: Nitrobenzene-d5	76.0			37-125	%REC	1	2/8/2013 12:51
Surr: Phenol-d6	49.9			40-125	%REC	1	2/8/2013 12:51
VOLATILES - SW8260C			Method: SW8260			Analyst: WLR	
1,1,1-Trichloroethane	U		2.1	6.1	µg/Kg-dry	1	2/1/2013 14:49
1,1,2,2-Tetrachloroethane	U		0.61	6.1	µg/Kg-dry	1	2/1/2013 14:49
1,1,2-Trichloroethane	U		2.4	6.1	µg/Kg-dry	1	2/1/2013 14:49
1,1-Dichloroethane	U		0.61	6.1	µg/Kg-dry	1	2/1/2013 14:49
1,1-Dichloroethene	U		1.8	6.1	µg/Kg-dry	1	2/1/2013 14:49
1,2-Dibromoethane	U		0.85	6.1	µg/Kg-dry	1	2/1/2013 14:49
1,2-Dichloroethane	U		0.73	6.1	µg/Kg-dry	1	2/1/2013 14:49
Benzene	U		0.73	6.1	µg/Kg-dry	1	2/1/2013 14:49
Carbon tetrachloride	U		1.5	6.1	µg/Kg-dry	1	2/1/2013 14:49
Chloroform	U		2.2	6.1	µg/Kg-dry	1	2/1/2013 14:49
Ethylbenzene	U		1.1	6.1	µg/Kg-dry	1	2/1/2013 14:49
Methylene chloride	3.2	J	3.0	12	µg/Kg-dry	1	2/1/2013 14:49
Tetrachloroethene	U		1.2	6.1	µg/Kg-dry	1	2/1/2013 14:49
Toluene	U		0.85	6.1	µg/Kg-dry	1	2/1/2013 14:49
Trichloroethene	U		1.9	6.1	µg/Kg-dry	1	2/1/2013 14:49
Vinyl chloride	U		1.2	2.4	µg/Kg-dry	1	2/1/2013 14:49
Xylenes, Total	U		3.2	18	µg/Kg-dry	1	2/1/2013 14:49
Surr: 1,2-Dichloroethane-d4	86.5			70-128	%REC	1	2/1/2013 14:49
Surr: 4-Bromofluorobenzene	91.0			73-126	%REC	1	2/1/2013 14:49
Surr: Dibromofluoromethane	97.0			71-128	%REC	1	2/1/2013 14:49
Surr: Toluene-d8	96.5			73-127	%REC	1	2/1/2013 14:49
ANIONS - EPA 300.0 (1993)			Method: E300			Prep: E300 / 2/5/13	
Chloride	21.0		2.4	6.06	mg/Kg-dry	1	2/5/2013 23:03
Fluoride	11.1		0.36	1.21	mg/Kg-dry	1	2/5/2013 23:03
Nitrogen, Nitrate (As N)	U		0.36	1.21	mg/Kg-dry	1	2/5/2013 23:03
Nitrogen, Nitrite (As N)	U		0.36	1.21	mg/Kg-dry	1	2/5/2013 23:03
Sulfate	1,120		2.4	6.06	mg/Kg-dry	1	2/5/2013 23:03
Surr: Selenate (surr)	86.2			85-115	%REC	1	2/5/2013 23:03
CYANIDE			Method: SW9014			Prep: SW9010C / 2/5/13	
Cyanide	U		0.72	2.41	mg/Kg-dry	1	2/5/2013 16:30
MOISTURE			Method: SW3550			Analyst: KAH	
Percent Moisture	17.9		0.010	0.0100	wt%	1	2/5/2013 13:50

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (3)
Collection Date: 1/28/2013 02:40 PM

Work Order: 1302026
Lab ID: 1302026-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	21.0		0.010	0.0100	wt%	1	2/5/2013 13:50

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (5)
Collection Date: 1/28/2013 02:45 PM

Work Order: 1302026
Lab ID: 1302026-03
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
Method: SW7471A				Prep: SW7471A / 2/5/13		Analyst: OFO	
Mercury	U		0.38	4.71	µg/Kg-dry	1	2/5/2013 16:29
METALS							
Method: SW6020				Prep: SW3050A / 2/4/13		Analyst: SKS	
Aluminum	5,490		23	117	mg/Kg-dry	100	2/6/2013 15:47
Arsenic	2.19		0.12	0.584	mg/Kg-dry	1	2/5/2013 16:46
Barium	99.2		0.094	0.584	mg/Kg-dry	1	2/5/2013 16:46
Boron	5.78	J	3.3	5.84	mg/Kg-dry	2	2/6/2013 13:33
Cadmium	0.0884	J	0.058	0.584	mg/Kg-dry	1	2/5/2013 16:46
Calcium	150,000		1,200	5,840	mg/Kg-dry	100	2/6/2013 15:47
Chromium	5.44		0.21	1.17	mg/Kg-dry	2	2/6/2013 13:33
Cobalt	1.30		0.082	0.584	mg/Kg-dry	1	2/5/2013 16:46
Copper	1.67		0.12	0.584	mg/Kg-dry	1	2/5/2013 16:46
Iron	3,330		12	58.4	mg/Kg-dry	1	2/5/2013 16:46
Lead	2.59		0.058	0.584	mg/Kg-dry	1	2/5/2013 16:46
Manganese	45.8		0.12	0.584	mg/Kg-dry	1	2/5/2013 16:46
Molybdenum	0.273	J	0.18	0.584	mg/Kg-dry	1	2/5/2013 16:46
Nickel	3.16		0.11	0.584	mg/Kg-dry	1	2/5/2013 16:46
Potassium	1,060		15	58.4	mg/Kg-dry	1	2/5/2013 16:46
Selenium	0.307	J	0.21	0.584	mg/Kg-dry	1	2/5/2013 16:46
Silver	U		0.094	0.584	mg/Kg-dry	1	2/5/2013 16:46
Sodium	110		13	58.4	mg/Kg-dry	1	2/5/2013 16:46
Uranium	U		0.58	0.584	mg/Kg-dry	1	2/5/2013 16:46
Zinc	9.61		0.29	0.584	mg/Kg-dry	1	2/5/2013 16:46
ANIONS - EPA 300.0 (1993)							
Method: E300				Prep: E300 / 2/5/13		Analyst: JKP	
Chloride	24.9		2.8	6.93	mg/Kg-dry	1	2/5/2013 23:18
Fluoride	7.73		0.42	1.39	mg/Kg-dry	1	2/5/2013 23:18
Nitrogen, Nitrate (As N)	U		0.42	1.39	mg/Kg-dry	1	2/5/2013 23:18
Nitrogen, Nitrite (As N)	U		0.42	1.39	mg/Kg-dry	1	2/5/2013 23:18
Sulfate	796		2.8	6.93	mg/Kg-dry	1	2/5/2013 23:18
Surr: Selenate (surr)	85.8			85-115	%REC	1	2/5/2013 23:18
CYANIDE							
Method: SW9014				Prep: SW9010C / 2/5/13		Analyst: EDG	
Cyanide	U		0.80	2.66	mg/Kg-dry	1	2/5/2013 16:30
MOISTURE							
Method: SW3550				Analyst: KAH			
Percent Moisture	28.0		0.010	0.0100	wt%	1	2/5/2013 13:50

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (7)
Collection Date: 1/28/2013 03:30 PM

Work Order: 1302026
Lab ID: 1302026-04
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	22.9		0.010	0.0100	wt%	1	2/5/2013 13:50

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (9)
Collection Date: 1/28/2013 03:45 PM

Work Order: 1302026
Lab ID: 1302026-05
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	18.4		0.010	0.0100	wt%	1	2/5/2013 13:50

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (10)
Collection Date: 1/28/2013 03:30 PM

Work Order: 1302026
Lab ID: 1302026-06
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
Method: SW7471A				Prep: SW7471A / 2/5/13		Analyst: OFO	
Mercury	3.71	J	0.39	4.74	µg/Kg-dry	1	2/5/2013 16:31
METALS							
Method: SW6020				Prep: SW3050A / 2/4/13		Analyst: SKS	
Aluminum	8,230		23	113	mg/Kg-dry	100	2/6/2013 15:55
Arsenic	3.10		0.11	0.564	mg/Kg-dry	1	2/5/2013 16:49
Barium	131		0.090	0.564	mg/Kg-dry	1	2/5/2013 16:49
Boron	6.34		3.2	5.64	mg/Kg-dry	2	2/6/2013 13:35
Cadmium	0.126	J	0.056	0.564	mg/Kg-dry	1	2/5/2013 16:49
Calcium	141,000		1,100	5,640	mg/Kg-dry	100	2/6/2013 15:55
Chromium	7.76		0.20	1.13	mg/Kg-dry	2	2/6/2013 13:35
Cobalt	2.14		0.079	0.564	mg/Kg-dry	1	2/5/2013 16:49
Copper	2.82		0.11	0.564	mg/Kg-dry	1	2/5/2013 16:49
Iron	4,890		11	56.4	mg/Kg-dry	1	2/5/2013 16:49
Lead	3.86		0.056	0.564	mg/Kg-dry	1	2/5/2013 16:49
Manganese	78.0		0.11	0.564	mg/Kg-dry	1	2/5/2013 16:49
Molybdenum	0.406	J	0.17	0.564	mg/Kg-dry	1	2/5/2013 16:49
Nickel	4.48		0.10	0.564	mg/Kg-dry	1	2/5/2013 16:49
Potassium	1,650		15	56.4	mg/Kg-dry	1	2/5/2013 16:49
Selenium	0.640		0.20	0.564	mg/Kg-dry	1	2/5/2013 16:49
Silver	U		0.090	0.564	mg/Kg-dry	1	2/5/2013 16:49
Sodium	136		12	56.4	mg/Kg-dry	1	2/5/2013 16:49
Uranium	U		0.56	0.564	mg/Kg-dry	1	2/5/2013 16:49
Zinc	14.9		0.28	0.564	mg/Kg-dry	1	2/5/2013 16:49
ANIONS - EPA 300.0 (1993)							
Method: E300				Prep: E300 / 2/5/13		Analyst: JKP	
Chloride	20.6		2.6	6.56	mg/Kg-dry	1	2/5/2013 23:33
Fluoride	5.02		0.39	1.31	mg/Kg-dry	1	2/5/2013 23:33
Nitrogen, Nitrate (As N)	U		0.39	1.31	mg/Kg-dry	1	2/5/2013 23:33
Nitrogen, Nitrite (As N)	U		0.39	1.31	mg/Kg-dry	1	2/5/2013 23:33
Sulfate	6,970		26	65.6	mg/Kg-dry	10	2/6/2013 10:33
Surr: Selenate (surr)	85.3			85-115	%REC	1	2/5/2013 23:33
Surr: Selenate (surr)	87.1			85-115	%REC	10	2/6/2013 10:33
CYANIDE							
Method: SW9014				Prep: SW9010C / 2/5/13		Analyst: EDG	
Cyanide	U		0.74	2.46	mg/Kg-dry	1	2/5/2013 16:30
MOISTURE							
Method: SW3550				Analyst: KAH			
Percent Moisture	25.2		0.010	0.0100	wt%	1	2/5/2013 13:50

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (11)
Collection Date: 1/28/2013 03:30 PM

Work Order: 1302026
Lab ID: 1302026-07
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	22.6		0.010	0.0100	wt%	1	2/5/2013 13:50

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (13)
Collection Date: 1/28/2013 03:50 PM

Work Order: 1302026
Lab ID: 1302026-08
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	23.4		0.010	0.0100	wt%	1	2/5/2013 13:50

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (15)
Collection Date: 1/28/2013 03:50 PM

Work Order: 1302026
Lab ID: 1302026-09
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
Method: SW7471A				Prep: SW7471A / 2/5/13		Analyst: OFO	
Mercury	1.27	J	0.34	4.24	µg/Kg-dry	1	2/5/2013 16:33
METALS							
Method: SW6020				Prep: SW3050A / 2/4/13		Analyst: SKS	
Aluminum	8,150		20	99.8	mg/Kg-dry	100	2/6/2013 15:57
Arsenic	3.48		0.10	0.499	mg/Kg-dry	1	2/5/2013 16:51
Barium	50.7		0.080	0.499	mg/Kg-dry	1	2/5/2013 16:51
Boron	7.64		2.8	4.99	mg/Kg-dry	2	2/6/2013 13:42
Cadmium	0.149	J	0.050	0.499	mg/Kg-dry	1	2/5/2013 16:51
Calcium	146,000		1,000	4,990	mg/Kg-dry	100	2/6/2013 15:57
Chromium	9.03		0.18	0.998	mg/Kg-dry	2	2/6/2013 13:42
Cobalt	2.92		0.070	0.499	mg/Kg-dry	1	2/5/2013 16:51
Copper	3.34		0.10	0.499	mg/Kg-dry	1	2/5/2013 16:51
Iron	5,630		10	49.9	mg/Kg-dry	1	2/5/2013 16:51
Lead	4.96		0.050	0.499	mg/Kg-dry	1	2/5/2013 16:51
Manganese	129		0.10	0.499	mg/Kg-dry	1	2/5/2013 16:51
Molybdenum	0.808		0.15	0.499	mg/Kg-dry	1	2/5/2013 16:51
Nickel	6.38		0.090	0.499	mg/Kg-dry	1	2/5/2013 16:51
Potassium	1,240		13	49.9	mg/Kg-dry	1	2/5/2013 16:51
Selenium	0.537		0.18	0.499	mg/Kg-dry	1	2/5/2013 16:51
Silver	U		0.080	0.499	mg/Kg-dry	1	2/5/2013 16:51
Sodium	113		11	49.9	mg/Kg-dry	1	2/5/2013 16:51
Uranium	U		0.50	0.499	mg/Kg-dry	1	2/5/2013 16:51
Zinc	16.1		0.25	0.499	mg/Kg-dry	1	2/5/2013 16:51
ANIONS - EPA 300.0 (1993)							
Method: E300				Prep: E300 / 2/5/13		Analyst: JKP	
Chloride	27.8		2.5	6.22	mg/Kg-dry	1	2/5/2013 23:47
Fluoride	7.12		0.37	1.24	mg/Kg-dry	1	2/5/2013 23:47
Nitrogen, Nitrate (As N)	U		0.37	1.24	mg/Kg-dry	1	2/5/2013 23:47
Nitrogen, Nitrite (As N)	U		0.37	1.24	mg/Kg-dry	1	2/5/2013 23:47
Sulfate	1,270		2.5	6.22	mg/Kg-dry	1	2/5/2013 23:47
Surr: Selenate (surr)	85.4			85-115	%REC	1	2/5/2013 23:47
CYANIDE							
Method: SW9014				Prep: SW9010C / 2/5/13		Analyst: EDG	
Cyanide	U		0.69	2.29	mg/Kg-dry	1	2/5/2013 16:30
MOISTURE							
Method: SW3550						Analyst: KAH	
Percent Moisture	19.9		0.010	0.0100	wt%	1	2/5/2013 13:50

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (17)
Collection Date: 1/28/2013 04:00 PM

Work Order: 1302026
Lab ID: 1302026-10
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	23.1		0.010	0.0100	wt%	1	2/5/2013 13:50

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (19)
Collection Date: 1/28/2013 04:05 PM

Work Order: 1302026
Lab ID: 1302026-11
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	23.5		0.010	0.0100	wt%	1	2/5/2013 13:50

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (20)
Collection Date: 1/28/2013 04:10 PM

Work Order: 1302026
Lab ID: 1302026-12
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
Method: SW7471A				Prep: SW7471A / 2/5/13		Analyst: OFO	
Mercury	U		0.37	4.58	µg/Kg-dry	1	2/5/2013 16:35
METALS							
Method: SW6020				Prep: SW3050A / 2/4/13		Analyst: SKS	
Aluminum	8,460		24	120	mg/Kg-dry	100	2/6/2013 15:59
Arsenic	2.97		0.12	0.600	mg/Kg-dry	1	2/5/2013 16:54
Barium	191		0.096	0.600	mg/Kg-dry	1	2/5/2013 16:54
Boron	3.21		1.7	3.00	mg/Kg-dry	1	2/6/2013 13:45
Cadmium	0.186	J	0.060	0.600	mg/Kg-dry	1	2/5/2013 16:54
Calcium	120,000		1,200	6,000	mg/Kg-dry	100	2/6/2013 15:59
Chromium	3.77		0.11	0.600	mg/Kg-dry	1	2/6/2013 13:45
Cobalt	2.65		0.084	0.600	mg/Kg-dry	1	2/5/2013 16:54
Copper	3.97		0.12	0.600	mg/Kg-dry	1	2/5/2013 16:54
Iron	5,630		12	60.0	mg/Kg-dry	1	2/5/2013 16:54
Lead	4.37		0.060	0.600	mg/Kg-dry	1	2/5/2013 16:54
Manganese	137		0.12	0.600	mg/Kg-dry	1	2/5/2013 16:54
Molybdenum	0.594	J	0.18	0.600	mg/Kg-dry	1	2/5/2013 16:54
Nickel	5.71		0.11	0.600	mg/Kg-dry	1	2/5/2013 16:54
Potassium	1,610		16	60.0	mg/Kg-dry	1	2/5/2013 16:54
Selenium	0.453	J	0.22	0.600	mg/Kg-dry	1	2/5/2013 16:54
Silver	U		0.096	0.600	mg/Kg-dry	1	2/5/2013 16:54
Sodium	108		13	60.0	mg/Kg-dry	1	2/5/2013 16:54
Uranium	U		0.60	0.600	mg/Kg-dry	1	2/5/2013 16:54
Zinc	18.2		0.30	0.600	mg/Kg-dry	1	2/5/2013 16:54
ANIONS - EPA 300.0 (1993)							
Method: E300				Prep: E300 / 2/5/13		Analyst: JKP	
Chloride	24.6		2.7	6.78	mg/Kg-dry	1	2/6/2013 00:02
Fluoride	4.19		0.41	1.36	mg/Kg-dry	1	2/6/2013 00:02
Nitrogen, Nitrate (As N)	U		0.41	1.36	mg/Kg-dry	1	2/6/2013 00:02
Nitrogen, Nitrite (As N)	U		0.41	1.36	mg/Kg-dry	1	2/6/2013 00:02
Sulfate	320		2.7	6.78	mg/Kg-dry	1	2/6/2013 00:02
Surr: Selenate (surr)	85.0			85-115	%REC	1	2/6/2013 00:02
CYANIDE							
Method: SW9014				Prep: SW9010C / 2/5/13		Analyst: EDG	
Cyanide	U		0.75	2.50	mg/Kg-dry	1	2/5/2013 16:30
MOISTURE							
Method: SW3550				Analyst: KAH			
Percent Moisture	27.0		0.010	0.0100	wt%	1	2/5/2013 13:50

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (21)
Collection Date: 1/28/2013 04:15 PM

Work Order: 1302026
Lab ID: 1302026-13
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	18.5		0.010	0.0100	wt%	1	2/5/2013 13:50

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (23)
Collection Date: 1/28/2013 04:15 PM

Work Order: 1302026
Lab ID: 1302026-14
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	16.9		0.010	0.0100	wt%	1	2/5/2013 13:50

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (25)
Collection Date: 1/28/2013 04:20 PM

Work Order: 1302026
Lab ID: 1302026-15
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
Method: SW7471A				Prep: SW7471A / 2/5/13		Analyst: OFO	
Mercury	7.38		0.37	4.60	µg/Kg-dry	1	2/5/2013 16:41
METALS							
Method: SW6020				Prep: SW3050A / 2/4/13		Analyst: ALR	
Aluminum	10,100		25	124	mg/Kg-dry	100	2/7/2013 15:35
Arsenic	3.14		0.25	1.24	mg/Kg-dry	2	2/8/2013 12:29
Barium	27.0		0.099	0.618	mg/Kg-dry	1	2/6/2013 04:18
Boron	5.20	J	3.5	6.18	mg/Kg-dry	2	2/7/2013 22:58
Cadmium	0.279	J	0.062	0.618	mg/Kg-dry	1	2/6/2013 04:18
Calcium	138,000		1,200	6,180	mg/Kg-dry	100	2/6/2013 21:57
Chromium	11.2		0.22	1.24	mg/Kg-dry	2	2/8/2013 12:29
Cobalt	4.08		0.17	1.24	mg/Kg-dry	2	2/8/2013 12:29
Copper	3.57		0.25	1.24	mg/Kg-dry	2	2/8/2013 12:29
Iron	9,390		25	124	mg/Kg-dry	2	2/8/2013 12:29
Lead	6.42		0.062	0.618	mg/Kg-dry	1	2/6/2013 04:18
Manganese	125		0.25	1.24	mg/Kg-dry	2	2/8/2013 12:29
Molybdenum	0.592	J	0.19	0.618	mg/Kg-dry	1	2/6/2013 04:18
Nickel	5.62		0.22	1.24	mg/Kg-dry	2	2/8/2013 12:29
Potassium	1,660		16	61.8	mg/Kg-dry	1	2/6/2013 04:18
Selenium	U		0.45	1.24	mg/Kg-dry	2	2/8/2013 12:29
Silver	U		0.099	0.618	mg/Kg-dry	1	2/6/2013 04:18
Sodium	181		27	124	mg/Kg-dry	2	2/7/2013 22:58
Uranium	U		0.62	0.618	mg/Kg-dry	1	2/6/2013 04:18
Zinc	23.0		0.62	1.24	mg/Kg-dry	2	2/8/2013 12:29
ANIONS - EPA 300.0 (1993)							
Method: E300				Prep: E300 / 2/5/13		Analyst: JKP	
Chloride	19.8		2.6	6.52	mg/Kg-dry	1	2/6/2013 00:16
Fluoride	4.63		0.39	1.30	mg/Kg-dry	1	2/6/2013 00:16
Nitrogen, Nitrate (As N)	U		0.39	1.30	mg/Kg-dry	1	2/6/2013 00:16
Nitrogen, Nitrite (As N)	U		0.39	1.30	mg/Kg-dry	1	2/6/2013 00:16
Sulfate	390		2.6	6.52	mg/Kg-dry	1	2/6/2013 00:16
Surr: Selenate (surr)	86.4			85-115	%REC	1	2/6/2013 00:16
CYANIDE							
Method: SW9014				Prep: SW9010C / 2/5/13		Analyst: EDG	
Cyanide	U		0.75	2.49	mg/Kg-dry	1	2/5/2013 16:30
MOISTURE							
Method: SW3550				Analyst: KAH			
Percent Moisture	23.6		0.010	0.0100	wt%	1	2/5/2013 13:50

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (27)
Collection Date: 1/28/2013 04:25 PM

Work Order: 1302026
Lab ID: 1302026-16
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE							
			Method: SW3550				Analyst: KAH
Percent Moisture	24.9		0.010	0.0100	wt%	1	2/5/2013 13:50

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (29)
Collection Date: 1/28/2013 04:27 PM

Work Order: 1302026
Lab ID: 1302026-17
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILES - SW8260C			Method: SW8260			Analyst: WLR	
1,1,1-Trichloroethane	U		1.7	5.0	µg/Kg	1	2/1/2013 15:12
1,1,2,2-Tetrachloroethane	U		0.50	5.0	µg/Kg	1	2/1/2013 15:12
1,1,2-Trichloroethane	U		2.0	5.0	µg/Kg	1	2/1/2013 15:12
1,1-Dichloroethane	U		0.50	5.0	µg/Kg	1	2/1/2013 15:12
1,1-Dichloroethene	U		1.5	5.0	µg/Kg	1	2/1/2013 15:12
1,2-Dibromoethane	U		0.70	5.0	µg/Kg	1	2/1/2013 15:12
1,2-Dichloroethane	U		0.60	5.0	µg/Kg	1	2/1/2013 15:12
Benzene	U		0.60	5.0	µg/Kg	1	2/1/2013 15:12
Carbon tetrachloride	U		1.2	5.0	µg/Kg	1	2/1/2013 15:12
Chloroform	U		1.8	5.0	µg/Kg	1	2/1/2013 15:12
Ethylbenzene	U		0.90	5.0	µg/Kg	1	2/1/2013 15:12
Methylene chloride	2.5	J	2.5	10	µg/Kg	1	2/1/2013 15:12
Tetrachloroethene	U		1.0	5.0	µg/Kg	1	2/1/2013 15:12
Toluene	U		0.70	5.0	µg/Kg	1	2/1/2013 15:12
Trichloroethene	U		1.6	5.0	µg/Kg	1	2/1/2013 15:12
Vinyl chloride	U		1.0	2.0	µg/Kg	1	2/1/2013 15:12
Xylenes, Total	U		2.6	15	µg/Kg	1	2/1/2013 15:12
Surr: 1,2-Dichloroethane-d4	88.1			70-128	%REC	1	2/1/2013 15:12
Surr: 4-Bromofluorobenzene	89.7			73-126	%REC	1	2/1/2013 15:12
Surr: Dibromofluoromethane	96.9			71-128	%REC	1	2/1/2013 15:12
Surr: Toluene-d8	101			73-127	%REC	1	2/1/2013 15:12

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (30)
Collection Date: 1/28/2013 04:00 PM

Work Order: 1302026
Lab ID: 1302026-18
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
Method: SW7471A				Prep: SW7471A / 2/5/13		Analyst: OFO	
Mercury	U		0.39	4.79	µg/Kg-dry	1	2/5/2013 16:43
METALS							
Method: SW6020				Prep: SW3050A / 2/4/13		Analyst: ALR	
Aluminum	11,100		24	118	mg/Kg-dry	100	2/7/2013 15:40
Arsenic	1.13	J	0.24	1.18	mg/Kg-dry	2	2/8/2013 12:31
Barium	111		0.095	0.592	mg/Kg-dry	1	2/6/2013 04:23
Boron	3.95	J	3.3	5.92	mg/Kg-dry	2	2/7/2013 23:03
Cadmium	0.183	J	0.059	0.592	mg/Kg-dry	1	2/6/2013 04:23
Calcium	146,000		1,200	5,920	mg/Kg-dry	100	2/6/2013 22:02
Chromium	11.4		0.21	1.18	mg/Kg-dry	2	2/8/2013 12:31
Cobalt	3.60		0.17	1.18	mg/Kg-dry	2	2/8/2013 12:31
Copper	5.59		0.24	1.18	mg/Kg-dry	2	2/8/2013 12:31
Iron	8,870		24	118	mg/Kg-dry	2	2/8/2013 12:31
Lead	5.54		0.059	0.592	mg/Kg-dry	1	2/6/2013 04:23
Manganese	217		12	59.2	mg/Kg-dry	100	2/6/2013 22:02
Molybdenum	0.289	J	0.18	0.592	mg/Kg-dry	1	2/6/2013 04:23
Nickel	6.90		0.21	1.18	mg/Kg-dry	2	2/8/2013 12:31
Potassium	1,840		15	59.2	mg/Kg-dry	1	2/6/2013 04:23
Selenium	U		0.43	1.18	mg/Kg-dry	2	2/8/2013 12:31
Silver	U		0.095	0.592	mg/Kg-dry	1	2/6/2013 04:23
Sodium	208		26	118	mg/Kg-dry	2	2/7/2013 23:03
Uranium	U		0.59	0.592	mg/Kg-dry	1	2/6/2013 04:23
Zinc	23.4		0.59	1.18	mg/Kg-dry	2	2/8/2013 12:31
ANIONS - EPA 300.0 (1993)							
Method: E300				Prep: E300 / 2/5/13		Analyst: JKP	
Chloride	20.8		2.7	6.87	mg/Kg-dry	1	2/6/2013 01:00
Fluoride	2.25		0.41	1.37	mg/Kg-dry	1	2/6/2013 01:00
Nitrogen, Nitrate (As N)	U		0.41	1.37	mg/Kg-dry	1	2/6/2013 01:00
Nitrogen, Nitrite (As N)	U		0.41	1.37	mg/Kg-dry	1	2/6/2013 01:00
Sulfate	338		2.7	6.87	mg/Kg-dry	1	2/6/2013 01:00
Surr: Selenate (surr)	85.2			85-115	%REC	1	2/6/2013 01:00
CYANIDE							
Method: SW9014				Prep: SW9010C / 2/5/13		Analyst: EDG	
Cyanide	U		0.81	2.70	mg/Kg-dry	1	2/5/2013 16:30
MOISTURE							
Method: SW3550				Analyst: KAH			
Percent Moisture	27.4		0.010	0.0100	wt%	1	2/5/2013 13:50

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (31)
Collection Date: 1/28/2013 04:40 PM

Work Order: 1302026
Lab ID: 1302026-19
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	33.7		0.010	0.0100	wt%	1	2/5/2013 13:50

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (33)
Collection Date: 1/28/2013 04:40 PM

Work Order: 1302026
Lab ID: 1302026-20
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	27.7		0.010	0.0100	wt%	1	2/5/2013 13:50

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (35)
Collection Date: 1/28/2013 04:50 PM

Work Order: 1302026
Lab ID: 1302026-21
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3541 / 2/5/13 Analyst: KMB							
TPH (Oil Range)	0.63	J	0.61	4.1	mg/Kg-dry	1	2/6/2013 15:51
TPH (Diesel Range)	U		0.61	2.1	mg/Kg-dry	1	2/6/2013 15:51
Surr: 2-Fluorobiphenyl	65.4			60-135	%REC	1	2/6/2013 15:51
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: KKP							
Gasoline Range Organics	U		0.024	0.061	mg/Kg-dry	1	2/5/2013 17:45
Surr: 4-Bromofluorobenzene	88.7			70-130	%REC	1	2/5/2013 17:45
MERCURY - SW7471B Method: SW7471A Prep: SW7471A / 2/5/13 Analyst: OFO							
Mercury	U		0.33	4.12	µg/Kg-dry	1	2/5/2013 16:45
METALS Method: SW6020 Prep: SW3050A / 2/4/13 Analyst: ALR							
Aluminum	8,660		18	88.4	mg/Kg-dry	100	2/7/2013 15:45
Arsenic	1.09		0.088	0.442	mg/Kg-dry	1	2/6/2013 04:28
Barium	75.2		0.071	0.442	mg/Kg-dry	1	2/6/2013 04:28
Boron	2.39		1.2	2.21	mg/Kg-dry	1	2/7/2013 23:07
Cadmium	0.129	J	0.044	0.442	mg/Kg-dry	1	2/6/2013 04:28
Calcium	50,400		880	4,420	mg/Kg-dry	100	2/6/2013 22:07
Chromium	7.82		0.080	0.442	mg/Kg-dry	1	2/6/2013 04:28
Cobalt	2.38		0.062	0.442	mg/Kg-dry	1	2/6/2013 04:28
Copper	2.71		0.088	0.442	mg/Kg-dry	1	2/6/2013 04:28
Iron	5,410		8.8	44.2	mg/Kg-dry	1	2/6/2013 04:28
Lead	4.82		0.044	0.442	mg/Kg-dry	1	2/6/2013 04:28
Manganese	88.1		0.088	0.442	mg/Kg-dry	1	2/6/2013 04:28
Molybdenum	0.187	J	0.13	0.442	mg/Kg-dry	1	2/6/2013 04:28
Nickel	5.19		0.080	0.442	mg/Kg-dry	1	2/6/2013 04:28
Potassium	1,860		11	44.2	mg/Kg-dry	1	2/6/2013 04:28
Selenium	0.258	J	0.16	0.442	mg/Kg-dry	1	2/6/2013 04:28
Silver	U		0.071	0.442	mg/Kg-dry	1	2/6/2013 04:28
Sodium	125		9.7	44.2	mg/Kg-dry	1	2/7/2013 23:07
Uranium	U		0.44	0.442	mg/Kg-dry	1	2/6/2013 04:28
Zinc	14.4		0.22	0.442	mg/Kg-dry	1	2/6/2013 04:28
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3541 / 2/7/13 Analyst: LG							
1-Methylnaphthalene	U		1.9	8.0	µg/Kg-dry	1	2/7/2013 18:53
2-Methylnaphthalene	U		1.9	8.0	µg/Kg-dry	1	2/7/2013 18:53
Benzo(a)pyrene	U		1.9	8.0	µg/Kg-dry	1	2/7/2013 18:53
Naphthalene	U		1.9	8.0	µg/Kg-dry	1	2/7/2013 18:53
Surr: 2,4,6-Tribromophenol	71.2			36-126	%REC	1	2/7/2013 18:53
Surr: 2-Fluorobiphenyl	74.6			43-125	%REC	1	2/7/2013 18:53

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (35)
Collection Date: 1/28/2013 04:50 PM

Work Order: 1302026
Lab ID: 1302026-21
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	57.2			37-125	%REC	1	2/7/2013 18:53
Surr: 4-Terphenyl-d14	101			32-125	%REC	1	2/7/2013 18:53
Surr: Nitrobenzene-d5	71.9			37-125	%REC	1	2/7/2013 18:53
Surr: Phenol-d6	67.5			40-125	%REC	1	2/7/2013 18:53
VOLATILES - SW8260C			Method: SW8260			Analyst: WLR	
1,1,1-Trichloroethane	U		2.1	6.1	µg/Kg-dry	1	2/1/2013 15:35
1,1,2,2-Tetrachloroethane	U		0.61	6.1	µg/Kg-dry	1	2/1/2013 15:35
1,1,2-Trichloroethane	U		2.4	6.1	µg/Kg-dry	1	2/1/2013 15:35
1,1-Dichloroethane	U		0.61	6.1	µg/Kg-dry	1	2/1/2013 15:35
1,1-Dichloroethene	U		1.8	6.1	µg/Kg-dry	1	2/1/2013 15:35
1,2-Dibromoethane	U		0.85	6.1	µg/Kg-dry	1	2/1/2013 15:35
1,2-Dichloroethane	U		0.73	6.1	µg/Kg-dry	1	2/1/2013 15:35
Benzene	U		0.73	6.1	µg/Kg-dry	1	2/1/2013 15:35
Carbon tetrachloride	U		1.5	6.1	µg/Kg-dry	1	2/1/2013 15:35
Chloroform	U		2.2	6.1	µg/Kg-dry	1	2/1/2013 15:35
Ethylbenzene	U		1.1	6.1	µg/Kg-dry	1	2/1/2013 15:35
Methylene chloride	3.8	J	3.0	12	µg/Kg-dry	1	2/1/2013 15:35
Tetrachloroethene	U		1.2	6.1	µg/Kg-dry	1	2/1/2013 15:35
Toluene	U		0.85	6.1	µg/Kg-dry	1	2/1/2013 15:35
Trichloroethene	U		1.9	6.1	µg/Kg-dry	1	2/1/2013 15:35
Vinyl chloride	U		1.2	2.4	µg/Kg-dry	1	2/1/2013 15:35
Xylenes, Total	U		3.2	18	µg/Kg-dry	1	2/1/2013 15:35
Surr: 1,2-Dichloroethane-d4	97.5			70-128	%REC	1	2/1/2013 15:35
Surr: 4-Bromofluorobenzene	89.3			73-126	%REC	1	2/1/2013 15:35
Surr: Dibromofluoromethane	96.7			71-128	%REC	1	2/1/2013 15:35
Surr: Toluene-d8	95.2			73-127	%REC	1	2/1/2013 15:35
ANIONS - EPA 300.0 (1993)			Method: E300			Prep: E300 / 2/5/13	
Chloride	19.6		2.4	6.01	mg/Kg-dry	1	2/6/2013 01:14
Fluoride	3.20		0.36	1.20	mg/Kg-dry	1	2/6/2013 01:14
Nitrogen, Nitrate (As N)	U		0.36	1.20	mg/Kg-dry	1	2/6/2013 01:14
Nitrogen, Nitrite (As N)	U		0.36	1.20	mg/Kg-dry	1	2/6/2013 01:14
Sulfate	259		2.4	6.01	mg/Kg-dry	1	2/6/2013 01:14
Surr: Selenate (surr)	88.0			85-115	%REC	1	2/6/2013 01:14
CYANIDE			Method: SW9014			Prep: SW9010C / 2/5/13	
Cyanide	U		0.65	2.18	mg/Kg-dry	1	2/5/2013 16:30
MOISTURE			Method: SW3550			Analyst: KAH	
Percent Moisture	17.5		0.010	0.0100	wt%	1	2/5/2013 13:50

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: Trip Blank 011813-19
Collection Date: 1/31/2013

Work Order: 1302026
Lab ID: 1302026-22
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/4/2013 17:19
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	2/4/2013 17:19
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/4/2013 17:19
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/4/2013 17:19
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	2/4/2013 17:19
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	2/4/2013 17:19
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/4/2013 17:19
Benzene	U		0.00020	0.0010	mg/L	1	2/4/2013 17:19
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	2/4/2013 17:19
Chloroform	U		0.00030	0.0010	mg/L	1	2/4/2013 17:19
Ethylbenzene	U		0.00030	0.0010	mg/L	1	2/4/2013 17:19
Methylene chloride	U		0.00040	0.0020	mg/L	1	2/4/2013 17:19
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	2/4/2013 17:19
Toluene	U		0.00030	0.0010	mg/L	1	2/4/2013 17:19
Trichloroethene	U		0.00020	0.0010	mg/L	1	2/4/2013 17:19
Vinyl chloride	U		0.00040	0.0010	mg/L	1	2/4/2013 17:19
Xylenes, Total	U		0.00030	0.0010	mg/L	1	2/4/2013 17:19
Surr: 1,2-Dichloroethane-d4	94.1			71-125	%REC	1	2/4/2013 17:19
Surr: 4-Bromofluorobenzene	95.1			70-125	%REC	1	2/4/2013 17:19
Surr: Dibromofluoromethane	101			74-125	%REC	1	2/4/2013 17:19
Surr: Toluene-d8	99.2			78-123	%REC	1	2/4/2013 17:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Work Order: 1302026
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67579** Instrument ID **FID-7** Method: **SW8015M**

MBLK	Sample ID: FBLKS1-130205-67579				Units: mg/Kg		Analysis Date: 2/6/2013 11:56 AM			
Client ID:	Run ID: FID-7_130206A				SeqNo: 3104153		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Oil Range)	U	3.4								
TPH (Diesel Range)	U	1.7								
<i>Surr: 2-Fluorobiphenyl</i>	2.092	0.10	3.33	0	62.8	60-135	0			

LCS	Sample ID: FLCSS1-130205-67579				Units: mg/Kg		Analysis Date: 2/6/2013 12:19 PM			
Client ID:	Run ID: FID-7_130206A				SeqNo: 3104154		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Oil Range)	27.05	3.4	33.33	0	81.2	70-130	0			
TPH (Diesel Range)	35.72	1.7	33.33	0	107	70-130	0			
<i>Surr: 2-Fluorobiphenyl</i>	2.536	0.10	3.33	0	76.2	60-135	0			

MS	Sample ID: 1302018-01BMS				Units: mg/Kg		Analysis Date: 2/6/2013 01:06 PM			
Client ID:	Run ID: FID-7_130206A				SeqNo: 3104156		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Oil Range)	229.1	3.4	33.23	219.8	28.1	70-130	0			SEO
TPH (Diesel Range)	80.52	1.7	33.23	75.45	15.3	70-130	0			SE
<i>Surr: 2-Fluorobiphenyl</i>	2.284	0.10	3.32	0	68.8	60-135	0			

MSD	Sample ID: 1302018-01BMSD				Units: mg/Kg		Analysis Date: 2/6/2013 01:29 PM			
Client ID:	Run ID: FID-7_130206A				SeqNo: 3104157		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Oil Range)	207.2	3.4	33.24	219.8	-37.7	70-130	229.1	10	30	SEO
TPH (Diesel Range)	76.56	1.7	33.24	75.45	3.32	70-130	80.52	5.05	30	SE
<i>Surr: 2-Fluorobiphenyl</i>	2.311	0.10	3.321	0	69.6	60-135	2.284	1.17	30	

The following samples were analyzed in this batch:

1302026-01D	1302026-21D
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 1 of 28

Client: Navajo Refining Company
Work Order: 1302026
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142225** Instrument ID **FID-9** Method: **SW8015**

MBLK	Sample ID: GBLKS-130205-R142225				Units: mg/Kg		Analysis Date: 2/5/2013 01:02 PM			
Client ID:	Run ID: FID-9_130205A				SeqNo: 3103619		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	U	0.050								
<i>Surr: 4-Bromofluorobenzene</i>	0.08374	0.0050	0.1	0	83.7	70-130	0			

LCS	Sample ID: GLCSS-130205-R142225				Units: mg/Kg		Analysis Date: 2/5/2013 12:25 PM			
Client ID:	Run ID: FID-9_130205A				SeqNo: 3103613		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.942	0.050	1	0	94.2	70-130	0			
<i>Surr: 4-Bromofluorobenzene</i>	0.09701	0.0050	0.1	0	97	70-130	0			

LCSD	Sample ID: GLCSDS-130205-R142225				Units: mg/Kg		Analysis Date: 2/5/2013 12:44 PM			
Client ID:	Run ID: FID-9_130205A				SeqNo: 3103616		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.9525	0.050	1	0	95.2	70-130	0.942	1.11	30	
<i>Surr: 4-Bromofluorobenzene</i>	0.09686	0.0050	0.1	0	96.9	70-130	0.09701	0.146	30	

MS	Sample ID: 1302018-04ZMS				Units: mg/Kg		Analysis Date: 2/5/2013 04:11 PM			
Client ID:	Run ID: FID-9_130205A				SeqNo: 3103628		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.8005	0.050	1	0	80	70-130	0			
<i>Surr: 4-Bromofluorobenzene</i>	0.08728	0.0050	0.1	0	87.3	70-130	0			

MSD	Sample ID: 1302018-04ZMSD				Units: mg/Kg		Analysis Date: 2/5/2013 04:30 PM			
Client ID:	Run ID: FID-9_130205A				SeqNo: 3103632		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.8125	0.050	1	0	81.2	70-130	0.8005	1.49	30	
<i>Surr: 4-Bromofluorobenzene</i>	0.08872	0.0050	0.1	0	88.7	70-130	0.08728	1.64	30	

The following samples were analyzed in this batch:

1302026-01B	1302026-21B
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302026
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67523** Instrument ID **ICPMS05** Method: **SW6020**

MBLK Sample ID: **MBLKS1-020113-67523** Units: **mg/Kg** Analysis Date: **2/5/2013 03:05 PM**

Client ID: Run ID: **ICPMS05_130205A** SeqNo: **3102200** Prep Date: **2/4/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.4165	1.0								J
Arsenic	U	0.50								
Barium	U	0.50								
Cadmium	U	0.50								
Calcium	U	50								
Chromium	U	0.50								
Cobalt	U	0.50								
Copper	U	0.50								
Iron	U	50								
Lead	U	0.50								
Manganese	U	0.50								
Molybdenum	U	0.50								
Nickel	U	0.50								
Potassium	U	50								
Selenium	U	0.50								
Silver	U	0.50								
Uranium	U	0.50								
Zinc	U	0.50								

MBLK Sample ID: **MBLKS1-020113-67523** Units: **mg/Kg** Analysis Date: **2/6/2013 12:35 PM**

Client ID: Run ID: **ICPMS05_130206A** SeqNo: **3103603** Prep Date: **2/4/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	U	2.5								
Sodium	U	50								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302026
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67523** Instrument ID **ICPMS05** Method: **SW6020**

LCS Sample ID: **MLCSS1-020113-67523** Units: **mg/Kg** Analysis Date: **2/5/2013 03:08 PM**

Client ID: Run ID: **ICPMS05_130205A** SeqNo: **3102201** Prep Date: **2/4/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	10.68	1.0	10	0	107	80-120	0			
Arsenic	9.673	0.50	10	0	96.7	80-120	0			
Barium	10.35	0.50	10	0	104	80-120	0			
Cadmium	9.748	0.50	10	0	97.5	80-120	0			
Calcium	992.3	50	1000	0	99.2	80-120	0			
Chromium	9.832	0.50	10	0	98.3	80-120	0			
Cobalt	9.927	0.50	10	0	99.3	80-120	0			
Copper	10.12	0.50	10	0	101	80-120	0			
Iron	974.8	50	1000	0	97.5	80-120	0			
Lead	9.786	0.50	10	0	97.9	80-120	0			
Manganese	9.681	0.50	10	0	96.8	80-120	0			
Molybdenum	9.985	0.50	10	0	99.8	80-120	0			
Nickel	9.83	0.50	10	0	98.3	80-120	0			
Potassium	956.7	50	1000	0	95.7	80-120	0			
Selenium	9.813	0.50	10	0	98.1	80-120	0			
Silver	10.22	0.50	10	0	102	80-120	0			
Uranium	9.429	0.50	10	0	94.3	80-120	0			
Zinc	9.937	0.50	10	0	99.4	80-120	0			

LCS Sample ID: **MLCSS1-020113-67523** Units: **mg/Kg** Analysis Date: **2/6/2013 12:38 PM**

Client ID: Run ID: **ICPMS05_130206A** SeqNo: **3103604** Prep Date: **2/4/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	47.92	2.5	50	0	95.8	80-120	0			
Sodium	981.7	50	1000	0	98.2	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302026
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67523** Instrument ID **ICPMS05** Method: **SW6020**

MS		Sample ID: 13011005-01DMS				Units: mg/Kg		Analysis Date: 2/5/2013 03:22 PM		
Client ID:		Run ID: ICPMS05_130205A				SeqNo: 3102207		Prep Date: 2/4/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	13710	0.84	8.429	12570	13500	75-125	0			SEO
Arsenic	11.71	0.42	8.429	4.385	86.9	75-125	0			
Barium	138.7	0.42	8.429	129.6	107	75-125	0			O
Cadmium	8.001	0.42	8.429	0.4065	90.1	75-125	0			
Calcium	57470	42	842.9	57640	-19.7	75-125	0			SEO
Chromium	22.67	0.42	8.429	14.02	103	75-125	0			
Cobalt	13.02	0.42	8.429	5.519	89	75-125	0			
Copper	18.8	0.42	8.429	11.12	91.1	75-125	0			
Iron	11500	42	842.9	10120	164	75-125	0			SO
Lead	22.81	0.42	8.429	14.66	96.6	75-125	0			
Manganese	381.8	0.42	8.429	383.5	-20	75-125	0			SEO
Molybdenum	6.315	0.42	8.429	0.5853	68	75-125	0			S
Nickel	19.09	0.42	8.429	11.62	88.6	75-125	0			
Selenium	7.95	0.42	8.429	0.9501	83	75-125	0			
Silver	8.085	0.42	8.429	0.05106	95.3	75-125	0			
Uranium	8.095	0.42	8.429	0.408	91.2	75-125	0			
Zinc	46.05	0.42	8.429	37.34	103	75-125	0			O

MS		Sample ID: 13011005-01DMS				Units: mg/Kg		Analysis Date: 2/6/2013 12:50 PM		
Client ID:		Run ID: ICPMS05_130206A				SeqNo: 3103618		Prep Date: 2/4/2013		DF: 2
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	39.78	4.2	42.14	60.18	-48.4	75-125	0			S
Potassium	4808	84	842.9	3553	149	75-125	0			SO
Sodium	914.3	84	842.9	168.4	88.5	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302026
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67523** Instrument ID **ICPMS05** Method: **SW6020**

MSD		Sample ID: 13011005-01DMSD				Units: mg/Kg		Analysis Date: 2/5/2013 03:25 PM		
Client ID:		Run ID: ICPMS05_130205A				SeqNo: 3102208		Prep Date: 2/4/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	12110	0.80	7.956	12570	-5790	75-125	13710	12.4	25	SEO
Arsenic	11.34	0.40	7.956	4.385	87.4	75-125	11.71	3.25	25	
Barium	134	0.40	7.956	129.6	54.7	75-125	138.7	3.43	25	SO
Cadmium	7.562	0.40	7.956	0.4065	89.9	75-125	8.001	5.64	25	
Calcium	52910	40	795.6	57640	-594	75-125	57470	8.27	25	SEO
Chromium	20.95	0.40	7.956	14.02	87.1	75-125	22.67	7.88	25	
Cobalt	12.38	0.40	7.956	5.519	86.3	75-125	13.02	5.05	25	
Copper	17.82	0.40	7.956	11.12	84.3	75-125	18.8	5.32	25	
Iron	10370	40	795.6	10120	31.2	75-125	11500	10.3	25	SO
Lead	22.24	0.40	7.956	14.66	95.2	75-125	22.81	2.51	25	
Manganese	389.4	0.40	7.956	383.5	74	75-125	381.8	1.96	25	SEO
Molybdenum	5.373	0.40	7.956	0.5853	60.2	75-125	6.315	16.1	25	S
Nickel	18.17	0.40	7.956	11.62	82.4	75-125	19.09	4.89	25	
Selenium	7.14	0.40	7.956	0.9501	77.8	75-125	7.95	10.7	25	
Silver	7.509	0.40	7.956	0.05106	93.7	75-125	8.085	7.4	25	
Uranium	7.518	0.40	7.956	0.408	89.4	75-125	8.095	7.39	25	
Zinc	44.04	0.40	7.956	37.34	84.2	75-125	46.05	4.46	25	O

MSD		Sample ID: 13011005-01DMSD				Units: mg/Kg		Analysis Date: 2/6/2013 12:52 PM		
Client ID:		Run ID: ICPMS05_130206A				SeqNo: 3103621		Prep Date: 2/4/2013		DF: 2
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	37.07	4.0	39.78	60.18	-58.1	75-125	39.78	7.06	25	S
Potassium	4552	80	795.6	3553	126	75-125	4808	5.48	25	SO
Sodium	855.4	80	795.6	168.4	86.4	75-125	914.3	6.65	25	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302026
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67523** Instrument ID **ICPMS05** Method: **SW6020**

DUP		Sample ID: 13011005-01DDUP				Units: mg/Kg		Analysis Date: 2/5/2013 03:20 PM		
Client ID:		Run ID: ICPMS05_130205A				SeqNo: 3102206		Prep Date: 2/4/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	4.109	0.42	0	0	0	0-0	4.385	6.5	25	
Barium	122.9	0.42	0	0	0	0-0	129.6	5.34	25	
Cadmium	0.3587	0.42	0	0	0	0-0	0.4065	0	25	J
Chromium	13.06	0.42	0	0	0	0-0	14.02	7.09	25	
Cobalt	5.04	0.42	0	0	0	0-0	5.519	9.08	25	
Copper	10.23	0.42	0	0	0	0-0	11.12	8.3	25	
Iron	9434	42	0	0	0	0-0	10120	7.01	25	
Lead	14.13	0.42	0	0	0	0-0	14.66	3.72	25	
Molybdenum	0.5423	0.42	0	0	0	0-0	0.5853	7.63	25	
Nickel	10.65	0.42	0	0	0	0-0	11.62	8.76	25	
Selenium	0.8324	0.42	0	0	0	0-0	0.9501	13.2	25	
Silver	U	0.42	0	0	0	0-0	0.05106	0	25	
Uranium	U	0.42	0	0	0		0.408	0	25	
Zinc	34.3	0.42	0	0	0	0-0	37.34	8.48	25	

DUP		Sample ID: 13011005-01DDUP				Units: mg/Kg		Analysis Date: 2/6/2013 12:47 PM		
Client ID:		Run ID: ICPMS05_130206A				SeqNo: 3103614		Prep Date: 2/4/2013		DF: 2
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	6.159	4.2	0	0	0	0-0	60.18	163	25	R
Potassium	3479	83	0	0	0	0-0	3553	2.09	25	
Sodium	122.9	83	0	0	0	0-0	168.4	31.2	25	R

DUP		Sample ID: 13011005-01DDUP				Units: mg/Kg		Analysis Date: 2/6/2013 03:01 PM		
Client ID:		Run ID: ICPMS05_130206A				SeqNo: 3103960		Prep Date: 2/4/2013		DF: 100
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	13720	83	0	0	0	0-0	14570	6.05	25	
Calcium	56380	4,200	0	0	0	0-0	60800	7.55	25	
Manganese	355.2	42	0	0	0	0-0	374.9	5.4	25	

The following samples were analyzed in this batch:

1302026-01D	1302026-03D	1302026-06D
1302026-09D	1302026-12D	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302026
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67565** Instrument ID **ICP7500** Method: **SW6020**

MBLK	Sample ID: MBLKS2-020413-67565				Units: mg/Kg		Analysis Date: 2/6/2013 03:58 AM			
Client ID:	Run ID: ICP7500_130205A				SeqNo: 3102916		Prep Date: 2/4/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.50								
Barium	U	0.50								
Cadmium	U	0.50								
Calcium	U	50								
Chromium	U	0.50								
Cobalt	U	0.50								
Copper	U	0.50								
Iron	U	50								
Lead	U	0.50								
Manganese	U	0.50								
Nickel	U	0.50								
Potassium	U	50								
Selenium	U	0.50								
Silver	U	0.50								
Zinc	U	0.50								

MBLK	Sample ID: MBLKS2-020413-67565				Units: mg/Kg		Analysis Date: 2/6/2013 09:47 PM			
Client ID:	Run ID: ICP7500_130206A				SeqNo: 3104742		Prep Date: 2/4/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	0.1634	0.50								J
Sodium	U	50								
Uranium	U	0.50								

MBLK	Sample ID: MBLKS2-020413-67565				Units: mg/Kg		Analysis Date: 2/7/2013 03:25 PM			
Client ID:	Run ID: ICP7500_130207A				SeqNo: 3105518		Prep Date: 2/4/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.3613	1.0								J
Boron	U	2.5								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302026
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67565** Instrument ID **ICP7500** Method: **SW6020**

LCS		Sample ID: MLCSS2-020413-67565				Units: mg/Kg		Analysis Date: 2/6/2013 04:03 AM		
Client ID:		Run ID: ICP7500_130205A				SeqNo: 3102917		Prep Date: 2/4/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	9.24	0.50	10	0	92.4	80-120	0			
Barium	8.495	0.50	10	0	85	80-120	0			
Cadmium	9.81	0.50	10	0	98.1	80-120	0			
Calcium	875.2	50	1000	0	87.5	80-120	0			
Chromium	9.483	0.50	10	0	94.8	80-120	0			
Cobalt	9.283	0.50	10	0	92.8	80-120	0			
Copper	9.733	0.50	10	0	97.3	80-120	0			
Iron	927.1	50	1000	0	92.7	80-120	0			
Lead	9.443	0.50	10	0	94.4	80-120	0			
Manganese	9.191	0.50	10	0	91.9	80-120	0			
Nickel	9.636	0.50	10	0	96.4	80-120	0			
Potassium	940.6	50	1000	0	94.1	80-120	0			
Selenium	8.974	0.50	10	0	89.7	80-120	0			
Silver	9.882	0.50	10	0	98.8	80-120	0			
Zinc	9.286	0.50	10	0	92.9	80-120	0			

LCS		Sample ID: MLCSS2-020413-67565				Units: mg/Kg		Analysis Date: 2/6/2013 09:52 PM		
Client ID:		Run ID: ICP7500_130206A				SeqNo: 3104743		Prep Date: 2/4/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Molybdenum	9.772	0.50	10	0	97.7	80-120	0			
Sodium	995	50	1000	0	99.5	80-120	0			
Uranium	9.859	0.50	10	0	98.6	80-120	0			

LCS		Sample ID: MLCSS2-020413-67565				Units: mg/Kg		Analysis Date: 2/7/2013 03:30 PM		
Client ID:		Run ID: ICP7500_130207A				SeqNo: 3105519		Prep Date: 2/4/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	11.13	1.0	10	0	111	80-120	0			
Boron	49.37	2.5	50	0	98.7	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302026
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67565** Instrument ID **ICP7500** Method: **SW6020**

MS		Sample ID: 1302050-13CMS				Units: mg/Kg		Analysis Date: 2/6/2013 06:33 AM		
Client ID:		Run ID: ICP7500_130205A				SeqNo: 3103165		Prep Date: 2/4/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	9801	0.91	9.142	8799	11000	75-125	0			SEO
Arsenic	9.095	0.46	9.142	2.719	69.7	75-125	0			S
Barium	205.3	0.46	9.142	248.5	-472	75-125	0			SEO
Boron	74.89	2.3	45.71	43.78	68	75-125	0			S
Cadmium	6.168	0.46	9.142	0.1425	65.9	75-125	0			S
Calcium	57630	46	914.2	64440	-745	75-125	0			SEO
Chromium	11.99	0.46	9.142	4.839	78.3	75-125	0			
Cobalt	8.613	0.46	9.142	2.496	66.9	75-125	0			S
Copper	9.6	0.46	9.142	3.624	65.4	75-125	0			S
Iron	5014	46	914.2	3874	125	75-125	0			O
Lead	10.49	0.46	9.142	4.582	64.6	75-125	0			S
Manganese	111.9	0.46	9.142	112	-1.15	75-125	0			SO
Molybdenum	5.08	0.46	9.142	0.01985	55.3	75-125	0			S
Nickel	10.48	0.46	9.142	4.305	67.5	75-125	0			S
Potassium	2655	46	914.2	2072	63.7	75-125	0			S
Selenium	6.529	0.46	9.142	0.3095	68	75-125	0			S
Silver	6.245	0.46	9.142	-0.01784	68.5	75-125	0			S
Sodium	3053	46	914.2	2827	24.7	75-125	0			S
Uranium	6.374	0.46	9.142	0.1944	67.6	75-125	0			S
Zinc	17.28	0.46	9.142	10.13	78.2	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302026
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67565** Instrument ID **ICP7500** Method: **SW6020**

MSD		Sample ID: 1302050-13CMSD				Units: mg/Kg		Analysis Date: 2/6/2013 06:38 AM		
Client ID:		Run ID: ICP7500_130205A				SeqNo: 3103166		Prep Date: 2/4/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	11950	0.90	9.049	8799	34900	75-125	9801	19.8	25	SEO
Arsenic	10.27	0.45	9.049	2.719	83.4	75-125	9.095	12.1	25	
Barium	274.2	0.45	9.049	248.5	283	75-125	205.3	28.7	25	SREO
Boron	90.29	2.3	45.24	43.78	103	75-125	74.89	18.7	25	
Cadmium	7.232	0.45	9.049	0.1425	78.3	75-125	6.168	15.9	25	
Calcium	66650	45	904.9	64440	245	75-125	57630	14.5	25	SEO
Chromium	14.5	0.45	9.049	4.839	107	75-125	11.99	18.9	25	
Cobalt	9.945	0.45	9.049	2.496	82.3	75-125	8.613	14.4	25	
Copper	11.46	0.45	9.049	3.624	86.6	75-125	9.6	17.6	25	
Iron	5992	45	904.9	3874	234	75-125	5014	17.8	25	SO
Lead	12.16	0.45	9.049	4.582	83.8	75-125	10.49	14.8	25	
Manganese	147.3	0.45	9.049	112	390	75-125	111.9	27.3	25	SRO
Molybdenum	6.265	0.45	9.049	0.01985	69	75-125	5.08	20.9	25	S
Nickel	12.57	0.45	9.049	4.305	91.3	75-125	10.48	18.2	25	
Potassium	3262	45	904.9	2072	132	75-125	2655	20.5	25	S
Selenium	7.642	0.45	9.049	0.3095	81	75-125	6.529	15.7	25	
Silver	7.141	0.45	9.049	-0.01784	79.1	75-125	6.245	13.4	25	
Sodium	3817	45	904.9	2827	109	75-125	3053	22.2	25	
Uranium	7.645	0.45	9.049	0.1944	82.3	75-125	6.374	18.1	25	
Zinc	20.65	0.45	9.049	10.13	116	75-125	17.28	17.8	25	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302026
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67565** Instrument ID **ICP7500** Method: **SW6020**

DUP		Sample ID: 1302050-13CDUP				Units: mg/Kg		Analysis Date: 2/6/2013 06:23 AM		
Client ID:		Run ID: ICP7500_130205A				SeqNo: 3103163		Prep Date: 2/4/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	1.903	0.46	0	0	0	0-0	2.719	35.3	25	R
Boron	42.2	2.3	0	0	0	0-0	43.78	3.69	25	
Cadmium	0.1187	0.46	0	0	0	0-0	0.1425	0	25	J
Chromium	4.426	0.46	0	0	0	0-0	4.839	8.92	25	
Cobalt	1.8	0.46	0	0	0	0-0	2.496	32.4	25	R
Copper	3.169	0.46	0	0	0	0-0	3.624	13.4	25	
Iron	3705	46	0	0	0	0-0	3874	4.47	25	
Lead	3.826	0.46	0	0	0	0-0	4.582	18	25	
Manganese	98.83	0.46	0	0	0	0-0	112	12.5	25	
Molybdenum	U	0.46	0	0	0	0-0	0.01985	0	25	
Nickel	3.629	0.46	0	0	0	0-0	4.305	17	25	
Potassium	1900	46	0	0	0	0-0	2072	8.67	25	
Selenium	0.2105	0.46	0	0	0	0-0	0.3095	0	25	J
Silver	U	0.46	0	0	0	0-0	-0.01784	0	25	
Uranium	U	0.46	0	0	0		0.1944	0	25	
Zinc	9.735	0.46	0	0	0	0-0	10.13	3.94	25	

DUP		Sample ID: 1302050-13CDUP				Units: mg/Kg		Analysis Date: 2/6/2013 10:52 PM		
Client ID:		Run ID: ICP7500_130206A				SeqNo: 3104755		Prep Date: 2/4/2013		DF: 100
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	46320	4,600	0	0	0	0-0	55960	18.9	25	

DUP		Sample ID: 1302050-13CDUP				Units: mg/Kg		Analysis Date: 2/7/2013 12:48 AM		
Client ID:		Run ID: ICP7500_130206A				SeqNo: 3104778		Prep Date: 2/4/2013		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	213.4	4.6	0	0	0	0-0	222	3.94	25	
Sodium	2404	460	0	0	0	0-0	2630	8.98	25	

DUP		Sample ID: 1302050-13CDUP				Units: mg/Kg		Analysis Date: 2/7/2013 03:55 PM		
Client ID:		Run ID: ICP7500_130207A				SeqNo: 3105524		Prep Date: 2/4/2013		DF: 100
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	6715	92	0	0	0	0-0	6978	3.83	25	

The following samples were analyzed in this batch: | 1302026-15D | 1302026-18D | 1302026-21D |

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302026
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67585** Instrument ID **HG02** Method: **SW7471A**

MBLK	Sample ID: GBLKS1-020513-67585				Units: µg/Kg			Analysis Date: 2/5/2013 04:01 PM		
Client ID:	Run ID: HG02_130205A				SeqNo: 3102354			Prep Date: 2/5/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	3.3								

LCS	Sample ID: GLCSS1-020513-67585				Units: µg/Kg			Analysis Date: 2/5/2013 04:03 PM		
Client ID:	Run ID: HG02_130205A				SeqNo: 3102355			Prep Date: 2/5/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	332.7	3.3	333.3	0	99.8	85-115	0			

MS	Sample ID: 1301997-01DMS				Units: µg/Kg			Analysis Date: 2/5/2013 04:09 PM		
Client ID:	Run ID: HG02_130205A				SeqNo: 3102358			Prep Date: 2/5/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	376.9	3.5	354.9	14.76	102	85-115	0			

MSD	Sample ID: 1301997-01DMSD				Units: µg/Kg			Analysis Date: 2/5/2013 04:11 PM		
Client ID:	Run ID: HG02_130205A				SeqNo: 3102359			Prep Date: 2/5/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	375.1	3.5	354.5	14.76	102	85-115	376.9	0.484	20	

DUP	Sample ID: 1301997-01DDUP				Units: µg/Kg			Analysis Date: 2/5/2013 04:07 PM		
Client ID:	Run ID: HG02_130205A				SeqNo: 3102357			Prep Date: 2/5/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	15.21	3.6	0	0	0		14.76	3.04	20	

The following samples were analyzed in this batch:

1302026-01D	1302026-03D	1302026-06D
1302026-09D	1302026-12D	1302026-15D
1302026-18D	1302026-21D	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302026
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67656** Instrument ID **SV-6** Method: **SW8270**

MBLK Sample ID: **SBLKS2-130207-67656** Units: **µg/Kg** Analysis Date: **2/7/2013 04:24 PM**
 Client ID: Run ID: **SV-6_130207A** SeqNo: **3106635** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	U	6.6								
2-Methylnaphthalene	U	6.6								
Benzo(a)pyrene	U	6.6								
Naphthalene	U	6.6								
Surr: 2,4,6-Tribromophenol	104.3	6.6	166.7	0	62.6	36-126	0			
Surr: 2-Fluorobiphenyl	132.1	6.6	166.7	0	79.2	43-125	0			
Surr: 2-Fluorophenol	126.1	6.6	166.7	0	75.7	37-125	0			
Surr: 4-Terphenyl-d14	166.2	6.6	166.7	0	99.7	32-125	0			
Surr: Nitrobenzene-d5	134.1	6.6	166.7	0	80.4	37-125	0			
Surr: Phenol-d6	130.7	6.6	166.7	0	78.4	40-125	0			

LCS Sample ID: **SLCSS2-130207-67656** Units: **µg/Kg** Analysis Date: **2/7/2013 04:45 PM**
 Client ID: Run ID: **SV-6_130207A** SeqNo: **3106636** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	131.8	6.6	166.7	0	79.1	50-120	0			
2-Methylnaphthalene	133.3	6.6	166.7	0	80	50-120	0			
Benzo(a)pyrene	148.1	6.6	166.7	0	88.8	50-130	0			
Naphthalene	128.1	6.6	166.7	0	76.9	50-125	0			
Surr: 2,4,6-Tribromophenol	125.4	6.6	166.7	0	75.2	36-126	0			
Surr: 2-Fluorobiphenyl	128.4	6.6	166.7	0	77	43-125	0			
Surr: 2-Fluorophenol	122.2	6.6	166.7	0	73.3	37-125	0			
Surr: 4-Terphenyl-d14	159.7	6.6	166.7	0	95.8	32-125	0			
Surr: Nitrobenzene-d5	126.5	6.6	166.7	0	75.9	37-125	0			
Surr: Phenol-d6	122.6	6.6	166.7	0	73.5	40-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302026
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67656** Instrument ID **SV-6** Method: **SW8270**

MS Sample ID: 1302140-04DMS				Units: µg/Kg			Analysis Date: 2/7/2013 07:35 PM			
Client ID:		Run ID: SV-6_130207A			SeqNo: 3106643		Prep Date: 2/7/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	129.4	6.6	166.5	6.178	74	50-120	0			
2-Methylnaphthalene	107.7	6.6	166.5	6.039	61	50-120	0			
Benzo(a)pyrene	224.3	6.6	166.5	160.5	38.3	50-130	0			S
Naphthalene	102.2	6.6	166.5	5.73	57.9	50-125	0			
Surr: 2,4,6-Tribromophenol	91.94	6.6	166.5	0	55.2	36-126	0			
Surr: 2-Fluorobiphenyl	106.7	6.6	166.5	0	64.1	43-125	0			
Surr: 2-Fluorophenol	91.1	6.6	166.5	0	54.7	37-125	0			
Surr: 4-Terphenyl-d14	124.5	6.6	166.5	0	74.8	32-125	0			
Surr: Nitrobenzene-d5	105.2	6.6	166.5	0	63.2	37-125	0			
Surr: Phenol-d6	85.27	6.6	166.5	0	51.2	40-125	0			

MSD Sample ID: 1302140-04DMSD				Units: µg/Kg			Analysis Date: 2/7/2013 07:56 PM			
Client ID:		Run ID: SV-6_130207A			SeqNo: 3106644		Prep Date: 2/7/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	183.4	6.6	166.4	6.178	106	50-120	129.4	34.5	30	R
2-Methylnaphthalene	143.5	6.6	166.4	6.039	82.6	50-120	107.7	28.5	30	
Benzo(a)pyrene	307.6	6.6	166.4	160.5	88.4	50-130	224.3	31.3	30	R
Naphthalene	132.9	6.6	166.4	5.73	76.4	50-125	102.2	26.1	30	
Surr: 2,4,6-Tribromophenol	101.8	6.6	166.4	0	61.2	36-126	91.94	10.2	30	
Surr: 2-Fluorobiphenyl	123.6	6.6	166.4	0	74.2	43-125	106.7	14.6	30	
Surr: 2-Fluorophenol	108.3	6.6	166.4	0	65.1	37-125	91.1	17.3	30	
Surr: 4-Terphenyl-d14	150.5	6.6	166.4	0	90.4	32-125	124.5	18.9	30	
Surr: Nitrobenzene-d5	124.3	6.6	166.4	0	74.7	37-125	105.2	16.7	30	
Surr: Phenol-d6	101.4	6.6	166.4	0	60.9	40-125	85.27	17.3	30	

The following samples were analyzed in this batch:

1302026-01D	1302026-21D
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302026
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R141995** Instrument ID **VOA5** Method: **SW8260**

MBLK Sample ID: **VBLKS1-020113-R141995** Units: **µg/Kg** Analysis Date: **2/1/2013 09:52 AM**

Client ID: Run ID: **VOA5_130201A** SeqNo: **3098471** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	5.0								
1,1,2,2-Tetrachloroethane	U	5.0								
1,1,2-Trichloroethane	U	5.0								
1,1-Dichloroethane	U	5.0								
1,1-Dichloroethene	U	5.0								
1,2-Dibromoethane	U	5.0								
1,2-Dichloroethane	U	5.0								
Benzene	U	5.0								
Carbon tetrachloride	U	5.0								
Chloroform	U	5.0								
Ethylbenzene	U	5.0								
Methylene chloride	U	10								
Tetrachloroethene	U	5.0								
Toluene	U	5.0								
Trichloroethene	U	5.0								
Vinyl chloride	U	2.0								
Xylenes, Total	U	15								
Surr: 1,2-Dichloroethane-d4	42.8	0	50	0	85.6	70-128	0			
Surr: 4-Bromofluorobenzene	46.86	0	50	0	93.7	73-126	0			
Surr: Dibromofluoromethane	48.11	0	50	0	96.2	71-128	0			
Surr: Toluene-d8	44.78	0	50	0	89.6	73-127	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302026
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R141995** Instrument ID **VOA5** Method: **SW8260**

LCS Sample ID: **VLCSS1-020113-R141995** Units: **µg/Kg** Analysis Date: **2/1/2013 08:43 AM**

Client ID: Run ID: **VOA5_130201A** SeqNo: **3098470** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	53.98	5.0	50	0	108	79-124	0			
1,1,2,2-Tetrachloroethane	53.32	5.0	50	0	107	75-123	0			
1,1,2-Trichloroethane	55.87	5.0	50	0	112	79-120	0			
1,1-Dichloroethane	52.6	5.0	50	0	105	75-124	0			
1,1-Dichloroethene	55.13	5.0	50	0	110	80-122	0			
1,2-Dibromoethane	57.09	5.0	50	0	114	79-120	0			
1,2-Dichloroethane	52.14	5.0	50	0	104	73-121	0			
Benzene	50.57	5.0	50	0	101	79-120	0			
Carbon tetrachloride	45.29	5.0	50	0	90.6	74-126	0			
Chloroform	55.04	5.0	50	0	110	78-120	0			
Ethylbenzene	54.99	5.0	50	0	110	80-122	0			
Methylene chloride	51.62	10	50	0	103	70-123	0			
Tetrachloroethene	47.09	5.0	50	0	94.2	80-121	0			
Toluene	49.54	5.0	50	0	99.1	79-120	0			
Trichloroethene	52.16	5.0	50	0	104	80-121	0			
Vinyl chloride	61.5	2.0	50	0	123	76-126	0			
Xylenes, Total	150.9	15	150	0	101	80-120	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	51.49	0	50	0	103	70-128	0			
<i>Surr: 4-Bromofluorobenzene</i>	47.86	0	50	0	95.7	73-126	0			
<i>Surr: Dibromofluoromethane</i>	51.61	0	50	0	103	71-128	0			
<i>Surr: Toluene-d8</i>	43.85	0	50	0	87.7	73-127	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302026
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R141995** Instrument ID **VOA5** Method: **SW8260**

MS		Sample ID: 1301997-01AMS			Units: µg/Kg		Analysis Date: 2/1/2013 11:46 AM			
Client ID:		Run ID: VOA5_130201A			SeqNo: 3098546		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.53	5.0	50	0	103	79-124	0			
1,1,2,2-Tetrachloroethane	45.86	5.0	50	0	91.7	75-123	0			
1,1,2-Trichloroethane	56	5.0	50	0	112	79-120	0			
1,1-Dichloroethane	49.56	5.0	50	0	99.1	75-124	0			
1,1-Dichloroethene	54.01	5.0	50	0	108	80-122	0			
1,2-Dibromoethane	49.35	5.0	50	0	98.7	79-120	0			
1,2-Dichloroethane	51.25	5.0	50	0	103	73-121	0			
Benzene	52.11	5.0	50	0	104	79-120	0			
Carbon tetrachloride	46.06	5.0	50	0	92.1	74-126	0			
Chloroform	48.72	5.0	50	0	97.4	78-120	0			
Ethylbenzene	50.85	5.0	50	0	102	80-122	0			
Methylene chloride	48.37	10	50	0	96.7	70-123	0			
Tetrachloroethene	43.7	5.0	50	0	87.4	80-121	0			
Toluene	53.36	5.0	50	0	107	79-120	0			
Trichloroethene	51.31	5.0	50	0	103	80-121	0			
Vinyl chloride	55.22	2.0	50	0	110	76-126	0			
Xylenes, Total	146.8	15	150	0	97.9	80-120	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	49.29	0	50	0	98.6	70-128	0			
<i>Surr: 4-Bromofluorobenzene</i>	49	0	50	0	98	73-126	0			
<i>Surr: Dibromofluoromethane</i>	49.78	0	50	0	99.6	71-128	0			
<i>Surr: Toluene-d8</i>	51.55	0	50	0	103	73-127	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302026
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R141995** Instrument ID **VOA5** Method: **SW8260**

MSD		Sample ID: 1301997-01AMSD				Units: µg/Kg		Analysis Date: 2/1/2013 12:09 PM		
Client ID:		Run ID: VOA5_130201A				SeqNo: 3098547		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	54.79	5.0	50	0	110	79-124	51.53	6.13	30	
1,1,2,2-Tetrachloroethane	44.09	5.0	50	0	88.2	75-123	45.86	3.93	30	
1,1,2-Trichloroethane	54.9	5.0	50	0	110	79-120	56	1.98	30	
1,1-Dichloroethane	51.87	5.0	50	0	104	75-124	49.56	4.56	30	
1,1-Dichloroethene	52.81	5.0	50	0	106	80-122	54.01	2.24	30	
1,2-Dibromoethane	48.8	5.0	50	0	97.6	79-120	49.35	1.12	30	
1,2-Dichloroethane	46.29	5.0	50	0	92.6	73-121	51.25	10.2	30	
Benzene	51.81	5.0	50	0	104	79-120	52.11	0.568	30	
Carbon tetrachloride	47.75	5.0	50	0	95.5	74-126	46.06	3.61	30	
Chloroform	53.56	5.0	50	0	107	78-120	48.72	9.45	30	
Ethylbenzene	55.58	5.0	50	0	111	80-122	50.85	8.9	30	
Methylene chloride	53.37	10	50	0	107	70-123	48.37	9.82	30	
Tetrachloroethene	45.21	5.0	50	0	90.4	80-121	43.7	3.39	30	
Toluene	61.14	5.0	50	0	122	79-120	53.36	13.6	30	S
Trichloroethene	51.76	5.0	50	0	104	80-121	51.31	0.863	30	
Vinyl chloride	58.35	2.0	50	0	117	76-126	55.22	5.51	30	
Xylenes, Total	157.7	15	150	0	105	80-120	146.8	7.13	30	
<i>Surr: 1,2-Dichloroethane-d4</i>	48.55	0	50	0	97.1	70-128	49.29	1.51	30	
<i>Surr: 4-Bromofluorobenzene</i>	46.51	0	50	0	93	73-126	49	5.21	30	
<i>Surr: Dibromofluoromethane</i>	48.96	0	50	0	97.9	71-128	49.78	1.67	30	
<i>Surr: Toluene-d8</i>	55.55	0	50	0	111	73-127	51.55	7.47	30	

The following samples were analyzed in this batch:

1302026-01A	1302026-17A	1302026-21A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302026
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142113** Instrument ID **VOA4** Method: **SW8260**

MBLK Sample ID: **VBLKW-130204-R142113** Units: **µg/L** Analysis Date: **2/4/2013 11:16 AM**

Client ID: Run ID: **VOA4_130204A** SeqNo: **3100918** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichloroethane	U	1.0								
Benzene	U	1.0								
Carbon tetrachloride	U	1.0								
Chloroform	U	1.0								
Ethylbenzene	U	1.0								
Methylene chloride	U	2.0								
Tetrachloroethene	U	1.0								
Toluene	U	1.0								
Trichloroethene	U	1.0								
Vinyl chloride	U	1.0								
Xylenes, Total	U	1.0								
Surr: 1,2-Dichloroethane-d4	43.85	1.0	50	0	87.7	71-125	0			
Surr: 4-Bromofluorobenzene	49.08	1.0	50	0	98.2	70-125	0			
Surr: Dibromofluoromethane	48.08	1.0	50	0	96.2	74-125	0			
Surr: Toluene-d8	48.41	1.0	50	0	96.8	78-123	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302026
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142113** Instrument ID **VOA4** Method: **SW8260**

LCS Sample ID: **VLCSW-130204-R142113** Units: **µg/L** Analysis Date: **2/4/2013 10:03 AM**

Client ID: Run ID: **VOA4_130204A** SeqNo: **3100916** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	54.47	1.0	50	0	109	80-120	0			
1,1,2,2-Tetrachloroethane	46.02	1.0	50	0	92	74-123	0			
1,1,2-Trichloroethane	48.93	1.0	50	0	97.9	80-120	0			
1,1-Dichloroethane	46.62	1.0	50	0	93.2	80-120	0			
1,1-Dichloroethene	53.04	1.0	50	0	106	80-120	0			
1,2-Dibromoethane	53.39	1.0	50	0	107	80-120	0			
1,2-Dichloroethane	49.07	1.0	50	0	98.1	79-120	0			
Benzene	48.6	1.0	50	0	97.2	80-120	0			
Carbon tetrachloride	58.54	1.0	50	0	117	79-120	0			
Chloroform	46.57	1.0	50	0	93.1	80-120	0			
Ethylbenzene	48.8	1.0	50	0	97.6	80-120	0			
Methylene chloride	47.71	2.0	50	0	95.4	75-125	0			
Tetrachloroethene	53.4	1.0	50	0	107	80-120	0			
Toluene	48.37	1.0	50	0	96.7	80-121	0			
Trichloroethene	53.7	1.0	50	0	107	80-120	0			
Vinyl chloride	48.96	1.0	50	0	97.9	75-125	0			
Xylenes, Total	142.5	1.0	150	0	95	80-124	0			
Surr: 1,2-Dichloroethane-d4	44.17	1.0	50	0	88.3	71-125	0			
Surr: 4-Bromofluorobenzene	52.31	1.0	50	0	105	70-125	0			
Surr: Dibromofluoromethane	49.72	1.0	50	0	99.4	74-125	0			
Surr: Toluene-d8	48.59	1.0	50	0	97.2	78-123	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302026
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142113** Instrument ID **VOA4** Method: **SW8260**

LCSD		Sample ID: VLCS DW-130204-R142113				Units: µg/L		Analysis Date: 2/4/2013 10:27 AM		
Client ID:		Run ID: VOA4_130204A				SeqNo: 3100917		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.78	1.0	50	0	104	80-120	54.47	5.06	20	
1,1,2,2-Tetrachloroethane	46.55	1.0	50	0	93.1	74-123	46.02	1.14	20	
1,1,2-Trichloroethane	48.97	1.0	50	0	97.9	80-120	48.93	0.0875	20	
1,1-Dichloroethane	44.74	1.0	50	0	89.5	80-120	46.62	4.11	20	
1,1-Dichloroethene	51.9	1.0	50	0	104	80-120	53.04	2.16	20	
1,2-Dibromoethane	53.91	1.0	50	0	108	80-120	53.39	0.979	20	
1,2-Dichloroethane	48.06	1.0	50	0	96.1	79-120	49.07	2.09	20	
Benzene	47	1.0	50	0	94	80-120	48.6	3.35	20	
Carbon tetrachloride	56.1	1.0	50	0	112	79-120	58.54	4.26	20	
Chloroform	45.18	1.0	50	0	90.4	80-120	46.57	3.02	20	
Ethylbenzene	46.79	1.0	50	0	93.6	80-120	48.8	4.2	20	
Methylene chloride	46.38	2.0	50	0	92.8	75-125	47.71	2.83	20	
Tetrachloroethene	50.41	1.0	50	0	101	80-120	53.4	5.75	20	
Toluene	46.08	1.0	50	0	92.2	80-121	48.37	4.84	20	
Trichloroethene	52.04	1.0	50	0	104	80-120	53.7	3.14	20	
Vinyl chloride	46.66	1.0	50	0	93.3	75-125	48.96	4.81	20	
Xylenes, Total	138	1.0	150	0	92	80-124	142.5	3.19	20	
<i>Surr: 1,2-Dichloroethane-d4</i>	43.85	1.0	50	0	87.7	71-125	44.17	0.739	20	
<i>Surr: 4-Bromofluorobenzene</i>	51.57	1.0	50	0	103	70-125	52.31	1.41	20	
<i>Surr: Dibromofluoromethane</i>	48.7	1.0	50	0	97.4	74-125	49.72	2.09	20	
<i>Surr: Toluene-d8</i>	48.27	1.0	50	0	96.5	78-123	48.59	0.661	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302026
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142113** Instrument ID **VOA4** Method: **SW8260**

MS Sample ID: **1302069-01AMS** Units: **µg/L** Analysis Date: **2/4/2013 01:41 PM**

Client ID: Run ID: **VOA4_130204A** SeqNo: **3100924** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	56.87	1.0	50	0	114	80-120	0			
1,1,2,2-Tetrachloroethane	45.23	1.0	50	0	90.5	74-123	0			
1,1,2-Trichloroethane	50.26	1.0	50	0	101	80-120	0			
1,1-Dichloroethane	48.56	1.0	50	0	97.1	80-120	0			
1,1-Dichloroethene	57.49	1.0	50	0	115	80-120	0			
1,2-Dibromoethane	53.79	1.0	50	0	108	80-120	0			
1,2-Dichloroethane	50.8	1.0	50	0	102	79-120	0			
Benzene	51.17	1.0	50	0	102	80-120	0			
Carbon tetrachloride	61.34	1.0	50	0	123	79-120	0			S
Chloroform	49.2	1.0	50	0	98.4	80-120	0			
Ethylbenzene	50.6	1.0	50	0	101	80-120	0			
Methylene chloride	49.13	2.0	50	0	98.3	75-125	0			
Tetrachloroethene	55.78	1.0	50	0	112	80-120	0			
Toluene	49.91	1.0	50	0	99.8	80-121	0			
Trichloroethene	57.43	1.0	50	0	115	80-120	0			
Vinyl chloride	53.66	1.0	50	0	107	75-125	0			
Xylenes, Total	148.5	1.0	150	0	99	80-124	0			
Surr: 1,2-Dichloroethane-d4	44.59	1.0	50	0	89.2	71-125	0			
Surr: 4-Bromofluorobenzene	50.99	1.0	50	0	102	70-125	0			
Surr: Dibromofluoromethane	49.65	1.0	50	0	99.3	74-125	0			
Surr: Toluene-d8	48.21	1.0	50	0	96.4	78-123	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302026
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142113** Instrument ID **VOA4** Method: **SW8260**

MSD		Sample ID: 1302069-01AMSD				Units: µg/L		Analysis Date: 2/4/2013 02:06 PM		
Client ID:		Run ID: VOA4_130204A				SeqNo: 3100925		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	59.48	1.0	50	0	119	80-120	56.87	4.49	20	
1,1,2,2-Tetrachloroethane	47.09	1.0	50	0	94.2	74-123	45.23	4.04	20	
1,1,2-Trichloroethane	51.43	1.0	50	0	103	80-120	50.26	2.29	20	
1,1-Dichloroethane	50.19	1.0	50	0	100	80-120	48.56	3.31	20	
1,1-Dichloroethene	60.32	1.0	50	0	121	80-120	57.49	4.82	20	S
1,2-Dibromoethane	56.01	1.0	50	0	112	80-120	53.79	4.04	20	
1,2-Dichloroethane	52.53	1.0	50	0	105	79-120	50.8	3.34	20	
Benzene	52.17	1.0	50	0	104	80-120	51.17	1.94	20	
Carbon tetrachloride	63.38	1.0	50	0	127	79-120	61.34	3.27	20	S
Chloroform	50.81	1.0	50	0	102	80-120	49.2	3.21	20	
Ethylbenzene	51.95	1.0	50	0	104	80-120	50.6	2.63	20	
Methylene chloride	51.27	2.0	50	0	103	75-125	49.13	4.28	20	
Tetrachloroethene	57.11	1.0	50	0	114	80-120	55.78	2.36	20	
Toluene	50.87	1.0	50	0	102	80-121	49.91	1.91	20	
Trichloroethene	58.72	1.0	50	0	117	80-120	57.43	2.21	20	
Vinyl chloride	54.84	1.0	50	0	110	75-125	53.66	2.17	20	
Xylenes, Total	151	1.0	150	0	101	80-124	148.5	1.7	20	
<i>Surr: 1,2-Dichloroethane-d4</i>	44.99	1.0	50	0	90	71-125	44.59	0.903	20	
<i>Surr: 4-Bromofluorobenzene</i>	50.73	1.0	50	0	101	70-125	50.99	0.509	20	
<i>Surr: Dibromofluoromethane</i>	50.29	1.0	50	0	101	74-125	49.65	1.28	20	
<i>Surr: Toluene-d8</i>	48.15	1.0	50	0	96.3	78-123	48.21	0.13	20	

The following samples were analyzed in this batch:

1302026-22A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302026
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67583** Instrument ID **UV-2450** Method: **SW9014** (**Dissolve**)

MBLK	Sample ID: WBLKS1-020513-67583				Units: mg/Kg		Analysis Date: 2/5/2013 04:30 PM			
Client ID:	Run ID: UV-2450_130205C				SeqNo: 3103414		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	U	2.0								

LCS	Sample ID: WLCSS1-020513-67583				Units: mg/Kg		Analysis Date: 2/5/2013 04:30 PM			
Client ID:	Run ID: UV-2450_130205C				SeqNo: 3103415		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	9.05	2.0	10	0	90.5	80-120	0			

LCSD	Sample ID: WLCSDS1-020513-67583				Units: mg/Kg		Analysis Date: 2/5/2013 04:30 PM			
Client ID:	Run ID: UV-2450_130205C				SeqNo: 3103437		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	8.9	2.0	10	0	89	80-120	9.05	1.67	30	

MS	Sample ID: 1301997-09DMS				Units: mg/Kg		Analysis Date: 2/5/2013 04:30 PM			
Client ID:	Run ID: UV-2450_130205C				SeqNo: 3103436		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	9.495	1.9	9.308	0.09611	101	75-125	0			

The following samples were analyzed in this batch:

1302026-01D	1302026-03D	1302026-06D
1302026-09D	1302026-12D	1302026-15D
1302026-18D	1302026-21D	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302026
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67633** Instrument ID **ICS2100** Method: **E300** (Dissolve)

MBLK Sample ID: **WBLKS1-67633** Units: **mg/Kg** Analysis Date: **2/5/2013 07:11 PM**

Client ID: Run ID: **ICS2100_130205C** SeqNo: **3103858** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	5.0								
Fluoride	0.64	1.0								J
Nitrogen, Nitrate (As N)	U	1.0								
Nitrogen, Nitrite (As N)	U	1.0								
Sulfate	U	5.0								
Surr: Selenate (surr)	45.24	1.0	50	0	90.5	85-115	0			

LCS Sample ID: **WLCSS1-67633** Units: **mg/Kg** Analysis Date: **2/5/2013 07:25 PM**

Client ID: Run ID: **ICS2100_130205C** SeqNo: **3103859** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	219.8	5.0	200	0	110	90-110	0			
Fluoride	37.72	1.0	40	0	94.3	90-110	0			
Nitrogen, Nitrate (As N)	43.14	1.0	40	0	108	90-110	0			
Nitrogen, Nitrite (As N)	43.82	1.0	40	0	110	90-110	0			
Sulfate	208.7	5.0	200	0	104	90-110	0			
Surr: Selenate (surr)	47.79	1.0	50	0	95.6	85-115	0			

MS Sample ID: **1302026-21DMS** Units: **mg/Kg** Analysis Date: **2/6/2013 01:29 AM**

Client ID: **MW-114 (35)** Run ID: **ICS2100_130205C** SeqNo: **3103884** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	126.4	5.0	98.97	16.2	111	75-125	0			
Fluoride	20.19	0.99	19.79	2.638	88.7	75-125	0			
Nitrogen, Nitrate (As N)	20.76	0.99	19.79	0	105	75-125	0			
Nitrogen, Nitrite (As N)	21.36	0.99	19.79	0	108	75-125	0			
Sulfate	319.3	5.0	98.97	213.5	107	75-125	0			
Surr: Selenate (surr)	42.66	0.99	49.48	0	86.2	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302026
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67633** Instrument ID **ICS2100** Method: **E300** **(Dissolve)**

MSD Sample ID: **1302026-21DMSD** Units: **mg/Kg** Analysis Date: **2/6/2013 01:43 AM**

Client ID: **MW-114 (35)** Run ID: **ICS2100_130205C** SeqNo: **3103885** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	124.6	4.9	98.65	16.2	110	75-125	126.4	1.49	20	
Fluoride	19.9	0.99	19.73	2.638	87.5	75-125	20.19	1.45	20	
Nitrogen, Nitrate (As N)	20.57	0.99	19.73	0	104	75-125	20.76	0.942	20	
Nitrogen, Nitrite (As N)	20.98	0.99	19.73	0	106	75-125	21.36	1.77	20	
Sulfate	315.2	4.9	98.65	213.5	103	75-125	319.3	1.29	20	
Surr: Selenate (surr)	42	0.99	49.33	0	85.1	80-120	42.66	1.58	20	

The following samples were analyzed in this batch:

1302026-01D	1302026-03D	1302026-06D
1302026-09D	1302026-12D	1302026-15D
1302026-18D	1302026-21D	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302026
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142216** Instrument ID **Balance1** Method: **SW3550** **(Dissolve)**

DUP Sample ID: **1302026-21DDUP** Units: **wt%** Analysis Date: **2/5/2013 01:50 PM**

Client ID: **MW-114 (35)** Run ID: **BALANCE1_130205C** SeqNo: **3103371** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Percent Moisture	17.43	0.010	0	0	0	0-0	17.52	0.523	20	

The following samples were analyzed in this batch:

1302026-01D	1302026-02A	1302026-03D
1302026-04A	1302026-05A	1302026-06D
1302026-07A	1302026-08A	1302026-09D
1302026-10A	1302026-11A	1302026-12D
1302026-13A	1302026-14A	1302026-15D
1302026-16A	1302026-18D	1302026-19A
1302026-20A	1302026-21D	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Project: RO Discharge Sampling
WorkOrder: 1302026

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram - Dry weight corrected
mg/Kg-dry	Milligrams per Kilogram - Dry weight corrected
mg/L	Milligrams per Liter
wt%	

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**

Date/Time Received: **31-Jan-13 09:10**

Work Order: **1302026**

Received by: **RDH**

Checklist completed by Robert D. Harris 01-Feb-13
eSignature Date

Reviewed by: Patricia L. Lynch 13-Feb-13
eSignature Date

Matrices: soils

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>1.8c c/u</u> <u>005</u>		
Cooler(s)/Kit(s):	<u>3725</u>		
Date/Time sample(s) sent to storage:	<u>2/1/13 14:50</u>		
Water - VOA vials have zero headspace?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes: COC and sample count received didn't match up. PL spoke with client and got everything corrected. Logged in by PL.

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:



Chain of Custody Form

Page 1 of 3

COC ID: 41198

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+1 970 490 1511

1302026

NAVAJO REFINING: Navajo Refining Company

Project: RO Discharge Sampling



ALS Project Manager:

Customer Information			Project Information				Parameter/Method Request for Analysis														
Purchase Order		Project Name	RO Discharge/Sampling				A	VOC (8260) NW GW List													
Work Order		Project Number	128823				B	GRO (8015M)													
Company Name	Navajo Refining		Bill To Company	Navajo Refining				C	DRO (8015M)												
Send Report To	Est Robert Combs		Invoice Attn.	Robert Combs				D	DRO (8015M)												
Address	501 East Main		Address	501 East Main				E	LLSVOC (8270) NM GW List												
City/State/Zip	Artesia, NM 88211		City/State/Zip	Artesia, NM 88211				F	Total Metals (6020/7000) RCRA 8												
Phone	575-748-6733		Phone	575-748-6733				G	Dissolved Metals (6020/7000) RCRA 8												
Fax	575-746-5421		Fax	575-746-5421				H	TDS												
e-Mail Address			e-Mail Address					I	Moisture												
								J	Fingerprint (PIANO/SpGrav, S.M. Dist)												
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold				
1	MW-114(1)	1/28/13	1430	Soil	-	5	X	X	X	X	X	X	X		X						
2	MW-114(3)	1/28/13	1440	Soil		1									X						
3	MW-114(5)	1/28/13	1445	"		2	X	X	X	X	X	X	X		X						
4	MW-114(7)	1/28/13	1530	"		1									X						
5	MW-114(9)	1/28/13	1545	"		1									X						
6	MW-114(10)	1/28/13	1530	"		2	X	X	X	X	X	X	X		X						
7	MW-114(11)	1/28/13	1530	"		1									X						
8	MW-114(13)	1/28/13	1550	"		1									X						
9	MW-114(15)	1/28/13	1550	"		2	X	X	X	X	X	X	X		X						
10	MW-114(17)	1/28/13	1600	"		1									X						
Sampler(s): Please Print & Sign			Shipment Method:			Required Turnaround Time:			<input type="checkbox"/> Other			Results Due Date:									
Eric Bergersen						<input checked="" type="checkbox"/> STD 10 Wk Days <input type="checkbox"/> 5 Wk Days <input type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour															
Relinquished by:		Date:	Time:	Received by:		Notes:															
Eric Bergersen		1/30/13	1300			10 Day TAT. Dissolved Metals Field Filtered															
Relinquished by:		Date:	Time:	Received by (Laboratory):		Coc. or Temp.		QC Package: (Check Box Below)													
				ASR 1/31/13 0910				<input checked="" type="checkbox"/> Level II: Standard QC													
Logged by (Laboratory):		Date:	Time:	Checked by (Laboratory):				<input type="checkbox"/> Level III: Std QC + Raw Data													
								<input type="checkbox"/> Level IV: SW846 CLP-Like													
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035							Other:														

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

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Chain of Custody Form

Page 2 of 3

COC ID: 72331

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+1 281 530 5656

Middletown, PA
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Spring City, PA
+1 610 948 4903

Salt Lake City, UT
+1 801 266 7700

South Charleston, WV
+1 304 356 3168

York, PA
+1 717 505 5280

Customer Information				Project Information				Parameter/Method Request for Analysis											
Purchase Order		Project Name	RO Discharge/Sampling	A	VOC (8260) NW GW List														
Work Order		Project Number	128823	B	GRO (8015M)														
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	DRO (8015M)														
Send Report To	Robert Combs	Invoice Attn	Robert Combs	D	ORO (8015M)														
Address	501 East Main	Address	501 East Main	E	LL SVOC (8270) NM GW List														
				F	Total Metals (6020/7000) RCRA 8														
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	G	Dissolved Metals (6020/7000) RCRA 8														
Phone	(575) 748-6733	Phone	(575) 748-6733	H	TDS														
Fax	(575) 746-5421	Fax	(575) 746-5421	I	Moisture														
e-Mail Address		e-Mail Address		J	Fingerprint (PIANO/Sp Grav, Sim Dist)														

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
59 of 61	MW 114 (19)	1/28/13	1605	Soil	---	1									X		
	MW 114 (20)	1/28/13	1610			2	R	R	R	R	R	X	R		X		
3	MW 114 (21)	1/28/13	1615			1									X		
4	MW 114 (23)	1/28/13	1615			1									X		
5	MW 114 (25)	1/28/13	1620			2	R	R	R	R	R	X	R		X		
6	MW 114 (27)	1/28/13	1625			1									X		
7	MW 114 (29)	1/28/13	1627			1									X		
8	MW 114 (30)	1/28/13	1600			2	R	R	R	R	R	X	R		X		
9	MW 114 (31)	1/28/13	1640			1									X		
10	MW 114 (33)	1/28/13	1640			1									X		

Sampler(s) Please Print & Sign		Shipment Method		Required Turnaround Time: (Check Box)				Results Due Date:	
 Eric Bergersen				<input checked="" type="checkbox"/> Std 10 WK Days <input type="checkbox"/> 5 WK Days <input type="checkbox"/> Other _____ <input type="checkbox"/> 2 WK Days <input type="checkbox"/> 24 Hour					
Relinquished by:		Date:	Time:	Received by:		Notes:			
Eric Bergersen		1/30/13	1300	 Eric Bergersen		10 Day TAT. Dissolved Metals Field Filtered			
Relinquished by:		Date:	Time:	Received by (Laboratory):		Cooler ID			
				 Eric Bergersen		Cooler Temp.			
Logged by (Laboratory):		Date:	Time:	Checked by (Laboratory):		QC Package: (Check One Box Below)			
						<input checked="" type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP Checklist <input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> TRRP Level IV <input type="checkbox"/> Level IV SW846/CLP <input type="checkbox"/> Other / EOD _____			

Preservative Key: 1-HCl 2-HNO₃ 3-H₂SO₄ 4-NaOH 5-Na₂S₂O₃ 6-NaHSO₄ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

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Chain of Custody Form

Page 3 of 3

COC ID: 41209

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+1 717 944 5541

☐ Salt Lake City, UT
+1 801 266 7700

☐ Spring City, PA
+1 610 948 4903


☐ York, PA
+1 717 505 5280

Customer Information			Project Information				Parameter/Method Request for Analysis												
Purchase Order		Project Name					A	VOC (8260) NW GW List											
Work Order		Project Number					B	GRO (8015 M)											
Company Name	Navajo Refining	Bill To Company	Navajo Refining				C	DRO (8015 M)											
Send Report To	Robert Combs	Invoice Attn.	Robert Combs				D	ORO (8015 M)											
Address	501 East Main	Address	501 East Main				E	LL SVOC (8270) NM GW List											
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211				F	Total Metals (6020/7000) RCRA 8											
Phone	575-748-6733	Phone					G	Dissolved Metals (6020/7000) RCRA 8											
Fax	575-746-5421	Fax					H	TDS											
e-Mail Address		e-Mail Address					I	Moisture											
							J												
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold		
1	MW-114 (35)	1/28/13	1650	Soil	-	5	X	X	X	X	X	X	X	X	X				
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
Sampler(s): Please Print & Sign			Shipment Method:		Required Turnaround Time:				Other:				Results Due Date:						
 Eric Bergersen					<input checked="" type="checkbox"/> STD 10 Wk Days <input type="checkbox"/> 5 Wk Days <input type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour														
Relinquished by:		Date:	Time:	Received by:		Notes:													
 Eric Bergersen		1/30/13	1300	 Eric Bergersen		10 Day TAT, Dissolved Metal Field Filtered													
Relinquished by:		Date:	Time:	Received by (Laboratory):		Cooler Temp:		QC Package: (Check Box Below)											
				 Eric Bergersen				<input type="checkbox"/> Level II: Standard QC <input type="checkbox"/> Level III: Std QC + Raw Data <input type="checkbox"/> Level IV: SW846 CLP-Like Other:											
Logged by (Laboratory):		Date:	Time:	Checked by (Laboratory):															
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035																			

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1602026

FedEx
TRK# 8013 7025 1926
THU - 31 JAN A1
STANDARD OVERNIGHT
77099
X-US
AH
AB SGRA

Emp# 637368 30JAN13 ROWA 515C1/DF24/6F03

	ALS Environmental
	10450 Stancliff Rd., Suite 210
	Houston, Texas 77099
	Tel. +1 281 530 5656 Fax. +1 281 530 5887

CUSTODY SEAL		Seal Broken By
Date: 1-30-2013	Time: 1250	RM 1/30/13
Name: Ken McEwen		
Company: ARCADIS US		



13-Feb-2013

Robert Combs
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 746-5382
Fax: (575) 746-5421

Re: RO Discharge Sampling

Work Order: **1302079**

Dear Robert,

ALS Environmental received 16 samples on 02-Feb-2013 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 50.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in black ink that reads "Sonia West".

Electronically approved by: Jumoke M. Lawal

Sonia West
Project Manager



Certificate No: T104704231-12-10

ADDRESS 10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 | PHONE (281) 530-5656 | FAX (281) 530-5887

DOV#T UR X S#K VD /#R U S#Sdu#h i#hch#DOV#T ur xs##D q#DOV#Dp l#hg#F rp s dq |

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RIGHT SOLUTIONS RIGHT PARTNER

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 1302079

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1302079-01	MW-117 (1)	Soil		1/31/2013 08:55	2/2/2013 09:30	<input type="checkbox"/>
1302079-02	MW-117 (3)	Soil		1/31/2013 09:00	2/2/2013 09:30	<input type="checkbox"/>
1302079-03	MW-117 (5)	Soil		1/31/2013 09:15	2/2/2013 09:30	<input type="checkbox"/>
1302079-04	MW-117 (7)	Soil		1/31/2013 10:15	2/2/2013 09:30	<input type="checkbox"/>
1302079-05	MW-117 (9)	Soil		1/31/2013 10:00	2/2/2013 09:30	<input type="checkbox"/>
1302079-06	MW-117 (10)	Soil		1/31/2013 10:30	2/2/2013 09:30	<input type="checkbox"/>
1302079-07	MW-117 (11)	Soil		1/31/2013 15:15	2/2/2013 09:30	<input type="checkbox"/>
1302079-08	MW-117 (13)	Soil		1/31/2013 15:20	2/2/2013 09:30	<input type="checkbox"/>
1302079-09	MW-117 (15)	Soil		1/31/2013 15:20	2/2/2013 09:30	<input type="checkbox"/>
1302079-10	MW-117 (17)	Soil		1/31/2013 15:20	2/2/2013 09:30	<input type="checkbox"/>
1302079-11	MW-117 (19)	Soil		1/31/2013 15:25	2/2/2013 09:30	<input type="checkbox"/>
1302079-12	MW-117 (20)	Soil		1/31/2013 15:25	2/2/2013 09:30	<input type="checkbox"/>
1302079-13	MW-117 (21)	Soil		1/31/2013 15:30	2/2/2013 09:30	<input type="checkbox"/>
1302079-14	MW-117 (23)	Soil		1/31/2013 15:30	2/2/2013 09:30	<input type="checkbox"/>
1302079-15	MW-117 (25)	Soil		1/31/2013 15:40	2/2/2013 09:30	<input type="checkbox"/>
1302079-16	Trip Blank	Water		1/31/2013	2/2/2013 09:30	<input type="checkbox"/>

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 1302079

Case Narrative

Your samples received for Radium 226 and Radium 228 are reported on ALS workorder 1302192.

A Trip Blank sample was received but was not listed on the chain of custody. The laboratory analyzed this sample for VOC 8260.

Batch 67579, TPH DRO/ORO, Sample 1302018-01: MS/MSD is for an unrelated sample.

Batch 67584, Metals, Sample MW-117 (1): MS/MSD recoveries were outside the control limits for several analytes due to high concentration to the background sample. Results are flagged with an O as applicable. The associated LCS recoveries were within the control limits.

Batch 67584, Metals, Sample MW-117 (1): MS/MSD RPD was outside the control limits for Lead.

Batch 67584, Metals, Sample MW-117 (1): Duplicate RPD was outside the control limits for Barium and Boron.

Batch 67581, Low-Level Semivolatile Organics, Sample 1302050-06: MS/MSD is for an unrelated sample.

Batch R142091, Volatile Organics: LCS recovery was outside the control limits for 1,1,2-Trichloroethane. The associated results are Non Detect.

Batch R142091, Volatile Organics, Sample MW-117 (25): MS/MSD recoveries were outside the control limits for several analytes. The associated LCS recoveries were within the control limits.

Batch R142091, Volatile Organics, Sample MW-117 (25): MS/MSD RPD was outside the control limits for several analytes.

Batch 67697, Anions, Sample MW-117 (25): MS/MSD recoveries were outside the control limits for Sulfate. The associated LCS recoveries and MS/MSD RPD were within the control limits.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117 (1)
Collection Date: 1/31/2013 08:55 AM

Work Order: 1302079
Lab ID: 1302079-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3541 / 2/5/13 Analyst: KMB							
TPH (Oil Range)	U		0.65	4.4	mg/Kg-dry	1	2/12/2013 12:08
TPH (Diesel Range)	U		0.65	2.2	mg/Kg-dry	1	2/12/2013 12:08
Surr: 2-Fluorobiphenyl	61.0			60-135	%REC	1	2/12/2013 12:08
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: KKP							
Gasoline Range Organics	U		0.026	0.065	mg/Kg-dry	1	2/5/2013 19:01
Surr: 4-Bromofluorobenzene	88.8			70-130	%REC	1	2/5/2013 19:01
MERCURY - SW7471B Method: SW7471A Prep: SW7471A / 2/5/13 Analyst: OFO							
Mercury	7.02		0.37	4.55	µg/Kg-dry	1	2/5/2013 17:32
METALS Method: SW6020 Prep: SW3050A / 2/5/13 Analyst: SKS							
Aluminum	15,200		25	127	mg/Kg-dry	100	2/6/2013 18:31
Arsenic	4.74		0.13	0.634	mg/Kg-dry	1	2/6/2013 17:17
Barium	182		0.10	0.634	mg/Kg-dry	1	2/6/2013 17:17
Boron	8.67		3.5	6.34	mg/Kg-dry	2	2/7/2013 15:33
Cadmium	0.374	J	0.063	0.634	mg/Kg-dry	1	2/6/2013 17:17
Calcium	83,700		1,300	6,340	mg/Kg-dry	100	2/6/2013 18:31
Chromium	15.4		0.11	0.634	mg/Kg-dry	1	2/6/2013 17:17
Cobalt	5.45		0.089	0.634	mg/Kg-dry	1	2/6/2013 17:17
Copper	9.70		0.13	0.634	mg/Kg-dry	1	2/6/2013 17:17
Iron	10,800		13	63.4	mg/Kg-dry	1	2/6/2013 17:17
Lead	11.9		0.063	0.634	mg/Kg-dry	1	2/6/2013 17:17
Manganese	410		13	63.4	mg/Kg-dry	100	2/6/2013 18:31
Molybdenum	1.01		0.19	0.634	mg/Kg-dry	1	2/6/2013 17:17
Nickel	11.4		0.11	0.634	mg/Kg-dry	1	2/6/2013 17:17
Potassium	3,310		16	63.4	mg/Kg-dry	1	2/6/2013 17:17
Selenium	0.980		0.23	0.634	mg/Kg-dry	1	2/6/2013 17:17
Silver	U		0.10	0.634	mg/Kg-dry	1	2/6/2013 17:17
Sodium	332		28	127	mg/Kg-dry	2	2/7/2013 15:33
Uranium	U		0.63	0.634	mg/Kg-dry	1	2/6/2013 17:17
Zinc	38.7		0.32	0.634	mg/Kg-dry	1	2/6/2013 17:17
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3541 / 2/5/13 Analyst: LG							
1-Methylnaphthalene	U		2.1	8.5	µg/Kg-dry	1	2/5/2013 20:21
2-Methylnaphthalene	U		2.1	8.5	µg/Kg-dry	1	2/5/2013 20:21
Benzo(a)pyrene	U		2.1	8.5	µg/Kg-dry	1	2/5/2013 20:21
Naphthalene	U		2.1	8.5	µg/Kg-dry	1	2/5/2013 20:21
Surr: 2,4,6-Tribromophenol	61.0			36-126	%REC	1	2/5/2013 20:21
Surr: 2-Fluorobiphenyl	76.3			43-125	%REC	1	2/5/2013 20:21

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117 (1)
Collection Date: 1/31/2013 08:55 AM

Work Order: 1302079
Lab ID: 1302079-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	60.2			37-125	%REC	1	2/5/2013 20:21
Surr: 4-Terphenyl-d14	99.7			32-125	%REC	1	2/5/2013 20:21
Surr: Nitrobenzene-d5	71.9			37-125	%REC	1	2/5/2013 20:21
Surr: Phenol-d6	42.2			40-125	%REC	1	2/5/2013 20:21
VOLATILES - SW8260C			Method: SW8260			Analyst: WLR	
1,1,1-Trichloroethane	U		2.2	6.5	µg/Kg-dry	1	2/4/2013 14:43
1,1,2,2-Tetrachloroethane	U		0.65	6.5	µg/Kg-dry	1	2/4/2013 14:43
1,1,2-Trichloroethane	U		2.6	6.5	µg/Kg-dry	1	2/4/2013 14:43
1,1-Dichloroethane	U		0.65	6.5	µg/Kg-dry	1	2/4/2013 14:43
1,1-Dichloroethene	U		1.9	6.5	µg/Kg-dry	1	2/4/2013 14:43
1,2-Dibromoethane	U		0.90	6.5	µg/Kg-dry	1	2/4/2013 14:43
1,2-Dichloroethane	U		0.77	6.5	µg/Kg-dry	1	2/4/2013 14:43
Benzene	U		0.77	6.5	µg/Kg-dry	1	2/4/2013 14:43
Carbon tetrachloride	U		1.5	6.5	µg/Kg-dry	1	2/4/2013 14:43
Chloroform	U		2.3	6.5	µg/Kg-dry	1	2/4/2013 14:43
Ethylbenzene	U		1.2	6.5	µg/Kg-dry	1	2/4/2013 14:43
Methylene chloride	8.6	J	3.2	13	µg/Kg-dry	1	2/4/2013 14:43
Tetrachloroethene	U		1.3	6.5	µg/Kg-dry	1	2/4/2013 14:43
Toluene	U		0.90	6.5	µg/Kg-dry	1	2/4/2013 14:43
Trichloroethene	U		2.1	6.5	µg/Kg-dry	1	2/4/2013 14:43
Vinyl chloride	U		1.3	2.6	µg/Kg-dry	1	2/4/2013 14:43
Xylenes, Total	U		3.4	19	µg/Kg-dry	1	2/4/2013 14:43
Surr: 1,2-Dichloroethane-d4	81.8			70-128	%REC	1	2/4/2013 14:43
Surr: 4-Bromofluorobenzene	93.4			73-126	%REC	1	2/4/2013 14:43
Surr: Dibromofluoromethane	97.7			71-128	%REC	1	2/4/2013 14:43
Surr: Toluene-d8	96.6			73-127	%REC	1	2/4/2013 14:43
ANIONS - EPA 300.0 (1993)			Method: E300			Prep: E300 / 2/7/13	
Chloride	81.1		2.6	6.38	mg/Kg-dry	1	2/7/2013 22:37
Fluoride	15.4		0.38	1.28	mg/Kg-dry	1	2/7/2013 22:37
Nitrogen, Nitrate (As N)	0.804	J	0.38	1.28	mg/Kg-dry	1	2/7/2013 22:37
Nitrogen, Nitrite (As N)	U		0.38	1.28	mg/Kg-dry	1	2/7/2013 22:37
Sulfate	777		2.6	6.38	mg/Kg-dry	1	2/7/2013 22:37
Surr: Selenate (surr)	93.6			85-115	%REC	1	2/7/2013 22:37
CYANIDE			Method: SW9014			Prep: SW9010C / 2/8/13	
Cyanide	U		0.75	2.52	mg/Kg-dry	1	2/8/2013 17:30
MOISTURE			Method: SW3550			Analyst: KAH	
Percent Moisture	22.5		0.010	0.0100	wt%	1	2/6/2013 15:40

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117 (3)
Collection Date: 1/31/2013 09:00 AM

Work Order: 1302079
Lab ID: 1302079-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	23.7		0.010	0.0100	wt%	1	2/6/2013 15:40

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117 (5)
Collection Date: 1/31/2013 09:15 AM

Work Order: 1302079
Lab ID: 1302079-03
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
Method: SW7471A				Prep: SW7471A / 2/5/13		Analyst: OFO	
Mercury	U		0.34	4.17	µg/Kg-dry	1	2/5/2013 17:34
METALS							
Method: SW6020				Prep: SW3050A / 2/5/13		Analyst: SKS	
Aluminum	5,020		24	119	mg/Kg-dry	100	2/7/2013 16:20
Arsenic	1.40		0.12	0.593	mg/Kg-dry	1	2/6/2013 17:32
Barium	62.2		0.095	0.593	mg/Kg-dry	1	2/6/2013 17:32
Boron	7.89		3.3	5.93	mg/Kg-dry	2	2/7/2013 15:52
Cadmium	0.133	J	0.059	0.593	mg/Kg-dry	1	2/6/2013 17:32
Calcium	151,000		1,200	5,930	mg/Kg-dry	100	2/7/2013 16:20
Chromium	7.26		0.11	0.593	mg/Kg-dry	1	2/6/2013 17:32
Cobalt	1.54		0.083	0.593	mg/Kg-dry	1	2/6/2013 17:32
Copper	2.51		0.12	0.593	mg/Kg-dry	1	2/6/2013 17:32
Iron	3,570		12	59.3	mg/Kg-dry	1	2/6/2013 17:32
Lead	2.90		0.059	0.593	mg/Kg-dry	1	2/6/2013 17:32
Manganese	105		0.12	0.593	mg/Kg-dry	1	2/6/2013 17:32
Molybdenum	0.457	J	0.18	0.593	mg/Kg-dry	1	2/6/2013 17:32
Nickel	3.48		0.11	0.593	mg/Kg-dry	1	2/6/2013 17:32
Potassium	1,110		15	59.3	mg/Kg-dry	1	2/6/2013 17:32
Selenium	0.415	J	0.21	0.593	mg/Kg-dry	1	2/6/2013 17:32
Silver	U		0.095	0.593	mg/Kg-dry	1	2/6/2013 17:32
Sodium	164		26	119	mg/Kg-dry	2	2/7/2013 15:52
Uranium	U		0.59	0.593	mg/Kg-dry	1	2/6/2013 17:32
Zinc	11.6		0.30	0.593	mg/Kg-dry	1	2/6/2013 17:32
ANIONS - EPA 300.0 (1993)							
Method: E300				Prep: E300 / 2/7/13		Analyst: JKP	
Chloride	37.5		2.4	6.07	mg/Kg-dry	1	2/7/2013 22:51
Fluoride	8.01		0.36	1.21	mg/Kg-dry	1	2/7/2013 22:51
Nitrogen, Nitrate (As N)	U		0.36	1.21	mg/Kg-dry	1	2/7/2013 22:51
Nitrogen, Nitrite (As N)	U		0.36	1.21	mg/Kg-dry	1	2/7/2013 22:51
Sulfate	3,960		24	60.7	mg/Kg-dry	10	2/8/2013 11:41
Surr: Selenate (surr)	87.8			85-115	%REC	1	2/7/2013 22:51
Surr: Selenate (surr)	89.4			85-115	%REC	10	2/8/2013 11:41
CYANIDE							
Method: SW9014				Prep: SW9010C / 2/8/13		Analyst: EDG	
Cyanide	U		0.66	2.20	mg/Kg-dry	1	2/8/2013 17:30
MOISTURE							
Method: SW3550				Analyst: KAH			
Percent Moisture	19.0		0.010	0.0100	wt%	1	2/6/2013 15:40

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117 (7)
Collection Date: 1/31/2013 10:15 AM

Work Order: 1302079
Lab ID: 1302079-04
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	22.7		0.010	0.0100	wt%	1	2/6/2013 15:40

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117 (9)
Collection Date: 1/31/2013 10:00 AM

Work Order: 1302079
Lab ID: 1302079-05
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	21.3		0.010	0.0100	wt%	1	2/6/2013 15:40

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117 (10)
Collection Date: 1/31/2013 10:30 AM

Work Order: 1302079
Lab ID: 1302079-06
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
Method: SW7471A				Prep: SW7471A / 2/5/13		Analyst: OFO	
Mercury	2.01	J	0.39	4.76	µg/Kg-dry	1	2/5/2013 17:36
METALS							
Method: SW6020				Prep: SW3050A / 2/5/13		Analyst: SKS	
Aluminum	6,140		27	133	mg/Kg-dry	100	2/7/2013 16:23
Arsenic	2.48		0.13	0.665	mg/Kg-dry	1	2/6/2013 17:34
Barium	49.2		0.11	0.665	mg/Kg-dry	1	2/6/2013 17:34
Boron	5.92	J	3.7	6.65	mg/Kg-dry	2	2/7/2013 15:54
Cadmium	0.195	J	0.067	0.665	mg/Kg-dry	1	2/6/2013 17:34
Calcium	119,000		1,300	6,650	mg/Kg-dry	100	2/7/2013 16:23
Chromium	8.28		0.12	0.665	mg/Kg-dry	1	2/6/2013 17:34
Cobalt	2.23		0.093	0.665	mg/Kg-dry	1	2/6/2013 17:34
Copper	2.09		0.13	0.665	mg/Kg-dry	1	2/6/2013 17:34
Iron	5,340		13	66.5	mg/Kg-dry	1	2/6/2013 17:34
Lead	4.46		0.067	0.665	mg/Kg-dry	1	2/6/2013 17:34
Manganese	69.2		0.13	0.665	mg/Kg-dry	1	2/6/2013 17:34
Molybdenum	0.276	J	0.20	0.665	mg/Kg-dry	1	2/6/2013 17:34
Nickel	3.85		0.12	0.665	mg/Kg-dry	1	2/6/2013 17:34
Potassium	1,310		17	66.5	mg/Kg-dry	1	2/6/2013 17:34
Selenium	0.422	J	0.24	0.665	mg/Kg-dry	1	2/6/2013 17:34
Silver	U		0.11	0.665	mg/Kg-dry	1	2/6/2013 17:34
Sodium	119	J	29	133	mg/Kg-dry	2	2/7/2013 15:54
Uranium	U		0.67	0.665	mg/Kg-dry	1	2/6/2013 17:34
Zinc	12.2		0.33	0.665	mg/Kg-dry	1	2/6/2013 17:34
ANIONS - EPA 300.0 (1993)							
Method: E300				Prep: E300 / 2/7/13		Analyst: JKP	
Chloride	28.7		2.7	6.76	mg/Kg-dry	1	2/7/2013 23:06
Fluoride	6.49		0.41	1.35	mg/Kg-dry	1	2/7/2013 23:06
Nitrogen, Nitrate (As N)	U		0.41	1.35	mg/Kg-dry	1	2/7/2013 23:06
Nitrogen, Nitrite (As N)	U		0.41	1.35	mg/Kg-dry	1	2/7/2013 23:06
Sulfate	1,790		27	67.6	mg/Kg-dry	10	2/8/2013 11:56
Surr: Selenate (surr)	90.5			85-115	%REC	1	2/7/2013 23:06
Surr: Selenate (surr)	86.6			85-115	%REC	10	2/8/2013 11:56
CYANIDE							
Method: SW9014				Prep: SW9010C / 2/8/13		Analyst: EDG	
Cyanide	U		0.76	2.53	mg/Kg-dry	1	2/8/2013 17:30
MOISTURE							
Method: SW3550				Analyst: KAH			
Percent Moisture	26.4		0.010	0.0100	wt%	1	2/6/2013 15:40

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117 (11)
Collection Date: 1/31/2013 03:15 PM

Work Order: 1302079
Lab ID: 1302079-07
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	36.2		0.010	0.0100	wt%	1	2/6/2013 15:40

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117 (13)
Collection Date: 1/31/2013 03:20 PM

Work Order: 1302079
Lab ID: 1302079-08
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	33.6		0.010	0.0100	wt%	1	2/6/2013 15:40

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117 (15)
Collection Date: 1/31/2013 03:20 PM

Work Order: 1302079
Lab ID: 1302079-09
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
Method: SW7471A				Prep: SW7471A / 2/5/13		Analyst: OFO	
Mercury	1.10	J	0.37	4.58	µg/Kg-dry	1	2/5/2013 17:38
METALS							
Method: SW6020				Prep: SW3050A / 2/5/13		Analyst: SKS	
Aluminum	5,400		24	121	mg/Kg-dry	100	2/7/2013 16:25
Arsenic	7.29		0.12	0.607	mg/Kg-dry	1	2/6/2013 17:41
Barium	8.33		0.097	0.607	mg/Kg-dry	1	2/6/2013 17:41
Boron	2.96	J	1.7	3.03	mg/Kg-dry	1	2/7/2013 15:57
Cadmium	U		0.061	0.607	mg/Kg-dry	1	2/6/2013 17:41
Calcium	26,700		1,200	6,070	mg/Kg-dry	100	2/7/2013 16:25
Chromium	6.81		0.11	0.607	mg/Kg-dry	1	2/6/2013 17:41
Cobalt	3.54		0.085	0.607	mg/Kg-dry	1	2/6/2013 17:41
Copper	2.20		0.12	0.607	mg/Kg-dry	1	2/6/2013 17:41
Iron	8,050		12	60.7	mg/Kg-dry	1	2/6/2013 17:41
Lead	3.04		0.061	0.607	mg/Kg-dry	1	2/6/2013 17:41
Manganese	91.0		0.12	0.607	mg/Kg-dry	1	2/6/2013 17:41
Molybdenum	0.606	J	0.18	0.607	mg/Kg-dry	1	2/6/2013 17:41
Nickel	5.09		0.11	0.607	mg/Kg-dry	1	2/6/2013 17:41
Potassium	1,230		16	60.7	mg/Kg-dry	1	2/6/2013 17:41
Selenium	U		0.22	0.607	mg/Kg-dry	1	2/6/2013 17:41
Silver	U		0.097	0.607	mg/Kg-dry	1	2/6/2013 17:41
Sodium	154		13	60.7	mg/Kg-dry	1	2/6/2013 17:41
Uranium	U		0.61	0.607	mg/Kg-dry	1	2/6/2013 17:41
Zinc	10.1		0.30	0.607	mg/Kg-dry	1	2/6/2013 17:41
ANIONS - EPA 300.0 (1993)							
Method: E300				Prep: E300 / 2/7/13		Analyst: JKP	
Chloride	33.5		2.6	6.54	mg/Kg-dry	1	2/7/2013 23:20
Fluoride	5.93		0.39	1.31	mg/Kg-dry	1	2/7/2013 23:20
Nitrogen, Nitrate (As N)	U		0.39	1.31	mg/Kg-dry	1	2/7/2013 23:20
Nitrogen, Nitrite (As N)	U		0.39	1.31	mg/Kg-dry	1	2/7/2013 23:20
Sulfate	2,100		26	65.4	mg/Kg-dry	10	2/8/2013 12:10
Surr: Selenate (surr)	88.1			85-115	%REC	1	2/7/2013 23:20
Surr: Selenate (surr)	91.0			85-115	%REC	10	2/8/2013 12:10
CYANIDE							
Method: SW9014				Prep: SW9010C / 2/8/13		Analyst: EDG	
Cyanide	U		0.76	2.53	mg/Kg-dry	1	2/8/2013 17:30
MOISTURE							
Method: SW3550				Analyst: KAH			
Percent Moisture	23.9		0.010	0.0100	wt%	1	2/6/2013 15:40

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117 (17)
Collection Date: 1/31/2013 03:20 PM

Work Order: 1302079
Lab ID: 1302079-10
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE							
			Method: SW3550				Analyst: KAH
Percent Moisture	18.9		0.010	0.0100	wt%	1	2/6/2013 15:40

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117 (19)
Collection Date: 1/31/2013 03:25 PM

Work Order: 1302079
Lab ID: 1302079-11
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	25.0		0.010	0.0100	wt%	1	2/6/2013 15:40

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117 (20)
Collection Date: 1/31/2013 03:25 PM

Work Order: 1302079
Lab ID: 1302079-12
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
Method: SW7471A				Prep: SW7471A / 2/5/13		Analyst: OFO	
Mercury	3.30	J	0.36	4.45	µg/Kg-dry	1	2/5/2013 17:40
METALS							
Method: SW6020				Prep: SW3050A / 2/5/13		Analyst: SKS	
Aluminum	11,200		24	121	mg/Kg-dry	100	2/7/2013 16:28
Arsenic	1.12		0.12	0.603	mg/Kg-dry	1	2/6/2013 17:44
Barium	23.2		0.096	0.603	mg/Kg-dry	1	2/6/2013 17:44
Boron	2.45	J	1.7	3.01	mg/Kg-dry	1	2/7/2013 15:59
Cadmium	0.234	J	0.060	0.603	mg/Kg-dry	1	2/6/2013 17:44
Calcium	95,400		1,200	6,030	mg/Kg-dry	100	2/7/2013 16:28
Chromium	11.9		0.11	0.603	mg/Kg-dry	1	2/6/2013 17:44
Cobalt	3.43		0.084	0.603	mg/Kg-dry	1	2/6/2013 17:44
Copper	4.44		0.12	0.603	mg/Kg-dry	1	2/6/2013 17:44
Iron	6,600		12	60.3	mg/Kg-dry	1	2/6/2013 17:44
Lead	7.99		0.060	0.603	mg/Kg-dry	1	2/6/2013 17:44
Manganese	72.0		0.12	0.603	mg/Kg-dry	1	2/6/2013 17:44
Molybdenum	U		0.18	0.603	mg/Kg-dry	1	2/6/2013 17:44
Nickel	6.31		0.11	0.603	mg/Kg-dry	1	2/6/2013 17:44
Potassium	1,760		16	60.3	mg/Kg-dry	1	2/6/2013 17:44
Selenium	0.699		0.22	0.603	mg/Kg-dry	1	2/6/2013 17:44
Silver	U		0.096	0.603	mg/Kg-dry	1	2/6/2013 17:44
Sodium	208		13	60.3	mg/Kg-dry	1	2/6/2013 17:44
Uranium	U		0.60	0.603	mg/Kg-dry	1	2/6/2013 17:44
Zinc	22.0		0.30	0.603	mg/Kg-dry	1	2/6/2013 17:44
ANIONS - EPA 300.0 (1993)							
Method: E300				Prep: E300 / 2/7/13		Analyst: JKP	
Chloride	24.4		2.5	6.29	mg/Kg-dry	1	2/7/2013 23:35
Fluoride	5.11		0.38	1.26	mg/Kg-dry	1	2/7/2013 23:35
Nitrogen, Nitrate (As N)	0.415	J	0.38	1.26	mg/Kg-dry	1	2/7/2013 23:35
Nitrogen, Nitrite (As N)	U		0.38	1.26	mg/Kg-dry	1	2/7/2013 23:35
Sulfate	349		2.5	6.29	mg/Kg-dry	1	2/7/2013 23:35
Surr: Selenate (surr)	92.5			85-115	%REC	1	2/7/2013 23:35
CYANIDE							
Method: SW9014				Prep: SW9010C / 2/8/13		Analyst: EDG	
Cyanide	U		0.73	2.45	mg/Kg-dry	1	2/8/2013 17:30
MOISTURE							
Method: SW3550				Analyst: KAH			
Percent Moisture	20.7		0.010	0.0100	wt%	1	2/6/2013 15:40

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117 (21)
Collection Date: 1/31/2013 03:30 PM

Work Order: 1302079
Lab ID: 1302079-13
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	21.5		0.010	0.0100	wt%	1	2/6/2013 15:40

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117 (23)
Collection Date: 1/31/2013 03:30 PM

Work Order: 1302079
Lab ID: 1302079-14
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	23.4		0.010	0.0100	wt%	1	2/6/2013 15:40

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117 (25)
Collection Date: 1/31/2013 03:40 PM

Work Order: 1302079
Lab ID: 1302079-15
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3541 / 2/5/13 Analyst: KMB							
TPH (Oil Range)	U		0.63	4.3	mg/Kg-dry	1	2/11/2013 18:56
TPH (Diesel Range)	U		0.63	2.1	mg/Kg-dry	1	2/11/2013 18:56
Surr: 2-Fluorobiphenyl	60.3			60-135	%REC	1	2/11/2013 18:56
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: KKP							
Gasoline Range Organics	U		0.025	0.063	mg/Kg-dry	1	2/5/2013 19:20
Surr: 4-Bromofluorobenzene	89.6			70-130	%REC	1	2/5/2013 19:20
MERCURY - SW7471B Method: SW7471A Prep: SW7471A / 2/5/13 Analyst: OFO							
Mercury	U		0.36	4.40	µg/Kg-dry	1	2/5/2013 17:42
METALS Method: SW6020 Prep: SW3050A / 2/5/13 Analyst: SKS							
Aluminum	8,180		25	126	mg/Kg-dry	100	2/7/2013 16:30
Arsenic	0.526	J	0.13	0.631	mg/Kg-dry	1	2/6/2013 17:46
Barium	6.58		0.10	0.631	mg/Kg-dry	1	2/6/2013 17:46
Boron	U		1.8	3.16	mg/Kg-dry	1	2/7/2013 16:02
Cadmium	U		0.063	0.631	mg/Kg-dry	1	2/6/2013 17:46
Calcium	2,810		13	63.1	mg/Kg-dry	1	2/6/2013 17:46
Chromium	7.67		0.11	0.631	mg/Kg-dry	1	2/6/2013 17:46
Cobalt	2.05		0.088	0.631	mg/Kg-dry	1	2/6/2013 17:46
Copper	3.35		0.13	0.631	mg/Kg-dry	1	2/6/2013 17:46
Iron	4,590		13	63.1	mg/Kg-dry	1	2/6/2013 17:46
Lead	4.74		0.063	0.631	mg/Kg-dry	1	2/6/2013 17:46
Manganese	37.5		0.13	0.631	mg/Kg-dry	1	2/6/2013 17:46
Molybdenum	U		0.19	0.631	mg/Kg-dry	1	2/6/2013 17:46
Nickel	4.40		0.11	0.631	mg/Kg-dry	1	2/6/2013 17:46
Potassium	1,490		16	63.1	mg/Kg-dry	1	2/6/2013 17:46
Selenium	U		0.23	0.631	mg/Kg-dry	1	2/6/2013 17:46
Silver	U		0.10	0.631	mg/Kg-dry	1	2/6/2013 17:46
Sodium	153		14	63.1	mg/Kg-dry	1	2/6/2013 17:46
Uranium	U		0.63	0.631	mg/Kg-dry	1	2/6/2013 17:46
Zinc	14.5		0.32	0.631	mg/Kg-dry	1	2/6/2013 17:46
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3541 / 2/5/13 Analyst: LG							
1-Methylnaphthalene	U		2.0	8.3	µg/Kg-dry	1	2/5/2013 20:42
2-Methylnaphthalene	U		2.0	8.3	µg/Kg-dry	1	2/5/2013 20:42
Benzo(a)pyrene	U		2.0	8.3	µg/Kg-dry	1	2/5/2013 20:42
Naphthalene	U		2.0	8.3	µg/Kg-dry	1	2/5/2013 20:42
Surr: 2,4,6-Tribromophenol	65.6			36-126	%REC	1	2/5/2013 20:42
Surr: 2-Fluorobiphenyl	81.0			43-125	%REC	1	2/5/2013 20:42

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117 (25)
Collection Date: 1/31/2013 03:40 PM

Work Order: 1302079
Lab ID: 1302079-15
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	60.0			37-125	%REC	1	2/5/2013 20:42
Surr: 4-Terphenyl-d14	95.7			32-125	%REC	1	2/5/2013 20:42
Surr: Nitrobenzene-d5	71.1			37-125	%REC	1	2/5/2013 20:42
Surr: Phenol-d6	58.7			40-125	%REC	1	2/5/2013 20:42
VOLATILES - SW8260C			Method: SW8260			Analyst: WLR	
1,1,1-Trichloroethane	U		2.2	6.3	µg/Kg-dry	1	2/4/2013 15:05
1,1,2,2-Tetrachloroethane	U		0.63	6.3	µg/Kg-dry	1	2/4/2013 15:05
1,1,2-Trichloroethane	U		2.5	6.3	µg/Kg-dry	1	2/4/2013 15:05
1,1-Dichloroethane	U		0.63	6.3	µg/Kg-dry	1	2/4/2013 15:05
1,1-Dichloroethene	U		1.9	6.3	µg/Kg-dry	1	2/4/2013 15:05
1,2-Dibromoethane	U		0.89	6.3	µg/Kg-dry	1	2/4/2013 15:05
1,2-Dichloroethane	U		0.76	6.3	µg/Kg-dry	1	2/4/2013 15:05
Benzene	U		0.76	6.3	µg/Kg-dry	1	2/4/2013 15:05
Carbon tetrachloride	U		1.5	6.3	µg/Kg-dry	1	2/4/2013 15:05
Chloroform	U		2.3	6.3	µg/Kg-dry	1	2/4/2013 15:05
Ethylbenzene	U		1.1	6.3	µg/Kg-dry	1	2/4/2013 15:05
Methylene chloride	6.9	J	3.2	13	µg/Kg-dry	1	2/4/2013 15:05
Tetrachloroethene	U		1.3	6.3	µg/Kg-dry	1	2/4/2013 15:05
Toluene	U		0.89	6.3	µg/Kg-dry	1	2/4/2013 15:05
Trichloroethene	U		2.0	6.3	µg/Kg-dry	1	2/4/2013 15:05
Vinyl chloride	U		1.3	2.5	µg/Kg-dry	1	2/4/2013 15:05
Xylenes, Total	U		3.3	19	µg/Kg-dry	1	2/4/2013 15:05
Surr: 1,2-Dichloroethane-d4	103			70-128	%REC	1	2/4/2013 15:05
Surr: 4-Bromofluorobenzene	103			73-126	%REC	1	2/4/2013 15:05
Surr: Dibromofluoromethane	93.0			71-128	%REC	1	2/4/2013 15:05
Surr: Toluene-d8	104			73-127	%REC	1	2/4/2013 15:05
ANIONS - EPA 300.0 (1993)			Method: E300			Prep: E300 / 2/7/13	
Chloride	26.3		2.5	6.29	mg/Kg-dry	1	2/7/2013 23:50
Fluoride	5.18		0.38	1.26	mg/Kg-dry	1	2/7/2013 23:50
Nitrogen, Nitrate (As N)	0.566	J	0.38	1.26	mg/Kg-dry	1	2/7/2013 23:50
Nitrogen, Nitrite (As N)	U		0.38	1.26	mg/Kg-dry	1	2/7/2013 23:50
Sulfate	396		2.5	6.29	mg/Kg-dry	1	2/7/2013 23:50
Surr: Selenate (surr)	92.0			85-115	%REC	1	2/7/2013 23:50
CYANIDE			Method: SW9014			Prep: SW9010C / 2/8/13	
Cyanide	U		0.67	2.23	mg/Kg-dry	1	2/8/2013 17:30
MOISTURE			Method: SW3550			Analyst: KAH	
Percent Moisture	21.0		0.010	0.0100	wt%	1	2/7/2013 15:15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: Trip Blank
Collection Date: 1/31/2013

Work Order: 1302079
Lab ID: 1302079-16
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/5/2013 15:16
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	2/5/2013 15:16
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/5/2013 15:16
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/5/2013 15:16
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	2/5/2013 15:16
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	2/5/2013 15:16
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/5/2013 15:16
Benzene	U		0.00020	0.0010	mg/L	1	2/5/2013 15:16
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	2/5/2013 15:16
Chloroform	U		0.00030	0.0010	mg/L	1	2/5/2013 15:16
Ethylbenzene	U		0.00030	0.0010	mg/L	1	2/5/2013 15:16
Methylene chloride	U		0.00040	0.0020	mg/L	1	2/5/2013 15:16
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	2/5/2013 15:16
Toluene	U		0.00030	0.0010	mg/L	1	2/5/2013 15:16
Trichloroethene	U		0.00020	0.0010	mg/L	1	2/5/2013 15:16
Vinyl chloride	U		0.00040	0.0010	mg/L	1	2/5/2013 15:16
Xylenes, Total	U		0.00030	0.0010	mg/L	1	2/5/2013 15:16
Surr: 1,2-Dichloroethane-d4	92.8			71-125	%REC	1	2/5/2013 15:16
Surr: 4-Bromofluorobenzene	94.3			70-125	%REC	1	2/5/2013 15:16
Surr: Dibromofluoromethane	101			74-125	%REC	1	2/5/2013 15:16
Surr: Toluene-d8	97.0			78-123	%REC	1	2/5/2013 15:16

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Work Order: 1302079
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67579** Instrument ID **FID-7** Method: **SW8015M**

MBLK	Sample ID: FBLKS1-130205-67579				Units: mg/Kg		Analysis Date: 2/6/2013 11:56 AM			
Client ID:	Run ID: FID-7_130206A				SeqNo: 3104153		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Oil Range)	U	3.4								
TPH (Diesel Range)	U	1.7								
<i>Surr: 2-Fluorobiphenyl</i>	2.092	0.10	3.33	0	62.8	60-135	0			

LCS	Sample ID: FLCSS1-130205-67579				Units: mg/Kg		Analysis Date: 2/6/2013 12:19 PM			
Client ID:	Run ID: FID-7_130206A				SeqNo: 3104154		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Oil Range)	27.05	3.4	33.33	0	81.2	70-130	0			
TPH (Diesel Range)	35.72	1.7	33.33	0	107	70-130	0			
<i>Surr: 2-Fluorobiphenyl</i>	2.536	0.10	3.33	0	76.2	60-135	0			

MS	Sample ID: 1302018-01BMS				Units: mg/Kg		Analysis Date: 2/6/2013 01:06 PM			
Client ID:	Run ID: FID-7_130206A				SeqNo: 3104156		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Oil Range)	229.1	3.4	33.23	219.8	28.1	70-130	0			SEO
TPH (Diesel Range)	80.52	1.7	33.23	75.45	15.3	70-130	0			SE
<i>Surr: 2-Fluorobiphenyl</i>	2.284	0.10	3.32	0	68.8	60-135	0			

MSD	Sample ID: 1302018-01BMSD				Units: mg/Kg		Analysis Date: 2/6/2013 01:29 PM			
Client ID:	Run ID: FID-7_130206A				SeqNo: 3104157		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Oil Range)	207.2	3.4	33.24	219.8	-37.7	70-130	229.1	10	30	SEO
TPH (Diesel Range)	76.56	1.7	33.24	75.45	3.32	70-130	80.52	5.05	30	SE
<i>Surr: 2-Fluorobiphenyl</i>	2.311	0.10	3.321	0	69.6	60-135	2.284	1.17	30	

The following samples were analyzed in this batch:

1302079-01D	1302079-15D
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 1 of 24

Client: Navajo Refining Company
Work Order: 1302079
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142225** Instrument ID **FID-9** Method: **SW8015**

MBLK	Sample ID: GBLKS-130205-R142225				Units: mg/Kg		Analysis Date: 2/5/2013 01:02 PM			
Client ID:	Run ID: FID-9_130205A				SeqNo: 3103619		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	U	0.050								
<i>Surr: 4-Bromofluorobenzene</i>	0.08374	0.0050	0.1	0	83.7	70-130	0			

LCS	Sample ID: GLCSS-130205-R142225				Units: mg/Kg		Analysis Date: 2/5/2013 12:25 PM			
Client ID:	Run ID: FID-9_130205A				SeqNo: 3103613		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.942	0.050	1	0	94.2	70-130	0			
<i>Surr: 4-Bromofluorobenzene</i>	0.09701	0.0050	0.1	0	97	70-130	0			

LCSD	Sample ID: GLCSDS-130205-R142225				Units: mg/Kg		Analysis Date: 2/5/2013 12:44 PM			
Client ID:	Run ID: FID-9_130205A				SeqNo: 3103616		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.9525	0.050	1	0	95.2	70-130	0.942	1.11	30	
<i>Surr: 4-Bromofluorobenzene</i>	0.09686	0.0050	0.1	0	96.9	70-130	0.09701	0.146	30	

MS	Sample ID: 1302018-04ZMS				Units: mg/Kg		Analysis Date: 2/5/2013 04:11 PM			
Client ID:	Run ID: FID-9_130205A				SeqNo: 3103628		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.8005	0.050	1	0	80	70-130	0			
<i>Surr: 4-Bromofluorobenzene</i>	0.08728	0.0050	0.1	0	87.3	70-130	0			

MSD	Sample ID: 1302018-04ZMSD				Units: mg/Kg		Analysis Date: 2/5/2013 04:30 PM			
Client ID:	Run ID: FID-9_130205A				SeqNo: 3103632		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.8125	0.050	1	0	81.2	70-130	0.8005	1.49	30	
<i>Surr: 4-Bromofluorobenzene</i>	0.08872	0.0050	0.1	0	88.7	70-130	0.08728	1.64	30	

The following samples were analyzed in this batch:

1302079-01B	1302079-15B
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302079
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67584** Instrument ID **ICPMS05** Method: **SW6020**

MBLK Sample ID: **MBLKS1-020513-67584** Units: **mg/Kg** Analysis Date: **2/8/2013 12:22 PM**

Client ID: Run ID: **ICPMS05_130208A** SeqNo: **3106572** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	U	1.0								
Arsenic	U	0.50								
Barium	U	0.50								
Boron	U	2.5								
Cadmium	U	0.50								
Calcium	U	50								
Chromium	U	0.50								
Cobalt	U	0.50								
Copper	U	0.50								
Iron	U	50								
Lead	U	0.50								
Manganese	U	0.50								
Molybdenum	U	0.50								
Nickel	U	0.50								
Potassium	U	50								
Selenium	U	0.50								
Silver	U	0.50								
Sodium	U	50								
Uranium	U	0.50								
Zinc	U	0.50								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302079
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67584** Instrument ID **ICPMS05** Method: **SW6020**

LCS Sample ID: **MLCSS1-020513-67584** Units: **mg/Kg** Analysis Date: **2/6/2013 05:15 PM**

Client ID: Run ID: **ICPMS05_130206A** SeqNo: **3104261** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	11.63	1.0	10	0	116	80-120	0			
Arsenic	10.09	0.50	10	0	101	80-120	0			
Barium	10.49	0.50	10	0	105	80-120	0			
Boron	55.62	2.5	50	0	111	80-120	0			
Cadmium	10.17	0.50	10	0	102	80-120	0			
Calcium	1031	50	1000	0	103	80-120	0			
Chromium	10.57	0.50	10	0	106	80-120	0			
Cobalt	10.08	0.50	10	0	101	80-120	0			
Copper	10.5	0.50	10	0	105	80-120	0			
Iron	1021	50	1000	0	102	80-120	0			
Lead	10.22	0.50	10	0	102	80-120	0			
Manganese	10.18	0.50	10	0	102	80-120	0			
Molybdenum	10.14	0.50	10	0	101	80-120	0			
Nickel	10.22	0.50	10	0	102	80-120	0			
Potassium	1020	50	1000	0	102	80-120	0			
Selenium	10.63	0.50	10	0	106	80-120	0			
Silver	10.11	0.50	10	0	101	80-120	0			
Sodium	1065	50	1000	0	106	80-120	0			
Uranium	9.751	0.50	10	0	97.5	80-120	0			
Zinc	10.48	0.50	10	0	105	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302079
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67584** Instrument ID **ICPMS05** Method: **SW6020**

MS		Sample ID: 1302079-01CMS				Units: mg/Kg		Analysis Date: 2/6/2013 05:22 PM		
Client ID: MW-117 (1)		Run ID: ICPMS05_130206A				SeqNo: 3104264		Prep Date: 2/5/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	10850	0.95	9.479	10650	2130	75-125	0			SEO
Arsenic	11.05	0.47	9.479	3.675	77.8	75-125	0			
Barium	119.3	0.47	9.479	140.7	-226	75-125	0			SO
Cadmium	8.126	0.47	9.479	0.2899	82.7	75-125	0			
Calcium	58010	47	947.9	63280	-555	75-125	0			SEO
Chromium	19.97	0.47	9.479	11.93	84.9	75-125	0			
Cobalt	12.3	0.47	9.479	4.223	85.2	75-125	0			
Copper	16.19	0.47	9.479	7.518	91.5	75-125	0			
Iron	8984	47	947.9	8371	64.7	75-125	0			SO
Lead	22.47	0.47	9.479	9.213	140	75-125	0			S
Manganese	313.3	0.47	9.479	323.3	-106	75-125	0			SEO
Molybdenum	7.01	0.47	9.479	0.782	65.7	75-125	0			S
Nickel	16.57	0.47	9.479	8.837	81.6	75-125	0			
Potassium	3413	47	947.9	2567	89.3	75-125	0			
Selenium	8.236	0.47	9.479	0.7589	78.9	75-125	0			
Silver	7.989	0.47	9.479	0.04949	83.8	75-125	0			
Uranium	8.144	0.47	9.479	0.4497	81.2	75-125	0			
Zinc	39.14	0.47	9.479	30	96.4	75-125	0			

MS		Sample ID: 1302079-01CMS				Units: mg/Kg		Analysis Date: 2/7/2013 03:38 PM		
Client ID: MW-117 (1)		Run ID: ICPMS05_130207A				SeqNo: 3105768		Prep Date: 2/5/2013		DF: 2
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	44.25	4.7	47.39	6.718	79.2	75-125	0			
Sodium	1077	95	947.9	257.4	86.4	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302079
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67584** Instrument ID **ICPMS05** Method: **SW6020**

MSD		Sample ID: 1302079-01CMSD				Units: mg/Kg		Analysis Date: 2/6/2013 05:25 PM		
Client ID: MW-117 (1)		Run ID: ICPMS05_130206A				SeqNo: 3104265		Prep Date: 2/5/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	12260	0.94	9.414	10650	17200	75-125	10850	12.2	25	SEO
Arsenic	11.58	0.47	9.414	3.675	84	75-125	11.05	4.7	25	
Barium	137.2	0.47	9.414	140.7	-36.9	75-125	119.3	14	25	SO
Cadmium	8.231	0.47	9.414	0.2899	84.4	75-125	8.126	1.29	25	
Calcium	69590	47	941.4	63280	670	75-125	58010	18.1	25	SEO
Chromium	21.3	0.47	9.414	11.93	99.5	75-125	19.97	6.43	25	
Cobalt	12.66	0.47	9.414	4.223	89.6	75-125	12.3	2.86	25	
Copper	15.66	0.47	9.414	7.518	86.5	75-125	16.19	3.36	25	
Iron	9940	47	941.4	8371	167	75-125	8984	10.1	25	SO
Lead	15.81	0.47	9.414	9.213	70.1	75-125	22.47	34.8	25	SR
Manganese	389.5	0.47	9.414	323.3	703	75-125	313.3	21.7	25	SEO
Molybdenum	7.48	0.47	9.414	0.782	71.2	75-125	7.01	6.49	25	S
Nickel	17.56	0.47	9.414	8.837	92.6	75-125	16.57	5.76	25	
Potassium	3553	47	941.4	2567	105	75-125	3413	4	25	
Selenium	8.862	0.47	9.414	0.7589	86.1	75-125	8.236	7.33	25	
Silver	8.142	0.47	9.414	0.04949	86	75-125	7.989	1.89	25	
Uranium	8.356	0.47	9.414	0.4497	84	75-125	8.144	2.57	25	
Zinc	39.15	0.47	9.414	30	97.2	75-125	39.14	0.0385	25	

MSD		Sample ID: 1302079-01CMSD				Units: mg/Kg		Analysis Date: 2/7/2013 03:40 PM		
Client ID: MW-117 (1)		Run ID: ICPMS05_130207A				SeqNo: 3105769		Prep Date: 2/5/2013		DF: 2
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	42.5	4.7	47.07	6.718	76	75-125	44.25	4.05	25	
Sodium	1054	94	941.4	257.4	84.7	75-125	1077	2.08	25	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302079
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67584** Instrument ID **ICPMS05** Method: **SW6020**

DUP Sample ID: **1302079-01CDUP** Units: **mg/Kg** Analysis Date: **2/6/2013 05:20 PM**
 Client ID: **MW-117 (1)** Run ID: **ICPMS05_130206A** SeqNo: **3104263** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	3.417	0.48	0	0	0	0-0	3.675	7.25	25	
Barium	104.4	0.48	0	0	0	0-0	140.7	29.6	25	R
Cadmium	0.2602	0.48	0	0	0	0-0	0.2899	0	25	J
Chromium	11.21	0.48	0	0	0	0-0	11.93	6.26	25	
Cobalt	4.016	0.48	0	0	0	0-0	4.223	5.03	25	
Copper	7.396	0.48	0	0	0	0-0	7.518	1.64	25	
Iron	7861	48	0	0	0	0-0	8371	6.29	25	
Lead	8.881	0.48	0	0	0	0-0	9.213	3.66	25	
Molybdenum	0.6964	0.48	0	0	0	0-0	0.782	11.6	25	
Nickel	8.596	0.48	0	0	0	0-0	8.837	2.76	25	
Potassium	2446	48	0	0	0	0-0	2567	4.83	25	
Selenium	0.8408	0.48	0	0	0	0-0	0.7589	10.2	25	
Silver	U	0.48	0	0	0	0-0	0.04949	0	25	
Uranium	U	0.48	0	0	0		0.4497	0	25	
Zinc	27.76	0.48	0	0	0	0-0	30	7.75	25	

DUP Sample ID: **1302079-01CDUP** Units: **mg/Kg** Analysis Date: **2/6/2013 06:38 PM**
 Client ID: **MW-117 (1)** Run ID: **ICPMS05_130206A** SeqNo: **3104419** Prep Date: **2/5/2013** DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	9534	96	0	0	0	0-0	11780	21.1	25	
Calcium	58170	4,800	0	0	0	0-0	64880	10.9	25	
Manganese	291.2	48	0	0	0	0-0	317.5	8.63	25	

DUP Sample ID: **1302079-01CDUP** Units: **mg/Kg** Analysis Date: **2/7/2013 03:35 PM**
 Client ID: **MW-117 (1)** Run ID: **ICPMS05_130207A** SeqNo: **3105767** Prep Date: **2/5/2013** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	5.198	4.8	0	0	0	0-0	6.718	25.5	25	R
Sodium	236.7	96	0	0	0	0-0	257.4	8.37	25	

The following samples were analyzed in this batch:

1302079-01C	1302079-03A	1302079-06A
1302079-09A	1302079-12A	1302079-15C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302079
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67586** Instrument ID **HG02** Method: **SW7471A**

MBLK	Sample ID: GBLKS2-020513-67586				Units: µg/Kg		Analysis Date: 2/5/2013 05:08 PM			
Client ID:	Run ID: HG02_130205A				SeqNo: 3102385		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	3.3								

LCS	Sample ID: GLCSS2-020513-67586				Units: µg/Kg		Analysis Date: 2/5/2013 05:10 PM			
Client ID:	Run ID: HG02_130205A				SeqNo: 3102386		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	342.7	3.3	333.3	0	103	85-115	0			

MS	Sample ID: 1302097-02AMS				Units: µg/Kg		Analysis Date: 2/5/2013 05:16 PM			
Client ID:	Run ID: HG02_130205A				SeqNo: 3102389		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	318.7	3.4	344.1	2.743	91.8	85-115	0			

MSD	Sample ID: 1302097-02AMSD				Units: µg/Kg		Analysis Date: 2/5/2013 05:18 PM			
Client ID:	Run ID: HG02_130205A				SeqNo: 3102390		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	311.1	3.4	336.7	2.743	91.6	85-115	318.7	2.39	20	

DUP	Sample ID: 1302097-02ADUP				Units: µg/Kg		Analysis Date: 2/5/2013 05:14 PM			
Client ID:	Run ID: HG02_130205A				SeqNo: 3102388		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	3.425	3.5	0	0	0		2.743	0	20	J

The following samples were analyzed in this batch:

1302079-01C	1302079-03A	1302079-06A
1302079-09A	1302079-12A	1302079-15C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302079
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67581** Instrument ID **SV-4** Method: **SW8270**

MBLK Sample ID: **SBLKS1-130205-67581** Units: **µg/Kg** Analysis Date: **2/5/2013 01:55 PM**

Client ID: Run ID: **SV-4_130205B** SeqNo: **3102442** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	U	6.6								
2-Methylnaphthalene	U	6.6								
Benzo(a)pyrene	U	6.6								
Naphthalene	U	6.6								
<i>Surr: 2,4,6-Tribromophenol</i>	115.2	6.6	166.7	0	69.1	36-126	0			
<i>Surr: 2-Fluorobiphenyl</i>	135.8	6.6	166.7	0	81.5	43-125	0			
<i>Surr: 2-Fluorophenol</i>	116.8	6.6	166.7	0	70.1	37-125	0			
<i>Surr: 4-Terphenyl-d14</i>	161.5	6.6	166.7	0	96.9	32-125	0			
<i>Surr: Nitrobenzene-d5</i>	129.6	6.6	166.7	0	77.7	37-125	0			
<i>Surr: Phenol-d6</i>	120.6	6.6	166.7	0	72.4	40-125	0			

LCS Sample ID: **SLCSS1-130205-67581** Units: **µg/Kg** Analysis Date: **2/5/2013 02:15 PM**

Client ID: Run ID: **SV-4_130205B** SeqNo: **3102443** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	152.5	6.6	166.7	0	91.5	50-120	0			
2-Methylnaphthalene	153.8	6.6	166.7	0	92.3	50-120	0			
Benzo(a)pyrene	136.8	6.6	166.7	0	82.1	50-130	0			
Naphthalene	149.2	6.6	166.7	0	89.5	50-125	0			
<i>Surr: 2,4,6-Tribromophenol</i>	142.1	6.6	166.7	0	85.3	36-126	0			
<i>Surr: 2-Fluorobiphenyl</i>	150.5	6.6	166.7	0	90.3	43-125	0			
<i>Surr: 2-Fluorophenol</i>	117.9	6.6	166.7	0	70.8	37-125	0			
<i>Surr: 4-Terphenyl-d14</i>	170.9	6.6	166.7	0	103	32-125	0			
<i>Surr: Nitrobenzene-d5</i>	136.3	6.6	166.7	0	81.8	37-125	0			
<i>Surr: Phenol-d6</i>	120.3	6.6	166.7	0	72.2	40-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302079
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67581** Instrument ID **SV-4** Method: **SW8270**

MS Sample ID: **1302050-06CMS** Units: **µg/Kg** Analysis Date: **2/5/2013 05:39 PM**
 Client ID: Run ID: **SV-4_130205B** SeqNo: **3102445** Prep Date: **2/5/2013** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	4344	66	166.3	1316	1820	50-120	0			SEO
2-Methylnaphthalene	5004	66	166.3	1528	2090	50-120	0			SEO
Benzo(a)pyrene	123.5	66	166.3	2.558	72.8	50-130	0			
Naphthalene	147.1	66	166.3	0	88.5	50-125	0			
Surr: 2,4,6-Tribromophenol	102.1	66	166.3	0	61.4	36-126	0			
Surr: 2-Fluorobiphenyl	176.2	66	166.3	0	106	43-125	0			
Surr: 2-Fluorophenol	89.44	66	166.3	0	53.8	37-125	0			
Surr: 4-Terphenyl-d14	126.1	66	166.3	0	75.9	32-125	0			
Surr: Nitrobenzene-d5	131.6	66	166.3	0	79.1	37-125	0			
Surr: Phenol-d6	101.7	66	166.3	0	61.2	40-125	0			

MSD Sample ID: **1302050-06CMSD** Units: **µg/Kg** Analysis Date: **2/5/2013 05:59 PM**
 Client ID: Run ID: **SV-4_130205B** SeqNo: **3102446** Prep Date: **2/5/2013** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	4603	66	166.2	1316	1980	50-120	4344	5.78	30	SEO
2-Methylnaphthalene	5426	66	166.2	1528	2350	50-120	5004	8.09	30	SEO
Benzo(a)pyrene	104.2	66	166.2	2.558	61.2	50-130	123.5	17	30	
Naphthalene	181.7	66	166.2	0	109	50-125	147.1	21.1	30	
Surr: 2,4,6-Tribromophenol	113	66	166.2	0	68	36-126	102.1	10.1	30	
Surr: 2-Fluorobiphenyl	171.2	66	166.2	0	103	43-125	176.2	2.92	30	
Surr: 2-Fluorophenol	87.26	66	166.2	0	52.5	37-125	89.44	2.47	30	
Surr: 4-Terphenyl-d14	171.5	66	166.2	0	103	32-125	126.1	30.5	30	R
Surr: Nitrobenzene-d5	141.5	66	166.2	0	85.1	37-125	131.6	7.27	30	
Surr: Phenol-d6	121.6	66	166.2	0	73.2	40-125	101.7	17.8	30	

The following samples were analyzed in this batch:

1302079-01D 1302079-15D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302079
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142091** Instrument ID **VOA5** Method: **SW8260**

MBLK Sample ID: **VBLKS1-020413-R142091** Units: **µg/Kg** Analysis Date: **2/4/2013 02:20 PM**

Client ID: Run ID: **VOA5_130204A** SeqNo: **3101239** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	5.0								
1,1,2,2-Tetrachloroethane	U	5.0								
1,1,2-Trichloroethane	U	5.0								
1,1-Dichloroethane	U	5.0								
1,1-Dichloroethene	U	5.0								
1,2-Dibromoethane	U	5.0								
1,2-Dichloroethane	U	5.0								
Benzene	U	5.0								
Carbon tetrachloride	U	5.0								
Chloroform	U	5.0								
Ethylbenzene	U	5.0								
Methylene chloride	U	10								
Tetrachloroethene	U	5.0								
Toluene	U	5.0								
Trichloroethene	U	5.0								
Vinyl chloride	U	2.0								
Xylenes, Total	U	15								
Surr: 1,2-Dichloroethane-d4	43.64	0	50	0	87.3	70-128	0			
Surr: 4-Bromofluorobenzene	46.3	0	50	0	92.6	73-126	0			
Surr: Dibromofluoromethane	48.2	0	50	0	96.4	71-128	0			
Surr: Toluene-d8	51.1	0	50	0	102	73-127	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302079
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142091** Instrument ID **VOA5** Method: **SW8260**

LCS		Sample ID: VLCSS1-020413-R142091				Units: µg/Kg		Analysis Date: 2/4/2013 12:48 PM		
Client ID:		Run ID: VOA5_130204A				SeqNo: 3101238		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	56.36	5.0	50	0	113	79-124	0			
1,1,2,2-Tetrachloroethane	55.2	5.0	50	0	110	75-123	0			
1,1,2-Trichloroethane	60.76	5.0	50	0	122	79-120	0			S
1,1-Dichloroethane	57.8	5.0	50	0	116	75-124	0			
1,1-Dichloroethene	58.39	5.0	50	0	117	80-122	0			
1,2-Dibromoethane	55.86	5.0	50	0	112	79-120	0			
1,2-Dichloroethane	53.68	5.0	50	0	107	73-121	0			
Benzene	56.68	5.0	50	0	113	79-120	0			
Carbon tetrachloride	54.78	5.0	50	0	110	74-126	0			
Chloroform	51.07	5.0	50	0	102	78-120	0			
Ethylbenzene	59.14	5.0	50	0	118	80-122	0			
Methylene chloride	57.27	10	50	0	115	70-123	0			
Tetrachloroethene	55.19	5.0	50	0	110	80-121	0			
Toluene	59.27	5.0	50	0	119	79-120	0			
Trichloroethene	59.99	5.0	50	0	120	80-121	0			
Vinyl chloride	58.95	2.0	50	0	118	76-126	0			
Xylenes, Total	169.3	15	150	0	113	80-120	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	45.09	0	50	0	90.2	70-128	0			
<i>Surr: 4-Bromofluorobenzene</i>	48.08	0	50	0	96.2	73-126	0			
<i>Surr: Dibromofluoromethane</i>	49.73	0	50	0	99.5	71-128	0			
<i>Surr: Toluene-d8</i>	50.18	0	50	0	100	73-127	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302079
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142091** Instrument ID **VOA5** Method: **SW8260**

MS		Sample ID: 1302079-15AMS				Units: µg/Kg		Analysis Date: 2/4/2013 04:14 PM		
Client ID: MW-117 (25)		Run ID: VOA5_130204A				SeqNo: 3101244		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	45.09	5.0	50	0	90.2	79-124	0			
1,1,2,2-Tetrachloroethane	40.5	5.0	50	0	81	75-123	0			
1,1,2-Trichloroethane	47.23	5.0	50	0	94.5	79-120	0			
1,1-Dichloroethane	43.45	5.0	50	0	86.9	75-124	0			
1,1-Dichloroethene	51.45	5.0	50	0	103	80-122	0			
1,2-Dibromoethane	42.06	5.0	50	0	84.1	79-120	0			
1,2-Dichloroethane	38.83	5.0	50	0	77.7	73-121	0			
Benzene	44.11	5.0	50	0	88.2	79-120	0			
Carbon tetrachloride	42.94	5.0	50	0	85.9	74-126	0			
Chloroform	42.73	5.0	50	0	85.5	78-120	0			
Ethylbenzene	47.73	5.0	50	0	95.5	80-122	0			
Methylene chloride	51.41	10	50	5.438	92	70-123	0			
Tetrachloroethene	45.2	5.0	50	0	90.4	80-121	0			
Toluene	46.35	5.0	50	0	92.7	79-120	0			
Trichloroethene	49	5.0	50	0	98	80-121	0			
Vinyl chloride	53.2	2.0	50	0	106	76-126	0			
Xylenes, Total	136.9	15	150	0	91.3	80-120	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	41.91	0	50	0	83.8	70-128	0			
<i>Surr: 4-Bromofluorobenzene</i>	47.54	0	50	0	95.1	73-126	0			
<i>Surr: Dibromofluoromethane</i>	48.39	0	50	0	96.8	71-128	0			
<i>Surr: Toluene-d8</i>	46.26	0	50	0	92.5	73-127	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1302079
 Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142091** Instrument ID **VOA5** Method: **SW8260**

MSD				Sample ID: 1302079-15AMSD			Units: µg/Kg		Analysis Date: 2/4/2013 04:37 PM		
Client ID: MW-117 (25)			Run ID: VOA5_130204A			SeqNo: 3101245		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
1,1,1-Trichloroethane	58.61	5.0	50	0	117	79-124	45.09	26.1	30		
1,1,2,2-Tetrachloroethane	55.12	5.0	50	0	110	75-123	40.5	30.6	30	R	
1,1,2-Trichloroethane	59.39	5.0	50	0	119	79-120	47.23	22.8	30		
1,1-Dichloroethane	60.52	5.0	50	0	121	75-124	43.45	32.8	30	R	
1,1-Dichloroethene	59.58	5.0	50	0	119	80-122	51.45	14.6	30		
1,2-Dibromoethane	51.67	5.0	50	0	103	79-120	42.06	20.5	30		
1,2-Dichloroethane	50.73	5.0	50	0	101	73-121	38.83	26.6	30		
Benzene	56.02	5.0	50	0	112	79-120	44.11	23.8	30		
Carbon tetrachloride	47.91	5.0	50	0	95.8	74-126	42.94	10.9	30		
Chloroform	54.38	5.0	50	0	109	78-120	42.73	24	30		
Ethylbenzene	59.74	5.0	50	0	119	80-122	47.73	22.3	30		
Methylene chloride	67.26	10	50	5.438	124	70-123	51.41	26.7	30	S	
Tetrachloroethene	71.23	5.0	50	0	142	80-121	45.2	44.7	30	SR	
Toluene	60.02	5.0	50	0	120	79-120	46.35	25.7	30	S	
Trichloroethene	61.37	5.0	50	0	123	80-121	49	22.4	30	S	
Vinyl chloride	65.39	2.0	50	0	131	76-126	53.2	20.6	30	S	
Xylenes, Total	171.4	15	150	0	114	80-120	136.9	22.4	30		
Surr: 1,2-Dichloroethane-d4	51.28	0	50	0	103	70-128	41.91	20.1	30		
Surr: 4-Bromofluorobenzene	49.44	0	50	0	98.9	73-126	47.54	3.91	30		
Surr: Dibromofluoromethane	51.14	0	50	0	102	71-128	48.39	5.54	30		
Surr: Toluene-d8	49.69	0	50	0	99.4	73-127	46.26	7.15	30		

The following samples were analyzed in this batch:

1302079-01A 1302079-15A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302079
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142161** Instrument ID **VOA4** Method: **SW8260**

MBLK Sample ID: **VBLKW-130205-R142161** Units: **µg/L** Analysis Date: **2/5/2013 10:49 AM**

Client ID: Run ID: **VOA4_130205A** SeqNo: **3102121** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichloroethane	U	1.0								
Benzene	U	1.0								
Carbon tetrachloride	U	1.0								
Chloroform	U	1.0								
Ethylbenzene	U	1.0								
Methylene chloride	U	2.0								
Tetrachloroethene	U	1.0								
Toluene	U	1.0								
Trichloroethene	U	1.0								
Vinyl chloride	U	1.0								
Xylenes, Total	U	1.0								
Surr: 1,2-Dichloroethane-d4	47.14	1.0	50	0	94.3	71-125	0			
Surr: 4-Bromofluorobenzene	47.73	1.0	50	0	95.5	70-125	0			
Surr: Dibromofluoromethane	50.94	1.0	50	0	102	74-125	0			
Surr: Toluene-d8	49.25	1.0	50	0	98.5	78-123	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302079
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142161** Instrument ID **VOA4** Method: **SW8260**

LCS		Sample ID: VLCSW-130205-R142161				Units: µg/L		Analysis Date: 2/5/2013 09:37 AM		
Client ID:		Run ID: VOA4_130205A				SeqNo: 3102119		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	55.03	1.0	50	0	110	80-120	0			
1,1,2,2-Tetrachloroethane	45.4	1.0	50	0	90.8	74-123	0			
1,1,2-Trichloroethane	48.9	1.0	50	0	97.8	80-120	0			
1,1-Dichloroethane	46.19	1.0	50	0	92.4	80-120	0			
1,1-Dichloroethene	53.85	1.0	50	0	108	80-120	0			
1,2-Dibromoethane	52.93	1.0	50	0	106	80-120	0			
1,2-Dichloroethane	48.97	1.0	50	0	97.9	79-120	0			
Benzene	48.6	1.0	50	0	97.2	80-120	0			
Carbon tetrachloride	59.17	1.0	50	0	118	79-120	0			
Chloroform	47.16	1.0	50	0	94.3	80-120	0			
Ethylbenzene	48.68	1.0	50	0	97.4	80-120	0			
Methylene chloride	47.36	2.0	50	0	94.7	75-125	0			
Tetrachloroethene	52.99	1.0	50	0	106	80-120	0			
Toluene	47.82	1.0	50	0	95.6	80-121	0			
Trichloroethene	54.22	1.0	50	0	108	80-120	0			
Vinyl chloride	50.08	1.0	50	0	100	75-125	0			
Xylenes, Total	142.4	1.0	150	0	94.9	80-124	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	44.33	1.0	50	0	88.7	71-125	0			
<i>Surr: 4-Bromofluorobenzene</i>	50.11	1.0	50	0	100	70-125	0			
<i>Surr: Dibromofluoromethane</i>	49.8	1.0	50	0	99.6	74-125	0			
<i>Surr: Toluene-d8</i>	48.26	1.0	50	0	96.5	78-123	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302079
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142161** Instrument ID **VOA4** Method: **SW8260**

LCSD		Sample ID: VLCS DW-130205-R142161				Units: µg/L		Analysis Date: 2/5/2013 10:01 AM		
Client ID:		Run ID: VOA4_130205A				SeqNo: 3102120		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	52.78	1.0	50	0	106	80-120	55.03	4.17	20	
1,1,2,2-Tetrachloroethane	44.75	1.0	50	0	89.5	74-123	45.4	1.45	20	
1,1,2-Trichloroethane	48.98	1.0	50	0	98	80-120	48.9	0.168	20	
1,1-Dichloroethane	44.95	1.0	50	0	89.9	80-120	46.19	2.71	20	
1,1-Dichloroethene	51.05	1.0	50	0	102	80-120	53.85	5.34	20	
1,2-Dibromoethane	52.56	1.0	50	0	105	80-120	52.93	0.693	20	
1,2-Dichloroethane	48.06	1.0	50	0	96.1	79-120	48.97	1.89	20	
Benzene	46.95	1.0	50	0	93.9	80-120	48.6	3.45	20	
Carbon tetrachloride	57.13	1.0	50	0	114	79-120	59.17	3.51	20	
Chloroform	45.5	1.0	50	0	91	80-120	47.16	3.58	20	
Ethylbenzene	47.06	1.0	50	0	94.1	80-120	48.68	3.38	20	
Methylene chloride	46.64	2.0	50	0	93.3	75-125	47.36	1.54	20	
Tetrachloroethene	52.04	1.0	50	0	104	80-120	52.99	1.82	20	
Toluene	47	1.0	50	0	94	80-121	47.82	1.73	20	
Trichloroethene	52.61	1.0	50	0	105	80-120	54.22	3.01	20	
Vinyl chloride	46.94	1.0	50	0	93.9	75-125	50.08	6.46	20	
Xylenes, Total	140.3	1.0	150	0	93.5	80-124	142.4	1.5	20	
<i>Surr: 1,2-Dichloroethane-d4</i>	44.11	1.0	50	0	88.2	71-125	44.33	0.493	20	
<i>Surr: 4-Bromofluorobenzene</i>	51.13	1.0	50	0	102	70-125	50.11	2.03	20	
<i>Surr: Dibromofluoromethane</i>	48.61	1.0	50	0	97.2	74-125	49.8	2.42	20	
<i>Surr: Toluene-d8</i>	48.17	1.0	50	0	96.3	78-123	48.26	0.187	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302079
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142161** Instrument ID **VOA4** Method: **SW8260**

MS		Sample ID: 1302056-09AMS				Units: µg/L		Analysis Date: 2/5/2013 11:14 AM		
Client ID:		Run ID: VOA4_130205A				SeqNo: 3102122		Prep Date:		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	537.7	10	500	0	108	80-120	0			
1,1,2,2-Tetrachloroethane	439.8	10	500	0	88	74-123	0			
1,1,2-Trichloroethane	477.2	10	500	0	95.4	80-120	0			
1,1-Dichloroethane	459.9	10	500	0	92	80-120	0			
1,1-Dichloroethene	525.1	10	500	0	105	80-120	0			
1,2-Dibromoethane	510.6	10	500	0	102	80-120	0			
1,2-Dichloroethane	487.4	10	500	0	97.5	79-120	0			
Benzene	485.1	10	500	0	97	80-120	0			
Carbon tetrachloride	581.9	10	500	0	116	79-120	0			
Chloroform	469.7	10	500	0	93.9	80-120	0			
Ethylbenzene	475	10	500	0	95	80-120	0			
Methylene chloride	473.5	20	500	0	94.7	75-125	0			
Tetrachloroethene	524.4	10	500	0	105	80-120	0			
Toluene	476.7	10	500	0	95.3	80-121	0			
Trichloroethene	544.7	10	500	0	109	80-120	0			
Vinyl chloride	495.6	10	500	0	99.1	75-125	0			
Xylenes, Total	1405	10	1500	0	93.7	80-124	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	449.3	10	500	0	89.9	71-125	0			
<i>Surr: 4-Bromofluorobenzene</i>	505	10	500	0	101	70-125	0			
<i>Surr: Dibromofluoromethane</i>	495.3	10	500	0	99.1	74-125	0			
<i>Surr: Toluene-d8</i>	482.7	10	500	0	96.5	78-123	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302079
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142161** Instrument ID **VOA4** Method: **SW8260**

MSD		Sample ID: 1302056-09AMSD				Units: µg/L		Analysis Date: 2/5/2013 11:38 AM		
Client ID:		Run ID: VOA4_130205A				SeqNo: 3102123		Prep Date:		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	520.1	10	500	0	104	80-120	537.7	3.31	20	
1,1,2,2-Tetrachloroethane	434.1	10	500	0	86.8	74-123	439.8	1.3	20	
1,1,2-Trichloroethane	469.5	10	500	0	93.9	80-120	477.2	1.62	20	
1,1-Dichloroethane	440.8	10	500	0	88.2	80-120	459.9	4.23	20	
1,1-Dichloroethene	509.2	10	500	0	102	80-120	525.1	3.07	20	
1,2-Dibromoethane	506.6	10	500	0	101	80-120	510.6	0.775	20	
1,2-Dichloroethane	478	10	500	0	95.6	79-120	487.4	1.96	20	
Benzene	470	10	500	0	94	80-120	485.1	3.17	20	
Carbon tetrachloride	560.3	10	500	0	112	79-120	581.9	3.77	20	
Chloroform	451.7	10	500	0	90.3	80-120	469.7	3.89	20	
Ethylbenzene	462.6	10	500	0	92.5	80-120	475	2.64	20	
Methylene chloride	460.8	20	500	0	92.2	75-125	473.5	2.72	20	
Tetrachloroethene	504.2	10	500	0	101	80-120	524.4	3.92	20	
Toluene	462.7	10	500	0	92.5	80-121	476.7	2.98	20	
Trichloroethene	516.9	10	500	0	103	80-120	544.7	5.23	20	
Vinyl chloride	471	10	500	0	94.2	75-125	495.6	5.1	20	
Xylenes, Total	1361	10	1500	0	90.7	80-124	1405	3.17	20	
<i>Surr: 1,2-Dichloroethane-d4</i>	442.1	10	500	0	88.4	71-125	449.3	1.62	20	
<i>Surr: 4-Bromofluorobenzene</i>	501	10	500	0	100	70-125	505	0.777	20	
<i>Surr: Dibromofluoromethane</i>	494.6	10	500	0	98.9	74-125	495.3	0.14	20	
<i>Surr: Toluene-d8</i>	477.4	10	500	0	95.5	78-123	482.7	1.1	20	

The following samples were analyzed in this batch:

1302079-16A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302079
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67667** Instrument ID **UV-2450** Method: **SW9014** (Dissolve)

MBLK Sample ID: **WBLKS1-020813-67667** Units: **mg/Kg** Analysis Date: **2/8/2013 05:30 PM**

Client ID: Run ID: **UV-2450_130208F** SeqNo: **3107315** Prep Date: **2/8/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	U	2.0								

LCS Sample ID: **WLCSS1-020813-67667** Units: **mg/Kg** Analysis Date: **2/8/2013 05:30 PM**

Client ID: Run ID: **UV-2450_130208F** SeqNo: **3107316** Prep Date: **2/8/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	9.65	2.0	10	0	96.5	80-120	0			

LCSD Sample ID: **WLCSDS1-020813-67667** Units: **mg/Kg** Analysis Date: **2/8/2013 05:30 PM**

Client ID: Run ID: **UV-2450_130208F** SeqNo: **3107332** Prep Date: **2/8/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	9.35	2.0	10	0	93.5	80-120	9.65	3.16	30	

MS Sample ID: **1302079-15CMS** Units: **mg/Kg** Analysis Date: **2/8/2013 05:30 PM**

Client ID: **MW-117 (25)** Run ID: **UV-2450_130208F** SeqNo: **3107331** Prep Date: **2/8/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	8.287	1.9	9.364	0.352	84.7	75-125	0			

The following samples were analyzed in this batch:

1302079-01C	1302079-03B	1302079-06B
1302079-09B	1302079-12B	1302079-15C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302079
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67697** Instrument ID **ICS2100** Method: **E300** (Dissolve)

MBLK	Sample ID: WBLKS2-67697				Units: mg/Kg		Analysis Date: 2/7/2013 10:08 PM			
Client ID:	Run ID: ICS2100_130207B				SeqNo: 3106617		Prep Date: 2/7/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	5.0								
Fluoride	U	1.0								
Nitrogen, Nitrate (As N)	U	1.0								
Nitrogen, Nitrite (As N)	U	1.0								
Sulfate	U	5.0								
Surr: Selenate (surr)	45.54	1.0	50	0	91.1	85-115	0			

LCS	Sample ID: WLCSS2-67697					Units: mg/Kg		Analysis Date: 2/7/2013 10:22 PM		
Client ID:	Run ID: ICS2100_130207B				SeqNo: 3106618		Prep Date: 2/7/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	208.6	5.0	200	0	104	90-110	0			
Fluoride	36.01	1.0	40	0	90	90-110	0			
Nitrogen, Nitrate (As N)	40.36	1.0	40	0	101	90-110	0			
Nitrogen, Nitrite (As N)	43.96	1.0	40	0	110	90-110	0			
Sulfate	194.8	5.0	200	0	97.4	90-110	0			
Surr: Selenate (surr)	44.44	1.0	50	0	88.9	85-115	0			

MS	Sample ID: 1302079-15CMS				Units: mg/Kg		Analysis Date: 2/8/2013 12:04 AM			
Client ID: MW-117 (25)			Run ID: ICS2100_130207B			SeqNo: 3106625		Prep Date: 2/7/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	128.1	5.0	99.77	20.8	108	75-125	0			
Fluoride	25.76	1.0	19.95	4.095	109	75-125	0			
Nitrogen, Nitrate (As N)	18.89	1.0	19.95	0.4473	92.4	75-125	0			
Nitrogen, Nitrite (As N)	21.5	1.0	19.95	0	108	75-125	0			
Sulfate	496.6	5.0	99.77	313	184	75-125	0			S
Surr: Selenate (surr)	43.75	1.0	49.89	0	87.7	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302079
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67697** Instrument ID **ICS2100** Method: **E300** **(Dissolve)**

MSD Sample ID: **1302079-15CMSD** Units: **mg/Kg** Analysis Date: **2/8/2013 12:19 AM**

Client ID: **MW-117 (25)** Run ID: **ICS2100_130207B** SeqNo: **3106626** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	125	5.0	99.59	20.8	105	75-125	128.1	2.4	20	
Fluoride	24.56	1.0	19.92	4.095	103	75-125	25.76	4.77	20	
Nitrogen, Nitrate (As N)	18.41	1.0	19.92	0.4473	90.2	75-125	18.89	2.53	20	
Nitrogen, Nitrite (As N)	20.9	1.0	19.92	0	105	75-125	21.5	2.81	20	
Sulfate	484.8	5.0	99.59	313	172	75-125	496.6	2.41	20	S
Surr: Selenate (surr)	44.19	1.0	49.8	0	88.7	80-120	43.75	1	20	

The following samples were analyzed in this batch:

1302079-01C	1302079-03B	1302079-06B
1302079-09B	1302079-12B	1302079-15C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302079
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142287** Instrument ID **Balance1** Method: **SW3550** **(Dissolve)**

DUP Sample ID: **1302079-15ADUP** Units: **wt%** Analysis Date: **2/6/2013 03:40 PM**

Client ID: **MW-117 (25)** Run ID: **BALANCE1_130206C** SeqNo: **3104936** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Percent Moisture	24.04	0.010	0	0	0	0-0	24.71	2.76	20	

The following samples were analyzed in this batch:

1302079-01C	1302079-02A	1302079-03A
1302079-04A	1302079-05A	1302079-06A
1302079-07A	1302079-08A	1302079-09A
1302079-10A	1302079-11A	1302079-12A
1302079-13A	1302079-14A	1302079-15A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302079
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142356** Instrument ID **Balance1** Method: **SW3550** **(Dissolve)**

DUP Sample ID: **1302082-16ADUP** Units: **wt%** Analysis Date: **2/7/2013 03:15 PM**

Client ID: Run ID: **BALANCE1_130207C** SeqNo: **3106553** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Percent Moisture	18.28	0.010	0	0	0	0-0	18.79	2.77	20	

The following samples were analyzed in this batch:

1302079-15C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Project: RO Discharge Sampling
WorkOrder: 1302079

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
µg/Kg-dry	Micrograms per Kilogram - Dry weight corrected
mg/Kg-dry	Milligrams per Kilogram - Dry weight corrected
mg/L	Milligrams per Liter
wt%	

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**

Date/Time Received: **02-Feb-13 09:30**

Work Order: **1302079**

Received by: **RDH**

Checklist completed by Rishel D. Naran
eSignature

04-Feb-13
Date

Reviewed by: Sonia West
eSignature

05-Feb-13
Date

Matrices: **SOIL**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>2.7C U/C</u> <u>005</u>		
Cooler(s)/Kit(s):	<u>7034</u>		
Date/Time sample(s) sent to storage:	<u>2/4/13 09:32</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes: A Trip Blank sample was received but was not listed on the chain of custody. The laboratory analyzed this sample for VOC 8260.

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



Chain of Custody Form

Page 1 of 2

COC ID: **41201**

ALS Project Manager:

1302079

NAVAJO REFINING: Navajo Refining Company

Project: RO Discharge Sampling



Customer Information			Project Information				Parameters/Methodology													
Purchase Order		Project Name					A	VOC (8260) NW GW List												
Work Order		Project Number					B	GRO (8015M)												
Company Name	Navajo Refining Co	Bill To Company	Navajo Refining Co				C	DRO (8015M)												
Send Report To	Robert Combs	Invoice Attn.	Robert Combs				D	ORO (8015M) Long List												
Address	501 East Main	Address	501 East Main				E	Total Metals (6020/7000) RCRA 8												
City/State/Zip	Artesia, NM	City/State/Zip	Artesia, NM				F	LL SVOC (B270B) NW GW List												
Phone		Phone	575-748-6733				G													
Fax		Fax	575-746-5421				H	Cyanide + Arsenic												
e-Mail Address		e-Mail Address					I	Moisture												
							J	Radon												
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold			
1	MW-117 (1)	1/31/13	0855	Soil	-	5	X	X	X	X	X	X		X	X	X				
2	MW-117 (3)		0900			1									X					
3	MW-117 (5)		0915			3					X	X		X	X	X				
4	MW-117 (7)		1015			1									X					
5	MW-117 (9)		1000			1									X					
6	MW-117 (10)		1515 1033			3				X	X			X	X	X				
7	MW-117 (11)		1515			1									X					
8	MW-117 (13)		1515			1									X					
9	MW-117 (15)		1520			3				X	X			X	X	X				
10	MW-117 (17)		1520			1									X					

Sampler(s): Please Print & Sign			Shipment Method:		Required Turnaround Time:				Results Due Date:	
					<input checked="" type="checkbox"/> STD 10 Wk Days <input type="checkbox"/> 5 Wk Days <input type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour					

Relinquished by:	Date:	Time:	Received by:	Notes:
<i>Eric Bergerson</i>	2/1/13	1200	<i>ASR</i>	10 Day TAT, Dissolved Metals Field Filtered
Relinquished by:	Date:	Time:	Received by (Laboratory):	QC Package: (Check Box Below)
<i>Eric Bergerson</i>	2/1/13	1200	<i>ASR</i>	<input checked="" type="checkbox"/> Level II: Standard QC <input type="checkbox"/> Level III: Std QC + Raw Data <input type="checkbox"/> Level IV: SW846 CLP-Like Other:
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	

Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

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Environmental

Chain of Custody Form

Page 2 of 2

COC ID: 41214

☐ Cincinnati, OH
+1 513 733 5336

☐ Everett, WA
+1 425 356 2600

☐ Fort Collins, CO
+1 970 490 1511

☐ Holland, MI
+1 616 399 6070

☐ Houston, TX
+1 281 530 5656

☐ Middletown, PA
+1 717 944 5541

☐ Salt Lake City, UT
+1 801 266 7700

☐ Spring City, PA
+1 610 948 4903

☐ York, PA
+1 717 505 5280

ALS Project Manager:

Work Order #: 130209

Customer Information			Project Information				Parameter/Method Request for Analysis												
Purchase Order		Project Name	RO Discharge/Sampling				A	VOC (8260) NW GW List											
Work Order		Project Number	128823				B	GRO (8015M)											
Company Name	Navajo Refining	Bill To Company	Navajo Refining				C	DRO (8015M)											
Send Report To	Robert Combs	Invoice Attn.	Robert Combs				D	ORO (8015M)											
Address		Address	501 East Main				E	LLSVOC (B270B) NW GW List											
City/State/Zip		City/State/Zip	Artesia, NM				F	Total Metals Long List											
Phone		Phone	575-748-6733				G												
Fax		Fax	575-746-5421				H	Cyanide + Anions											
e-Mail Address		e-Mail Address					I	Moisture											
							J	Radium											
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold		
1	MW-117 (19)	1/31/13	1525	Soil	-	1						X		X	X	X			
2	MW-117 (20)		1525			3						X		X	X	X			
3	MW-117 (21)		1530			1									X				
4	MW-117 (23)		1530			1									X				
5	MW-117 (25)		1540			5	X	X	X	X	X	X		X	X	X			
6																			
7																			
8																			
9																			
10																			
Sampler(s): Please Print & Sign <i>Eric Bergersen</i>			Shipment Method:		Required Turnaround Time: <input checked="" type="checkbox"/> STD 10 Wk Days <input type="checkbox"/> 5 Wk Days <input type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour			Results Due Date:											
Relinquished by: <i>Eric Bergersen</i>		Date: 2/1/13	Time: 1200	Received by:		Notes: 10 Day TAT, Dissolved Metals Field Filtered													
Relinquished by:		Date:	Time:	Received by (Laboratory): <i>ASR</i>		QC Package: (Check Box Below)													
Logged by (Laboratory):		Date:	Time:	Checked by (Laboratory):		<input checked="" type="checkbox"/> Level II: Standard QC <input type="checkbox"/> Level III: Std QC + Raw Data <input type="checkbox"/> Level IV: SW846 CLP-Like Other:													
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035																			

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

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1302079 -

FedEx

TRK#
0215

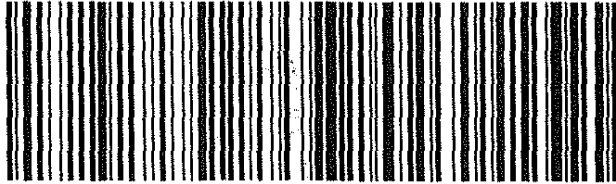
8013 7025 1558

SATURDAY ### A1
PRIORITY OVERNIGHT

X0 SGRA

77099

TX-US
IAH



Emp# 637368 01FEB13 ROWA 515C1/DF24/6F03



ALS Environmental

10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

Date:
Name:
Company:

CUSTODY SEAL

Date: 2-1-2013 Time: 1150

Name: R. McKeen

Company: ARCADY U.S.

Seal Broken By:

Date: 2/2/13



13-Feb-2013

Robert Combs
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 746-5382
Fax: (575) 746-5421

Re: RO Discharge Sampling

Work Order: **1302082**

Dear Robert,

ALS Environmental received 22 samples on 02-Feb-2013 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 62.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in black ink that reads "Sonia West".

Electronically approved by: Jumoke M. Lawal

Sonia West
Project Manager



Certificate No: T104704231-12-10

ADDRESS 10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 | PHONE (281) 530-5656 | FAX (281) 530-5887

DOV#T UR X S#K VD /#R US#Sdw#h i#kch#DOV#T ur xs##D q#DOV#Dp l#hg#F rp sdq |

Environmental

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RIGHT SOLUTIONS RIGHT PARTNER

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 1302082

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1302082-01	RO-SB-1 (1)	Soil		1/31/2013 11:45	2/2/2013 09:30	<input type="checkbox"/>
1302082-02	RO-SB-1 (3)	Soil		1/31/2013 11:50	2/2/2013 09:30	<input type="checkbox"/>
1302082-03	RO-SB-1 (5)	Soil		1/31/2013 12:00	2/2/2013 09:30	<input type="checkbox"/>
1302082-04	RO-SB-1 (7)	Soil		1/31/2013 12:30	2/2/2013 09:30	<input type="checkbox"/>
1302082-05	RO-SB-1 (9)	Soil		1/31/2013 12:45	2/2/2013 09:30	<input type="checkbox"/>
1302082-06	RO-SB-1 (10)	Soil		1/31/2013 12:50	2/2/2013 09:30	<input type="checkbox"/>
1302082-07	RO-SB-1 (11)	Soil		2/1/2013 09:53	2/2/2013 09:30	<input type="checkbox"/>
1302082-08	RO-SB-1 (13)	Soil		2/1/2013 09:53	2/2/2013 09:30	<input type="checkbox"/>
1302082-09	RO-SB-1 (15)	Soil		2/1/2013 09:57	2/2/2013 09:30	<input type="checkbox"/>
1302082-10	RO-SB-1 (17)	Soil		2/1/2013 09:47	2/2/2013 09:30	<input type="checkbox"/>
1302082-11	RO-SB-1 (19)	Soil		2/1/2013 09:47	2/2/2013 09:30	<input type="checkbox"/>
1302082-12	RO-SB-1 (20)	Soil		2/1/2013 09:40	2/2/2013 09:30	<input type="checkbox"/>
1302082-13	RO-SB-1 (21)	Soil		2/1/2013 10:18	2/2/2013 09:30	<input type="checkbox"/>
1302082-14	RO-SB-1 (23)	Soil		2/1/2013 10:18	2/2/2013 09:30	<input type="checkbox"/>
1302082-15	RO-SB-1 (25)	Soil		2/1/2013 10:18	2/2/2013 09:30	<input type="checkbox"/>
1302082-16	RO-SB-1 (27)	Soil		2/1/2013 10:10	2/2/2013 09:30	<input type="checkbox"/>
1302082-17	RO-SB-1 (29)	Soil		2/1/2013 10:10	2/2/2013 09:30	<input type="checkbox"/>
1302082-18	RO-SB-1 (30)	Soil		2/1/2013 10:10	2/2/2013 09:30	<input type="checkbox"/>
1302082-19	RO-SB-1 (31)	Soil		2/1/2013 10:05	2/2/2013 09:30	<input type="checkbox"/>
1302082-20	RO-SB-1 (33)	Soil		2/1/2013 10:05	2/2/2013 09:30	<input type="checkbox"/>
1302082-21	RO-SB-1 (35)	Soil		2/1/2013 10:05	2/2/2013 09:30	<input type="checkbox"/>
1302082-22	Trip Blank	Water		2/1/2013	2/2/2013 09:30	<input type="checkbox"/>

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 1302082

Case Narrative

Your samples received for Radium 226 and Radium 228 are reported on ALS workorder 1302223.

Batch 67579, TPH DRO/ORO, Sample 1302018-01: MS/MSD is for an unrelated sample.

Batch 67584, Metals, Sample 1302079-01: MS/MSD is for an unrelated sample.

Batch 67584, Metals, Sample 1302079-01: MS/MSD RPD is for an unrelated sample.

Batch 67584, Metals, Sample 1302079-01: Duplicate RPD is for an unrelated sample.

Batch 67614, Metals, Sample 1302140-04: MS/MSD is for an unrelated sample.

Batch 67614, Metals, Sample 1302140-04: MS/MSD RPD is for an unrelated sample.

Batch 67614, Metals, Sample 1302140-04: Duplicate RPD is for an unrelated sample.

Batch 67581, Low-Level Semivolatile Organics, Sample 1302050-06: MS/MSD is for an unrelated sample.

Batch R142091, Volatile Organics: LCS recovery was outside the control limits for 1,1,2-Trichloroethane. The associated results are Non Detect.

Batch R142091, Volatile Organics, Sample 1302079-15: MS/MSD is for an unrelated sample.

Batch 67763, Anions, Sample RO-SB-1 (35): MS/MSD recoveries were outside the control limits for Sulfate. The associated LCS recoveries and MS/MSD RPD were within the control limits.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (1)
Collection Date: 1/31/2013 11:45 AM

Work Order: 1302082
Lab ID: 1302082-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3541 / 2/5/13 Analyst: KMB							
TPH (Oil Range)	U		0.60	4.1	mg/Kg-dry	1	2/11/2013 19:20
TPH (Diesel Range)	U		0.60	2.1	mg/Kg-dry	1	2/11/2013 19:20
Surr: 2-Fluorobiphenyl	60.8			60-135	%REC	1	2/11/2013 19:20
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: KKP							
Gasoline Range Organics	U		0.024	0.061	mg/Kg-dry	1	2/5/2013 19:39
Surr: 4-Bromofluorobenzene	89.1			70-130	%REC	1	2/5/2013 19:39
MERCURY - SW7471B Method: SW7471A Prep: SW7471A / 2/5/13 Analyst: OFO							
Mercury	9.79		0.34	4.25	µg/Kg-dry	1	2/5/2013 17:44
METALS Method: SW6020 Prep: SW3050A / 2/5/13 Analyst: SKS							
Aluminum	10,800		23	117	mg/Kg-dry	100	2/7/2013 16:32
Arsenic	4.07		0.12	0.583	mg/Kg-dry	1	2/6/2013 17:49
Barium	149		0.093	0.583	mg/Kg-dry	1	2/6/2013 17:49
Boron	6.67		1.6	2.92	mg/Kg-dry	1	2/7/2013 16:04
Cadmium	0.266	J	0.058	0.583	mg/Kg-dry	1	2/6/2013 17:49
Calcium	105,000		1,200	5,830	mg/Kg-dry	100	2/7/2013 16:32
Chromium	10.6		0.11	0.583	mg/Kg-dry	1	2/6/2013 17:49
Cobalt	4.17		0.082	0.583	mg/Kg-dry	1	2/6/2013 17:49
Copper	8.25		0.12	0.583	mg/Kg-dry	1	2/6/2013 17:49
Iron	8,020		12	58.3	mg/Kg-dry	1	2/6/2013 17:49
Lead	10.6		0.058	0.583	mg/Kg-dry	1	2/6/2013 17:49
Manganese	236		12	58.3	mg/Kg-dry	100	2/7/2013 16:32
Molybdenum	0.495	J	0.18	0.583	mg/Kg-dry	1	2/6/2013 17:49
Nickel	8.27		0.11	0.583	mg/Kg-dry	1	2/6/2013 17:49
Potassium	2,690		15	58.3	mg/Kg-dry	1	2/6/2013 17:49
Selenium	0.655		0.21	0.583	mg/Kg-dry	1	2/6/2013 17:49
Silver	U		0.093	0.583	mg/Kg-dry	1	2/6/2013 17:49
Sodium	132		13	58.3	mg/Kg-dry	1	2/6/2013 17:49
Uranium	U		0.58	0.583	mg/Kg-dry	1	2/6/2013 17:49
Zinc	31.7		0.29	0.583	mg/Kg-dry	1	2/6/2013 17:49
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3541 / 2/5/13 Analyst: LG							
1-Methylnaphthalene	7.4	J	1.9	8.0	µg/Kg-dry	1	2/5/2013 21:02
2-Methylnaphthalene	8.0	J	1.9	8.0	µg/Kg-dry	1	2/5/2013 21:02
Benzo(a)pyrene	U		1.9	8.0	µg/Kg-dry	1	2/5/2013 21:02
Naphthalene	U		1.9	8.0	µg/Kg-dry	1	2/5/2013 21:02
Surr: 2,4,6-Tribromophenol	53.6			36-126	%REC	1	2/5/2013 21:02
Surr: 2-Fluorobiphenyl	75.5			43-125	%REC	1	2/5/2013 21:02

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (1)
Collection Date: 1/31/2013 11:45 AM

Work Order: 1302082
Lab ID: 1302082-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	62.5			37-125	%REC	1	2/5/2013 21:02
Surr: 4-Terphenyl-d14	115			32-125	%REC	1	2/5/2013 21:02
Surr: Nitrobenzene-d5	75.0			37-125	%REC	1	2/5/2013 21:02
Surr: Phenol-d6	50.4			40-125	%REC	1	2/5/2013 21:02
VOLATILES - SW8260C			Method: SW8260			Analyst: WLR	
1,1,1-Trichloroethane	U		2.1	6.1	µg/Kg-dry	1	2/4/2013 15:28
1,1,2,2-Tetrachloroethane	U		0.61	6.1	µg/Kg-dry	1	2/4/2013 15:28
1,1,2-Trichloroethane	U		2.4	6.1	µg/Kg-dry	1	2/4/2013 15:28
1,1-Dichloroethane	U		0.61	6.1	µg/Kg-dry	1	2/4/2013 15:28
1,1-Dichloroethene	U		1.8	6.1	µg/Kg-dry	1	2/4/2013 15:28
1,2-Dibromoethane	U		0.85	6.1	µg/Kg-dry	1	2/4/2013 15:28
1,2-Dichloroethane	U		0.73	6.1	µg/Kg-dry	1	2/4/2013 15:28
Benzene	U		0.73	6.1	µg/Kg-dry	1	2/4/2013 15:28
Carbon tetrachloride	U		1.5	6.1	µg/Kg-dry	1	2/4/2013 15:28
Chloroform	U		2.2	6.1	µg/Kg-dry	1	2/4/2013 15:28
Ethylbenzene	U		1.1	6.1	µg/Kg-dry	1	2/4/2013 15:28
Methylene chloride	7.0	J	3.0	12	µg/Kg-dry	1	2/4/2013 15:28
Tetrachloroethene	U		1.2	6.1	µg/Kg-dry	1	2/4/2013 15:28
Toluene	U		0.85	6.1	µg/Kg-dry	1	2/4/2013 15:28
Trichloroethene	U		1.9	6.1	µg/Kg-dry	1	2/4/2013 15:28
Vinyl chloride	U		1.2	2.4	µg/Kg-dry	1	2/4/2013 15:28
Xylenes, Total	U		3.2	18	µg/Kg-dry	1	2/4/2013 15:28
Surr: 1,2-Dichloroethane-d4	105			70-128	%REC	1	2/4/2013 15:28
Surr: 4-Bromofluorobenzene	104			73-126	%REC	1	2/4/2013 15:28
Surr: Dibromofluoromethane	102			71-128	%REC	1	2/4/2013 15:28
Surr: Toluene-d8	106			73-127	%REC	1	2/4/2013 15:28
ANIONS - EPA 300.0 (1993)			Method: E300			Prep: E300 / 2/10/13	
Chloride	6.56		2.4	6.06	mg/Kg-dry	1	2/11/2013 16:34
Fluoride	16.4		0.36	1.21	mg/Kg-dry	1	2/11/2013 16:34
Nitrogen, Nitrate (As N)	U		0.36	1.21	mg/Kg-dry	1	2/11/2013 16:34
Nitrogen, Nitrite (As N)	U		0.36	1.21	mg/Kg-dry	1	2/11/2013 16:34
Sulfate	204		2.4	6.06	mg/Kg-dry	1	2/11/2013 16:34
Surr: Selenate (surr)	115			85-115	%REC	1	2/11/2013 16:34
CYANIDE			Method: SW9014			Prep: SW9010C / 2/8/13	
Cyanide	U		0.71	2.36	mg/Kg-dry	1	2/8/2013 17:30
MOISTURE			Method: SW3550			Analyst: KAH	
Percent Moisture	17.7		0.010	0.0100	wt%	1	2/7/2013 15:15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (3)
Collection Date: 1/31/2013 11:50 AM

Work Order: 1302082
Lab ID: 1302082-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	23.5		0.010	0.0100	wt%	1	2/7/2013 15:15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (5)
Collection Date: 1/31/2013 12:00 PM

Work Order: 1302082
Lab ID: 1302082-03
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
Method: SW7471A				Prep: SW7471A / 2/5/13		Analyst: OFO	
Mercury	3.95	J	0.36	4.38	µg/Kg-dry	1	2/5/2013 17:46
METALS							
Method: SW6020				Prep: SW3050A / 2/5/13		Analyst: SKS	
Aluminum	7,110		24	122	mg/Kg-dry	100	2/7/2013 16:35
Arsenic	3.42		0.12	0.612	mg/Kg-dry	1	2/6/2013 17:51
Barium	180		0.098	0.612	mg/Kg-dry	1	2/6/2013 17:51
Boron	4.30		1.7	3.06	mg/Kg-dry	1	2/7/2013 16:06
Cadmium	0.0850	J	0.061	0.612	mg/Kg-dry	1	2/6/2013 17:51
Calcium	87,900		1,200	6,120	mg/Kg-dry	100	2/7/2013 16:35
Chromium	6.49		0.11	0.612	mg/Kg-dry	1	2/6/2013 17:51
Cobalt	2.59		0.086	0.612	mg/Kg-dry	1	2/6/2013 17:51
Copper	2.64		0.12	0.612	mg/Kg-dry	1	2/6/2013 17:51
Iron	4,780		12	61.2	mg/Kg-dry	1	2/6/2013 17:51
Lead	3.75		0.061	0.612	mg/Kg-dry	1	2/6/2013 17:51
Manganese	55.2		0.12	0.612	mg/Kg-dry	1	2/6/2013 17:51
Molybdenum	0.205	J	0.18	0.612	mg/Kg-dry	1	2/6/2013 17:51
Nickel	4.83		0.11	0.612	mg/Kg-dry	1	2/6/2013 17:51
Potassium	1,430		16	61.2	mg/Kg-dry	1	2/6/2013 17:51
Selenium	0.542	J	0.22	0.612	mg/Kg-dry	1	2/6/2013 17:51
Silver	U		0.098	0.612	mg/Kg-dry	1	2/6/2013 17:51
Sodium	183		13	61.2	mg/Kg-dry	1	2/6/2013 17:51
Uranium	U		0.61	0.612	mg/Kg-dry	1	2/6/2013 17:51
Zinc	14.4		0.31	0.612	mg/Kg-dry	1	2/6/2013 17:51
ANIONS - EPA 300.0 (1993)							
Method: E300				Prep: E300 / 2/10/13		Analyst: JKP	
Chloride	247		2.6	6.44	mg/Kg-dry	1	2/11/2013 16:56
Fluoride	12.5		0.39	1.29	mg/Kg-dry	1	2/11/2013 16:56
Nitrogen, Nitrate (As N)	0.515	J	0.39	1.29	mg/Kg-dry	1	2/11/2013 16:56
Nitrogen, Nitrite (As N)	U		0.39	1.29	mg/Kg-dry	1	2/11/2013 16:56
Sulfate	2,350		13	32.2	mg/Kg-dry	5	2/12/2013 10:30
Surr: Selenate (surr)	114			85-115	%REC	1	2/11/2013 16:56
Surr: Selenate (surr)	113			85-115	%REC	5	2/12/2013 10:30
CYANIDE							
Method: SW9014				Prep: SW9010C / 2/8/13		Analyst: EDG	
Cyanide	U		0.72	2.39	mg/Kg-dry	1	2/8/2013 17:30
MOISTURE							
Method: SW3550				Analyst: KAH			
Percent Moisture	22.7		0.010	0.0100	wt%	1	2/7/2013 15:15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (7)
Collection Date: 1/31/2013 12:30 PM

Work Order: 1302082
Lab ID: 1302082-04
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	25.9		0.010	0.0100	wt%	1	2/7/2013 15:15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (9)
Collection Date: 1/31/2013 12:45 PM

Work Order: 1302082
Lab ID: 1302082-05
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	32.7		0.010	0.0100	wt%	1	2/7/2013 15:15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (10)
Collection Date: 1/31/2013 12:50 PM

Work Order: 1302082
Lab ID: 1302082-06
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
Method: SW7471A				Prep: SW7471A / 2/5/13		Analyst: OFO	
Mercury	1.67	J	0.40	4.89	µg/Kg-dry	1	2/5/2013 17:48
METALS							
Method: SW6020				Prep: SW3050A / 2/5/13		Analyst: SKS	
Aluminum	4,110		25	127	mg/Kg-dry	100	2/7/2013 16:37
Arsenic	2.03		0.13	0.635	mg/Kg-dry	1	2/6/2013 17:53
Barium	186		0.10	0.635	mg/Kg-dry	1	2/6/2013 17:53
Boron	4.47	J	3.6	6.35	mg/Kg-dry	2	2/7/2013 16:09
Cadmium	0.103	J	0.063	0.635	mg/Kg-dry	1	2/6/2013 17:53
Calcium	184,000		1,300	6,350	mg/Kg-dry	100	2/7/2013 16:37
Chromium	5.94		0.11	0.635	mg/Kg-dry	1	2/6/2013 17:53
Cobalt	1.28		0.089	0.635	mg/Kg-dry	1	2/6/2013 17:53
Copper	2.52		0.13	0.635	mg/Kg-dry	1	2/6/2013 17:53
Iron	2,390		13	63.5	mg/Kg-dry	1	2/6/2013 17:53
Lead	2.02		0.063	0.635	mg/Kg-dry	1	2/6/2013 17:53
Manganese	32.3		0.13	0.635	mg/Kg-dry	1	2/6/2013 17:53
Molybdenum	U		0.19	0.635	mg/Kg-dry	1	2/6/2013 17:53
Nickel	2.40		0.11	0.635	mg/Kg-dry	1	2/6/2013 17:53
Potassium	808		16	63.5	mg/Kg-dry	1	2/6/2013 17:53
Selenium	0.276	J	0.23	0.635	mg/Kg-dry	1	2/6/2013 17:53
Silver	U		0.10	0.635	mg/Kg-dry	1	2/6/2013 17:53
Sodium	125		14	63.5	mg/Kg-dry	1	2/6/2013 17:53
Uranium	U		0.63	0.635	mg/Kg-dry	1	2/6/2013 17:53
Zinc	9.11		0.32	0.635	mg/Kg-dry	1	2/6/2013 17:53
ANIONS - EPA 300.0 (1993)							
Method: E300				Prep: E300 / 2/10/13		Analyst: JKP	
Chloride	180		2.9	7.15	mg/Kg-dry	1	2/11/2013 17:17
Fluoride	21.5		0.43	1.43	mg/Kg-dry	1	2/11/2013 17:17
Nitrogen, Nitrate (As N)	U		0.43	1.43	mg/Kg-dry	1	2/11/2013 17:17
Nitrogen, Nitrite (As N)	U		0.43	1.43	mg/Kg-dry	1	2/11/2013 17:17
Sulfate	1,900		14	35.7	mg/Kg-dry	5	2/12/2013 11:05
Surr: Selenate (surr)	114			85-115	%REC	1	2/11/2013 17:17
Surr: Selenate (surr)	111			85-115	%REC	5	2/12/2013 11:05
CYANIDE							
Method: SW9014				Prep: SW9010C / 2/8/13		Analyst: EDG	
Cyanide	U		0.81	2.71	mg/Kg-dry	1	2/8/2013 17:30
MOISTURE							
Method: SW3550				Analyst: KAH			
Percent Moisture	31.0		0.010	0.0100	wt%	1	2/7/2013 15:15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (11)
Collection Date: 2/1/2013 09:53 AM

Work Order: 1302082
Lab ID: 1302082-07
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	13.9		0.010	0.0100	wt%	1	2/7/2013 15:15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (13)
Collection Date: 2/1/2013 09:53 AM

Work Order: 1302082
Lab ID: 1302082-08
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	19.2		0.010	0.0100	wt%	1	2/7/2013 15:15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (15)
Collection Date: 2/1/2013 09:57 AM

Work Order: 1302082
Lab ID: 1302082-09
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
Method: SW7471A				Prep: SW7471A / 2/5/13		Analyst: OFO	
Mercury	3.35	J	0.37	4.51	µg/Kg-dry	1	2/5/2013 17:50
METALS							
Method: SW6020				Prep: SW3050A / 2/5/13		Analyst: SKS	
Aluminum	8,520		22	110	mg/Kg-dry	100	2/7/2013 16:44
Arsenic	1.68		0.11	0.549	mg/Kg-dry	1	2/6/2013 17:56
Barium	95.7		0.088	0.549	mg/Kg-dry	1	2/6/2013 17:56
Boron	5.80		3.1	5.49	mg/Kg-dry	2	2/7/2013 16:16
Cadmium	0.262	J	0.055	0.549	mg/Kg-dry	1	2/6/2013 17:56
Calcium	204,000		1,100	5,490	mg/Kg-dry	100	2/7/2013 16:44
Chromium	6.96		0.099	0.549	mg/Kg-dry	1	2/6/2013 17:56
Cobalt	3.65		0.077	0.549	mg/Kg-dry	1	2/6/2013 17:56
Copper	3.94		0.11	0.549	mg/Kg-dry	1	2/6/2013 17:56
Iron	5,050		11	54.9	mg/Kg-dry	1	2/6/2013 17:56
Lead	7.03		0.055	0.549	mg/Kg-dry	1	2/6/2013 17:56
Manganese	76.1		0.11	0.549	mg/Kg-dry	1	2/6/2013 17:56
Molybdenum	0.165	J	0.16	0.549	mg/Kg-dry	1	2/6/2013 17:56
Nickel	5.53		0.099	0.549	mg/Kg-dry	1	2/6/2013 17:56
Potassium	1,740		14	54.9	mg/Kg-dry	1	2/6/2013 17:56
Selenium	0.943		0.20	0.549	mg/Kg-dry	1	2/6/2013 17:56
Silver	U		0.088	0.549	mg/Kg-dry	1	2/6/2013 17:56
Sodium	123		12	54.9	mg/Kg-dry	1	2/6/2013 17:56
Uranium	U		0.55	0.549	mg/Kg-dry	1	2/6/2013 17:56
Zinc	20.0		0.27	0.549	mg/Kg-dry	1	2/6/2013 17:56
ANIONS - EPA 300.0 (1993)							
Method: E300				Prep: E300 / 2/10/13		Analyst: JKP	
Chloride	80.6		2.6	6.52	mg/Kg-dry	1	2/11/2013 17:39
Fluoride	15.3		0.39	1.30	mg/Kg-dry	1	2/11/2013 17:39
Nitrogen, Nitrate (As N)	0.940	J	0.39	1.30	mg/Kg-dry	1	2/11/2013 17:39
Nitrogen, Nitrite (As N)	U		0.39	1.30	mg/Kg-dry	1	2/11/2013 17:39
Sulfate	832		2.6	6.52	mg/Kg-dry	1	2/11/2013 17:39
Surr: Selenate (surr)	114			85-115	%REC	1	2/11/2013 17:39
CYANIDE							
Method: SW9014				Prep: SW9010C / 2/8/13		Analyst: EDG	
Cyanide	U		0.71	2.35	mg/Kg-dry	1	2/8/2013 17:30
MOISTURE							
Method: SW3550				Analyst: KAH			
Percent Moisture	23.5		0.010	0.0100	wt%	1	2/7/2013 15:15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (17)
Collection Date: 2/1/2013 09:47 AM

Work Order: 1302082
Lab ID: 1302082-10
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	24.0		0.010	0.0100	wt%	1	2/7/2013 15:15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (19)
Collection Date: 2/1/2013 09:47 AM

Work Order: 1302082
Lab ID: 1302082-11
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	20.8		0.010	0.0100	wt%	1	2/7/2013 15:15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (20)
Collection Date: 2/1/2013 09:40 AM

Work Order: 1302082
Lab ID: 1302082-12
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
Method: SW7471A				Prep: SW7471A / 2/5/13		Analyst: OFO	
Mercury	1.02	J	0.35	4.25	µg/Kg-dry	1	2/5/2013 17:56
METALS							
Method: SW6020				Prep: SW3050A / 2/6/13		Analyst: ALR	
Aluminum	6,090		24	121	mg/Kg-dry	100	2/11/2013 21:29
Arsenic	2.91		0.12	0.606	mg/Kg-dry	1	2/9/2013 05:22
Barium	268		9.7	60.6	mg/Kg-dry	100	2/11/2013 21:29
Boron	3.56		1.7	3.03	mg/Kg-dry	1	2/9/2013 05:22
Cadmium	0.245	J	0.061	0.606	mg/Kg-dry	1	2/9/2013 05:22
Calcium	252,000		1,200	6,060	mg/Kg-dry	100	2/11/2013 21:29
Chromium	6.61		0.11	0.606	mg/Kg-dry	1	2/9/2013 05:22
Cobalt	1.20		0.085	0.606	mg/Kg-dry	1	2/9/2013 05:22
Copper	2.38		0.12	0.606	mg/Kg-dry	1	2/9/2013 05:22
Iron	3,230		12	60.6	mg/Kg-dry	1	2/9/2013 05:22
Lead	4.04		0.061	0.606	mg/Kg-dry	1	2/9/2013 05:22
Manganese	35.3		0.12	0.606	mg/Kg-dry	1	2/9/2013 05:22
Molybdenum	U		0.18	0.606	mg/Kg-dry	1	2/9/2013 05:22
Nickel	3.95		0.11	0.606	mg/Kg-dry	1	2/9/2013 05:22
Potassium	1,250		16	60.6	mg/Kg-dry	1	2/9/2013 05:22
Selenium	0.620		0.22	0.606	mg/Kg-dry	1	2/9/2013 05:22
Silver	U		0.097	0.606	mg/Kg-dry	1	2/9/2013 05:22
Sodium	101		13	60.6	mg/Kg-dry	1	2/9/2013 05:22
Uranium	U		0.61	0.606	mg/Kg-dry	1	2/9/2013 05:22
Zinc	9.84		0.30	0.606	mg/Kg-dry	1	2/9/2013 05:22
ANIONS - EPA 300.0 (1993)							
Method: E300				Prep: E300 / 2/10/13		Analyst: JKP	
Chloride	71.5		2.5	6.18	mg/Kg-dry	1	2/11/2013 18:01
Fluoride	9.85		0.37	1.24	mg/Kg-dry	1	2/11/2013 18:01
Nitrogen, Nitrate (As N)	0.840	J	0.37	1.24	mg/Kg-dry	1	2/11/2013 18:01
Nitrogen, Nitrite (As N)	U		0.37	1.24	mg/Kg-dry	1	2/11/2013 18:01
Sulfate	703		2.5	6.18	mg/Kg-dry	1	2/11/2013 18:01
Surr: Selenate (surr)	113			85-115	%REC	1	2/11/2013 18:01
CYANIDE							
Method: SW9014				Prep: SW9010C / 2/8/13		Analyst: EDG	
Cyanide	0.788	J	0.73	2.42	mg/Kg-dry	1	2/8/2013 17:30
MOISTURE							
Method: SW3550				Analyst: KAH			
Percent Moisture	20.3		0.010	0.0100	wt%	1	2/7/2013 15:15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (21)
Collection Date: 2/1/2013 10:18 AM

Work Order: 1302082
Lab ID: 1302082-13
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	28.8		0.010	0.0100	wt%	1	2/7/2013 15:15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (23)
Collection Date: 2/1/2013 10:18 AM

Work Order: 1302082
Lab ID: 1302082-14
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	19.9		0.010	0.0100	wt%	1	2/7/2013 15:15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (25)
Collection Date: 2/1/2013 10:18 AM

Work Order: 1302082
Lab ID: 1302082-15
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
Method: SW7471A				Prep: SW7471A / 2/5/13		Analyst: OFO	
Mercury	27.4		0.35	4.26	µg/Kg-dry	1	2/5/2013 17:58
METALS							
Method: SW6020				Prep: SW3050A / 2/6/13		Analyst: ALR	
Aluminum	18,600		25	124	mg/Kg-dry	100	2/11/2013 21:34
Arsenic	3.12		0.12	0.621	mg/Kg-dry	1	2/9/2013 05:27
Barium	16.5		0.099	0.621	mg/Kg-dry	1	2/9/2013 05:27
Boron	3.76		1.7	3.10	mg/Kg-dry	1	2/9/2013 05:27
Cadmium	U		0.062	0.621	mg/Kg-dry	1	2/9/2013 05:27
Calcium	11,500		12	62.1	mg/Kg-dry	1	2/9/2013 05:27
Chromium	9.20		0.11	0.621	mg/Kg-dry	1	2/9/2013 05:27
Cobalt	6.52		0.087	0.621	mg/Kg-dry	1	2/9/2013 05:27
Copper	6.56		0.12	0.621	mg/Kg-dry	1	2/9/2013 05:27
Iron	9,750		12	62.1	mg/Kg-dry	1	2/9/2013 05:27
Lead	12.0		0.062	0.621	mg/Kg-dry	1	2/9/2013 05:27
Manganese	193		0.12	0.621	mg/Kg-dry	1	2/9/2013 05:27
Molybdenum	0.420	J	0.19	0.621	mg/Kg-dry	1	2/9/2013 05:27
Nickel	10.4		0.11	0.621	mg/Kg-dry	1	2/9/2013 05:27
Potassium	3,560		16	62.1	mg/Kg-dry	1	2/9/2013 05:27
Selenium	0.414	J	0.22	0.621	mg/Kg-dry	1	2/9/2013 05:27
Silver	U		0.099	0.621	mg/Kg-dry	1	2/9/2013 05:27
Sodium	105		14	62.1	mg/Kg-dry	1	2/9/2013 05:27
Uranium	U		0.62	0.621	mg/Kg-dry	1	2/9/2013 05:27
Zinc	30.7		0.31	0.621	mg/Kg-dry	1	2/9/2013 05:27
ANIONS - EPA 300.0 (1993)							
Method: E300				Prep: E300 / 2/10/13		Analyst: JKP	
Chloride	108		2.5	6.27	mg/Kg-dry	1	2/11/2013 18:23
Fluoride	14.6		0.38	1.25	mg/Kg-dry	1	2/11/2013 18:23
Nitrogen, Nitrate (As N)	U		0.38	1.25	mg/Kg-dry	1	2/11/2013 18:23
Nitrogen, Nitrite (As N)	U		0.38	1.25	mg/Kg-dry	1	2/11/2013 18:23
Sulfate	851		2.5	6.27	mg/Kg-dry	1	2/11/2013 18:23
Surr: Selenate (surr)	114			85-115	%REC	1	2/11/2013 18:23
CYANIDE							
Method: SW9014				Prep: SW9010C / 2/8/13		Analyst: EDG	
Cyanide	0.747	J	0.75	2.49	mg/Kg-dry	1	2/8/2013 17:30
MOISTURE							
Method: SW3550				Analyst: KAH			
Percent Moisture	20.9		0.010	0.0100	wt%	1	2/7/2013 15:15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (27)
Collection Date: 2/1/2013 10:10 AM

Work Order: 1302082
Lab ID: 1302082-16
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	18.8		0.010	0.0100	wt%	1	2/7/2013 15:15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (29)
Collection Date: 2/1/2013 10:10 AM

Work Order: 1302082
Lab ID: 1302082-17
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	20.9		0.010	0.0100	wt%	1	2/8/2013 14:55

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (30)
Collection Date: 2/1/2013 10:10 AM

Work Order: 1302082
Lab ID: 1302082-18
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
Method: SW7471A				Prep: SW7471A / 2/5/13		Analyst: OFO	
Mercury	0.638	J	0.37	4.54	µg/Kg-dry	1	2/5/2013 18:00
METALS							
Method: SW6020				Prep: SW3050A / 2/6/13		Analyst: ALR	
Aluminum	7,810		27	134	mg/Kg-dry	100	2/11/2013 21:39
Arsenic	2.01		0.13	0.669	mg/Kg-dry	1	2/9/2013 05:32
Barium	40.7		0.11	0.669	mg/Kg-dry	1	2/9/2013 05:32
Boron	3.67		1.9	3.35	mg/Kg-dry	1	2/9/2013 05:32
Cadmium	0.151	J	0.067	0.669	mg/Kg-dry	1	2/9/2013 05:32
Calcium	95,500		1,300	6,690	mg/Kg-dry	100	2/11/2013 21:39
Chromium	6.41		0.12	0.669	mg/Kg-dry	1	2/9/2013 05:32
Cobalt	1.97		0.094	0.669	mg/Kg-dry	1	2/9/2013 05:32
Copper	2.72		0.13	0.669	mg/Kg-dry	1	2/9/2013 05:32
Iron	4,870		13	66.9	mg/Kg-dry	1	2/9/2013 05:32
Lead	4.05		0.067	0.669	mg/Kg-dry	1	2/9/2013 05:32
Manganese	78.8		0.13	0.669	mg/Kg-dry	1	2/9/2013 05:32
Molybdenum	0.220	J	0.20	0.669	mg/Kg-dry	1	2/9/2013 05:32
Nickel	4.51		0.12	0.669	mg/Kg-dry	1	2/9/2013 05:32
Potassium	1,450		17	66.9	mg/Kg-dry	1	2/9/2013 05:32
Selenium	0.539	J	0.24	0.669	mg/Kg-dry	1	2/9/2013 05:32
Silver	U		0.11	0.669	mg/Kg-dry	1	2/9/2013 05:32
Sodium	100		15	66.9	mg/Kg-dry	1	2/9/2013 05:32
Uranium	U		0.67	0.669	mg/Kg-dry	1	2/9/2013 05:32
Zinc	14.9		0.33	0.669	mg/Kg-dry	1	2/9/2013 05:32
ANIONS - EPA 300.0 (1993)							
Method: E300				Prep: E300 / 2/10/13		Analyst: JKP	
Chloride	134		2.7	6.72	mg/Kg-dry	1	2/11/2013 18:44
Fluoride	5.24		0.40	1.34	mg/Kg-dry	1	2/11/2013 18:44
Nitrogen, Nitrate (As N)	U		0.40	1.34	mg/Kg-dry	1	2/11/2013 18:44
Nitrogen, Nitrite (As N)	U		0.40	1.34	mg/Kg-dry	1	2/11/2013 18:44
Sulfate	763		2.7	6.72	mg/Kg-dry	1	2/11/2013 18:44
Surr: Selenate (surr)	113			85-115	%REC	1	2/11/2013 18:44
CYANIDE							
Method: SW9014				Prep: SW9010C / 2/8/13		Analyst: EDG	
Cyanide	U		0.74	2.48	mg/Kg-dry	1	2/8/2013 17:30
MOISTURE							
Method: SW3550				Analyst: KAH			
Percent Moisture	26.6		0.010	0.0100	wt%	1	2/8/2013 14:55

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (31)
Collection Date: 2/1/2013 10:05 AM

Work Order: 1302082
Lab ID: 1302082-19
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE							
			Method: SW3550				Analyst: KAH
Percent Moisture	24.7		0.010	0.0100	wt%	1	2/8/2013 14:55

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (33)
Collection Date: 2/1/2013 10:05 AM

Work Order: 1302082
Lab ID: 1302082-20
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	16.1		0.010	0.0100	wt%	1	2/8/2013 14:55

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (35)
Collection Date: 2/1/2013 10:05 AM

Work Order: 1302082
Lab ID: 1302082-21
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3541 / 2/5/13 Analyst: KMB							
TPH (Oil Range)	U		0.59	4.0	mg/Kg-dry	1	2/11/2013 19:43
TPH (Diesel Range)	U		0.59	2.0	mg/Kg-dry	1	2/11/2013 19:43
Surr: 2-Fluorobiphenyl	60.5			60-135	%REC	1	2/11/2013 19:43
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: KKP							
Gasoline Range Organics	U		0.024	0.059	mg/Kg-dry	1	2/5/2013 19:58
Surr: 4-Bromofluorobenzene	92.6			70-130	%REC	1	2/5/2013 19:58
MERCURY - SW7471B Method: SW7471A Prep: SW7471A / 2/5/13 Analyst: OFO							
Mercury	U		0.33	4.09	µg/Kg-dry	1	2/5/2013 18:02
METALS Method: SW6020 Prep: SW3050A / 2/6/13 Analyst: ALR							
Aluminum	4,280		23	113	mg/Kg-dry	100	2/11/2013 21:44
Arsenic	1.82		0.11	0.564	mg/Kg-dry	1	2/9/2013 05:37
Barium	72.7		0.090	0.564	mg/Kg-dry	1	2/9/2013 05:37
Boron	2.01	J	1.6	2.82	mg/Kg-dry	1	2/9/2013 05:37
Cadmium	0.0817	J	0.056	0.564	mg/Kg-dry	1	2/9/2013 05:37
Calcium	73,200		1,100	5,640	mg/Kg-dry	100	2/11/2013 21:44
Chromium	4.22		0.10	0.564	mg/Kg-dry	1	2/9/2013 05:37
Cobalt	1.87		0.079	0.564	mg/Kg-dry	1	2/9/2013 05:37
Copper	1.70		0.11	0.564	mg/Kg-dry	1	2/9/2013 05:37
Iron	3,220		11	56.4	mg/Kg-dry	1	2/9/2013 05:37
Lead	2.92		0.056	0.564	mg/Kg-dry	1	2/9/2013 05:37
Manganese	58.1		0.11	0.564	mg/Kg-dry	1	2/9/2013 05:37
Molybdenum	0.198	J	0.17	0.564	mg/Kg-dry	1	2/9/2013 05:37
Nickel	3.34		0.10	0.564	mg/Kg-dry	1	2/9/2013 05:37
Potassium	932		15	56.4	mg/Kg-dry	1	2/9/2013 05:37
Selenium	0.332	J	0.20	0.564	mg/Kg-dry	1	2/9/2013 05:37
Silver	U		0.090	0.564	mg/Kg-dry	1	2/9/2013 05:37
Sodium	53.7	J	12	56.4	mg/Kg-dry	1	2/9/2013 05:37
Uranium	U		0.56	0.564	mg/Kg-dry	1	2/9/2013 05:37
Zinc	8.89		0.28	0.564	mg/Kg-dry	1	2/9/2013 05:37
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3541 / 2/5/13 Analyst: LG							
1-Methylnaphthalene	U		1.9	7.8	µg/Kg-dry	1	2/5/2013 21:22
2-Methylnaphthalene	U		1.9	7.8	µg/Kg-dry	1	2/5/2013 21:22
Benzo(a)pyrene	U		1.9	7.8	µg/Kg-dry	1	2/5/2013 21:22
Naphthalene	U		1.9	7.8	µg/Kg-dry	1	2/5/2013 21:22
Surr: 2,4,6-Tribromophenol	60.2			36-126	%REC	1	2/5/2013 21:22
Surr: 2-Fluorobiphenyl	79.2			43-125	%REC	1	2/5/2013 21:22

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (35)
Collection Date: 2/1/2013 10:05 AM

Work Order: 1302082
Lab ID: 1302082-21
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	63.8			37-125	%REC	1	2/5/2013 21:22
Surr: 4-Terphenyl-d14	119			32-125	%REC	1	2/5/2013 21:22
Surr: Nitrobenzene-d5	72.4			37-125	%REC	1	2/5/2013 21:22
Surr: Phenol-d6	64.0			40-125	%REC	1	2/5/2013 21:22
VOLATILES - SW8260C			Method: SW8260			Analyst: WLR	
1,1,1-Trichloroethane	U		2.0	5.9	µg/Kg-dry	1	2/4/2013 15:51
1,1,2,2-Tetrachloroethane	U		0.59	5.9	µg/Kg-dry	1	2/4/2013 15:51
1,1,2-Trichloroethane	U		2.4	5.9	µg/Kg-dry	1	2/4/2013 15:51
1,1-Dichloroethane	U		0.59	5.9	µg/Kg-dry	1	2/4/2013 15:51
1,1-Dichloroethene	U		1.8	5.9	µg/Kg-dry	1	2/4/2013 15:51
1,2-Dibromoethane	U		0.83	5.9	µg/Kg-dry	1	2/4/2013 15:51
1,2-Dichloroethane	U		0.71	5.9	µg/Kg-dry	1	2/4/2013 15:51
Benzene	U		0.71	5.9	µg/Kg-dry	1	2/4/2013 15:51
Carbon tetrachloride	U		1.4	5.9	µg/Kg-dry	1	2/4/2013 15:51
Chloroform	U		2.1	5.9	µg/Kg-dry	1	2/4/2013 15:51
Ethylbenzene	U		1.1	5.9	µg/Kg-dry	1	2/4/2013 15:51
Methylene chloride	5.6	J	3.0	12	µg/Kg-dry	1	2/4/2013 15:51
Tetrachloroethene	U		1.2	5.9	µg/Kg-dry	1	2/4/2013 15:51
Toluene	U		0.83	5.9	µg/Kg-dry	1	2/4/2013 15:51
Trichloroethene	U		1.9	5.9	µg/Kg-dry	1	2/4/2013 15:51
Vinyl chloride	U		1.2	2.4	µg/Kg-dry	1	2/4/2013 15:51
Xylenes, Total	U		3.1	18	µg/Kg-dry	1	2/4/2013 15:51
Surr: 1,2-Dichloroethane-d4	87.4			70-128	%REC	1	2/4/2013 15:51
Surr: 4-Bromofluorobenzene	94.6			73-126	%REC	1	2/4/2013 15:51
Surr: Dibromofluoromethane	97.1			71-128	%REC	1	2/4/2013 15:51
Surr: Toluene-d8	94.4			73-127	%REC	1	2/4/2013 15:51
ANIONS - EPA 300.0 (1993)			Method: E300			Prep: E300 / 2/10/13	
Chloride	46.7		2.3	5.87	mg/Kg-dry	1	2/11/2013 19:06
Fluoride	5.80		0.35	1.17	mg/Kg-dry	1	2/11/2013 19:06
Nitrogen, Nitrate (As N)	U		0.35	1.17	mg/Kg-dry	1	2/11/2013 19:06
Nitrogen, Nitrite (As N)	U		0.35	1.17	mg/Kg-dry	1	2/11/2013 19:06
Sulfate	614		2.3	5.87	mg/Kg-dry	1	2/11/2013 19:06
Surr: Selenate (surr)	115			85-115	%REC	1	2/11/2013 19:06
CYANIDE			Method: SW9014			Prep: SW9010C / 2/8/13	
Cyanide	0.672	J	0.67	2.24	mg/Kg-dry	1	2/8/2013 17:30
MOISTURE			Method: SW3550			Analyst: KAH	
Percent Moisture	16.0		0.010	0.0100	wt%	1	2/8/2013 14:55

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: Trip Blank
Collection Date: 2/1/2013

Work Order: 1302082
Lab ID: 1302082-22
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/5/2013 15:40
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	2/5/2013 15:40
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/5/2013 15:40
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/5/2013 15:40
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	2/5/2013 15:40
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	2/5/2013 15:40
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/5/2013 15:40
Benzene	U		0.00020	0.0010	mg/L	1	2/5/2013 15:40
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	2/5/2013 15:40
Chloroform	U		0.00030	0.0010	mg/L	1	2/5/2013 15:40
Ethylbenzene	U		0.00030	0.0010	mg/L	1	2/5/2013 15:40
Methylene chloride	U		0.00040	0.0020	mg/L	1	2/5/2013 15:40
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	2/5/2013 15:40
Toluene	U		0.00030	0.0010	mg/L	1	2/5/2013 15:40
Trichloroethene	U		0.00020	0.0010	mg/L	1	2/5/2013 15:40
Vinyl chloride	U		0.00040	0.0010	mg/L	1	2/5/2013 15:40
Xylenes, Total	U		0.00030	0.0010	mg/L	1	2/5/2013 15:40
Surr: 1,2-Dichloroethane-d4	95.2			71-125	%REC	1	2/5/2013 15:40
Surr: 4-Bromofluorobenzene	95.3			70-125	%REC	1	2/5/2013 15:40
Surr: Dibromofluoromethane	103			74-125	%REC	1	2/5/2013 15:40
Surr: Toluene-d8	98.5			78-123	%REC	1	2/5/2013 15:40

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Work Order: 1302082
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67579** Instrument ID **FID-7** Method: **SW8015M**

MBLK	Sample ID: FBLKS1-130205-67579				Units: mg/Kg		Analysis Date: 2/6/2013 11:56 AM			
Client ID:	Run ID: FID-7_130206A				SeqNo: 3104153		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Oil Range)	U	3.4								
TPH (Diesel Range)	U	1.7								
<i>Surr: 2-Fluorobiphenyl</i>	2.092	0.10	3.33	0	62.8	60-135	0			

LCS	Sample ID: FLCSS1-130205-67579				Units: mg/Kg		Analysis Date: 2/6/2013 12:19 PM			
Client ID:	Run ID: FID-7_130206A				SeqNo: 3104154		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Oil Range)	27.05	3.4	33.33	0	81.2	70-130	0			
TPH (Diesel Range)	35.72	1.7	33.33	0	107	70-130	0			
<i>Surr: 2-Fluorobiphenyl</i>	2.536	0.10	3.33	0	76.2	60-135	0			

MS	Sample ID: 1302018-01BMS				Units: mg/Kg		Analysis Date: 2/6/2013 01:06 PM			
Client ID:	Run ID: FID-7_130206A				SeqNo: 3104156		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Oil Range)	229.1	3.4	33.23	219.8	28.1	70-130	0			SEO
TPH (Diesel Range)	80.52	1.7	33.23	75.45	15.3	70-130	0			SE
<i>Surr: 2-Fluorobiphenyl</i>	2.284	0.10	3.32	0	68.8	60-135	0			

MSD	Sample ID: 1302018-01BMSD				Units: mg/Kg		Analysis Date: 2/6/2013 01:29 PM			
Client ID:	Run ID: FID-7_130206A				SeqNo: 3104157		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Oil Range)	207.2	3.4	33.24	219.8	-37.7	70-130	229.1	10	30	SEO
TPH (Diesel Range)	76.56	1.7	33.24	75.45	3.32	70-130	80.52	5.05	30	SE
<i>Surr: 2-Fluorobiphenyl</i>	2.311	0.10	3.321	0	69.6	60-135	2.284	1.17	30	

The following samples were analyzed in this batch:

1302082-01D	1302082-21D
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 1 of 29

Client: Navajo Refining Company
Work Order: 1302082
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142225** Instrument ID **FID-9** Method: **SW8015**

MBLK	Sample ID: GBLKS-130205-R142225				Units: mg/Kg		Analysis Date: 2/5/2013 01:02 PM			
Client ID:	Run ID: FID-9_130205A				SeqNo: 3103619		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	U	0.050								
Surr: 4-Bromofluorobenzene	0.08374	0.0050	0.1	0	83.7	70-130	0			

LCS	Sample ID: GLCSS-130205-R142225				Units: mg/Kg		Analysis Date: 2/5/2013 12:25 PM			
Client ID:	Run ID: FID-9_130205A				SeqNo: 3103613		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.942	0.050	1	0	94.2	70-130	0			
Surr: 4-Bromofluorobenzene	0.09701	0.0050	0.1	0	97	70-130	0			

LCSD	Sample ID: GLCSDS-130205-R142225				Units: mg/Kg		Analysis Date: 2/5/2013 12:44 PM			
Client ID:	Run ID: FID-9_130205A				SeqNo: 3103616		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.9525	0.050	1	0	95.2	70-130	0.942	1.11	30	
Surr: 4-Bromofluorobenzene	0.09686	0.0050	0.1	0	96.9	70-130	0.09701	0.146	30	

MS	Sample ID: 1302018-04ZMS				Units: mg/Kg		Analysis Date: 2/5/2013 04:11 PM			
Client ID:	Run ID: FID-9_130205A				SeqNo: 3103628		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.8005	0.050	1	0	80	70-130	0			
Surr: 4-Bromofluorobenzene	0.08728	0.0050	0.1	0	87.3	70-130	0			

MSD	Sample ID: 1302018-04ZMSD				Units: mg/Kg		Analysis Date: 2/5/2013 04:30 PM			
Client ID:	Run ID: FID-9_130205A				SeqNo: 3103632		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.8125	0.050	1	0	81.2	70-130	0.8005	1.49	30	
Surr: 4-Bromofluorobenzene	0.08872	0.0050	0.1	0	88.7	70-130	0.08728	1.64	30	

The following samples were analyzed in this batch:

1302082-01B 1302082-21B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302082
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67584** Instrument ID **ICPMS05** Method: **SW6020**

MBLK Sample ID: **MBLKS1-020513-67584** Units: **mg/Kg** Analysis Date: **2/8/2013 12:22 PM**

Client ID: Run ID: **ICPMS05_130208A** SeqNo: **3106572** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	U	1.0								
Arsenic	U	0.50								
Barium	U	0.50								
Boron	U	2.5								
Cadmium	U	0.50								
Calcium	U	50								
Chromium	U	0.50								
Cobalt	U	0.50								
Copper	U	0.50								
Iron	U	50								
Lead	U	0.50								
Manganese	U	0.50								
Molybdenum	U	0.50								
Nickel	U	0.50								
Potassium	U	50								
Selenium	U	0.50								
Silver	U	0.50								
Sodium	U	50								
Uranium	U	0.50								
Zinc	U	0.50								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302082
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67584** Instrument ID **ICPMS05** Method: **SW6020**

LCS Sample ID: **MLCSS1-020513-67584** Units: **mg/Kg** Analysis Date: **2/6/2013 05:15 PM**

Client ID: Run ID: **ICPMS05_130206A** SeqNo: **3104261** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	11.63	1.0	10	0	116	80-120	0			
Arsenic	10.09	0.50	10	0	101	80-120	0			
Barium	10.49	0.50	10	0	105	80-120	0			
Boron	55.62	2.5	50	0	111	80-120	0			
Cadmium	10.17	0.50	10	0	102	80-120	0			
Calcium	1031	50	1000	0	103	80-120	0			
Chromium	10.57	0.50	10	0	106	80-120	0			
Cobalt	10.08	0.50	10	0	101	80-120	0			
Copper	10.5	0.50	10	0	105	80-120	0			
Iron	1021	50	1000	0	102	80-120	0			
Lead	10.22	0.50	10	0	102	80-120	0			
Manganese	10.18	0.50	10	0	102	80-120	0			
Molybdenum	10.14	0.50	10	0	101	80-120	0			
Nickel	10.22	0.50	10	0	102	80-120	0			
Potassium	1020	50	1000	0	102	80-120	0			
Selenium	10.63	0.50	10	0	106	80-120	0			
Silver	10.11	0.50	10	0	101	80-120	0			
Sodium	1065	50	1000	0	106	80-120	0			
Uranium	9.751	0.50	10	0	97.5	80-120	0			
Zinc	10.48	0.50	10	0	105	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302082
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67584** Instrument ID **ICPMS05** Method: **SW6020**

MS		Sample ID: 1302079-01CMS				Units: mg/Kg		Analysis Date: 2/6/2013 05:22 PM		
Client ID:		Run ID: ICPMS05_130206A				SeqNo: 3104264		Prep Date: 2/5/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	10850	0.95	9.479	10650	2130	75-125	0			SEO
Arsenic	11.05	0.47	9.479	3.675	77.8	75-125	0			
Barium	119.3	0.47	9.479	140.7	-226	75-125	0			SO
Cadmium	8.126	0.47	9.479	0.2899	82.7	75-125	0			
Calcium	58010	47	947.9	63280	-555	75-125	0			SEO
Chromium	19.97	0.47	9.479	11.93	84.9	75-125	0			
Cobalt	12.3	0.47	9.479	4.223	85.2	75-125	0			
Copper	16.19	0.47	9.479	7.518	91.5	75-125	0			
Iron	8984	47	947.9	8371	64.7	75-125	0			SO
Lead	22.47	0.47	9.479	9.213	140	75-125	0			S
Manganese	313.3	0.47	9.479	323.3	-106	75-125	0			SEO
Molybdenum	7.01	0.47	9.479	0.782	65.7	75-125	0			S
Nickel	16.57	0.47	9.479	8.837	81.6	75-125	0			
Potassium	3413	47	947.9	2567	89.3	75-125	0			
Selenium	8.236	0.47	9.479	0.7589	78.9	75-125	0			
Silver	7.989	0.47	9.479	0.04949	83.8	75-125	0			
Uranium	8.144	0.47	9.479	0.4497	81.2	75-125	0			
Zinc	39.14	0.47	9.479	30	96.4	75-125	0			

MS		Sample ID: 1302079-01CMS				Units: mg/Kg		Analysis Date: 2/7/2013 03:38 PM		
Client ID:		Run ID: ICPMS05_130207A				SeqNo: 3105768		Prep Date: 2/5/2013		DF: 2
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	44.25	4.7	47.39	6.718	79.2	75-125	0			
Sodium	1077	95	947.9	257.4	86.4	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302082
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67584** Instrument ID **ICPMS05** Method: **SW6020**

MSD		Sample ID: 1302079-01CMSD				Units: mg/Kg		Analysis Date: 2/6/2013 05:25 PM		
Client ID:		Run ID: ICPMS05_130206A				SeqNo: 3104265		Prep Date: 2/5/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	12260	0.94	9.414	10650	17200	75-125	10850	12.2	25	SEO
Arsenic	11.58	0.47	9.414	3.675	84	75-125	11.05	4.7	25	
Barium	137.2	0.47	9.414	140.7	-36.9	75-125	119.3	14	25	SO
Cadmium	8.231	0.47	9.414	0.2899	84.4	75-125	8.126	1.29	25	
Calcium	69590	47	941.4	63280	670	75-125	58010	18.1	25	SEO
Chromium	21.3	0.47	9.414	11.93	99.5	75-125	19.97	6.43	25	
Cobalt	12.66	0.47	9.414	4.223	89.6	75-125	12.3	2.86	25	
Copper	15.66	0.47	9.414	7.518	86.5	75-125	16.19	3.36	25	
Iron	9940	47	941.4	8371	167	75-125	8984	10.1	25	SO
Lead	15.81	0.47	9.414	9.213	70.1	75-125	22.47	34.8	25	SR
Manganese	389.5	0.47	9.414	323.3	703	75-125	313.3	21.7	25	SEO
Molybdenum	7.48	0.47	9.414	0.782	71.2	75-125	7.01	6.49	25	S
Nickel	17.56	0.47	9.414	8.837	92.6	75-125	16.57	5.76	25	
Potassium	3553	47	941.4	2567	105	75-125	3413	4	25	
Selenium	8.862	0.47	9.414	0.7589	86.1	75-125	8.236	7.33	25	
Silver	8.142	0.47	9.414	0.04949	86	75-125	7.989	1.89	25	
Uranium	8.356	0.47	9.414	0.4497	84	75-125	8.144	2.57	25	
Zinc	39.15	0.47	9.414	30	97.2	75-125	39.14	0.0385	25	

MSD		Sample ID: 1302079-01CMSD				Units: mg/Kg		Analysis Date: 2/7/2013 03:40 PM		
Client ID:		Run ID: ICPMS05_130207A				SeqNo: 3105769		Prep Date: 2/5/2013		DF: 2
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	42.5	4.7	47.07	6.718	76	75-125	44.25	4.05	25	
Sodium	1054	94	941.4	257.4	84.7	75-125	1077	2.08	25	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302082
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67584** Instrument ID **ICPMS05** Method: **SW6020**

DUP	Sample ID: 1302079-01CDUP					Units: mg/Kg		Analysis Date: 2/6/2013 05:20 PM		
Client ID:	Run ID: ICPMS05_130206A				SeqNo: 3104263		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	3.417	0.48	0	0	0	0-0	3.675	7.25	25	R
Barium	104.4	0.48	0	0	0	0-0	140.7	29.6	25	
Cadmium	0.2602	0.48	0	0	0	0-0	0.2899	0	25	J
Chromium	11.21	0.48	0	0	0	0-0	11.93	6.26	25	
Cobalt	4.016	0.48	0	0	0	0-0	4.223	5.03	25	
Copper	7.396	0.48	0	0	0	0-0	7.518	1.64	25	
Iron	7861	48	0	0	0	0-0	8371	6.29	25	
Lead	8.881	0.48	0	0	0	0-0	9.213	3.66	25	
Molybdenum	0.6964	0.48	0	0	0	0-0	0.782	11.6	25	
Nickel	8.596	0.48	0	0	0	0-0	8.837	2.76	25	
Potassium	2446	48	0	0	0	0-0	2567	4.83	25	
Selenium	0.8408	0.48	0	0	0	0-0	0.7589	10.2	25	
Silver	U	0.48	0	0	0	0-0	0.04949	0	25	
Uranium	U	0.48	0	0	0		0.4497	0	25	
Zinc	27.76	0.48	0	0	0	0-0	30	7.75	25	

DUP	Sample ID: 1302079-01CDUP					Units: mg/Kg		Analysis Date: 2/6/2013 06:38 PM		
Client ID:	Run ID: ICPMS05_130206A				SeqNo: 3104419		Prep Date: 2/5/2013		DF: 100	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	9534	96	0	0	0	0-0	11780	21.1	25	
Calcium	58170	4,800	0	0	0	0-0	64880	10.9	25	
Manganese	291.2	48	0	0	0	0-0	317.5	8.63	25	

DUP	Sample ID: 1302079-01CDUP					Units: mg/Kg		Analysis Date: 2/7/2013 03:35 PM		
Client ID:	Run ID: ICPMS05_130207A				SeqNo: 3105767		Prep Date: 2/5/2013		DF: 2	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	5.198	4.8	0	0	0	0-0	6.718	25.5	25	R
Sodium	236.7	96	0	0	0	0-0	257.4	8.37	25	

The following samples were analyzed in this batch:

1302082-01C	1302082-03A	1302082-06A
1302082-09A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302082
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67586** Instrument ID **HG02** Method: **SW7471A**

MBLK Sample ID: **GBLKS2-020513-67586** Units: **µg/Kg** Analysis Date: **2/5/2013 05:08 PM**

Client ID: Run ID: **HG02_130205A** SeqNo: **3102385** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	3.3								

LCS Sample ID: **GLCSS2-020513-67586** Units: **µg/Kg** Analysis Date: **2/5/2013 05:10 PM**

Client ID: Run ID: **HG02_130205A** SeqNo: **3102386** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	342.7	3.3	333.3	0	103	85-115	0			

MS Sample ID: **1302097-02AMS** Units: **µg/Kg** Analysis Date: **2/5/2013 05:16 PM**

Client ID: Run ID: **HG02_130205A** SeqNo: **3102389** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	318.7	3.4	344.1	2.743	91.8	85-115	0			

MSD Sample ID: **1302097-02AMSD** Units: **µg/Kg** Analysis Date: **2/5/2013 05:18 PM**

Client ID: Run ID: **HG02_130205A** SeqNo: **3102390** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	311.1	3.4	336.7	2.743	91.6	85-115	318.7	2.39	20	

DUP Sample ID: **1302097-02ADUP** Units: **µg/Kg** Analysis Date: **2/5/2013 05:14 PM**

Client ID: Run ID: **HG02_130205A** SeqNo: **3102388** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	3.425	3.5	0	0	0		2.743	0	20	J

The following samples were analyzed in this batch:

1302082-01C	1302082-03A	1302082-06A
1302082-09A	1302082-12A	1302082-15A
1302082-18A	1302082-21C	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302082
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67614** Instrument ID **ICP7500** Method: **SW6020**

MBLK Sample ID: **MBLKS1-020613-67614** Units: **mg/Kg** Analysis Date: **2/9/2013 04:32 AM**

Client ID: Run ID: **ICP7500_130208A** SeqNo: **3108631** Prep Date: **2/6/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	U	1.0								
Arsenic	U	0.50								
Barium	U	0.50								
Boron	U	2.5								
Cadmium	U	0.50								
Calcium	U	50								
Chromium	U	0.50								
Cobalt	U	0.50								
Copper	U	0.50								
Iron	U	50								
Lead	U	0.50								
Manganese	U	0.50								
Molybdenum	U	0.50								
Nickel	U	0.50								
Potassium	U	50								
Selenium	U	0.50								
Silver	U	0.50								
Sodium	12.79	50								J
Uranium	U	0.50								
Zinc	U	0.50								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302082
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67614** Instrument ID **ICP7500** Method: **SW6020**

LCS Sample ID: **MLCSS1-020613-67614** Units: **mg/Kg** Analysis Date: **2/9/2013 04:37 AM**

Client ID: Run ID: **ICP7500_130208A** SeqNo: **3108632** Prep Date: **2/6/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	9.744	1.0	10	0	97.4	80-120	0			
Arsenic	9.261	0.50	10	0	92.6	80-120	0			
Barium	9.774	0.50	10	0	97.7	80-120	0			
Boron	50.49	2.5	50	0	101	80-120	0			
Cadmium	9.714	0.50	10	0	97.1	80-120	0			
Calcium	945.9	50	1000	0	94.6	80-120	0			
Chromium	9.611	0.50	10	0	96.1	80-120	0			
Cobalt	9.612	0.50	10	0	96.1	80-120	0			
Copper	9.754	0.50	10	0	97.5	80-120	0			
Iron	948.3	50	1000	0	94.8	80-120	0			
Lead	9.646	0.50	10	0	96.5	80-120	0			
Manganese	9.443	0.50	10	0	94.4	80-120	0			
Molybdenum	9.737	0.50	10	0	97.4	80-120	0			
Nickel	9.653	0.50	10	0	96.5	80-120	0			
Potassium	963	50	1000	0	96.3	80-120	0			
Selenium	9.298	0.50	10	0	93	80-120	0			
Silver	9.768	0.50	10	0	97.7	80-120	0			
Sodium	913.8	50	1000	0	91.4	80-120	0			
Uranium	9.652	0.50	10	0	96.5	80-120	0			
Zinc	10.36	0.50	10	0	104	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302082
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67614** Instrument ID **ICP7500** Method: **SW6020**

MS		Sample ID: 1302140-04DMS				Units: mg/Kg		Analysis Date: 2/9/2013 04:57 AM		
Client ID:		Run ID: ICP7500_130208A				SeqNo: 3108636		Prep Date: 2/6/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	7025	0.94	9.374	4871	23000	75-125	0			SEO
Arsenic	11.02	0.47	9.374	2.822	87.5	75-125	0			
Barium	123.6	0.47	9.374	122.3	14.1	75-125	0			SO
Boron	45.84	2.3	46.87	5.579	85.9	75-125	0			
Cadmium	9.046	0.47	9.374	0.5305	90.8	75-125	0			
Calcium	17840	47	937.4	23680	-623	75-125	0			SEO
Chromium	16.87	0.47	9.374	7.15	104	75-125	0			
Cobalt	12.05	0.47	9.374	3.132	95.2	75-125	0			
Copper	35.89	0.47	9.374	42.82	-73.9	75-125	0			SO
Iron	8292	47	937.4	8312	-2.13	75-125	0			SO
Lead	36.62	0.47	9.374	26.49	108	75-125	0			
Manganese	238.4	0.47	9.374	242.5	-44.4	75-125	0			SEO
Molybdenum	7.522	0.47	9.374	0.3186	76.8	75-125	0			
Nickel	16.93	0.47	9.374	7.079	105	75-125	0			
Potassium	2298	47	937.4	1072	131	75-125	0			S
Selenium	7.673	0.47	9.374	0.558	75.9	75-125	0			
Silver	8.075	0.47	9.374	0.06591	85.4	75-125	0			
Sodium	950.5	47	937.4	100.1	90.7	75-125	0			
Uranium	8.896	0.47	9.374	0.3588	91.1	75-125	0			
Zinc	94.58	0.47	9.374	107.1	-133	75-125	0			SO

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302082
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67614** Instrument ID **ICP7500** Method: **SW6020**

MSD	Sample ID: 1302140-04DMSD				Units: mg/Kg		Analysis Date: 2/9/2013 05:02 AM			
Client ID:	Run ID: ICP7500_130208A				SeqNo: 3108637		Prep Date: 2/6/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	6405	0.92	9.174	4871	16700	75-125	7025	9.24	25	SEO
Arsenic	10.39	0.46	9.174	2.822	82.4	75-125	11.02	5.96	25	
Barium	130.5	0.46	9.174	122.3	88.7	75-125	123.6	5.37	25	O
Boron	45.58	2.3	45.87	5.579	87.2	75-125	45.84	0.569	25	
Cadmium	8.667	0.46	9.174	0.5305	88.7	75-125	9.046	4.28	25	
Calcium	16380	46	917.4	23680	-796	75-125	17840	8.55	25	SO
Chromium	15.68	0.46	9.174	7.15	93	75-125	16.87	7.34	25	
Cobalt	11.17	0.46	9.174	3.132	87.7	75-125	12.05	7.58	25	
Copper	47.09	0.46	9.174	42.82	46.5	75-125	35.89	27	25	SRO
Iron	7529	46	917.4	8312	-85.3	75-125	8292	9.64	25	SO
Lead	50.8	0.46	9.174	26.49	265	75-125	36.62	32.4	25	SR
Manganese	208.3	0.46	9.174	242.5	-373	75-125	238.4	13.4	25	SEO
Molybdenum	7.575	0.46	9.174	0.3186	79.1	75-125	7.522	0.711	25	
Nickel	15.42	0.46	9.174	7.079	90.9	75-125	16.93	9.32	25	
Potassium	2140	46	917.4	1072	116	75-125	2298	7.12	25	
Selenium	7.369	0.46	9.174	0.558	74.2	75-125	7.673	4.05	25	S
Silver	7.903	0.46	9.174	0.06591	85.4	75-125	8.075	2.15	25	
Sodium	913.2	46	917.4	100.1	88.6	75-125	950.5	4	25	
Uranium	8.802	0.46	9.174	0.3588	92	75-125	8.896	1.06	25	
Zinc	99.72	0.46	9.174	107.1	-79.9	75-125	94.58	5.29	25	SO

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302082
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67614** Instrument ID **ICP7500** Method: **SW6020**

DUP	Sample ID: 1302140-04DDUP					Units: mg/Kg		Analysis Date: 2/9/2013 04:47 AM		
Client ID:	Run ID: ICP7500_130208A					SeqNo: 3108634		Prep Date: 2/6/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	2.429	0.48	0	0	0	0-0	2.822	15	25	
Barium	109.8	0.48	0	0	0	0-0	122.3	10.7	25	
Boron	4.679	2.4	0	0	0	0-0	5.579	17.6	25	
Cadmium	0.2243	0.48	0	0	0	0-0	0.5305	0	25	J
Calcium	14370	48	0	0	0	0-0	23680	48.9	25	R
Chromium	6.999	0.48	0	0	0	0-0	7.15	2.14	25	
Cobalt	3.153	0.48	0	0	0	0-0	3.132	0.666	25	
Copper	27.2	0.48	0	0	0	0-0	42.82	44.6	25	R
Iron	6377	48	0	0	0	0-0	8312	26.3	25	R
Lead	32.69	0.48	0	0	0	0-0	26.49	20.9	25	
Molybdenum	0.2131	0.48	0	0	0	0-0	0.3186	0	25	J
Nickel	7.336	0.48	0	0	0	0-0	7.079	3.56	25	
Potassium	1171	48	0	0	0	0-0	1072	8.75	25	
Selenium	0.564	0.48	0	0	0	0-0	0.558	1.07	25	
Silver	U	0.48	0	0	0	0-0	0.06591	0	25	
Sodium	121.3	48	0	0	0	0-0	100.1	19.1	25	
Uranium	U	0.48	0	0	0		0.3588	0	25	
Zinc	78.48	0.48	0	0	0	0-0	107.1	30.8	25	R

DUP	Sample ID: 1302140-04DDUP					Units: mg/Kg		Analysis Date: 2/11/2013 09:15 PM		
Client ID:	Run ID: ICPMS03_130211A				SeqNo: 3109667		Prep Date: 2/6/2013		DF: 50	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	5929	48	0	0	0	0-0	4945	18.1	25	
Manganese	184.8	24	0	0	0	0-0	230.8	22.1	25	

The following samples were analyzed in this batch:

1302082-12A	1302082-15A	1302082-18A
1302082-21C		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302082
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67581** Instrument ID **SV-4** Method: **SW8270**

MBLK Sample ID: **SBLKS1-130205-67581** Units: **µg/Kg** Analysis Date: **2/5/2013 01:55 PM**

Client ID: Run ID: **SV-4_130205B** SeqNo: **3102442** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	U	6.6								
2-Methylnaphthalene	U	6.6								
Benzo(a)pyrene	U	6.6								
Naphthalene	U	6.6								
<i>Surr: 2,4,6-Tribromophenol</i>	115.2	6.6	166.7	0	69.1	36-126	0			
<i>Surr: 2-Fluorobiphenyl</i>	135.8	6.6	166.7	0	81.5	43-125	0			
<i>Surr: 2-Fluorophenol</i>	116.8	6.6	166.7	0	70.1	37-125	0			
<i>Surr: 4-Terphenyl-d14</i>	161.5	6.6	166.7	0	96.9	32-125	0			
<i>Surr: Nitrobenzene-d5</i>	129.6	6.6	166.7	0	77.7	37-125	0			
<i>Surr: Phenol-d6</i>	120.6	6.6	166.7	0	72.4	40-125	0			

LCS Sample ID: **SLCSS1-130205-67581** Units: **µg/Kg** Analysis Date: **2/5/2013 02:15 PM**

Client ID: Run ID: **SV-4_130205B** SeqNo: **3102443** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	152.5	6.6	166.7	0	91.5	50-120	0			
2-Methylnaphthalene	153.8	6.6	166.7	0	92.3	50-120	0			
Benzo(a)pyrene	136.8	6.6	166.7	0	82.1	50-130	0			
Naphthalene	149.2	6.6	166.7	0	89.5	50-125	0			
<i>Surr: 2,4,6-Tribromophenol</i>	142.1	6.6	166.7	0	85.3	36-126	0			
<i>Surr: 2-Fluorobiphenyl</i>	150.5	6.6	166.7	0	90.3	43-125	0			
<i>Surr: 2-Fluorophenol</i>	117.9	6.6	166.7	0	70.8	37-125	0			
<i>Surr: 4-Terphenyl-d14</i>	170.9	6.6	166.7	0	103	32-125	0			
<i>Surr: Nitrobenzene-d5</i>	136.3	6.6	166.7	0	81.8	37-125	0			
<i>Surr: Phenol-d6</i>	120.3	6.6	166.7	0	72.2	40-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302082
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67581** Instrument ID **SV-4** Method: **SW8270**

MS Sample ID: **1302050-06CMS** Units: **µg/Kg** Analysis Date: **2/5/2013 05:39 PM**
 Client ID: Run ID: **SV-4_130205B** SeqNo: **3102445** Prep Date: **2/5/2013** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	4344	66	166.3	1316	1820	50-120	0			SEO
2-Methylnaphthalene	5004	66	166.3	1528	2090	50-120	0			SEO
Benzo(a)pyrene	123.5	66	166.3	2.558	72.8	50-130	0			
Naphthalene	147.1	66	166.3	0	88.5	50-125	0			
Surr: 2,4,6-Tribromophenol	102.1	66	166.3	0	61.4	36-126	0			
Surr: 2-Fluorobiphenyl	176.2	66	166.3	0	106	43-125	0			
Surr: 2-Fluorophenol	89.44	66	166.3	0	53.8	37-125	0			
Surr: 4-Terphenyl-d14	126.1	66	166.3	0	75.9	32-125	0			
Surr: Nitrobenzene-d5	131.6	66	166.3	0	79.1	37-125	0			
Surr: Phenol-d6	101.7	66	166.3	0	61.2	40-125	0			

MSD Sample ID: **1302050-06CMSD** Units: **µg/Kg** Analysis Date: **2/5/2013 05:59 PM**
 Client ID: Run ID: **SV-4_130205B** SeqNo: **3102446** Prep Date: **2/5/2013** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	4603	66	166.2	1316	1980	50-120	4344	5.78	30	SEO
2-Methylnaphthalene	5426	66	166.2	1528	2350	50-120	5004	8.09	30	SEO
Benzo(a)pyrene	104.2	66	166.2	2.558	61.2	50-130	123.5	17	30	
Naphthalene	181.7	66	166.2	0	109	50-125	147.1	21.1	30	
Surr: 2,4,6-Tribromophenol	113	66	166.2	0	68	36-126	102.1	10.1	30	
Surr: 2-Fluorobiphenyl	171.2	66	166.2	0	103	43-125	176.2	2.92	30	
Surr: 2-Fluorophenol	87.26	66	166.2	0	52.5	37-125	89.44	2.47	30	
Surr: 4-Terphenyl-d14	171.5	66	166.2	0	103	32-125	126.1	30.5	30	R
Surr: Nitrobenzene-d5	141.5	66	166.2	0	85.1	37-125	131.6	7.27	30	
Surr: Phenol-d6	121.6	66	166.2	0	73.2	40-125	101.7	17.8	30	

The following samples were analyzed in this batch:

1302082-01D 1302082-21D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302082
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142091** Instrument ID **VOA5** Method: **SW8260**

MBLK Sample ID: **VBLKS1-020413-R142091** Units: **µg/Kg** Analysis Date: **2/4/2013 02:20 PM**

Client ID: Run ID: **VOA5_130204A** SeqNo: **3101239** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	5.0								
1,1,2,2-Tetrachloroethane	U	5.0								
1,1,2-Trichloroethane	U	5.0								
1,1-Dichloroethane	U	5.0								
1,1-Dichloroethene	U	5.0								
1,2-Dibromoethane	U	5.0								
1,2-Dichloroethane	U	5.0								
Benzene	U	5.0								
Carbon tetrachloride	U	5.0								
Chloroform	U	5.0								
Ethylbenzene	U	5.0								
Methylene chloride	U	10								
Tetrachloroethene	U	5.0								
Toluene	U	5.0								
Trichloroethene	U	5.0								
Vinyl chloride	U	2.0								
Xylenes, Total	U	15								
Surr: 1,2-Dichloroethane-d4	43.64	0	50	0	87.3	70-128	0			
Surr: 4-Bromofluorobenzene	46.3	0	50	0	92.6	73-126	0			
Surr: Dibromofluoromethane	48.2	0	50	0	96.4	71-128	0			
Surr: Toluene-d8	51.1	0	50	0	102	73-127	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302082
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142091** Instrument ID **VOA5** Method: **SW8260**

LCS		Sample ID: VLCSS1-020413-R142091				Units: µg/Kg		Analysis Date: 2/4/2013 12:48 PM		
Client ID:		Run ID: VOA5_130204A				SeqNo: 3101238		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	56.36	5.0	50	0	113	79-124	0			
1,1,2,2-Tetrachloroethane	55.2	5.0	50	0	110	75-123	0			
1,1,2-Trichloroethane	60.76	5.0	50	0	122	79-120	0			S
1,1-Dichloroethane	57.8	5.0	50	0	116	75-124	0			
1,1-Dichloroethene	58.39	5.0	50	0	117	80-122	0			
1,2-Dibromoethane	55.86	5.0	50	0	112	79-120	0			
1,2-Dichloroethane	53.68	5.0	50	0	107	73-121	0			
Benzene	56.68	5.0	50	0	113	79-120	0			
Carbon tetrachloride	54.78	5.0	50	0	110	74-126	0			
Chloroform	51.07	5.0	50	0	102	78-120	0			
Ethylbenzene	59.14	5.0	50	0	118	80-122	0			
Methylene chloride	57.27	10	50	0	115	70-123	0			
Tetrachloroethene	55.19	5.0	50	0	110	80-121	0			
Toluene	59.27	5.0	50	0	119	79-120	0			
Trichloroethene	59.99	5.0	50	0	120	80-121	0			
Vinyl chloride	58.95	2.0	50	0	118	76-126	0			
Xylenes, Total	169.3	15	150	0	113	80-120	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	45.09	0	50	0	90.2	70-128	0			
<i>Surr: 4-Bromofluorobenzene</i>	48.08	0	50	0	96.2	73-126	0			
<i>Surr: Dibromofluoromethane</i>	49.73	0	50	0	99.5	71-128	0			
<i>Surr: Toluene-d8</i>	50.18	0	50	0	100	73-127	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302082
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142091** Instrument ID **VOA5** Method: **SW8260**

MS		Sample ID: 1302079-15AMS				Units: µg/Kg		Analysis Date: 2/4/2013 04:14 PM		
Client ID:		Run ID: VOA5_130204A				SeqNo: 3101244		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	45.09	5.0	50	0	90.2	79-124	0			
1,1,2,2-Tetrachloroethane	40.5	5.0	50	0	81	75-123	0			
1,1,2-Trichloroethane	47.23	5.0	50	0	94.5	79-120	0			
1,1-Dichloroethane	43.45	5.0	50	0	86.9	75-124	0			
1,1-Dichloroethene	51.45	5.0	50	0	103	80-122	0			
1,2-Dibromoethane	42.06	5.0	50	0	84.1	79-120	0			
1,2-Dichloroethane	38.83	5.0	50	0	77.7	73-121	0			
Benzene	44.11	5.0	50	0	88.2	79-120	0			
Carbon tetrachloride	42.94	5.0	50	0	85.9	74-126	0			
Chloroform	42.73	5.0	50	0	85.5	78-120	0			
Ethylbenzene	47.73	5.0	50	0	95.5	80-122	0			
Methylene chloride	51.41	10	50	5.438	92	70-123	0			
Tetrachloroethene	45.2	5.0	50	0	90.4	80-121	0			
Toluene	46.35	5.0	50	0	92.7	79-120	0			
Trichloroethene	49	5.0	50	0	98	80-121	0			
Vinyl chloride	53.2	2.0	50	0	106	76-126	0			
Xylenes, Total	136.9	15	150	0	91.3	80-120	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	41.91	0	50	0	83.8	70-128	0			
<i>Surr: 4-Bromofluorobenzene</i>	47.54	0	50	0	95.1	73-126	0			
<i>Surr: Dibromofluoromethane</i>	48.39	0	50	0	96.8	71-128	0			
<i>Surr: Toluene-d8</i>	46.26	0	50	0	92.5	73-127	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302082
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142091** Instrument ID **VOA5** Method: **SW8260**

MSD	Sample ID: 1302079-15AMSD					Units: µg/Kg		Analysis Date: 2/4/2013 04:37 PM		
Client ID:	Run ID: VOA5_130204A				SeqNo: 3101245		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	58.61	5.0	50	0	117	79-124	45.09	26.1	30	
1,1,2,2-Tetrachloroethane	55.12	5.0	50	0	110	75-123	40.5	30.6	30	R
1,1,2-Trichloroethane	59.39	5.0	50	0	119	79-120	47.23	22.8	30	
1,1-Dichloroethane	60.52	5.0	50	0	121	75-124	43.45	32.8	30	R
1,1-Dichloroethene	59.58	5.0	50	0	119	80-122	51.45	14.6	30	
1,2-Dibromoethane	51.67	5.0	50	0	103	79-120	42.06	20.5	30	
1,2-Dichloroethane	50.73	5.0	50	0	101	73-121	38.83	26.6	30	
Benzene	56.02	5.0	50	0	112	79-120	44.11	23.8	30	
Carbon tetrachloride	47.91	5.0	50	0	95.8	74-126	42.94	10.9	30	
Chloroform	54.38	5.0	50	0	109	78-120	42.73	24	30	
Ethylbenzene	59.74	5.0	50	0	119	80-122	47.73	22.3	30	
Methylene chloride	67.26	10	50	5.438	124	70-123	51.41	26.7	30	S
Tetrachloroethene	71.23	5.0	50	0	142	80-121	45.2	44.7	30	SR
Toluene	60.02	5.0	50	0	120	79-120	46.35	25.7	30	S
Trichloroethene	61.37	5.0	50	0	123	80-121	49	22.4	30	S
Vinyl chloride	65.39	2.0	50	0	131	76-126	53.2	20.6	30	S
Xylenes, Total	171.4	15	150	0	114	80-120	136.9	22.4	30	
Surr: 1,2-Dichloroethane-d4	51.28	0	50	0	103	70-128	41.91	20.1	30	
Surr: 4-Bromofluorobenzene	49.44	0	50	0	98.9	73-126	47.54	3.91	30	
Surr: Dibromofluoromethane	51.14	0	50	0	102	71-128	48.39	5.54	30	
Surr: Toluene-d8	49.69	0	50	0	99.4	73-127	46.26	7.15	30	

The following samples were analyzed in this batch:

1302082-01A 1302082-21A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302082
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142161** Instrument ID **VOA4** Method: **SW8260**

MBLK Sample ID: **VBLKW-130205-R142161** Units: **µg/L** Analysis Date: **2/5/2013 10:49 AM**

Client ID: Run ID: **VOA4_130205A** SeqNo: **3102121** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichloroethane	U	1.0								
Benzene	U	1.0								
Carbon tetrachloride	U	1.0								
Chloroform	U	1.0								
Ethylbenzene	U	1.0								
Methylene chloride	U	2.0								
Tetrachloroethene	U	1.0								
Toluene	U	1.0								
Trichloroethene	U	1.0								
Vinyl chloride	U	1.0								
Xylenes, Total	U	1.0								
Surr: 1,2-Dichloroethane-d4	47.14	1.0	50	0	94.3	71-125	0			
Surr: 4-Bromofluorobenzene	47.73	1.0	50	0	95.5	70-125	0			
Surr: Dibromofluoromethane	50.94	1.0	50	0	102	74-125	0			
Surr: Toluene-d8	49.25	1.0	50	0	98.5	78-123	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302082
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142161** Instrument ID **VOA4** Method: **SW8260**

LCS		Sample ID: VLCSW-130205-R142161				Units: µg/L		Analysis Date: 2/5/2013 09:37 AM		
Client ID:		Run ID: VOA4_130205A				SeqNo: 3102119		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	55.03	1.0	50	0	110	80-120	0			
1,1,2,2-Tetrachloroethane	45.4	1.0	50	0	90.8	74-123	0			
1,1,2-Trichloroethane	48.9	1.0	50	0	97.8	80-120	0			
1,1-Dichloroethane	46.19	1.0	50	0	92.4	80-120	0			
1,1-Dichloroethene	53.85	1.0	50	0	108	80-120	0			
1,2-Dibromoethane	52.93	1.0	50	0	106	80-120	0			
1,2-Dichloroethane	48.97	1.0	50	0	97.9	79-120	0			
Benzene	48.6	1.0	50	0	97.2	80-120	0			
Carbon tetrachloride	59.17	1.0	50	0	118	79-120	0			
Chloroform	47.16	1.0	50	0	94.3	80-120	0			
Ethylbenzene	48.68	1.0	50	0	97.4	80-120	0			
Methylene chloride	47.36	2.0	50	0	94.7	75-125	0			
Tetrachloroethene	52.99	1.0	50	0	106	80-120	0			
Toluene	47.82	1.0	50	0	95.6	80-121	0			
Trichloroethene	54.22	1.0	50	0	108	80-120	0			
Vinyl chloride	50.08	1.0	50	0	100	75-125	0			
Xylenes, Total	142.4	1.0	150	0	94.9	80-124	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	44.33	1.0	50	0	88.7	71-125	0			
<i>Surr: 4-Bromofluorobenzene</i>	50.11	1.0	50	0	100	70-125	0			
<i>Surr: Dibromofluoromethane</i>	49.8	1.0	50	0	99.6	74-125	0			
<i>Surr: Toluene-d8</i>	48.26	1.0	50	0	96.5	78-123	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302082
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142161** Instrument ID **VOA4** Method: **SW8260**

LCSD		Sample ID: VLCS DW-130205-R142161				Units: µg/L		Analysis Date: 2/5/2013 10:01 AM		
Client ID:		Run ID: VOA4_130205A				SeqNo: 3102120		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	52.78	1.0	50	0	106	80-120	55.03	4.17	20	
1,1,2,2-Tetrachloroethane	44.75	1.0	50	0	89.5	74-123	45.4	1.45	20	
1,1,2-Trichloroethane	48.98	1.0	50	0	98	80-120	48.9	0.168	20	
1,1-Dichloroethane	44.95	1.0	50	0	89.9	80-120	46.19	2.71	20	
1,1-Dichloroethene	51.05	1.0	50	0	102	80-120	53.85	5.34	20	
1,2-Dibromoethane	52.56	1.0	50	0	105	80-120	52.93	0.693	20	
1,2-Dichloroethane	48.06	1.0	50	0	96.1	79-120	48.97	1.89	20	
Benzene	46.95	1.0	50	0	93.9	80-120	48.6	3.45	20	
Carbon tetrachloride	57.13	1.0	50	0	114	79-120	59.17	3.51	20	
Chloroform	45.5	1.0	50	0	91	80-120	47.16	3.58	20	
Ethylbenzene	47.06	1.0	50	0	94.1	80-120	48.68	3.38	20	
Methylene chloride	46.64	2.0	50	0	93.3	75-125	47.36	1.54	20	
Tetrachloroethene	52.04	1.0	50	0	104	80-120	52.99	1.82	20	
Toluene	47	1.0	50	0	94	80-121	47.82	1.73	20	
Trichloroethene	52.61	1.0	50	0	105	80-120	54.22	3.01	20	
Vinyl chloride	46.94	1.0	50	0	93.9	75-125	50.08	6.46	20	
Xylenes, Total	140.3	1.0	150	0	93.5	80-124	142.4	1.5	20	
<i>Surr: 1,2-Dichloroethane-d4</i>	44.11	1.0	50	0	88.2	71-125	44.33	0.493	20	
<i>Surr: 4-Bromofluorobenzene</i>	51.13	1.0	50	0	102	70-125	50.11	2.03	20	
<i>Surr: Dibromofluoromethane</i>	48.61	1.0	50	0	97.2	74-125	49.8	2.42	20	
<i>Surr: Toluene-d8</i>	48.17	1.0	50	0	96.3	78-123	48.26	0.187	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302082
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142161** Instrument ID **VOA4** Method: **SW8260**

MS		Sample ID: 1302056-09AMS				Units: µg/L		Analysis Date: 2/5/2013 11:14 AM		
Client ID:		Run ID: VOA4_130205A				SeqNo: 3102122		Prep Date:		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	537.7	10	500	0	108	80-120	0			
1,1,2,2-Tetrachloroethane	439.8	10	500	0	88	74-123	0			
1,1,2-Trichloroethane	477.2	10	500	0	95.4	80-120	0			
1,1-Dichloroethane	459.9	10	500	0	92	80-120	0			
1,1-Dichloroethene	525.1	10	500	0	105	80-120	0			
1,2-Dibromoethane	510.6	10	500	0	102	80-120	0			
1,2-Dichloroethane	487.4	10	500	0	97.5	79-120	0			
Benzene	485.1	10	500	0	97	80-120	0			
Carbon tetrachloride	581.9	10	500	0	116	79-120	0			
Chloroform	469.7	10	500	0	93.9	80-120	0			
Ethylbenzene	475	10	500	0	95	80-120	0			
Methylene chloride	473.5	20	500	0	94.7	75-125	0			
Tetrachloroethene	524.4	10	500	0	105	80-120	0			
Toluene	476.7	10	500	0	95.3	80-121	0			
Trichloroethene	544.7	10	500	0	109	80-120	0			
Vinyl chloride	495.6	10	500	0	99.1	75-125	0			
Xylenes, Total	1405	10	1500	0	93.7	80-124	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	449.3	10	500	0	89.9	71-125	0			
<i>Surr: 4-Bromofluorobenzene</i>	505	10	500	0	101	70-125	0			
<i>Surr: Dibromofluoromethane</i>	495.3	10	500	0	99.1	74-125	0			
<i>Surr: Toluene-d8</i>	482.7	10	500	0	96.5	78-123	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302082
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142161** Instrument ID **VOA4** Method: **SW8260**

MSD				Sample ID: 1302056-09AMSD			Units: µg/L		Analysis Date: 2/5/2013 11:38 AM		
Client ID:		Run ID: VOA4_130205A			SeqNo: 3102123		Prep Date:		DF: 10		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
1,1,1-Trichloroethane	520.1	10	500	0	104	80-120	537.7	3.31	20		
1,1,2,2-Tetrachloroethane	434.1	10	500	0	86.8	74-123	439.8	1.3	20		
1,1,2-Trichloroethane	469.5	10	500	0	93.9	80-120	477.2	1.62	20		
1,1-Dichloroethane	440.8	10	500	0	88.2	80-120	459.9	4.23	20		
1,1-Dichloroethene	509.2	10	500	0	102	80-120	525.1	3.07	20		
1,2-Dibromoethane	506.6	10	500	0	101	80-120	510.6	0.775	20		
1,2-Dichloroethane	478	10	500	0	95.6	79-120	487.4	1.96	20		
Benzene	470	10	500	0	94	80-120	485.1	3.17	20		
Carbon tetrachloride	560.3	10	500	0	112	79-120	581.9	3.77	20		
Chloroform	451.7	10	500	0	90.3	80-120	469.7	3.89	20		
Ethylbenzene	462.6	10	500	0	92.5	80-120	475	2.64	20		
Methylene chloride	460.8	20	500	0	92.2	75-125	473.5	2.72	20		
Tetrachloroethene	504.2	10	500	0	101	80-120	524.4	3.92	20		
Toluene	462.7	10	500	0	92.5	80-121	476.7	2.98	20		
Trichloroethene	516.9	10	500	0	103	80-120	544.7	5.23	20		
Vinyl chloride	471	10	500	0	94.2	75-125	495.6	5.1	20		
Xylenes, Total	1361	10	1500	0	90.7	80-124	1405	3.17	20		
Surr: 1,2-Dichloroethane-d4	442.1	10	500	0	88.4	71-125	449.3	1.62	20		
Surr: 4-Bromofluorobenzene	501	10	500	0	100	70-125	505	0.777	20		
Surr: Dibromofluoromethane	494.6	10	500	0	98.9	74-125	495.3	0.14	20		
Surr: Toluene-d8	477.4	10	500	0	95.5	78-123	482.7	1.1	20		

The following samples were analyzed in this batch:

1302082-22A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302082
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67667** Instrument ID **UV-2450** Method: **SW9014** (Dissolve)

MBLK Sample ID: **WBLKS1-020813-67667** Units: **mg/Kg** Analysis Date: **2/8/2013 05:30 PM**

Client ID: Run ID: **UV-2450_130208F** SeqNo: **3107315** Prep Date: **2/8/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	U	2.0								

LCS Sample ID: **WLCSS1-020813-67667** Units: **mg/Kg** Analysis Date: **2/8/2013 05:30 PM**

Client ID: Run ID: **UV-2450_130208F** SeqNo: **3107316** Prep Date: **2/8/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	9.65	2.0	10	0	96.5	80-120	0			

LCSD Sample ID: **WLCSDS1-020813-67667** Units: **mg/Kg** Analysis Date: **2/8/2013 05:30 PM**

Client ID: Run ID: **UV-2450_130208F** SeqNo: **3107332** Prep Date: **2/8/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	9.35	2.0	10	0	93.5	80-120	9.65	3.16	30	

MS Sample ID: **1302079-15CMS** Units: **mg/Kg** Analysis Date: **2/8/2013 05:30 PM**

Client ID: Run ID: **UV-2450_130208F** SeqNo: **3107331** Prep Date: **2/8/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	8.287	1.9	9.364	0.352	84.7	75-125	0			

The following samples were analyzed in this batch:

1302082-01C	1302082-03B	1302082-06B
1302082-09B	1302082-12B	1302082-15B
1302082-18B	1302082-21C	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302082
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67763** Instrument ID **ICS3K2** Method: **E300** (Dissolve)

MBLK	Sample ID: WBLKS1-67763			Units: mg/Kg			Analysis Date: 2/11/2013 12:42 PM			
Client ID:	Run ID: ICS3K2_130211A			SeqNo: 3110269			Prep Date: 2/10/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	5.0								
Fluoride	U	1.0								
Nitrogen, Nitrate (As N)	U	1.0								
Nitrogen, Nitrite (As N)	U	1.0								
Sulfate	U	5.0								
Surr: Selenate (surr)	56.88	1.0	50	0	114	85-115	0			

LCS	Sample ID: WLCSS1-67763			Units: mg/Kg			Analysis Date: 2/11/2013 01:03 PM			
Client ID:	Run ID: ICS3K2_130211A			SeqNo: 3110270			Prep Date: 2/10/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	183.7	5.0	200	0	91.8	90-110	0			
Fluoride	39.17	1.0	40	0	97.9	90-110	0			
Nitrogen, Nitrate (As N)	37.84	1.0	40	0	94.6	90-110	0			
Nitrogen, Nitrite (As N)	39.72	1.0	40	0	99.3	90-110	0			
Sulfate	200.2	5.0	200	0	100	90-110	0			
Surr: Selenate (surr)	54.86	1.0	50	0	110	85-115	0			

MS	Sample ID: 1302082-21CMS			Units: mg/Kg			Analysis Date: 2/11/2013 08:11 PM			
Client ID: RO-SB-1 (35)	Run ID: ICS3K2_130211A			SeqNo: 3110281			Prep Date: 2/10/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	140	5.0	99.64	39.26	101	75-125	0			
Fluoride	27.44	1.0	19.93	4.87	113	75-125	0			
Nitrogen, Nitrate (As N)	21.09	1.0	19.93	0	106	75-125	0			
Nitrogen, Nitrite (As N)	22.01	1.0	19.93	0	110	75-125	0			
Sulfate	511.7	5.0	99.64	515.9	-4.16	75-125	0			SO
Surr: Selenate (surr)	56	1.0	49.82	0	112	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302082
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67763** Instrument ID **ICS3K2** Method: **E300** **(Dissolve)**

MSD		Sample ID: 1302082-21CMSD				Units: mg/Kg		Analysis Date: 2/11/2013 08:33 PM		
Client ID: RO-SB-1 (35)		Run ID: ICS3K2_130211A				SeqNo: 3110282		Prep Date: 2/10/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	138.5	5.0	99.69	39.26	99.6	75-125	140	1.08	20	
Fluoride	26.96	1.0	19.94	4.87	111	75-125	27.44	1.77	20	
Nitrogen, Nitrate (As N)	20.86	1.0	19.94	0	105	75-125	21.09	1.13	20	
Nitrogen, Nitrite (As N)	21.74	1.0	19.94	0	109	75-125	22.01	1.22	20	
Sulfate	504.9	5.0	99.69	515.9	-11	75-125	511.7	1.35	20	SO
<i>Surr: Selenate (surr)</i>	56.91	1.0	49.85	0	114	80-120	56	1.63	20	

The following samples were analyzed in this batch:

1302082-01C	1302082-03B	1302082-06B
1302082-09B	1302082-12B	1302082-15B
1302082-18B	1302082-21C	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302082
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142356** Instrument ID **Balance1** Method: **SW3550** **(Dissolve)**

DUP Sample ID: **1302082-16ADUP** Units: **wt%** Analysis Date: **2/7/2013 03:15 PM**

Client ID: **RO-SB-1 (27)** Run ID: **BALANCE1_130207C** SeqNo: **3106553** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Percent Moisture	18.28	0.010	0	0	0	0-0	18.79	2.77	20	

The following samples were analyzed in this batch:

1302082-01C	1302082-02A	1302082-03A
1302082-04A	1302082-05A	1302082-06A
1302082-07A	1302082-08A	1302082-09A
1302082-10A	1302082-11A	1302082-12A
1302082-13A	1302082-14A	1302082-15A
1302082-16A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302082
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142515** Instrument ID **Balance1** Method: **SW3550** (**Dissolve**)

DUP	Sample ID: 1302140-04DDUP				Units: wt%			Analysis Date: 2/8/2013 02:55 PM		
Client ID:	Run ID: BALANCE1_130208C				SeqNo: 3108447			Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Percent Moisture	10.25	0.010	0	0	0	0-0	10.21	0.434	20	

DUP	Sample ID: 1302140-05DDUP				Units: wt%			Analysis Date: 2/8/2013 02:55 PM		
Client ID:	Run ID: BALANCE1_130208C				SeqNo: 3108467			Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Percent Moisture	9.649	0.010	0	0	0	0-0	9.526	1.29	20	

The following samples were analyzed in this batch:

1302082-17A	1302082-18A	1302082-19A
1302082-20A	1302082-21C	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Project: RO Discharge Sampling
WorkOrder: 1302082

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
µg/Kg-dry	Micrograms per Kilogram - Dry weight corrected
mg/Kg-dry	Milligrams per Kilogram - Dry weight corrected
mg/L	Milligrams per Liter
wt%	

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**

Date/Time Received: **02-Feb-13 09:30**

Work Order: **1302082**

Received by: **JBA**

Checklist completed by Rishel D. Naran
eSignature

04-Feb-13
Date

Reviewed by: Sonia West
eSignature

05-Feb-13
Date

Matrices: **SOIL**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>0.6C U/C</u> <u>005</u>		
Cooler(s)/Kit(s):	<u>4672</u>		
Date/Time sample(s) sent to storage:	<u>2/4/13 10:00</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes: A Trip Blank sample was received but was not listed on the chain of custody. The laboratory analyzed this sample for VOC 8260.

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



Environmental

Chain of Custody Form

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COC ID: 41191

ALS Project Manager:

1302082

NAVAJO REFINING: Navajo Refining Company

Project: RO Discharge Sampling



Customer Information				Project Information															
Purchase Order		Project Name	RO Discharge/Sampling	A	VOC (8260) NW GW List														
Work Order		Project Number	128823	B	GRO (8015M)														
Company Name	Navajo Refining Co.	Bill To Company	Navajo Refining Co.	C	DRO (8015M)														
Send Report To	Robert Corbys	Invoice Attn.	Robert Corbys	D	ORO (8015M)														
Address	501 East Main	Address	501 East Main	E	LL SVOC (B270) NW GW List														
City/State/Zip	Artesa, NM	City/State/Zip	Artesa, NM	F	Total Metals (6020/7000) Long List														
Phone		Phone	575-478-6733	G	Dissolved Metals (6020/7000) RCRA8														
Fax		Fax	575-475-746-5421	H	Radium + Anions														
e-Mail Address		e-Mail Address		I	Moisture														
				J	Cyanide														

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	RO-SB-1 (1)	1/31/13	1145	Soil	-	5	X	X	X	X	X	X		X	X	X	
2	RO-SB-1 (3)	1/1	1150			1									X		
3	RO-SB-1 (5)		1200			3						X		X	X	X	
4	RO-SB-1 (7)		1230			1									X		
5	RO-SB-1 (9)		1245			1									X		
6	RO-SB-1 (10)	1/31/13	1250			3					X			X	X	X	
7	RO-SB-1 (11)	2/1/13	0953			1									X		
8	RO-SB-1 (13)		0953			1									X		
9	RO-SB-1 (15)		0957			3						X		X	X	X	
10	RO-SB-1 (17)		0947			1									X		

Sampler(s): Please Print & Sign		Shipment Method:		Required Turnaround Time:		Results Due Date:	
<i>[Signature]</i>				<input checked="" type="checkbox"/> STD 10 Wk Days <input type="checkbox"/> 5 Wk Days <input type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour			
Relinquished by:	Date:	Time:	Received by:	Notes:			
<i>[Signature]</i>	2/1/13	1200	<i>[Signature]</i>	Day TAT, Dissolved Metals Field Filtered			
Relinquished by:	Date:	Time:	Received by (Laboratory):	Cooler Temp.			
				<input type="checkbox"/> Level II: Standard QC <input type="checkbox"/> Level III: Std QC + Raw Data <input type="checkbox"/> Level IV: SW846 CLP-Like Other:			
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):				
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035							

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

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Chain of Custody Form

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COC ID: **41199**

☐ Cincinnati, OH
+1 513 733 5336
☐ Everett, WA
+1 425 356 2600
☐ Fort Collins, CO
+1 970 490 1511

☐ Holland, MI
+1 616 399 6070
☐ Houston, TX
+1 281 530 5656
☐ Middletown, PA
+1 717 944 5541

☐ Salt Lake City, UT
+1 801 266 7200
☐ Spring City, PA
+1 610 948 4903
☐ York, PA
+1 717 505 5280

ALS Project Manager:

Work Order #: **1302082**

Customer Information			Project Information				Parameter/Method Request for Analysis													
Purchase Order		Project Name	RO Discharge/Sampling				A	VOC (8260) NW GW List												
Work Order		Project Number	128823				B	GRO (80154)												
Company Name	Navajo Refining Co	Bill To Company	Navajo Refining Co				C	DRO (80154)												
Send Report To	Robert Combs	Invoice Attn.	Robert Combs				D	ORO (80154)												
Address	501 East Main	Address	501 East Main				E	LL SVOC (8270) NW GW List												
City/State/Zip	Artesia, NM	City/State/Zip	Artesia NM				F	Total Metals (Long List)												
Phone		Phone	575-748-6733				G													
Fax		Fax	575-746-5421				H	Radium + Anions												
e-Mail Address		e-Mail Address					I	Moisture												
							J	Cyanide												
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold			
1	RO-SB-1 (19)	2/1/13	0947	Soil	-	1									X					
2	RO-SB-1 (20)		0940			3						X		X	X	X				
3	RO-SB-1 (21)		1018			1									X					
4	RO-SB-1 (23)		1018			1									X					
5	RO-SB-1 (25)		1018			3						X		X	X	X				
6	RO-SB-1 (27)		1010			1									X					
7	RO-SB-1 (29)		1010			1									X					
8	RO-SB-1 (30)		1010			3						X		X	X	X				
9	RO-SB-1 (31)		1005			1									X					
10	RO-SB-1 (33)		1005			1									X					

Sampler(s): Please Print & Sign Eric Bergersen

Shipment Method: ☒ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour

Required Turnaround Time: ☐ Other _____

Results Due Date: _____

Relinquished by: Eric Bergersen Date: 2/1/13 Time: 1200

Received by: [Signature] Date: 2/1/13 Time: 0940

Relinquished by: _____ Date: _____ Time: _____

Received by (Laboratory): _____

Logged by (Laboratory): _____ Date: _____ Time: _____

Checked by (Laboratory): _____

Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035

Notes: 10 Day TAT, Dissolved Metals Field Filtered

Cooler Temp: _____

QC Package: (Check Box Below)

☒ Level II: Standard QC

☐ Level III: Std QC + Raw Data

☐ Level IV: SW846 CLP-Like

Other: _____

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

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+1 304 356 3168

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Page 3 of 3

COC ID: 72314

Environmental

ALS Project Manager:

ALS Work Order #: 1302062

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	RO Discharge/Sampling	A	VOC (8260) NW GW List
Work Order		Project Number	123823	B	GRO (8015M)
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	DRO (8015M)
Send Report To	Robert Combs	Invoice Attn	Robert Combs	D	ORO (8015M)
Address	501 East Main	Address	501 East Main	E	LL SVOC (8270) NM GW List
City/State/Zip	Artesia, NM 86211	City/State/Zip	Artesia, NM 86211	F	Total Metals (6020/7000) RCRA 8
Phone	(575) 748-6733	Phone	(575) 748-6733	G	Dissolved Metals (6020/7000) RCRA 8
Fax	(575) 746-5421	Fax	(575) 746-5421	H	TDS Cyanide + Anions
e-Mail Address		e-Mail Address		I	Moisture
				J	Fingerprint (PbANO/Sr, Cray, Sim Dist) Radionu

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	RO-SB-1 (35)	2/1/13	10:05	Soil	-	5	X	X	X	X	X	X		X	X	X	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign		Shipment Method		Required Turnaround Time: (Check Box)				Results Due Date:	
<i>[Signature]</i>				<input checked="" type="checkbox"/> Std 10 WK Days <input type="checkbox"/> 5 WK Days <input type="checkbox"/> Other _____ 2 WK Days 24 Hour					
Relinquished by:	Date:	Time:	Received by:	Notes:					
<i>[Signature]</i>	2/1/13	1200	<i>[Signature]</i>	10 Day TAT. Dissolved Metals Field Filtered					
Relinquished by:	Date:	Time:	Received by (Laboratory):	Cooler ID	Cooler Temp.	QC Package: (Check One Box Below)			
						<input checked="" type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP CheckList <input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> TRRP Level IV <input type="checkbox"/> Level IV SW846/CLP <input type="checkbox"/> Other / EDD _____			
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):						
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035									

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.

3. The Chain of Custody is a legal document. All information must be completed accurately.

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FedEx Package
Express **US Airbill**

FedEx
Tracking
Number

8013 7714 1180

Form
ID No.

0215

Recipient's Copy

1 From

Date 2/1/13

Sender's Name Eric Bergerson

Phone 281 787-1234

Company ARCADIS U.S.

Address 501 East Main

Dept./Floor/Suite/Room

City Ardmore State NM ZIP 88211

2 Your Internal Billing Reference

3 To

Recipient's Name CLIENT SERVICES

Phone 281 530-5656

Company ALS LABORATORY GROUP

Address 10450 STANCLIFF RD STE 210

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Dept./Floor/Suite/Room

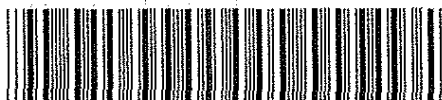
Address

Use this line for the HOLD location address or for continuation of your shipping address.

City HOUSTON State TX ZIP 77099-4338

HOLD Weekday
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.

HOLD Saturday
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.



8013 7714 1180

0455550114

4 Express Package Service

* To most locations.

NOTE: Service order has changed. Please select carefully.

Packages up to 150 lbs.
For packages over 150 lbs., use the
FedEx Express Freight US Airbill.

Next Business Day

- ☒ **FedEx First Overnight**
Earliest next business morning delivery to select
locations. Holiday shipments will be delivered on
Wednesday unless SATURDAY Delivery is selected.
- ☒ **FedEx Priority Overnight**
Next business morning.* Friday shipments will be
delivered on Monday unless SATURDAY Delivery
is selected.
- ☒ **FedEx Standard Overnight**
Next business afternoon.*
Saturday Delivery NOT available.

2 or 3 Business Days

- ☐ **FedEx 2Day A.M.**
Second business morning.
Saturday Delivery NOT available.
- ☐ **FedEx 2Day**
Second business afternoon.* Thursday shipments
will be delivered on Monday unless SATURDAY
Delivery is selected.
- ☐ **FedEx Express Saver**
Third business day.*
Saturday Delivery NOT available.

5 Packaging * Declared value limit \$500.

- ☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☒ Other

6 Special Handling and Delivery Signature Options

- ☒ **SATURDAY Delivery**
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

- ☐ **No Signature Required**
Package may be left without
obtaining a signature for delivery.
- ☐ **Direct Signature**
Someone at recipient's address
may sign for delivery. Fee applies.
- ☐ **Indirect Signature**
If no one is available at recipient's
address, someone at a neighboring
address may sign for delivery. For
residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?

One box must be checked.

- ☒ **No** ☐ **Yes** As per attached
Shipper's Declaration. ☐ **Yes** Shipper's Declaration
not required. ☐ **Dry Ice**
Dry Ice, B, UN 1845 x kg
- Dangerous goods (including dry ice) cannot be shipped in FedEx packaging
or placed in a FedEx Express Drop Box.
- ☐ **Cargo Aircraft Only**

7 Payment/Bill to:

- Enter FedEx Acct. No. or Credit Card No. below.
- ☐ **Sender** Acct. No. in Section
1 will be billed. ☒ **Recipient** ☐ **Third Party** ☐ **Credit Card** ☐ **Cash/Check**

Total Packages Total Weight

Credit Card Auth.

*Our liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

611

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ALS Environmental

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Houston, Texas 77099
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Fax. +1 281 530 5887

4672

CUSTODY SEAL

Date: 2-1-2013 Time: 11:50

Name: B. Mc Kenna

Company: ARCADIS U.S.

2/1/13



18-Feb-2013

Robert Combs
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 746-5382
Fax: (575) 746-5421

Re: RO Discharge Sampling

Work Order: **1302138**

Dear Robert,

ALS Environmental received 6 samples on 05-Feb-2013 09:15 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 47.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in cursive script that reads "Sonia West".

Electronically approved by: Luke F. Hernandez

Sonia West
Project Manager



Certificate No: T104704231-12-10

ADDRESS 10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 | PHONE (281) 530-5656 | FAX (281) 530-5887

DOV#T UR X S#K VD /#R U S#S d u#h i#hch#DOV#T ur xs##D q#DOV#Dp i#hg#F r p s dq |

Environmental

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 1302138

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1302138-01	RO Discharge	Water		2/3/2013 09:30	2/5/2013 09:15	<input type="checkbox"/>
1302138-02	MW-117	Water		2/3/2013 10:00	2/5/2013 09:15	<input type="checkbox"/>
1302138-03	MW-114	Water		2/3/2013 11:30	2/5/2013 09:15	<input type="checkbox"/>
1302138-04	MW-115	Water		2/3/2013 12:30	2/5/2013 09:15	<input type="checkbox"/>
1302138-05	Trip Blank 011813-74	Water		2/3/2013	2/5/2013 09:15	<input type="checkbox"/>
1302138-06	Trip Blank 011813-50	Water		2/3/2013	2/5/2013 09:15	<input type="checkbox"/>

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 1302138

Case Narrative

Sample received outside method holding time for Nitrate & Nitrite. Nitrate & Nitrite has a 48 hour holding time. The samples were received as the holding times expired. Sample results are flagged with an "H" qualifier.

Your samples received for Radium 226 and Radium 228 are reported on ALS workorder 1302192.

Batch 67619, Dissolved Metals 6020, Sample RO Discharge (1302138-01E): The MS/MSD recoveries were above the control limits for Calcium and Sodium due to high concentration to the background sample. Results are flagged with an O. The associated LCS recoveries and MS/MSD RPD were within the control limits.

Batch 67639, Dissolved Metals 6020, Sample 1302162-02D: MS/MSD is for an unrelated sample.

Batch R142615, Anions 300.0, Sample 1302189-01G: MS/MSD is for an unrelated sample.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO Discharge
Collection Date: 2/3/2013 09:30 AM

Work Order: 1302138
Lab ID: 1302138-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3511 / 2/8/13 Analyst: KMB							
TPH (Diesel Range)	U		0.021	0.052	mg/L	1	2/11/2013 15:36
TPH (Oil Range)	0.17		0.042	0.10	mg/L	1	2/11/2013 15:36
Surr: 2-Fluorobiphenyl	107			60-135	%REC	1	2/11/2013 15:36
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: KKP							
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	2/7/2013 18:47
Surr: 4-Bromofluorobenzene	105			70-130	%REC	1	2/7/2013 18:47
DISSOLVED MERCURY Method: SW7470 Prep: SW7470 / 2/7/13 Analyst: OFO							
Mercury	U		0.000042	0.000200	mg/L	1	2/7/2013 18:08
DISSOLVED METALS Method: SW6020 Prep: SW3010A / 2/6/13 Analyst: ALR							
Aluminum	0.00668	J	0.0040	0.0100	mg/L	1	2/8/2013 00:48
Arsenic	0.00494	J	0.0013	0.00500	mg/L	1	2/8/2013 00:48
Barium	0.0628		0.00090	0.00500	mg/L	1	2/8/2013 00:48
Boron	0.143		0.040	0.100	mg/L	2	2/12/2013 14:09
Cadmium	U		0.00080	0.00200	mg/L	1	2/8/2013 00:48
Calcium	625		4.3	25.0	mg/L	50	2/8/2013 13:17
Chromium	U		0.0012	0.00500	mg/L	1	2/8/2013 00:48
Cobalt	U		0.00080	0.00500	mg/L	1	2/8/2013 00:48
Copper	0.00177	J	0.0015	0.00500	mg/L	1	2/8/2013 00:48
Iron	U		0.078	0.200	mg/L	1	2/8/2013 00:48
Lead	U		0.00070	0.00500	mg/L	1	2/8/2013 00:48
Manganese	U		0.0025	0.00500	mg/L	1	2/8/2013 00:48
Molybdenum	0.0125		0.0015	0.00500	mg/L	1	2/8/2013 00:48
Nickel	0.00264	J	0.0012	0.00500	mg/L	1	2/8/2013 00:48
Potassium	4.41		0.084	0.200	mg/L	1	2/8/2013 00:48
Selenium	0.0130		0.0010	0.00500	mg/L	1	2/8/2013 00:48
Silver	U		0.00080	0.00500	mg/L	1	2/8/2013 00:48
Sodium	65.4		0.085	0.200	mg/L	1	2/8/2013 00:48
Uranium	0.00601		0.0050	0.00500	mg/L	1	2/8/2013 00:48
Zinc	0.0132		0.0025	0.00500	mg/L	1	2/8/2013 00:48
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3510 / 2/7/13 Analyst: LG							
1-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 15:33
2-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 15:33
Benzo(a)pyrene	U		0.000050	0.00020	mg/L	1	2/8/2013 15:33
Naphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 15:33
Surr: 2,4,6-Tribromophenol	69.5			34-129	%REC	1	2/8/2013 15:33
Surr: 2-Fluorobiphenyl	69.7			40-125	%REC	1	2/8/2013 15:33

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO Discharge
Collection Date: 2/3/2013 09:30 AM

Work Order: 1302138
Lab ID: 1302138-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	64.5			20-120	%REC	1	2/8/2013 15:33
Surr: 4-Terphenyl-d14	102			40-135	%REC	1	2/8/2013 15:33
Surr: Nitrobenzene-d5	69.1			41-120	%REC	1	2/8/2013 15:33
Surr: Phenol-d6	65.7			20-120	%REC	1	2/8/2013 15:33

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 15:50
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	2/6/2013 15:50
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 15:50
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 15:50
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	2/6/2013 15:50
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	2/6/2013 15:50
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 15:50
Benzene	U		0.00020	0.0010	mg/L	1	2/6/2013 15:50
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	2/6/2013 15:50
Chloroform	U		0.00030	0.0010	mg/L	1	2/6/2013 15:50
Ethylbenzene	U		0.00030	0.0010	mg/L	1	2/6/2013 15:50
Methylene chloride	U		0.00040	0.0020	mg/L	1	2/6/2013 15:50
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	2/6/2013 15:50
Toluene	U		0.00030	0.0010	mg/L	1	2/6/2013 15:50
Trichloroethene	U		0.00020	0.0010	mg/L	1	2/6/2013 15:50
Vinyl chloride	U		0.00040	0.0010	mg/L	1	2/6/2013 15:50
Xylenes, Total	U		0.00030	0.0010	mg/L	1	2/6/2013 15:50
Surr: 1,2-Dichloroethane-d4	88.0			71-125	%REC	1	2/6/2013 15:50
Surr: 4-Bromofluorobenzene	94.6			70-125	%REC	1	2/6/2013 15:50
Surr: Dibromofluoromethane	96.7			74-125	%REC	1	2/6/2013 15:50
Surr: Toluene-d8	97.9			78-123	%REC	1	2/6/2013 15:50

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	67.5		0.20	0.500	mg/L	1	2/6/2013 15:36
Fluoride	3.32		0.050	0.100	mg/L	1	2/6/2013 15:36
Nitrogen, Nitrate (As N)	3.22	H	0.030	0.100	mg/L	1	2/6/2013 15:36
Nitrogen, Nitrite (As N)	U	H	0.030	0.100	mg/L	1	2/6/2013 15:36
Sulfate	1,690		10	25.0	mg/L	50	2/12/2013 19:01
Surr: Selenate (surr)	89.0			85-115	%REC	1	2/6/2013 15:36
Surr: Selenate (surr)	91.7			85-115	%REC	50	2/12/2013 19:01

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	U		0.0040	0.0200	mg/L	1	2/11/2013 10:05

TOTAL DISSOLVED SOLIDS			Method: M2540C			Analyst: KAH	
------------------------	--	--	----------------	--	--	--------------	--

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO Discharge
Collection Date: 2/3/2013 09:30 AM

Work Order: 1302138
Lab ID: 1302138-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Total Dissolved Solids (Residue, Filterable)	3,150		5.0	10.0	mg/L	1	2/7/2013 10:10

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117
Collection Date: 2/3/2013 10:00 AM

Work Order: 1302138
Lab ID: 1302138-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3511 / 2/8/13 Analyst: KMB							
TPH (Diesel Range)	U		0.021	0.052	mg/L	1	2/11/2013 15:57
TPH (Oil Range)	U		0.042	0.10	mg/L	1	2/11/2013 15:57
Surr: 2-Fluorobiphenyl	113			60-135	%REC	1	2/11/2013 15:57
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: KKP							
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	2/7/2013 19:05
Surr: 4-Bromofluorobenzene	103			70-130	%REC	1	2/7/2013 19:05
DISSOLVED MERCURY Method: SW7470 Prep: SW7470 / 2/7/13 Analyst: OFO							
Mercury	U		0.000042	0.000200	mg/L	1	2/7/2013 18:10
DISSOLVED METALS Method: SW6020 Prep: SW3010A / 2/6/13 Analyst: ALR							
Aluminum	0.0289		0.0040	0.0100	mg/L	1	2/8/2013 01:59
Arsenic	0.00498	J	0.0013	0.00500	mg/L	1	2/8/2013 16:25
Barium	0.0235		0.00090	0.00500	mg/L	1	2/8/2013 01:59
Boron	0.207		0.040	0.100	mg/L	2	2/12/2013 14:11
Cadmium	U		0.00080	0.00200	mg/L	1	2/8/2013 01:59
Calcium	568		0.86	5.00	mg/L	10	2/8/2013 16:45
Chromium	U		0.0012	0.00500	mg/L	1	2/8/2013 16:25
Cobalt	0.00256	J	0.00080	0.00500	mg/L	1	2/8/2013 16:25
Copper	0.0141		0.0015	0.00500	mg/L	1	2/8/2013 16:25
Iron	U		0.078	0.200	mg/L	1	2/8/2013 16:25
Lead	U		0.00070	0.00500	mg/L	1	2/8/2013 16:25
Manganese	0.108		0.0025	0.00500	mg/L	1	2/8/2013 16:25
Molybdenum	0.0112		0.0015	0.00500	mg/L	1	2/8/2013 01:59
Nickel	0.00413	J	0.0012	0.00500	mg/L	1	2/8/2013 16:25
Potassium	6.92		0.084	0.200	mg/L	1	2/8/2013 01:59
Selenium	0.00427	J	0.0010	0.00500	mg/L	1	2/8/2013 16:25
Silver	U		0.00080	0.00500	mg/L	1	2/8/2013 01:59
Sodium	176		0.085	0.200	mg/L	1	2/8/2013 01:59
Uranium	0.0263		0.0050	0.00500	mg/L	1	2/8/2013 01:59
Zinc	0.0123		0.0025	0.00500	mg/L	1	2/8/2013 16:25
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3510 / 2/7/13 Analyst: LG							
1-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 15:53
2-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 15:53
Benzo(a)pyrene	U		0.000050	0.00020	mg/L	1	2/8/2013 15:53
Naphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 15:53
Surr: 2,4,6-Tribromophenol	71.7			34-129	%REC	1	2/8/2013 15:53
Surr: 2-Fluorobiphenyl	67.2			40-125	%REC	1	2/8/2013 15:53

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117
Collection Date: 2/3/2013 10:00 AM

Work Order: 1302138
Lab ID: 1302138-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	51.4			20-120	%REC	1	2/8/2013 15:53
Surr: 4-Terphenyl-d14	102			40-135	%REC	1	2/8/2013 15:53
Surr: Nitrobenzene-d5	70.1			41-120	%REC	1	2/8/2013 15:53
Surr: Phenol-d6	55.3			20-120	%REC	1	2/8/2013 15:53

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 16:14
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	2/6/2013 16:14
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 16:14
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 16:14
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	2/6/2013 16:14
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	2/6/2013 16:14
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 16:14
Benzene	U		0.00020	0.0010	mg/L	1	2/6/2013 16:14
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	2/6/2013 16:14
Chloroform	U		0.00030	0.0010	mg/L	1	2/6/2013 16:14
Ethylbenzene	U		0.00030	0.0010	mg/L	1	2/6/2013 16:14
Methylene chloride	U		0.00040	0.0020	mg/L	1	2/6/2013 16:14
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	2/6/2013 16:14
Toluene	U		0.00030	0.0010	mg/L	1	2/6/2013 16:14
Trichloroethene	U		0.00020	0.0010	mg/L	1	2/6/2013 16:14
Vinyl chloride	U		0.00040	0.0010	mg/L	1	2/6/2013 16:14
Xylenes, Total	U		0.00030	0.0010	mg/L	1	2/6/2013 16:14
Surr: 1,2-Dichloroethane-d4	89.3			71-125	%REC	1	2/6/2013 16:14
Surr: 4-Bromofluorobenzene	97.7			70-125	%REC	1	2/6/2013 16:14
Surr: Dibromofluoromethane	95.1			74-125	%REC	1	2/6/2013 16:14
Surr: Toluene-d8	99.5			78-123	%REC	1	2/6/2013 16:14

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	154		10	25.0	mg/L	50	2/12/2013 19:15
Fluoride	2.73		0.050	0.100	mg/L	1	2/6/2013 15:50
Nitrogen, Nitrate (As N)	U	H	0.030	0.100	mg/L	1	2/6/2013 15:50
Nitrogen, Nitrite (As N)	U	H	0.030	0.100	mg/L	1	2/6/2013 15:50
Sulfate	2,310		10	25.0	mg/L	50	2/12/2013 19:15
Surr: Selenate (surr)	90.6			85-115	%REC	1	2/6/2013 15:50
Surr: Selenate (surr)	99.0			85-115	%REC	50	2/12/2013 19:15

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	U		0.0040	0.0200	mg/L	1	2/11/2013 10:05

TOTAL DISSOLVED SOLIDS			Method: M2540C			Analyst: KAH	
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Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117
Collection Date: 2/3/2013 10:00 AM

Work Order: 1302138
Lab ID: 1302138-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Total Dissolved Solids (Residue, Filterable)	3,910		5.0	10.0	mg/L	1	2/7/2013 10:10

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114
Collection Date: 2/3/2013 11:30 AM

Work Order: 1302138
Lab ID: 1302138-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3511 / 2/8/13 Analyst: KMB							
TPH (Diesel Range)	U		0.021	0.052	mg/L	1	2/11/2013 16:19
TPH (Oil Range)	U		0.042	0.10	mg/L	1	2/11/2013 16:19
Surr: 2-Fluorobiphenyl	90.9			60-135	%REC	1	2/11/2013 16:19
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: KKP							
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	2/7/2013 19:23
Surr: 4-Bromofluorobenzene	102			70-130	%REC	1	2/7/2013 19:23
DISSOLVED MERCURY Method: SW7470 Prep: SW7470 / 2/7/13 Analyst: OFO							
Mercury	U		0.000042	0.000200	mg/L	1	2/7/2013 18:12
DISSOLVED METALS Method: SW6020 Prep: SW3010A / 2/6/13 Analyst: ALR							
Aluminum	0.0265		0.0040	0.0100	mg/L	1	2/8/2013 02:04
Arsenic	0.00561		0.0013	0.00500	mg/L	1	2/8/2013 16:30
Barium	0.0204		0.00090	0.00500	mg/L	1	2/8/2013 02:04
Boron	0.139		0.040	0.100	mg/L	2	2/12/2013 14:13
Cadmium	U		0.00080	0.00200	mg/L	1	2/8/2013 02:04
Calcium	600		0.86	5.00	mg/L	10	2/8/2013 16:50
Chromium	U		0.0012	0.00500	mg/L	1	2/8/2013 16:30
Cobalt	0.00738		0.00080	0.00500	mg/L	1	2/8/2013 16:30
Copper	U		0.0015	0.00500	mg/L	1	2/8/2013 16:30
Iron	U		0.078	0.200	mg/L	1	2/8/2013 16:30
Lead	U		0.00070	0.00500	mg/L	1	2/8/2013 16:30
Manganese	1.51		0.0025	0.00500	mg/L	1	2/8/2013 16:30
Molybdenum	0.0103		0.0015	0.00500	mg/L	1	2/8/2013 02:04
Nickel	0.00651		0.0012	0.00500	mg/L	1	2/8/2013 16:30
Potassium	2.86		0.084	0.200	mg/L	1	2/8/2013 02:04
Selenium	0.00222	J	0.0010	0.00500	mg/L	1	2/8/2013 16:30
Silver	U		0.00080	0.00500	mg/L	1	2/8/2013 02:04
Sodium	146		0.085	0.200	mg/L	1	2/8/2013 02:04
Uranium	0.0156		0.0050	0.00500	mg/L	1	2/8/2013 02:04
Zinc	0.00343	J	0.0025	0.00500	mg/L	1	2/8/2013 16:30
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3510 / 2/7/13 Analyst: LG							
1-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 16:13
2-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 16:13
Benzo(a)pyrene	U		0.000050	0.00020	mg/L	1	2/8/2013 16:13
Naphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 16:13
Surr: 2,4,6-Tribromophenol	58.9			34-129	%REC	1	2/8/2013 16:13
Surr: 2-Fluorobiphenyl	63.3			40-125	%REC	1	2/8/2013 16:13

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114
Collection Date: 2/3/2013 11:30 AM

Work Order: 1302138
Lab ID: 1302138-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	60.4			20-120	%REC	1	2/8/2013 16:13
Surr: 4-Terphenyl-d14	92.1			40-135	%REC	1	2/8/2013 16:13
Surr: Nitrobenzene-d5	67.1			41-120	%REC	1	2/8/2013 16:13
Surr: Phenol-d6	61.6			20-120	%REC	1	2/8/2013 16:13

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 16:38
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	2/6/2013 16:38
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 16:38
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 16:38
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	2/6/2013 16:38
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	2/6/2013 16:38
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 16:38
Benzene	U		0.00020	0.0010	mg/L	1	2/6/2013 16:38
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	2/6/2013 16:38
Chloroform	U		0.00030	0.0010	mg/L	1	2/6/2013 16:38
Ethylbenzene	U		0.00030	0.0010	mg/L	1	2/6/2013 16:38
Methylene chloride	U		0.00040	0.0020	mg/L	1	2/6/2013 16:38
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	2/6/2013 16:38
Toluene	U		0.00030	0.0010	mg/L	1	2/6/2013 16:38
Trichloroethene	U		0.00020	0.0010	mg/L	1	2/6/2013 16:38
Vinyl chloride	U		0.00040	0.0010	mg/L	1	2/6/2013 16:38
Xylenes, Total	U		0.00030	0.0010	mg/L	1	2/6/2013 16:38
Surr: 1,2-Dichloroethane-d4	87.5			71-125	%REC	1	2/6/2013 16:38
Surr: 4-Bromofluorobenzene	95.7			70-125	%REC	1	2/6/2013 16:38
Surr: Dibromofluoromethane	95.2			74-125	%REC	1	2/6/2013 16:38
Surr: Toluene-d8	97.5			78-123	%REC	1	2/6/2013 16:38

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	158		10	25.0	mg/L	50	2/12/2013 19:30
Fluoride	1.76		0.050	0.100	mg/L	1	2/6/2013 16:05
Nitrogen, Nitrate (As N)	1.43	H	0.030	0.100	mg/L	1	2/6/2013 16:05
Nitrogen, Nitrite (As N)	U	H	0.030	0.100	mg/L	1	2/6/2013 16:05
Sulfate	2,200		10	25.0	mg/L	50	2/12/2013 19:30
Surr: Selenate (surr)	89.1			85-115	%REC	1	2/6/2013 16:05
Surr: Selenate (surr)	91.3			85-115	%REC	50	2/12/2013 19:30

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	U		0.0040	0.0200	mg/L	1	2/11/2013 10:05

TOTAL DISSOLVED SOLIDS			Method: M2540C			Analyst: KAH	
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Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114
Collection Date: 2/3/2013 11:30 AM

Work Order: 1302138
Lab ID: 1302138-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Total Dissolved Solids (Residue, Filterable)	3,760		5.0	10.0	mg/L	1	2/7/2013 10:10

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-115
Collection Date: 2/3/2013 12:30 PM

Work Order: 1302138
Lab ID: 1302138-04
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3511 / 2/8/13 Analyst: KMB							
TPH (Diesel Range)	U		0.021	0.051	mg/L	1	2/11/2013 16:41
TPH (Oil Range)	U		0.041	0.10	mg/L	1	2/11/2013 16:41
Surr: 2-Fluorobiphenyl	114			60-135	%REC	1	2/11/2013 16:41
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: KKP							
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	2/7/2013 19:41
Surr: 4-Bromofluorobenzene	101			70-130	%REC	1	2/7/2013 19:41
DISSOLVED MERCURY Method: SW7470 Prep: SW7470 / 2/7/13 Analyst: OFO							
Mercury	U		0.000042	0.000200	mg/L	1	2/7/2013 18:14
DISSOLVED METALS Method: SW6020 Prep: SW3010A / 2/6/13 Analyst: ALR							
Aluminum	0.00888	J	0.0040	0.0100	mg/L	1	2/8/2013 02:09
Arsenic	0.00499	J	0.0013	0.00500	mg/L	1	2/8/2013 19:53
Barium	0.0309		0.00090	0.00500	mg/L	1	2/8/2013 02:09
Boron	0.865		0.20	0.500	mg/L	10	2/12/2013 14:28
Cadmium	U		0.00080	0.00200	mg/L	1	2/8/2013 02:09
Calcium	518		0.86	5.00	mg/L	10	2/8/2013 16:55
Chromium	U		0.0012	0.00500	mg/L	1	2/8/2013 19:53
Cobalt	0.00290	J	0.00080	0.00500	mg/L	1	2/8/2013 19:53
Copper	0.00704		0.0015	0.00500	mg/L	1	2/8/2013 19:53
Iron	U		0.078	0.200	mg/L	1	2/8/2013 19:53
Lead	U		0.00070	0.00500	mg/L	1	2/8/2013 02:09
Manganese	0.255		0.0025	0.00500	mg/L	1	2/8/2013 19:53
Molybdenum	0.00877		0.0015	0.00500	mg/L	1	2/8/2013 02:09
Nickel	0.00483	J	0.0012	0.00500	mg/L	1	2/8/2013 19:53
Potassium	1.78		0.084	0.200	mg/L	1	2/8/2013 02:09
Selenium	0.00810		0.0010	0.00500	mg/L	1	2/8/2013 19:53
Silver	U		0.00080	0.00500	mg/L	1	2/8/2013 02:09
Sodium	199		0.85	2.00	mg/L	10	2/8/2013 16:55
Uranium	0.0843		0.0050	0.00500	mg/L	1	2/8/2013 02:09
Zinc	0.00973		0.0025	0.00500	mg/L	1	2/8/2013 19:53
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3510 / 2/7/13 Analyst: LG							
1-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 16:32
2-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 16:32
Benzo(a)pyrene	U		0.000050	0.00020	mg/L	1	2/8/2013 16:32
Naphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 16:32
Surr: 2,4,6-Tribromophenol	73.4			34-129	%REC	1	2/8/2013 16:32
Surr: 2-Fluorobiphenyl	67.9			40-125	%REC	1	2/8/2013 16:32

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-115
Collection Date: 2/3/2013 12:30 PM

Work Order: 1302138
Lab ID: 1302138-04
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	59.8			20-120	%REC	1	2/8/2013 16:32
Surr: 4-Terphenyl-d14	102			40-135	%REC	1	2/8/2013 16:32
Surr: Nitrobenzene-d5	70.7			41-120	%REC	1	2/8/2013 16:32
Surr: Phenol-d6	55.2			20-120	%REC	1	2/8/2013 16:32

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:02
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	2/6/2013 17:02
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:02
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:02
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	2/6/2013 17:02
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:02
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:02
Benzene	U		0.00020	0.0010	mg/L	1	2/6/2013 17:02
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	2/6/2013 17:02
Chloroform	U		0.00030	0.0010	mg/L	1	2/6/2013 17:02
Ethylbenzene	U		0.00030	0.0010	mg/L	1	2/6/2013 17:02
Methylene chloride	U		0.00040	0.0020	mg/L	1	2/6/2013 17:02
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	2/6/2013 17:02
Toluene	U		0.00030	0.0010	mg/L	1	2/6/2013 17:02
Trichloroethene	U		0.00020	0.0010	mg/L	1	2/6/2013 17:02
Vinyl chloride	U		0.00040	0.0010	mg/L	1	2/6/2013 17:02
Xylenes, Total	U		0.00030	0.0010	mg/L	1	2/6/2013 17:02
Surr: 1,2-Dichloroethane-d4	89.7			71-125	%REC	1	2/6/2013 17:02
Surr: 4-Bromofluorobenzene	99.2			70-125	%REC	1	2/6/2013 17:02
Surr: Dibromofluoromethane	97.1			74-125	%REC	1	2/6/2013 17:02
Surr: Toluene-d8	101			78-123	%REC	1	2/6/2013 17:02

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	422		10	25.0	mg/L	50	2/12/2013 19:44
Fluoride	1.10		0.050	0.100	mg/L	1	2/6/2013 16:20
Nitrogen, Nitrate (As N)	0.821	H	0.030	0.100	mg/L	1	2/6/2013 16:20
Nitrogen, Nitrite (As N)	0.141	H	0.030	0.100	mg/L	1	2/6/2013 16:20
Sulfate	2,790		10	25.0	mg/L	50	2/12/2013 19:44
Surr: Selenate (surr)	89.1			85-115	%REC	1	2/6/2013 16:20
Surr: Selenate (surr)	93.1			85-115	%REC	50	2/12/2013 19:44

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	U		0.0040	0.0200	mg/L	1	2/11/2013 10:05

TOTAL DISSOLVED SOLIDS			Method: M2540C			Analyst: KAH	
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Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-115
Collection Date: 2/3/2013 12:30 PM

Work Order: 1302138
Lab ID: 1302138-04
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Total Dissolved Solids (Residue, Filterable)	4,960		5.0	10.0	mg/L	1	2/7/2013 10:10

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: Trip Blank 011813-74
Collection Date: 2/3/2013

Work Order: 1302138
Lab ID: 1302138-05
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:27
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	2/6/2013 17:27
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:27
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:27
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	2/6/2013 17:27
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:27
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:27
Benzene	U		0.00020	0.0010	mg/L	1	2/6/2013 17:27
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	2/6/2013 17:27
Chloroform	U		0.00030	0.0010	mg/L	1	2/6/2013 17:27
Ethylbenzene	U		0.00030	0.0010	mg/L	1	2/6/2013 17:27
Methylene chloride	U		0.00040	0.0020	mg/L	1	2/6/2013 17:27
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	2/6/2013 17:27
Toluene	U		0.00030	0.0010	mg/L	1	2/6/2013 17:27
Trichloroethene	U		0.00020	0.0010	mg/L	1	2/6/2013 17:27
Vinyl chloride	U		0.00040	0.0010	mg/L	1	2/6/2013 17:27
Xylenes, Total	U		0.00030	0.0010	mg/L	1	2/6/2013 17:27
Surr: 1,2-Dichloroethane-d4	88.7			71-125	%REC	1	2/6/2013 17:27
Surr: 4-Bromofluorobenzene	95.0			70-125	%REC	1	2/6/2013 17:27
Surr: Dibromofluoromethane	96.7			74-125	%REC	1	2/6/2013 17:27
Surr: Toluene-d8	97.7			78-123	%REC	1	2/6/2013 17:27

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: Trip Blank 011813-50
Collection Date: 2/3/2013

Work Order: 1302138
Lab ID: 1302138-06
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:51
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	2/6/2013 17:51
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:51
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:51
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	2/6/2013 17:51
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:51
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:51
Benzene	U		0.00020	0.0010	mg/L	1	2/6/2013 17:51
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	2/6/2013 17:51
Chloroform	U		0.00030	0.0010	mg/L	1	2/6/2013 17:51
Ethylbenzene	U		0.00030	0.0010	mg/L	1	2/6/2013 17:51
Methylene chloride	U		0.00040	0.0020	mg/L	1	2/6/2013 17:51
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	2/6/2013 17:51
Toluene	U		0.00030	0.0010	mg/L	1	2/6/2013 17:51
Trichloroethene	U		0.00020	0.0010	mg/L	1	2/6/2013 17:51
Vinyl chloride	U		0.00040	0.0010	mg/L	1	2/6/2013 17:51
Xylenes, Total	U		0.00030	0.0010	mg/L	1	2/6/2013 17:51
Surr: 1,2-Dichloroethane-d4	89.6			71-125	%REC	1	2/6/2013 17:51
Surr: 4-Bromofluorobenzene	96.6			70-125	%REC	1	2/6/2013 17:51
Surr: Dibromofluoromethane	96.1			74-125	%REC	1	2/6/2013 17:51
Surr: Toluene-d8	99.9			78-123	%REC	1	2/6/2013 17:51

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67710** Instrument ID **FID-16** Method: **SW8015M**

MBLK	Sample ID: LBLKW-130208-67710				Units: mg/L		Analysis Date: 2/11/2013 02:30 PM			
Client ID:	Run ID: FID-16_130211B				SeqNo: 3110036		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	U	0.050								
TPH (Oil Range)	U	0.10								
<i>Surr: 2-Fluorobiphenyl</i>	0.06355	0.0050	0.06061	0	105	60-135	0			

LCS	Sample ID: LLCSW-130208-67710				Units: mg/L		Analysis Date: 2/11/2013 02:52 PM			
Client ID:	Run ID: FID-16_130211B				SeqNo: 3110037		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.5399	0.050	0.6061	0	89.1	70-130	0			
TPH (Oil Range)	0.5571	0.10	0.6061	0	91.9	70-130	0			
<i>Surr: 2-Fluorobiphenyl</i>	0.0583	0.0050	0.06061	0	96.2	60-135	0			

LCSD	Sample ID: LLCSDW-130208-67710				Units: mg/L		Analysis Date: 2/11/2013 03:14 PM			
Client ID:	Run ID: FID-16_130211B				SeqNo: 3110038		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.5053	0.050	0.6061	0	83.4	70-130	0.5399	6.61	20	
TPH (Oil Range)	0.494	0.10	0.6061	0	81.5	70-130	0.5571	12	20	
<i>Surr: 2-Fluorobiphenyl</i>	0.05676	0.0050	0.06061	0	93.7	60-135	0.0583	2.68	20	

The following samples were analyzed in this batch:

1302138-01C	1302138-02C	1302138-03C
1302138-04C		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 1 of 24

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142594** Instrument ID **FID-9** Method: **SW8015**

MBLK	Sample ID: GBLKW-130207-R142594				Units: mg/L		Analysis Date: 2/7/2013 06:29 PM			
Client ID:	Run ID: FID-9_130207A				SeqNo: 3110011		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	U	0.050								
<i>Surr: 4-Bromofluorobenzene</i>	0.1043	0.0050	0.1	0	104	70-130	0			

LCS	Sample ID: GLCSW-130207-R142594				Units: mg/L		Analysis Date: 2/7/2013 05:35 PM			
Client ID:	Run ID: FID-9_130207A				SeqNo: 3110006		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.8877	0.050	1	0	88.8	70-130	0			
<i>Surr: 4-Bromofluorobenzene</i>	0.1154	0.0050	0.1	0	115	70-130	0			

LCSD	Sample ID: GLCSDW-130207-R142594				Units: mg/L		Analysis Date: 2/7/2013 05:53 PM			
Client ID:	Run ID: FID-9_130207A				SeqNo: 3110009		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.8879	0.050	1	0	88.8	70-130	0.8877	0.014	30	
<i>Surr: 4-Bromofluorobenzene</i>	0.1121	0.0050	0.1	0	112	70-130	0.1154	2.93	30	

MS	Sample ID: 1302138-04BMS				Units: mg/L		Analysis Date: 2/7/2013 10:23 PM			
Client ID: MW-115	Run ID: FID-9_130207A				SeqNo: 3110033		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.7588	0.050	1	0	75.9	70-130	0			
<i>Surr: 4-Bromofluorobenzene</i>	0.1017	0.0050	0.1	0	102	70-130	0			

MSD	Sample ID: 1302138-04BMSD				Units: mg/L		Analysis Date: 2/7/2013 10:41 PM			
Client ID: MW-115	Run ID: FID-9_130207A				SeqNo: 3110034		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.7506	0.050	1	0	75.1	70-130	0.7588	1.08	30	
<i>Surr: 4-Bromofluorobenzene</i>	0.1015	0.0050	0.1	0	101	70-130	0.1017	0.216	30	

The following samples were analyzed in this batch:

1302138-01B	1302138-02B	1302138-03B
1302138-04B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67619** Instrument ID **ICP7500** Method: **SW6020** **(Dissolve)**

MBLK Sample ID: **MBLKW3-020613-67619** Units: **mg/L** Analysis Date: **2/8/2013 12:38 AM**

Client ID: Run ID: **ICP7500_130207A** SeqNo: **3106113** Prep Date: **2/6/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.004993	0.010								J
Arsenic	U	0.0050								
Barium	U	0.0050								
Cadmium	U	0.0020								
Calcium	U	0.50								
Chromium	U	0.0050								
Cobalt	U	0.0050								
Copper	U	0.0050								
Iron	U	0.20								
Lead	U	0.0050								
Manganese	U	0.0050								
Molybdenum	U	0.0050								
Nickel	U	0.0050								
Potassium	U	0.20								
Selenium	0.00238	0.0050								J
Silver	U	0.0050								
Sodium	U	0.20								
Uranium	U	0.0050								
Zinc	U	0.0050								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67619** Instrument ID **ICP7500** Method: **SW6020** **(Dissolve)**

LCS Sample ID: **MLCSW3-020613-67619** Units: **mg/L** Analysis Date: **2/8/2013 12:43 AM**

Client ID: Run ID: **ICP7500_130207A** SeqNo: **3106114** Prep Date: **2/6/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1092	0.010	0.1	0	109	80-120	0			
Arsenic	0.05204	0.0050	0.05	0	104	80-120	0			
Barium	0.05274	0.0050	0.05	0	105	80-120	0			
Cadmium	0.05136	0.0020	0.05	0	103	80-120	0			
Calcium	5.163	0.50	5	0	103	80-120	0			
Chromium	0.05159	0.0050	0.05	0	103	80-120	0			
Cobalt	0.05069	0.0050	0.05	0	101	80-120	0			
Copper	0.05284	0.0050	0.05	0	106	80-120	0			
Iron	5.018	0.20	5	0	100	80-120	0			
Lead	0.05071	0.0050	0.05	0	101	80-120	0			
Manganese	0.05048	0.0050	0.05	0	101	80-120	0			
Molybdenum	0.04933	0.0050	0.05	0	98.7	80-120	0			
Nickel	0.05065	0.0050	0.05	0	101	80-120	0			
Potassium	5.216	0.20	5	0	104	80-120	0			
Selenium	0.05348	0.0050	0.05	0	107	80-120	0			
Silver	0.05061	0.0050	0.05	0	101	80-120	0			
Sodium	5.159	0.20	5	0	103	80-120	0			
Uranium	0.1015	0.0050	0.1	0	102	80-120	0			
Zinc	0.05422	0.0050	0.05	0	108	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67619** Instrument ID **ICP7500** Method: **SW6020** **(Dissolve)**

MS Sample ID: **1302138-01EMS** Units: **mg/L** Analysis Date: **2/8/2013 01:03 AM**

Client ID: **RO Discharge** Run ID: **ICP7500_130207A** SeqNo: **3106118** Prep Date: **2/6/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1175	0.010	0.1	0.006684	111	75-125	0			
Arsenic	0.06218	0.0050	0.05	0.004935	114	75-125	0			
Barium	0.1161	0.0050	0.05	0.06275	107	75-125	0			
Cadmium	0.05003	0.0020	0.05	0.0001626	99.7	75-125	0			
Calcium	754	0.50	5	726.2	556	75-125	0			SEO
Chromium	0.05429	0.0050	0.05	0.0009708	107	75-125	0			
Cobalt	0.05008	0.0050	0.05	0.0005107	99.1	75-125	0			
Copper	0.05121	0.0050	0.05	0.001766	98.9	75-125	0			
Iron	5.098	0.20	5	0.05082	101	75-125	0			
Lead	0.05237	0.0050	0.05	0.0006516	103	75-125	0			
Manganese	0.05229	0.0050	0.05	0.001463	102	75-125	0			
Molybdenum	0.06607	0.0050	0.05	0.01252	107	75-125	0			
Nickel	0.05158	0.0050	0.05	0.002642	97.9	75-125	0			
Potassium	10.31	0.20	5	4.407	118	75-125	0			
Selenium	0.07267	0.0050	0.05	0.01304	119	75-125	0			
Silver	0.04765	0.0050	0.05	-0.00009242	95.5	75-125	0			
Sodium	73.65	0.20	5	65.44	164	75-125	0			SO
Uranium	0.1166	0.0050	0.1	0.006008	111	75-125	0			
Zinc	0.06257	0.0050	0.05	0.01316	98.8	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67619** Instrument ID **ICP7500** Method: **SW6020** **(Dissolve)**

MSD		Sample ID: 1302138-01EMSD				Units: mg/L		Analysis Date: 2/8/2013 01:08 AM		
Client ID: RO Discharge		Run ID: ICP7500_130207A				SeqNo: 3106119		Prep Date: 2/6/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1166	0.010	0.1	0.006684	110	75-125	0.1175	0.769	25	
Arsenic	0.06119	0.0050	0.05	0.004935	113	75-125	0.06218	1.6	25	
Barium	0.1173	0.0050	0.05	0.06275	109	75-125	0.1161	1.03	25	
Cadmium	0.05093	0.0020	0.05	0.0001626	102	75-125	0.05003	1.78	25	
Calcium	743.7	0.50	5	726.2	350	75-125	754	1.38	25	SEO
Chromium	0.05277	0.0050	0.05	0.0009708	104	75-125	0.05429	2.84	25	
Cobalt	0.04949	0.0050	0.05	0.0005107	98	75-125	0.05008	1.19	25	
Copper	0.04946	0.0050	0.05	0.001766	95.4	75-125	0.05121	3.48	25	
Iron	5.027	0.20	5	0.05082	99.5	75-125	5.098	1.4	25	
Lead	0.05236	0.0050	0.05	0.0006516	103	75-125	0.05237	0.0191	25	
Manganese	0.05087	0.0050	0.05	0.001463	98.8	75-125	0.05229	2.75	25	
Molybdenum	0.06545	0.0050	0.05	0.01252	106	75-125	0.06607	0.943	25	
Nickel	0.05066	0.0050	0.05	0.002642	96	75-125	0.05158	1.8	25	
Potassium	10.09	0.20	5	4.407	114	75-125	10.31	2.16	25	
Selenium	0.07481	0.0050	0.05	0.01304	124	75-125	0.07267	2.9	25	
Silver	0.04757	0.0050	0.05	-0.00009242	95.3	75-125	0.04765	0.168	25	
Sodium	72.71	0.20	5	65.44	145	75-125	73.65	1.28	25	SO
Uranium	0.1171	0.0050	0.1	0.006008	111	75-125	0.1166	0.428	25	
Zinc	0.06015	0.0050	0.05	0.01316	94	75-125	0.06257	3.94	25	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67619** Instrument ID **ICP7500** Method: **SW6020** **(Dissolve)**

DUP Sample ID: **1302138-01EDUP** Units: **mg/L** Analysis Date: **2/8/2013 12:53 AM**
 Client ID: **RO Discharge** Run ID: **ICP7500_130207A** SeqNo: **3106116** Prep Date: **2/6/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.006071	0.010	0	0	0	0-0	0.006684	0	25	J
Arsenic	0.005444	0.0050	0	0	0	0-0	0.004935	9.81	25	
Barium	0.06235	0.0050	0	0	0	0-0	0.06275	0.639	25	
Cadmium	U	0.0020	0	0	0	0-0	0.0001626	0	25	
Chromium	U	0.0050	0	0	0	0-0	0.0009708	0	25	
Cobalt	U	0.0050	0	0	0	0-0	0.0005107	0	25	
Copper	0.001881	0.0050	0	0	0	0-0	0.001766	0	25	J
Iron	U	0.20	0	0	0	0-0	0.05082	0	25	
Lead	U	0.0050	0	0	0	0-0	0.0006516	0	25	
Manganese	U	0.0050	0	0	0	0-0	0.001463	0	25	
Molybdenum	0.01297	0.0050	0	0	0	0-0	0.01252	3.53	25	
Nickel	0.002802	0.0050	0	0	0	0-0	0.002642	0	25	J
Potassium	4.498	0.20	0	0	0	0-0	4.407	2.04	25	
Selenium	0.01234	0.0050	0	0	0	0-0	0.01304	5.52	25	
Silver	U	0.0050	0	0	0	0-0	-0.00009242	0	25	
Sodium	67.07	0.20	0	0	0	0-0	65.44	2.46	25	
Uranium	0.006251	0.0050	0	0	0		0.006008	3.96	25	
Zinc	0.01375	0.0050	0	0	0	0-0	0.01316	4.38	25	

DUP Sample ID: **1302138-01EDUP** Units: **mg/L** Analysis Date: **2/8/2013 01:22 PM**
 Client ID: **RO Discharge** Run ID: **ICP7500_130208A** SeqNo: **3106804** Prep Date: **2/6/2013** DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	662	25	0	0	0	0-0	625	5.75	25	

The following samples were analyzed in this batch:

1302138-01E	1302138-02E	1302138-03E
1302138-04E		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67624** Instrument ID **Mercury** Method: **SW7470** **(Dissolve)**

MBLK Sample ID: **GBLKW4-020713-67624** Units: **mg/L** Analysis Date: **2/7/2013 04:12 PM**

Client ID: Run ID: **MERCURY_130207A** SeqNo: **3105666** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	0.00020								

LCS Sample ID: **GLCSW4-020713-67624** Units: **mg/L** Analysis Date: **2/7/2013 04:14 PM**

Client ID: Run ID: **MERCURY_130207A** SeqNo: **3105667** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00534	0.00020	0.005	0	107	80-120	0			

MS Sample ID: **1302162-02DMS** Units: **mg/L** Analysis Date: **2/7/2013 04:20 PM**

Client ID: Run ID: **MERCURY_130207A** SeqNo: **3105670** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00399	0.00020	0.005	-0.00001	80	80-120	0			

MSD Sample ID: **1302162-02DMSD** Units: **mg/L** Analysis Date: **2/7/2013 04:22 PM**

Client ID: Run ID: **MERCURY_130207A** SeqNo: **3105671** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00392	0.00020	0.005	-0.00001	78.6	80-120	0.00399	1.77	20	S

DUP Sample ID: **1302162-02DDUP** Units: **mg/L** Analysis Date: **2/7/2013 04:18 PM**

Client ID: Run ID: **MERCURY_130207A** SeqNo: **3105669** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	0.00020	0	0	0	0-0	-0.00001	0	20	

The following samples were analyzed in this batch:

1302138-01E	1302138-02E	1302138-03E
1302138-04E		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67639** Instrument ID **ICPMS05** Method: **SW6020** **(Dissolve)**

MBLK	Sample ID: MBLKW5-020813-67639				Units: mg/L		Analysis Date: 2/11/2013 05:25 PM			
Client ID:	Run ID: ICPMS05_130211A				SeqNo: 3109576		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.006192	0.010								J
Arsenic	U	0.0050								
Barium	U	0.0050								
Cadmium	U	0.0020								
Calcium	0.2533	0.50								J
Chromium	U	0.0050								
Cobalt	U	0.0050								
Copper	U	0.0050								
Iron	U	0.20								
Lead	U	0.0050								
Manganese	U	0.0050								
Molybdenum	U	0.0050								
Nickel	U	0.0050								
Potassium	U	0.20								
Selenium	U	0.0050								
Silver	U	0.0050								
Uranium	U	0.0050								
Zinc	0.003007	0.0050								J

MBLK	Sample ID: MBLKW5-020813-67639				Units: mg/L		Analysis Date: 2/12/2013 02:04 PM			
Client ID:	Run ID: ICPMS05_130212A				SeqNo: 3110576		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	U	0.050								
Sodium	U	0.20								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67639** Instrument ID **ICPMS05** Method: **SW6020** **(Dissolve)**

LCS		Sample ID: MLCSW5-020813-67639				Units: mg/L		Analysis Date: 2/11/2013 05:27 PM		
Client ID:		Run ID: ICPMS05_130211A				SeqNo: 3109577		Prep Date: 2/8/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1117	0.010	0.1	0	112	80-120	0			
Arsenic	0.05058	0.0050	0.05	0	101	80-120	0			
Barium	0.05024	0.0050	0.05	0	100	80-120	0			
Cadmium	0.05148	0.0020	0.05	0	103	80-120	0			
Calcium	5.189	0.50	5	0	104	80-120	0			
Chromium	0.05108	0.0050	0.05	0	102	80-120	0			
Cobalt	0.05227	0.0050	0.05	0	105	80-120	0			
Copper	0.05136	0.0050	0.05	0	103	80-120	0			
Iron	5.088	0.20	5	0	102	80-120	0			
Lead	0.05288	0.0050	0.05	0	106	80-120	0			
Manganese	0.05154	0.0050	0.05	0	103	80-120	0			
Molybdenum	0.04945	0.0050	0.05	0	98.9	80-120	0			
Nickel	0.05042	0.0050	0.05	0	101	80-120	0			
Potassium	5.069	0.20	5	0	101	80-120	0			
Selenium	0.05183	0.0050	0.05	0	104	80-120	0			
Silver	0.05213	0.0050	0.05	0	104	80-120	0			
Sodium	5.221	1.0	5	0	104	80-120	0			
Uranium	0.1001	0.0050	0.1	0	100	80-120	0			
Zinc	0.05315	0.0050	0.05	0	106	80-120	0			

LCS		Sample ID: MLCSW5-020813-67639				Units: mg/L		Analysis Date: 2/12/2013 02:06 PM		
Client ID:		Run ID: ICPMS05_130212A				SeqNo: 3110577		Prep Date: 2/8/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.5137	0.050	0.5	0	103	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67639** Instrument ID **ICPMS05** Method: **SW6020** **(Dissolve)**

MS		Sample ID: 1302162-02DMS				Units: mg/L		Analysis Date: 2/11/2013 05:51 PM		
Client ID:		Run ID: ICPMS05_130211A				SeqNo: 3109595		Prep Date: 2/8/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.3754	0.010	0.1	0.08538	290	75-125	0			S
Arsenic	0.05166	0.0050	0.05	0.001764	99.8	75-125	0			
Barium	0.1245	0.0050	0.05	0.07333	102	75-125	0			
Boron	1.31	0.050	0.5	0.723	117	75-125	0			
Cadmium	0.05072	0.0020	0.05	0	101	75-125	0			
Calcium	205.4	0.50	5	195.9	189	75-125	0			SEO
Chromium	0.05017	0.0050	0.05	0	100	75-125	0			
Cobalt	0.05197	0.0050	0.05	0.00258	98.8	75-125	0			
Copper	0.05874	0.0050	0.05	0.007833	102	75-125	0			
Iron	5.244	0.20	5	0.08799	103	75-125	0			
Lead	0.05166	0.0050	0.05	0	103	75-125	0			
Manganese	1.043	0.0050	0.05	0.9886	108	75-125	0			O
Molybdenum	0.05065	0.0050	0.05	0.003301	94.7	75-125	0			
Nickel	0.05995	0.0050	0.05	0.01032	99.3	75-125	0			
Potassium	5.185	0.20	5	0.3187	97.3	75-125	0			
Selenium	0.05066	0.0050	0.05	0	101	75-125	0			
Silver	0.04846	0.0050	0.05	0	96.9	75-125	0			
Sodium	80.45	0.20	5	75.22	105	75-125	0			O
Uranium	0.1148	0.0050	0.05	0.01453	201	75-125	0			S
Zinc	0.1201	0.0050	0.05	0.111	18.2	75-125	0			S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67639** Instrument ID **ICPMS05** Method: **SW6020** **(Dissolve)**

MSD		Sample ID: 1302162-02DMSD				Units: mg/L		Analysis Date: 2/11/2013 05:54 PM		
Client ID:		Run ID: ICPMS05_130211A				SeqNo: 3109596		Prep Date: 2/8/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.8466	0.010	0.1	0.08538	761	75-125	0.3754	77.1	25	SR
Arsenic	0.05059	0.0050	0.05	0.001764	97.7	75-125	0.05166	2.1	25	
Barium	0.1256	0.0050	0.05	0.07333	105	75-125	0.1245	0.876	25	
Boron	1.281	0.050	0.5	0.723	112	75-125	1.31	2.24	25	
Cadmium	0.05061	0.0020	0.05	0	101	75-125	0.05072	0.231	25	
Calcium	198.7	0.50	5	195.9	54.4	75-125	205.4	3.34	25	SEO
Chromium	0.04976	0.0050	0.05	0	99.5	75-125	0.05017	0.817	25	
Cobalt	0.05119	0.0050	0.05	0.00258	97.2	75-125	0.05197	1.53	25	
Copper	0.06255	0.0050	0.05	0.007833	109	75-125	0.05874	6.3	25	
Iron	5.64	0.20	5	0.08799	111	75-125	5.244	7.28	25	
Lead	0.05249	0.0050	0.05	0	105	75-125	0.05166	1.61	25	
Manganese	1.016	0.0050	0.05	0.9886	55.5	75-125	1.043	2.56	25	SO
Molybdenum	0.05104	0.0050	0.05	0.003301	95.5	75-125	0.05065	0.753	25	
Nickel	0.05914	0.0050	0.05	0.01032	97.6	75-125	0.05995	1.36	25	
Potassium	5.175	0.20	5	0.3187	97.1	75-125	5.185	0.195	25	
Selenium	0.04861	0.0050	0.05	0	97.2	75-125	0.05066	4.12	25	
Silver	0.04821	0.0050	0.05	0	96.4	75-125	0.04846	0.523	25	
Sodium	77.87	0.20	5	75.22	52.9	75-125	80.45	3.26	25	SO
Uranium	0.1148	0.0050	0.05	0.01453	201	75-125	0.1148	0.054	25	S
Zinc	0.121	0.0050	0.05	0.111	19.9	75-125	0.1201	0.707	25	S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67639** Instrument ID **ICPMS05** Method: **SW6020** (Dissolve)

DUP	Sample ID: 1302162-02DDUP					Units: mg/L		Analysis Date: 2/11/2013 05:49 PM		
Client ID:	Run ID: ICPMS05_130211A				SeqNo: 3109594		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1358	0.010	0	0	0	0-0	0.08538	45.6	25	R
Arsenic	0.001544	0.0050	0	0	0	0-0	0.001764	0	25	J
Barium	0.07134	0.0050	0	0	0	0-0	0.07333	2.75	25	
Boron	0.7208	0.050	0	0	0	0-0	0.723	0.295	25	
Cadmium	U	0.0020	0	0	0	0-0	0.000088	0	25	
Chromium	U	0.0050	0	0	0	0-0	0.000339	0	25	
Cobalt	0.002315	0.0050	0	0	0	0-0	0.00258	0	25	J
Copper	0.007413	0.0050	0	0	0	0-0	0.007833	5.51	25	
Iron	0.1153	0.20	0	0	0	0-0	0.08799	0	25	J
Lead	U	0.0050	0	0	0	0-0	0.000123	0	25	
Manganese	0.9603	0.0050	0	0	0	0-0	0.9886	2.9	25	
Molybdenum	0.003106	0.0050	0	0	0	0-0	0.003301	0	25	J
Nickel	0.0105	0.0050	0	0	0	0-0	0.01032	1.73	25	
Potassium	0.3152	0.20	0	0	0	0-0	0.3187	1.11	25	
Selenium	U	0.0050	0	0	0	0-0	-0.000908	0	25	
Silver	U	0.0050	0	0	0	0-0	0.000034	0	25	
Sodium	74.01	0.20	0	0	0	0-0	75.22	1.62	25	
Uranium	0.01412	0.0050	0	0	0		0.01453	2.91	25	
Zinc	0.1104	0.0050	0	0	0	0-0	0.111	0.546	25	

DUP	Sample ID: 1302162-02DDUP					Units: mg/L		Analysis Date: 2/12/2013 02:35 PM		
Client ID:	Run ID: ICPMS05_130212A				SeqNo: 3110589		Prep Date: 2/8/2013		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	198.5	5.0	0	0	0	0-0	202.2	1.85	25	

The following samples were analyzed in this batch:

1302138-01E	1302138-02E	1302138-03E
1302138-04E		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67652** Instrument ID **SV-6** Method: **SW8270**

MBLK		Sample ID: SBLKW2-130207-67652				Units: µg/L		Analysis Date: 2/8/2013 01:13 PM		
Client ID:		Run ID: SV-6_130208A				SeqNo: 3108320		Prep Date: 2/7/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	U	0.20								
2-Methylnaphthalene	U	0.20								
Benzo(a)pyrene	U	0.20								
Naphthalene	U	0.20								
<i>Surr: 2,4,6-Tribromophenol</i>	3.917	0.20	5	0	78.3	34-129	0			
<i>Surr: 2-Fluorobiphenyl</i>	4.298	0.20	5	0	86	40-125	0			
<i>Surr: 2-Fluorophenol</i>	3.88	0.20	5	0	77.6	20-120	0			
<i>Surr: 4-Terphenyl-d14</i>	4.845	0.20	5	0	96.9	40-135	0			
<i>Surr: Nitrobenzene-d5</i>	4.337	0.20	5	0	86.7	41-120	0			
<i>Surr: Phenol-d6</i>	4.179	0.20	5	0	83.6	20-120	0			

LCS		Sample ID: SLCSW2-130207-67652				Units: µg/L		Analysis Date: 2/8/2013 01:33 PM		
Client ID:		Run ID: SV-6_130208A				SeqNo: 3108321		Prep Date: 2/7/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	4.55	0.20	5	0	91	45-120	0			
2-Methylnaphthalene	4.623	0.20	5	0	92.5	50-120	0			
Benzo(a)pyrene	4.718	0.20	5	0	94.4	45-120	0			
Naphthalene	4.463	0.20	5	0	89.3	45-120	0			
<i>Surr: 2,4,6-Tribromophenol</i>	4.284	0.20	5	0	85.7	34-129	0			
<i>Surr: 2-Fluorobiphenyl</i>	4.295	0.20	5	0	85.9	40-125	0			
<i>Surr: 2-Fluorophenol</i>	4.096	0.20	5	0	81.9	20-120	0			
<i>Surr: 4-Terphenyl-d14</i>	4.973	0.20	5	0	99.5	40-135	0			
<i>Surr: Nitrobenzene-d5</i>	4.235	0.20	5	0	84.7	41-120	0			
<i>Surr: Phenol-d6</i>	4.012	0.20	5	0	80.2	20-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67652** Instrument ID **SV-6** Method: **SW8270**

LCSD Sample ID: **SLCSDW2-130207-67652** Units: **µg/L** Analysis Date: **2/8/2013 01:52 PM**

Client ID: Run ID: **SV-6_130208A** SeqNo: **3108323** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	4.365	0.20	5	0	87.3	45-120	4.55	4.13	20	
2-Methylnaphthalene	4.423	0.20	5	0	88.5	50-120	4.623	4.44	20	
Benzo(a)pyrene	4.773	0.20	5	0	95.5	45-120	4.718	1.16	20	
Naphthalene	4.285	0.20	5	0	85.7	45-120	4.463	4.07	20	
<i>Surr: 2,4,6-Tribromophenol</i>	4.279	0.20	5	0	85.6	34-129	4.284	0.118	0	
<i>Surr: 2-Fluorobiphenyl</i>	4.281	0.20	5	0	85.6	40-125	4.295	0.322	0	
<i>Surr: 2-Fluorophenol</i>	4.05	0.20	5	0	81	20-120	4.096	1.12	0	
<i>Surr: 4-Terphenyl-d14</i>	4.878	0.20	5	0	97.6	40-135	4.973	1.92	0	
<i>Surr: Nitrobenzene-d5</i>	4.191	0.20	5	0	83.8	41-120	4.235	1.04	0	
<i>Surr: Phenol-d6</i>	4.006	0.20	5	0	80.1	20-120	4.012	0.155	0	

MS Sample ID: **1302166-02AMS** Units: **µg/L** Analysis Date: **2/8/2013 02:35 PM**

Client ID: Run ID: **SV-6_130208A** SeqNo: **3108326** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	4.507	0.20	5	0.041	89.3	45-120	0			
2-Methylnaphthalene	4.563	0.20	5	0.06144	90	50-120	0			
Benzo(a)pyrene	4.668	0.20	5	0	93.4	45-120	0			
Naphthalene	4.369	0.20	5	0.05768	86.2	45-120	0			
<i>Surr: 2,4,6-Tribromophenol</i>	4.338	0.20	5	0	86.8	34-129	0			
<i>Surr: 2-Fluorobiphenyl</i>	4.351	0.20	5	0	87	40-125	0			
<i>Surr: 2-Fluorophenol</i>	3.971	0.20	5	0	79.4	20-120	0			
<i>Surr: 4-Terphenyl-d14</i>	5.066	0.20	5	0	101	40-135	0			
<i>Surr: Nitrobenzene-d5</i>	4.259	0.20	5	0	85.2	41-120	0			
<i>Surr: Phenol-d6</i>	3.95	0.20	5	0	79	20-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67652** Instrument ID **SV-6** Method: **SW8270**

MSD Sample ID: **1302166-02AMSD** Units: **µg/L** Analysis Date: **2/8/2013 02:54 PM**

Client ID: Run ID: **SV-6_130208A** SeqNo: **3108327** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	4.55	0.20	5	0.041	90.2	45-120	4.507	0.951	20	
2-Methylnaphthalene	4.617	0.20	5	0.06144	91.1	50-120	4.563	1.17	20	
Benzo(a)pyrene	4.952	0.20	5	0	99	45-120	4.668	5.91	20	
Naphthalene	4.415	0.20	5	0.05768	87.1	45-120	4.369	1.03	20	
<i>Surr: 2,4,6-Tribromophenol</i>	4.292	0.20	5	0	85.8	34-129	4.338	1.06	0	
<i>Surr: 2-Fluorobiphenyl</i>	4.291	0.20	5	0	85.8	40-125	4.351	1.38	0	
<i>Surr: 2-Fluorophenol</i>	3.848	0.20	5	0	77	20-120	3.971	3.15	0	
<i>Surr: 4-Terphenyl-d14</i>	5.26	0.20	5	0	105	40-135	5.066	3.77	0	
<i>Surr: Nitrobenzene-d5</i>	4.13	0.20	5	0	82.6	41-120	4.259	3.08	0	
<i>Surr: Phenol-d6</i>	3.943	0.20	5	0	78.9	20-120	3.95	0.168	0	

The following samples were analyzed in this batch:

1302138-01D	1302138-02D	1302138-03D
1302138-04D		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142213** Instrument ID **VOA4** Method: **SW8260**

MBLK		Sample ID: VBLKW-130206-R142213				Units: µg/L		Analysis Date: 2/6/2013 10:59 AM		
Client ID:		Run ID: VOA4_130206A				SeqNo: 3103319		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichloroethane	U	1.0								
Benzene	U	1.0								
Carbon tetrachloride	U	1.0								
Chloroform	U	1.0								
Ethylbenzene	U	1.0								
Methylene chloride	U	2.0								
Tetrachloroethene	U	1.0								
Toluene	U	1.0								
Trichloroethene	U	1.0								
Vinyl chloride	U	1.0								
Xylenes, Total	U	1.0								
<i>Surr: 1,2-Dichloroethane-d4</i>	45.87	1.0	50	0	91.7	71-125	0			
<i>Surr: 4-Bromofluorobenzene</i>	48.12	1.0	50	0	96.2	70-125	0			
<i>Surr: Dibromofluoromethane</i>	50.46	1.0	50	0	101	74-125	0			
<i>Surr: Toluene-d8</i>	48.36	1.0	50	0	96.7	78-123	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142213** Instrument ID **VOA4** Method: **SW8260**

LCS		Sample ID: VLCSW-130206-R142213				Units: µg/L		Analysis Date: 2/6/2013 10:11 AM		
Client ID:		Run ID: VOA4_130206A				SeqNo: 3103318		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	52.73	1.0	50	0	105	80-120	0			
1,1,2,2-Tetrachloroethane	43.78	1.0	50	0	87.6	74-123	0			
1,1,2-Trichloroethane	46.9	1.0	50	0	93.8	80-120	0			
1,1-Dichloroethane	45.3	1.0	50	0	90.6	80-120	0			
1,1-Dichloroethene	52.88	1.0	50	0	106	80-120	0			
1,2-Dibromoethane	51.68	1.0	50	0	103	80-120	0			
1,2-Dichloroethane	48.52	1.0	50	0	97	79-120	0			
Benzene	47.93	1.0	50	0	95.9	80-120	0			
Carbon tetrachloride	57.55	1.0	50	0	115	79-120	0			
Chloroform	46.06	1.0	50	0	92.1	80-120	0			
Ethylbenzene	47.01	1.0	50	0	94	80-120	0			
Methylene chloride	46.19	2.0	50	0	92.4	75-125	0			
Tetrachloroethene	51.51	1.0	50	0	103	80-120	0			
Toluene	46.16	1.0	50	0	92.3	80-121	0			
Trichloroethene	53.76	1.0	50	0	108	80-120	0			
Vinyl chloride	47.31	1.0	50	0	94.6	75-125	0			
Xylenes, Total	136.7	1.0	150	0	91.2	80-124	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	44.19	1.0	50	0	88.4	71-125	0			
<i>Surr: 4-Bromofluorobenzene</i>	50.47	1.0	50	0	101	70-125	0			
<i>Surr: Dibromofluoromethane</i>	49.76	1.0	50	0	99.5	74-125	0			
<i>Surr: Toluene-d8</i>	47.67	1.0	50	0	95.3	78-123	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142213** Instrument ID **VOA4** Method: **SW8260**

MS		Sample ID: 1302133-05AMS			Units: µg/L		Analysis Date: 2/6/2013 11:23 AM			
Client ID:		Run ID: VOA4_130206A			SeqNo: 3103320		Prep Date:		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	504.8	10	500	0	101	80-120	0			
1,1,2,2-Tetrachloroethane	421.3	10	500	0	84.3	74-123	0			
1,1,2-Trichloroethane	453.8	10	500	0	90.8	80-120	0			
1,1-Dichloroethane	427.1	10	500	0	85.4	80-120	0			
1,1-Dichloroethene	511.5	10	500	0	102	80-120	0			
1,2-Dibromoethane	501.8	10	500	0	100	80-120	0			
1,2-Dichloroethane	461.9	10	500	0	92.4	79-120	0			
Benzene	834.5	10	500	355.1	95.9	80-120	0			
Carbon tetrachloride	546.4	10	500	0	109	79-120	0			
Chloroform	438.5	10	500	0	87.7	80-120	0			
Ethylbenzene	460.1	10	500	0	92	80-120	0			
Methylene chloride	442.4	20	500	0	88.5	75-125	0			
Tetrachloroethene	501.9	10	500	0	100	80-120	0			
Toluene	454.7	10	500	1.298	90.7	80-121	0			
Trichloroethene	511.8	10	500	0	102	80-120	0			
Vinyl chloride	456.7	10	500	0	91.3	75-125	0			
Xylenes, Total	1358	10	1500	2.156	90.4	80-124	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	428.4	10	500	0	85.7	71-125	0			
<i>Surr: 4-Bromofluorobenzene</i>	506.9	10	500	0	101	70-125	0			
<i>Surr: Dibromofluoromethane</i>	484.2	10	500	0	96.8	74-125	0			
<i>Surr: Toluene-d8</i>	479.6	10	500	0	95.9	78-123	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142213** Instrument ID **VOA4** Method: **SW8260**

MSD				Sample ID: 1302133-05AMSD		Units: µg/L		Analysis Date: 2/6/2013 11:47 AM		
Client ID:		Run ID: VOA4_130206A			SeqNo: 3103321		Prep Date:		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	497.3	10	500	0	99.5	80-120	504.8	1.5	20	
1,1,2,2-Tetrachloroethane	420.3	10	500	0	84.1	74-123	421.3	0.236	20	
1,1,2-Trichloroethane	447.3	10	500	0	89.5	80-120	453.8	1.46	20	
1,1-Dichloroethane	414	10	500	0	82.8	80-120	427.1	3.13	20	
1,1-Dichloroethene	480.8	10	500	0	96.2	80-120	511.5	6.19	20	
1,2-Dibromoethane	481.3	10	500	0	96.3	80-120	501.8	4.16	20	
1,2-Dichloroethane	452.8	10	500	0	90.6	79-120	461.9	1.97	20	
Benzene	801.7	10	500	355.1	89.3	80-120	834.5	4.02	20	
Carbon tetrachloride	535.7	10	500	0	107	79-120	546.4	1.99	20	
Chloroform	419.6	10	500	0	83.9	80-120	438.5	4.39	20	
Ethylbenzene	450.2	10	500	0	90	80-120	460.1	2.17	20	
Methylene chloride	421.3	20	500	0	84.3	75-125	442.4	4.87	20	
Tetrachloroethene	498.5	10	500	0	99.7	80-120	501.9	0.683	20	
Toluene	448.6	10	500	1.298	89.5	80-121	454.7	1.35	20	
Trichloroethene	483.1	10	500	0	96.6	80-120	511.8	5.78	20	
Vinyl chloride	435.8	10	500	0	87.2	75-125	456.7	4.68	20	
Xylenes, Total	1321	10	1500	2.156	87.9	80-124	1358	2.75	20	
Surr: 1,2-Dichloroethane-d4	421.1	10	500	0	84.2	71-125	428.4	1.71	20	
Surr: 4-Bromofluorobenzene	502.8	10	500	0	101	70-125	506.9	0.796	20	
Surr: Dibromofluoromethane	472.3	10	500	0	94.5	74-125	484.2	2.49	20	
Surr: Toluene-d8	479.3	10	500	0	95.9	78-123	479.6	0.0501	20	

The following samples were analyzed in this batch:

1302138-01A	1302138-02A	1302138-03A
1302138-04A	1302138-05A	1302138-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142275** Instrument ID **ICS2100** Method: **E300** **(Dissolve)**

MBLK	Sample ID: WBLKW2-R142275				Units: mg/L		Analysis Date: 2/6/2013 11:17 AM			
Client ID:	Run ID: ICS2100_130206A				SeqNo: 3104639		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	0.50								
Fluoride	U	0.10								
Nitrogen, Nitrate (As N)	U	0.10								
Nitrogen, Nitrite (As N)	U	0.10								
<i>Surr: Selenate (surr)</i>	4.316	0.10	5	0	86.3	85-115	0			

LCS	Sample ID: WLCSW2-R142275				Units: mg/L		Analysis Date: 2/6/2013 11:31 AM			
Client ID:	Run ID: ICS2100_130206A				SeqNo: 3104640		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.78	0.50	20	0	104	90-110	0			
Fluoride	3.608	0.10	4	0	90.2	90-110	0			
Nitrogen, Nitrate (As N)	4.033	0.10	4	0	101	90-110	0			
Nitrogen, Nitrite (As N)	4.332	0.10	4	0	108	90-110	0			
<i>Surr: Selenate (surr)</i>	4.436	0.10	5	0	88.7	85-115	0			

MS	Sample ID: 13011010-20BMS				Units: mg/L		Analysis Date: 2/6/2013 07:14 PM			
Client ID:	Run ID: ICS2100_130206A				SeqNo: 3104667		Prep Date:		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	98.84	2.5	50	50.45	96.8	80-120	0			
Fluoride	8.773	0.50	10	0.125	86.5	80-120	0			
Nitrogen, Nitrate (As N)	10.03	0.50	10	0	100	80-120	0			H
Nitrogen, Nitrite (As N)	10.57	0.50	10	0	106	80-120	0			H
<i>Surr: Selenate (surr)</i>	21.26	0.50	25	0	85.1	85-115	0			

MSD	Sample ID: 13011010-20BMSD				Units: mg/L		Analysis Date: 2/6/2013 07:29 PM			
Client ID:	Run ID: ICS2100_130206A				SeqNo: 3104669		Prep Date:		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	103.2	2.5	50	50.45	106	80-120	98.84	4.36	20	
Fluoride	9.222	0.50	10	0.125	91	80-120	8.773	4.99	20	
Nitrogen, Nitrate (As N)	10.45	0.50	10	0	105	80-120	10.03	4.12	20	H
Nitrogen, Nitrite (As N)	10.86	0.50	10	0	109	80-120	10.57	2.65	20	H
<i>Surr: Selenate (surr)</i>	22.16	0.50	25	0	88.6	85-115	21.26	4.11	20	

The following samples were analyzed in this batch:

1302138-01H	1302138-02H	1302138-03G
1302138-04G		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142370** Instrument ID **Balance1** Method: **M2540C** **(Dissolve)**

MBLK	Sample ID: WBLK-020713-R142370				Units: mg/L		Analysis Date: 2/7/2013 10:10 AM			
Client ID:	Run ID: BALANCE1_130207D				SeqNo: 3106836		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	U	10								

LCS	Sample ID: WLCS-020713-R142370				Units: mg/L		Analysis Date: 2/7/2013 10:10 AM			
Client ID:	Run ID: BALANCE1_130207D				SeqNo: 3106837		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1010	10	1000	0	101	85-115	0			

DUP	Sample ID: 1302016-01HDUP				Units: mg/L		Analysis Date: 2/7/2013 10:10 AM			
Client ID:	Run ID: BALANCE1_130207D				SeqNo: 3106830		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	562	10	0	0	0	0-0	564	0.355	20	

DUP	Sample ID: 1302138-04GDUP				Units: mg/L		Analysis Date: 2/7/2013 10:10 AM			
Client ID: MW-115	Run ID: BALANCE1_130207D				SeqNo: 3109474		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	4812	10	0	0	0	0-0	4956	2.95	20	

The following samples were analyzed in this batch:

1302138-01G	1302138-02G	1302138-03G
1302138-04G		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142525** Instrument ID **UV-2450** Method: **M4500CN E&G (Dissolve)**

MBLK	Sample ID: WBLKW1-021113-R142525				Units: mg/L		Analysis Date: 2/11/2013 10:05 AM			
Client ID:	Run ID: UV-2450_130211A				SeqNo: 3108735		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	U	0.020								

LCS	Sample ID: WLCSW1-021113-R142525				Units: mg/L		Analysis Date: 2/11/2013 10:05 AM			
Client ID:	Run ID: UV-2450_130211A				SeqNo: 3108736		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.17	0.020	0.2	0	85	80-120	0			

LCSD	Sample ID: WLCSDW1-021113-R142525				Units: mg/L		Analysis Date: 2/11/2013 10:05 AM			
Client ID:	Run ID: UV-2450_130211A				SeqNo: 3108744		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.174	0.020	0.2	0	87	80-120	0.17	2.33	20	

MS	Sample ID: 1302181-01EMS				Units: mg/L		Analysis Date: 2/11/2013 10:05 AM			
Client ID:	Run ID: UV-2450_130211A				SeqNo: 3108747		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.175	0.020	0.2	0	87.5	80-120	0			

The following samples were analyzed in this batch:

1302138-01F	1302138-02F	1302138-03F
1302138-04F		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1302138
 Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142615** Instrument ID **ICS2100** Method: **E300** (Dissolve)

MBLK	Sample ID: WBLKW1-R142615			Units: mg/L			Analysis Date: 2/12/2013 10:37 AM			
Client ID:	Run ID: ICS2100_130212A			SeqNo: 3110343			Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.238	0.50								J
Sulfate	U	0.50								
Surr: Selenate (surr)	4.937	0.10	5	0	98.7	85-115	0			

LCS	Sample ID: WLCSW1-R142615			Units: mg/L			Analysis Date: 2/12/2013 10:52 AM			
Client ID:	Run ID: ICS2100_130212A			SeqNo: 3110344			Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	21.96	0.50	20	0	110	90-110	0			
Sulfate	21.6	0.50	20	0	108	90-110	0			
Surr: Selenate (surr)	5.024	0.10	5	0	100	85-115	0			

MS	Sample ID: 1302189-01GMS			Units: mg/L			Analysis Date: 2/12/2013 12:58 PM			
Client ID:	Run ID: ICS2100_130212A			SeqNo: 3110358			Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	410.7	0.50	10	415.2	-45.1	80-120	0			SEO
Sulfate	2156	0.50	10	2217	-610	80-120	0			SEO
Surr: Selenate (surr)	4.387	0.10	5	0	87.7	85-115	0			

MSD	Sample ID: 1302189-01GMSD			Units: mg/L			Analysis Date: 2/12/2013 01:12 PM			
Client ID:	Run ID: ICS2100_130212A			SeqNo: 3110360			Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	406.9	0.50	10	415.2	-83.2	80-120	410.7	0.932	20	SEO
Sulfate	2130	0.50	10	2217	-869	80-120	2156	1.21	20	SEO
Surr: Selenate (surr)	4.498	0.10	5	0	90	85-115	4.387	2.5	20	

The following samples were analyzed in this batch:

1302138-01H	1302138-02H	1302138-03G
1302138-04G		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Project: RO Discharge Sampling
WorkOrder: 1302138

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
mg/L	Milligrams per Liter

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**Date/Time Received: **05-Feb-13 09:15**Work Order: **1302138**Received by: **PMG**Checklist completed by *Parash M. Ciga*

05-Feb-13

Reviewed by:

eSignature

Date

eSignature

Date

Matrices: WaterCarrier name: FedEx

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>1.2c, 1.4c C/U</u> <u>005</u>		
Cooler(s)/Kit(s):	<u>3323, 7119</u>		
Date/Time sample(s) sent to storage:	<u>2/5/13 18:50</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	No VOA vials submitted <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes: 1302138-02;-03 & -04 Radium fraction re-logged in WO 1302192-05;-06 & -07 respectively

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



Environmental

Cincinnati, OH
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+1 970 490 1511

Holland, MI
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Chain of Custody Form

Page ____ of ____

COC ID: 72329

ALS Project Manager:

1302138

aston, WV
3168

NAVAJO REFINING: Navajo Refining Company

5280

Project: RO Discharge Sampling



Customer Information		Project Information			
Purchase Order		Project Name	RO Discharge/Sampling	A	VOC (8260) NW GW List
Work Order		Project Number	128823	B	GRO (8015M)
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	DRO (8015M)
Send Report To	Robert Combs	Invoice Attn	Robert Combs	D	ORO (8015M)
Address	501 East Main	Address	501 East Main	E	LL SVOC (8270) NM GW List
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	F	Total Metals (6020/7000) RCRA 8 <i>Long List</i>
Phone	(575) 748-6733	Phone	(575) 748-6733	G	Dissolved Metals (6020/7000) RCRA 8
Fax	(575) 746-5421	Fax	(575) 746-5421	H	TDS
e-Mail Address		e-Mail Address		I	Moisture <i>Cyanide</i>
				J	Fingerprint (Pb, Hg, Sp, Grav, Sim, Dist) <i>Radium, Anions, Cations</i>

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
440	RO Discharge	2.3.13	0930	water	Mix	18						X	X	X	X	X	
42	MW-117	2.3.13	1000	water	Mix	18						X	X	X	X	X	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign <i>Ben McKenna</i>		Shipment Method		Required Turnaround Time: (Check Box) <input checked="" type="checkbox"/> Std 10 WK Days <input type="checkbox"/> 5 WK Days <input type="checkbox"/> Other <input type="checkbox"/> 2 WK Days <input type="checkbox"/> 24 Hour				Results Due Date:	
Relinquished by: <i>[Signature]</i>	Date: 2/4/13	Time: 1345	Received by: <i>[Signature]</i>	Notes: 10 Day TAT. Dissolved Metals Field Filtered					
Relinquished by:	Date:	Time:	Received by (Laboratory): 2.5.13 0915	Cooler ID: 3223	Cooler Temp:	QC Package: (Check One Box Below) <input checked="" type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP Checklist <input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> TRRP Level IV <input type="checkbox"/> Level IV SW846/CLP <input type="checkbox"/> Other / EDD			
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):						
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035									

- Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

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Chain of Custody Form

Page 1 of 1

COC ID: 72328

Houston, TX
+1 281 530 5656

Middletown, PA
+1 717 944 5541

Spring City, PA
+1 610 948 4903

Salt Lake City, UT
+1 801 266 7700

South Charleston, WV
+1 304 356 3168

York, PA
+1 717 505 5280

Customer Information				Project Information				Parameter/Method Request for Analysis											
Purchase Order		Project Name	RO Discharge/Sampling	A	VOC (8260) NW GW List														
Work Order		Project Number	128823	B	GRO (8015M)														
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	DRO (8015M)														
Send Report To	Robert Combs	Invoice Attn	Robert Combs	D	ORO (8015M)														
Address	501 East Main	Address	501 East Main	E	LL SVOC (8270) NM GW List														
				F	Total Metals (6020/7000) RCRA 8 Long List														
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	G	Dissolved Metals (6020/7000) RCRA 8														
Phone	(515) 748-6733	Phone	(575) 748-6733	H	TDS														
Fax	(575) 746-5421	Fax	(575) 746-5421	I	Moisture Cyanide														
e-Mail Address		e-Mail Address		J	Fingerprint (Pb, Ni, Cr, Cd, Cu, Zn, Mn, Fe, Al, Si, Ti, V, Co, Ni, Pb, Bi, Se, Sr, Ba, Ag, Au, Pt, Hg, As, Sb, Sn, Te, Mo, W, Bi, Po, At, Rn, Fr, Ac, Th, Pa, U, Np, Pu, Am, Cm, Bk, Cf, Es, Fm, Md, No, Lr, Radium, Anions, Cations)														

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold	
1	MW-114	2-3-13	1130	water	Mix	16								X	X	X	X	Extra Bottles
2	MW-115	2-3-13	1230	water	Mix	16								X	X	X	X	"
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

Sampler(s) Please Print & Sign		Shipment Method		Required Turnaround Time: (Check Box)				Results Due Date:	
 Relinquished by: Eric Bergessen				<input checked="" type="checkbox"/> Std 10 WK Days <input type="checkbox"/> 5 WK Days <input type="checkbox"/> Other _____ <input type="checkbox"/> 2 WK Days <input type="checkbox"/> 24 Hour					
Relinquished by: _____ Date: 2/4/13 Time: 1400		Received by: _____ Date: _____ Time: _____		Notes: 10 Day TAT. Dissolved Metals Field Filtered					
Relinquished by: _____ Date: _____ Time: _____		Received by (Laboratory): _____ Date: 2-5-13 Time: 0915		Cooler ID: 7119		Cooler Temp: _____		QC Package: (Check One Box Below)	
Logged by (Laboratory): _____ Date: _____ Time: _____		Checked by (Laboratory): _____						<input checked="" type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP Check List <input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> TRRP Level IV <input type="checkbox"/> Level IV SW846/CLP <input type="checkbox"/> Other / EDD _____	
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035									

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
 2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
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ALS Environmental
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 Houston, Texas 77099
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 Fax. +1 281 530 5887

5323.

CUSTODY SEAL

Date: 2/4/13 Time: 1400
 Name: Eric Bergersen
 Company: J. ARCADIS

Seal Broken By:
 Date: 2-5-13

FedEx Package
 Express US Airbill

FedEx Tracking Number 8013 7714 1240

1 From Date 2/4/13

Sender's Name Eric Bergersen Phone 281 787123

Company ARCADIS

Address 2979 Briarpack Suite 300

City Houston State TX ZIP 77042

2 Your Internal Billing Reference

**ALS Environmental**

10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel: +1 281 530 5656
Fax: +1 281 530 5887

Date: 2/4/13
Name: Eric Bergersen
Company: ARCADIS

CUSTODY SEAL

Time: 1400

Seal Broken By:

Date:

2-5-13



Package
US Airbill

FedEx
Tracking
Number

8013 8012 5560

From

Date

Sender's
Name

Company

Address

City

State

ZIP

Dept./Floor/Suite/Room

2 Your Internal Billing Reference



19-Feb-2013

Robert Combs
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 746-5382
Fax: (575) 746-5421

Re: RO Discharge Sampling

Work Order: **1302189**

Dear Robert,

ALS Environmental received 5 samples on 06-Feb-2013 08:40 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 49.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in black ink that reads "Sonia West".

Electronically approved by: Jumoke M. Lawal

Sonia West
Project Manager



Certificate No: T104704231-12-10

ADDRESS 10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 | PHONE (281) 530-5656 | FAX (281) 530-5887

DOV#T UR X S#K VD /#R U S#Sdw#h i#hch#DOV#T ur xs##D q#DOV#Dp l#hg#F rp s dq |

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RIGHT SOLUTIONS RIGHT PARTNER

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 1302189

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1302189-01	MW-116	Water		2/3/2013 13:15	2/6/2013 08:40	<input type="checkbox"/>
1302189-02	MW-119	Water		2/5/2013 14:25	2/6/2013 08:40	<input type="checkbox"/>
1302189-03	MW-118	Water		2/5/2013 14:25	2/6/2013 08:40	<input type="checkbox"/>
1302189-04	TRIP BLANK 011813-71			2/5/2013	2/6/2013 08:40	<input type="checkbox"/>
1302189-05	TRIP BLANK 011813-30			2/5/2013	2/6/2013 08:40	<input type="checkbox"/>

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 1302189

Case Narrative

Nitrogen, Nitrate (As N) Method Anions, Sample MW-116 holding time expired prior to sample receipt. Sample analyzed at the request of the client. Results should be considered estimated.

Batch 67624, Dissolved Mercury, Sample 1302162-02: MS/MSD is for an unrelated sample.

Batch 67639, Metals, Sample 1302162-02: MS/MSD is for an unrelated sample.

Batch 67639, Metals, Sample 1302162-02: MS/MSD RPD is for an unrelated sample.

Batch 67639, Metals, Sample 1302162-02: Duplicate RPD is for an unrelated sample.

Batch R142338, Volatile Organics, Sample 1302212-01: MS/MSD is for an unrelated sample.

Batch R142615, Anions, Sample MW-116: MS/MSD recoveries were outside the control limits for Fluoride. The associated LCS recoveries and MS/MSD RPD were within the control limits.

Batch R142773, Anions, Sample 1302276-01: MS/MSD recoveries were outside the control limits for Chloride and Sulfate due to high concentration to the background sample. Results are flagged with an O. The associated LCS recoveries and MS/MSD RPD were within the control limits.

ALS Environmental

Date: 19-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116
Collection Date: 2/3/2013 01:15 PM

Work Order: 1302189
Lab ID: 1302189-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3511 / 2/8/13 Analyst: KMB							
TPH (Diesel Range)	U		0.021	0.051	mg/L	1	2/11/2013 18:52
TPH (Oil Range)	U		0.041	0.10	mg/L	1	2/11/2013 18:52
Surr: 2-Fluorobiphenyl	106			60-135	%REC	1	2/11/2013 18:52
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: KKP							
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	2/14/2013 00:02
Surr: 4-Bromofluorobenzene	91.7			70-130	%REC	1	2/14/2013 00:02
DISSOLVED MERCURY Method: SW7470 Prep: SW7470 / 2/7/13 Analyst: OFO							
Mercury	0.000131	J	0.000042	0.000200	mg/L	1	2/7/2013 18:01
DISSOLVED METALS Method: SW6020 Prep: SW3010A / 2/8/13 Analyst: SKS							
Aluminum	0.00797	J	0.0040	0.0100	mg/L	1	2/11/2013 18:29
Arsenic	0.00274	J	0.0013	0.00500	mg/L	1	2/11/2013 18:29
Barium	0.0161		0.00090	0.00500	mg/L	1	2/11/2013 18:29
Boron	0.220		0.040	0.100	mg/L	2	2/12/2013 14:56
Cadmium	U		0.00080	0.00200	mg/L	1	2/11/2013 18:29
Calcium	624		1.7	10.0	mg/L	20	2/12/2013 15:03
Chromium	U		0.0012	0.00500	mg/L	1	2/11/2013 18:29
Cobalt	U		0.00080	0.00500	mg/L	1	2/11/2013 18:29
Copper	U		0.0015	0.00500	mg/L	1	2/11/2013 18:29
Iron	U		0.078	0.200	mg/L	1	2/11/2013 18:29
Lead	U		0.00070	0.00500	mg/L	1	2/11/2013 18:29
Manganese	0.0437		0.0025	0.00500	mg/L	1	2/11/2013 18:29
Molybdenum	0.00348	J	0.0015	0.00500	mg/L	1	2/11/2013 18:29
Nickel	0.00120	J	0.0012	0.00500	mg/L	1	2/11/2013 18:29
Potassium	1.06		0.084	0.200	mg/L	1	2/11/2013 18:29
Selenium	0.00203	J	0.0010	0.00500	mg/L	1	2/11/2013 18:29
Silver	U		0.00080	0.00500	mg/L	1	2/11/2013 18:29
Sodium	206		1.7	4.00	mg/L	20	2/12/2013 15:03
Uranium	0.0331		0.0050	0.00500	mg/L	1	2/11/2013 18:29
Zinc	0.00291	J	0.0025	0.00500	mg/L	1	2/11/2013 18:29
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3510 / 2/7/13 Analyst: LG							
1-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 19:08
2-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 19:08
Benzo(a)pyrene	U		0.000050	0.00020	mg/L	1	2/8/2013 19:08
Naphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 19:08
Surr: 2,4,6-Tribromophenol	45.3			34-129	%REC	1	2/8/2013 19:08
Surr: 2-Fluorobiphenyl	53.4			40-125	%REC	1	2/8/2013 19:08

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 19-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116
Collection Date: 2/3/2013 01:15 PM

Work Order: 1302189
Lab ID: 1302189-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	45.7			20-120	%REC	1	2/8/2013 19:08
Surr: 4-Terphenyl-d14	67.6			40-135	%REC	1	2/8/2013 19:08
Surr: Nitrobenzene-d5	58.7			41-120	%REC	1	2/8/2013 19:08
Surr: Phenol-d6	46.3			20-120	%REC	1	2/8/2013 19:08

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/9/2013 06:02
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	2/9/2013 06:02
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/9/2013 06:02
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/9/2013 06:02
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	2/9/2013 06:02
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	2/9/2013 06:02
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/9/2013 06:02
Benzene	U		0.00020	0.0010	mg/L	1	2/9/2013 06:02
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	2/9/2013 06:02
Chloroform	U		0.00030	0.0010	mg/L	1	2/9/2013 06:02
Ethylbenzene	U		0.00030	0.0010	mg/L	1	2/9/2013 06:02
Methylene chloride	U		0.00040	0.0020	mg/L	1	2/9/2013 06:02
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	2/9/2013 06:02
Toluene	U		0.00030	0.0010	mg/L	1	2/9/2013 06:02
Trichloroethene	U		0.00020	0.0010	mg/L	1	2/9/2013 06:02
Vinyl chloride	U		0.00040	0.0010	mg/L	1	2/9/2013 06:02
Xylenes, Total	U		0.00030	0.0010	mg/L	1	2/9/2013 06:02
Surr: 1,2-Dichloroethane-d4	101			71-125	%REC	1	2/9/2013 06:02
Surr: 4-Bromofluorobenzene	103			70-125	%REC	1	2/9/2013 06:02
Surr: Dibromofluoromethane	100			74-125	%REC	1	2/9/2013 06:02
Surr: Toluene-d8	106			78-123	%REC	1	2/9/2013 06:02

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	389		10	25.0	mg/L	50	2/14/2013 08:13
Fluoride	1.31		0.050	0.100	mg/L	1	2/12/2013 12:43
Nitrogen, Nitrate (As N)	1.37	H	0.030	0.100	mg/L	1	2/12/2013 12:43
Nitrogen, Nitrite (As N)	U	H	0.030	0.100	mg/L	1	2/12/2013 12:43
Sulfate	2,250		10	25.0	mg/L	50	2/14/2013 08:13
Surr: Selenate (surr)	92.9			85-115	%REC	1	2/12/2013 12:43
Surr: Selenate (surr)	109			85-115	%REC	50	2/14/2013 08:13

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	U		0.0040	0.0200	mg/L	1	2/12/2013 11:45

TOTAL DISSOLVED SOLIDS			Method: M2540C			Analyst: KAH	
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Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 19-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116
Collection Date: 2/3/2013 01:15 PM

Work Order: 1302189
Lab ID: 1302189-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Total Dissolved Solids (Residue, Filterable)	3,650		5.0	10.0	mg/L	1	2/8/2013 16:15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 19-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119
Collection Date: 2/5/2013 02:25 PM

Work Order: 1302189
Lab ID: 1302189-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3511 / 2/8/13 Analyst: KMB							
TPH (Diesel Range)	U		0.021	0.051	mg/L	1	2/11/2013 19:14
TPH (Oil Range)	U		0.041	0.10	mg/L	1	2/11/2013 19:14
Surr: 2-Fluorobiphenyl	110			60-135	%REC	1	2/11/2013 19:14
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: KKP							
Gasoline Range Organics	0.0371	J	0.020	0.0500	mg/L	1	2/14/2013 00:20
Surr: 4-Bromofluorobenzene	90.6			70-130	%REC	1	2/14/2013 00:20
DISSOLVED MERCURY Method: SW7470 Prep: SW7470 / 2/7/13 Analyst: OFO							
Mercury	U		0.000042	0.000200	mg/L	1	2/7/2013 18:03
DISSOLVED METALS Method: SW6020 Prep: SW3010A / 2/8/13 Analyst: SKS							
Aluminum	0.00994	J	0.0040	0.0100	mg/L	1	2/12/2013 14:59
Arsenic	0.00294	J	0.0013	0.00500	mg/L	1	2/12/2013 14:59
Barium	0.00981		0.00090	0.00500	mg/L	1	2/12/2013 14:59
Boron	0.0987		0.020	0.0500	mg/L	1	2/12/2013 14:59
Cadmium	U		0.00080	0.00200	mg/L	1	2/12/2013 14:59
Calcium	494		1.7	10.0	mg/L	20	2/12/2013 15:06
Chromium	U		0.0012	0.00500	mg/L	1	2/12/2013 14:59
Cobalt	0.000871	J	0.00080	0.00500	mg/L	1	2/12/2013 14:59
Copper	0.00309	J	0.0015	0.00500	mg/L	1	2/12/2013 14:59
Iron	U		0.078	0.200	mg/L	1	2/12/2013 14:59
Lead	U		0.00070	0.00500	mg/L	1	2/12/2013 14:59
Manganese	0.0424		0.0025	0.00500	mg/L	1	2/12/2013 14:59
Molybdenum	0.00830		0.0015	0.00500	mg/L	1	2/12/2013 14:59
Nickel	0.00174	J	0.0012	0.00500	mg/L	1	2/12/2013 14:59
Potassium	0.870		0.084	0.200	mg/L	1	2/12/2013 14:59
Selenium	0.00246	J	0.0010	0.00500	mg/L	1	2/12/2013 14:59
Silver	U		0.00080	0.00500	mg/L	1	2/12/2013 14:59
Sodium	127		1.7	4.00	mg/L	20	2/12/2013 15:06
Uranium	0.0244		0.0050	0.00500	mg/L	1	2/12/2013 14:59
Zinc	U		0.0025	0.00500	mg/L	1	2/12/2013 14:59
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3510 / 2/7/13 Analyst: LG							
1-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 19:27
2-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 19:27
Benzo(a)pyrene	U		0.000050	0.00020	mg/L	1	2/8/2013 19:27
Naphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 19:27
Surr: 2,4,6-Tribromophenol	59.1			34-129	%REC	1	2/8/2013 19:27
Surr: 2-Fluorobiphenyl	64.5			40-125	%REC	1	2/8/2013 19:27

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 19-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119
Collection Date: 2/5/2013 02:25 PM

Work Order: 1302189
Lab ID: 1302189-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	60.0			20-120	%REC	1	2/8/2013 19:27
Surr: 4-Terphenyl-d14	82.3			40-135	%REC	1	2/8/2013 19:27
Surr: Nitrobenzene-d5	65.4			41-120	%REC	1	2/8/2013 19:27
Surr: Phenol-d6	57.9			20-120	%REC	1	2/8/2013 19:27

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 17:31
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	2/7/2013 17:31
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 17:31
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 17:31
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	2/7/2013 17:31
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	2/7/2013 17:31
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 17:31
Benzene	0.0036		0.00020	0.0010	mg/L	1	2/7/2013 17:31
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	2/7/2013 17:31
Chloroform	U		0.00030	0.0010	mg/L	1	2/7/2013 17:31
Ethylbenzene	0.0021		0.00030	0.0010	mg/L	1	2/7/2013 17:31
Methylene chloride	U		0.00040	0.0020	mg/L	1	2/7/2013 17:31
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	2/7/2013 17:31
Toluene	0.0027		0.00030	0.0010	mg/L	1	2/7/2013 17:31
Trichloroethene	U		0.00020	0.0010	mg/L	1	2/7/2013 17:31
Vinyl chloride	U		0.00040	0.0010	mg/L	1	2/7/2013 17:31
Xylenes, Total	0.0037		0.00030	0.0010	mg/L	1	2/7/2013 17:31
Surr: 1,2-Dichloroethane-d4	86.7			71-125	%REC	1	2/7/2013 17:31
Surr: 4-Bromofluorobenzene	98.0			70-125	%REC	1	2/7/2013 17:31
Surr: Dibromofluoromethane	95.4			74-125	%REC	1	2/7/2013 17:31
Surr: Toluene-d8	100			78-123	%REC	1	2/7/2013 17:31

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	116		10	25.0	mg/L	50	2/14/2013 08:34
Fluoride	2.36		0.050	0.100	mg/L	1	2/7/2013 10:34
Nitrogen, Nitrate (As N)	2.35		0.030	0.100	mg/L	1	2/7/2013 10:34
Nitrogen, Nitrite (As N)	U		0.030	0.100	mg/L	1	2/7/2013 10:34
Sulfate	2,090		10	25.0	mg/L	50	2/14/2013 08:34
Surr: Selenate (surr)	88.0			85-115	%REC	1	2/7/2013 10:34
Surr: Selenate (surr)	111			85-115	%REC	50	2/14/2013 08:34

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	U		0.0040	0.0200	mg/L	1	2/12/2013 11:45

TOTAL DISSOLVED SOLIDS			Method: M2540C			Analyst: KAH	
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Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 19-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119
Collection Date: 2/5/2013 02:25 PM

Work Order: 1302189
Lab ID: 1302189-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Total Dissolved Solids (Residue, Filterable)	3,670		5.0	10.0	mg/L	1	2/12/2013 10:15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 19-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118
Collection Date: 2/5/2013 02:25 PM

Work Order: 1302189
Lab ID: 1302189-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3511 / 2/8/13 Analyst: KMB							
TPH (Diesel Range)	U		0.021	0.052	mg/L	1	2/11/2013 19:36
TPH (Oil Range)	U		0.041	0.10	mg/L	1	2/11/2013 19:36
Surr: 2-Fluorobiphenyl	107			60-135	%REC	1	2/11/2013 19:36
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: KKP							
Gasoline Range Organics	0.0436	J	0.020	0.0500	mg/L	1	2/14/2013 00:38
Surr: 4-Bromofluorobenzene	88.5			70-130	%REC	1	2/14/2013 00:38
DISSOLVED MERCURY Method: SW7470 Prep: SW7470 / 2/7/13 Analyst: OFO							
Mercury	0.0000420	J	0.000042	0.000200	mg/L	1	2/7/2013 18:05
DISSOLVED METALS Method: SW6020 Prep: SW3010A / 2/8/13 Analyst: SKS							
Aluminum	0.0146		0.0040	0.0100	mg/L	1	2/12/2013 15:01
Arsenic	0.0110		0.0013	0.00500	mg/L	1	2/12/2013 15:01
Barium	0.0145		0.00090	0.00500	mg/L	1	2/12/2013 15:01
Boron	0.226		0.020	0.0500	mg/L	1	2/12/2013 15:01
Cadmium	U		0.00080	0.00200	mg/L	1	2/12/2013 15:01
Calcium	563		1.7	10.0	mg/L	20	2/12/2013 15:08
Chromium	U		0.0012	0.00500	mg/L	1	2/12/2013 15:01
Cobalt	U		0.00080	0.00500	mg/L	1	2/12/2013 15:01
Copper	0.00156	J	0.0015	0.00500	mg/L	1	2/12/2013 15:01
Iron	U		0.078	0.200	mg/L	1	2/12/2013 15:01
Lead	U		0.00070	0.00500	mg/L	1	2/12/2013 15:01
Manganese	0.0232		0.0025	0.00500	mg/L	1	2/12/2013 15:01
Molybdenum	0.0195		0.0015	0.00500	mg/L	1	2/12/2013 15:01
Nickel	0.00173	J	0.0012	0.00500	mg/L	1	2/12/2013 15:01
Potassium	7.95		0.084	0.200	mg/L	1	2/12/2013 15:01
Selenium	0.00861		0.0010	0.00500	mg/L	1	2/12/2013 15:01
Silver	U		0.00080	0.00500	mg/L	1	2/12/2013 15:01
Sodium	218		1.7	4.00	mg/L	20	2/12/2013 15:08
Uranium	0.0370		0.0050	0.00500	mg/L	1	2/12/2013 15:01
Zinc	U		0.0025	0.00500	mg/L	1	2/12/2013 15:01
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3510 / 2/7/13 Analyst: LG							
1-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 19:47
2-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 19:47
Benzo(a)pyrene	U		0.000050	0.00020	mg/L	1	2/8/2013 19:47
Naphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 19:47
Surr: 2,4,6-Tribromophenol	59.0			34-129	%REC	1	2/8/2013 19:47
Surr: 2-Fluorobiphenyl	62.2			40-125	%REC	1	2/8/2013 19:47

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 19-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118
Collection Date: 2/5/2013 02:25 PM

Work Order: 1302189
Lab ID: 1302189-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	65.4			20-120	%REC	1	2/8/2013 19:47
Surr: 4-Terphenyl-d14	96.9			40-135	%REC	1	2/8/2013 19:47
Surr: Nitrobenzene-d5	71.7			41-120	%REC	1	2/8/2013 19:47
Surr: Phenol-d6	62.3			20-120	%REC	1	2/8/2013 19:47

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 17:55
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	2/7/2013 17:55
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 17:55
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 17:55
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	2/7/2013 17:55
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	2/7/2013 17:55
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 17:55
Benzene	0.0042		0.00020	0.0010	mg/L	1	2/7/2013 17:55
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	2/7/2013 17:55
Chloroform	U		0.00030	0.0010	mg/L	1	2/7/2013 17:55
Ethylbenzene	0.0024		0.00030	0.0010	mg/L	1	2/7/2013 17:55
Methylene chloride	U		0.00040	0.0020	mg/L	1	2/7/2013 17:55
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	2/7/2013 17:55
Toluene	0.0033		0.00030	0.0010	mg/L	1	2/7/2013 17:55
Trichloroethene	U		0.00020	0.0010	mg/L	1	2/7/2013 17:55
Vinyl chloride	U		0.00040	0.0010	mg/L	1	2/7/2013 17:55
Xylenes, Total	0.0047		0.00030	0.0010	mg/L	1	2/7/2013 17:55
Surr: 1,2-Dichloroethane-d4	86.6			71-125	%REC	1	2/7/2013 17:55
Surr: 4-Bromofluorobenzene	95.7			70-125	%REC	1	2/7/2013 17:55
Surr: Dibromofluoromethane	95.7			74-125	%REC	1	2/7/2013 17:55
Surr: Toluene-d8	99.5			78-123	%REC	1	2/7/2013 17:55

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	296		10	25.0	mg/L	50	2/14/2013 08:56
Fluoride	5.16		0.050	0.100	mg/L	1	2/7/2013 10:49
Nitrogen, Nitrate (As N)	2.39		0.030	0.100	mg/L	1	2/7/2013 10:49
Nitrogen, Nitrite (As N)	U		0.030	0.100	mg/L	1	2/7/2013 10:49
Sulfate	2,450		10	25.0	mg/L	50	2/14/2013 08:56
Surr: Selenate (surr)	87.9			85-115	%REC	1	2/7/2013 10:49
Surr: Selenate (surr)	110			85-115	%REC	50	2/14/2013 08:56

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	U		0.0040	0.0200	mg/L	1	2/12/2013 11:45

TOTAL DISSOLVED SOLIDS			Method: M2540C			Analyst: KAH	
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Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 19-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118
Collection Date: 2/5/2013 02:25 PM

Work Order: 1302189
Lab ID: 1302189-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Total Dissolved Solids (Residue, Filterable)	4,610		5.0	10.0	mg/L	1	2/12/2013 10:15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 19-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: TRIP BLANK 011813-71
Collection Date: 2/5/2013

Work Order: 1302189
Lab ID: 1302189-04
Matrix:

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 18:19
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	2/7/2013 18:19
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 18:19
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 18:19
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	2/7/2013 18:19
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	2/7/2013 18:19
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 18:19
Benzene	U		0.00020	0.0010	mg/L	1	2/7/2013 18:19
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	2/7/2013 18:19
Chloroform	U		0.00030	0.0010	mg/L	1	2/7/2013 18:19
Ethylbenzene	U		0.00030	0.0010	mg/L	1	2/7/2013 18:19
Methylene chloride	U		0.00040	0.0020	mg/L	1	2/7/2013 18:19
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	2/7/2013 18:19
Toluene	U		0.00030	0.0010	mg/L	1	2/7/2013 18:19
Trichloroethene	U		0.00020	0.0010	mg/L	1	2/7/2013 18:19
Vinyl chloride	U		0.00040	0.0010	mg/L	1	2/7/2013 18:19
Xylenes, Total	U		0.00030	0.0010	mg/L	1	2/7/2013 18:19
Surr: 1,2-Dichloroethane-d4	87.1			71-125	%REC	1	2/7/2013 18:19
Surr: 4-Bromofluorobenzene	95.1			70-125	%REC	1	2/7/2013 18:19
Surr: Dibromofluoromethane	95.1			74-125	%REC	1	2/7/2013 18:19
Surr: Toluene-d8	99.2			78-123	%REC	1	2/7/2013 18:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 19-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: TRIP BLANK 011813-30
Collection Date: 2/5/2013

Work Order: 1302189
Lab ID: 1302189-05
Matrix:

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 18:44
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	2/7/2013 18:44
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 18:44
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 18:44
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	2/7/2013 18:44
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	2/7/2013 18:44
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 18:44
Benzene	U		0.00020	0.0010	mg/L	1	2/7/2013 18:44
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	2/7/2013 18:44
Chloroform	U		0.00030	0.0010	mg/L	1	2/7/2013 18:44
Ethylbenzene	U		0.00030	0.0010	mg/L	1	2/7/2013 18:44
Methylene chloride	U		0.00040	0.0020	mg/L	1	2/7/2013 18:44
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	2/7/2013 18:44
Toluene	U		0.00030	0.0010	mg/L	1	2/7/2013 18:44
Trichloroethene	U		0.00020	0.0010	mg/L	1	2/7/2013 18:44
Vinyl chloride	U		0.00040	0.0010	mg/L	1	2/7/2013 18:44
Xylenes, Total	U		0.00030	0.0010	mg/L	1	2/7/2013 18:44
Surr: 1,2-Dichloroethane-d4	87.4			71-125	%REC	1	2/7/2013 18:44
Surr: 4-Bromofluorobenzene	96.0			70-125	%REC	1	2/7/2013 18:44
Surr: Dibromofluoromethane	95.0			74-125	%REC	1	2/7/2013 18:44
Surr: Toluene-d8	98.0			78-123	%REC	1	2/7/2013 18:44

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 19-Feb-13

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67710** Instrument ID **FID-16** Method: **SW8015M**

MBLK	Sample ID: LBLKW-130208-67710				Units: mg/L		Analysis Date: 2/11/2013 02:30 PM			
Client ID:	Run ID: FID-16_130211B				SeqNo: 3110036		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	U	0.050								
TPH (Oil Range)	U	0.10								
<i>Surr: 2-Fluorobiphenyl</i>	0.06355	0.0050	0.06061	0	105	60-135	0			

LCS	Sample ID: LLCSW-130208-67710				Units: mg/L		Analysis Date: 2/11/2013 02:52 PM			
Client ID:	Run ID: FID-16_130211B				SeqNo: 3110037		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.5399	0.050	0.6061	0	89.1	70-130	0			
TPH (Oil Range)	0.5571	0.10	0.6061	0	91.9	70-130	0			
<i>Surr: 2-Fluorobiphenyl</i>	0.0583	0.0050	0.06061	0	96.2	60-135	0			

LCSD	Sample ID: LLCSDW-130208-67710				Units: mg/L		Analysis Date: 2/11/2013 03:14 PM			
Client ID:	Run ID: FID-16_130211B				SeqNo: 3110038		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.5053	0.050	0.6061	0	83.4	70-130	0.5399	6.61	20	
TPH (Oil Range)	0.494	0.10	0.6061	0	81.5	70-130	0.5571	12	20	
<i>Surr: 2-Fluorobiphenyl</i>	0.05676	0.0050	0.06061	0	93.7	60-135	0.0583	2.68	20	

The following samples were analyzed in this batch:

1302189-01C	1302189-02C	1302189-03C
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 1 of 27

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142754** Instrument ID **FID-9** Method: **SW8015**

MBLK Sample ID: **GBLKW-130213-R142754** Units: **mg/L** Analysis Date: **2/13/2013 11:44 PM**

Client ID: Run ID: **FID-9_130213C** SeqNo: **3113108** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	U	0.050								
<i>Surr: 4-Bromofluorobenzene</i>	0.09263	0.0050	0.1	0	92.6	70-130	0			

LCS Sample ID: **GLCSW-130213-R142754** Units: **mg/L** Analysis Date: **2/13/2013 10:50 PM**

Client ID: Run ID: **FID-9_130213C** SeqNo: **3113106** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.9572	0.050	1	0	95.7	70-130	0			
<i>Surr: 4-Bromofluorobenzene</i>	0.09422	0.0050	0.1	0	94.2	70-130	0			

LCSD Sample ID: **GLCSDW-130213-R142754** Units: **mg/L** Analysis Date: **2/13/2013 11:08 PM**

Client ID: Run ID: **FID-9_130213C** SeqNo: **3113107** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.9516	0.050	1	0	95.2	70-130	0.9572	0.586	30	
<i>Surr: 4-Bromofluorobenzene</i>	0.0934	0.0050	0.1	0	93.4	70-130	0.09422	0.877	30	

MS Sample ID: **1302308-07BMS** Units: **mg/L** Analysis Date: **2/14/2013 03:19 AM**

Client ID: Run ID: **FID-9_130213C** SeqNo: **3113125** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.9172	0.050	1	0.03334	88.4	70-130	0			
<i>Surr: 4-Bromofluorobenzene</i>	0.09279	0.0050	0.1	0	92.8	70-130	0			

MSD Sample ID: **1302308-07BMSD** Units: **mg/L** Analysis Date: **2/14/2013 03:37 AM**

Client ID: Run ID: **FID-9_130213C** SeqNo: **3113126** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.9414	0.050	1	0.03334	90.8	70-130	0.9172	2.61	30	
<i>Surr: 4-Bromofluorobenzene</i>	0.09245	0.0050	0.1	0	92.4	70-130	0.09279	0.365	30	

The following samples were analyzed in this batch:

1302189-01B	1302189-02B	1302189-03B
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67624** Instrument ID **Mercury** Method: **SW7470** (Dissolve)

MBLK Sample ID: **GBLKW4-020713-67624** Units: **mg/L** Analysis Date: **2/7/2013 04:12 PM**

Client ID: Run ID: **MERCURY_130207A** SeqNo: **3105666** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	0.00020								

LCS Sample ID: **GLCSW4-020713-67624** Units: **mg/L** Analysis Date: **2/7/2013 04:14 PM**

Client ID: Run ID: **MERCURY_130207A** SeqNo: **3105667** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00534	0.00020	0.005	0	107	80-120	0			

MS Sample ID: **1302162-02DMS** Units: **mg/L** Analysis Date: **2/7/2013 04:20 PM**

Client ID: Run ID: **MERCURY_130207A** SeqNo: **3105670** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00399	0.00020	0.005	-0.00001	80	80-120	0			

MSD Sample ID: **1302162-02DMSD** Units: **mg/L** Analysis Date: **2/7/2013 04:22 PM**

Client ID: Run ID: **MERCURY_130207A** SeqNo: **3105671** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00392	0.00020	0.005	-0.00001	78.6	80-120	0.00399	1.77	20	S

DUP Sample ID: **1302162-02DDUP** Units: **mg/L** Analysis Date: **2/7/2013 04:18 PM**

Client ID: Run ID: **MERCURY_130207A** SeqNo: **3105669** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	0.00020	0	0	0	0-0	-0.00001	0	20	

The following samples were analyzed in this batch:

1302189-01E	1302189-02E	1302189-03E
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67639** Instrument ID **ICPMS05** Method: **SW6020** **(Dissolve)**

MBLK	Sample ID: MBLKW5-020813-67639				Units: mg/L		Analysis Date: 2/11/2013 05:25 PM			
Client ID:	Run ID: ICPMS05_130211A				SeqNo: 3109576		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.006192	0.010								J
Arsenic	U	0.0050								
Barium	U	0.0050								
Cadmium	U	0.0020								
Calcium	0.2533	0.50								J
Chromium	U	0.0050								
Cobalt	U	0.0050								
Copper	U	0.0050								
Iron	U	0.20								
Lead	U	0.0050								
Manganese	U	0.0050								
Molybdenum	U	0.0050								
Nickel	U	0.0050								
Potassium	U	0.20								
Selenium	U	0.0050								
Silver	U	0.0050								
Uranium	U	0.0050								
Zinc	0.003007	0.0050								J

MBLK	Sample ID: MBLKW5-020813-67639				Units: mg/L		Analysis Date: 2/12/2013 02:04 PM			
Client ID:	Run ID: ICPMS05_130212A				SeqNo: 3110576		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	U	0.050								
Sodium	U	0.20								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67639** Instrument ID **ICPMS05** Method: **SW6020** **(Dissolve)**

LCS Sample ID: **MLCSW5-020813-67639** Units: **mg/L** Analysis Date: **2/11/2013 05:27 PM**

Client ID: Run ID: **ICPMS05_130211A** SeqNo: **3109577** Prep Date: **2/8/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1117	0.010	0.1	0	112	80-120	0			
Arsenic	0.05058	0.0050	0.05	0	101	80-120	0			
Barium	0.05024	0.0050	0.05	0	100	80-120	0			
Cadmium	0.05148	0.0020	0.05	0	103	80-120	0			
Calcium	5.189	0.50	5	0	104	80-120	0			
Chromium	0.05108	0.0050	0.05	0	102	80-120	0			
Cobalt	0.05227	0.0050	0.05	0	105	80-120	0			
Copper	0.05136	0.0050	0.05	0	103	80-120	0			
Iron	5.088	0.20	5	0	102	80-120	0			
Lead	0.05288	0.0050	0.05	0	106	80-120	0			
Manganese	0.05154	0.0050	0.05	0	103	80-120	0			
Molybdenum	0.04945	0.0050	0.05	0	98.9	80-120	0			
Nickel	0.05042	0.0050	0.05	0	101	80-120	0			
Potassium	5.069	0.20	5	0	101	80-120	0			
Selenium	0.05183	0.0050	0.05	0	104	80-120	0			
Silver	0.05213	0.0050	0.05	0	104	80-120	0			
Sodium	5.221	1.0	5	0	104	80-120	0			
Uranium	0.1001	0.0050	0.1	0	100	80-120	0			
Zinc	0.05315	0.0050	0.05	0	106	80-120	0			

LCS Sample ID: **MLCSW5-020813-67639** Units: **mg/L** Analysis Date: **2/12/2013 02:06 PM**

Client ID: Run ID: **ICPMS05_130212A** SeqNo: **3110577** Prep Date: **2/8/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.5137	0.050	0.5	0	103	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67639** Instrument ID **ICPMS05** Method: **SW6020** **(Dissolve)**

MS		Sample ID: 1302162-02DMS				Units: mg/L		Analysis Date: 2/11/2013 05:51 PM		
Client ID:		Run ID: ICPMS05_130211A				SeqNo: 3109595		Prep Date: 2/8/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.3754	0.010	0.1	0.08538	290	75-125	0			S
Arsenic	0.05166	0.0050	0.05	0.001764	99.8	75-125	0			
Barium	0.1245	0.0050	0.05	0.07333	102	75-125	0			
Boron	1.31	0.050	0.5	0.723	117	75-125	0			
Cadmium	0.05072	0.0020	0.05	0	101	75-125	0			
Calcium	205.4	0.50	5	195.9	189	75-125	0			SEO
Chromium	0.05017	0.0050	0.05	0	100	75-125	0			
Cobalt	0.05197	0.0050	0.05	0.00258	98.8	75-125	0			
Copper	0.05874	0.0050	0.05	0.007833	102	75-125	0			
Iron	5.244	0.20	5	0.08799	103	75-125	0			
Lead	0.05166	0.0050	0.05	0	103	75-125	0			
Manganese	1.043	0.0050	0.05	0.9886	108	75-125	0			O
Molybdenum	0.05065	0.0050	0.05	0.003301	94.7	75-125	0			
Nickel	0.05995	0.0050	0.05	0.01032	99.3	75-125	0			
Potassium	5.185	0.20	5	0.3187	97.3	75-125	0			
Selenium	0.05066	0.0050	0.05	0	101	75-125	0			
Silver	0.04846	0.0050	0.05	0	96.9	75-125	0			
Sodium	80.45	0.20	5	75.22	105	75-125	0			O
Uranium	0.1148	0.0050	0.05	0.01453	201	75-125	0			S
Zinc	0.1201	0.0050	0.05	0.111	18.2	75-125	0			S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67639** Instrument ID **ICPMS05** Method: **SW6020** **(Dissolve)**

MSD	Sample ID: 1302162-02DMSD					Units: mg/L		Analysis Date: 2/11/2013 05:54 PM			
Client ID:	Run ID: ICPMS05_130211A					SeqNo: 3109596		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Aluminum	0.8466	0.010	0.1	0.08538	761	75-125	0.3754	77.1	25	SR	
Arsenic	0.05059	0.0050	0.05	0.001764	97.7	75-125	0.05166	2.1	25		
Barium	0.1256	0.0050	0.05	0.07333	105	75-125	0.1245	0.876	25		
Boron	1.281	0.050	0.5	0.723	112	75-125	1.31	2.24	25		
Cadmium	0.05061	0.0020	0.05	0	101	75-125	0.05072	0.231	25		
Calcium	198.7	0.50	5	195.9	54.4	75-125	205.4	3.34	25	SEO	
Chromium	0.04976	0.0050	0.05	0	99.5	75-125	0.05017	0.817	25		
Cobalt	0.05119	0.0050	0.05	0.00258	97.2	75-125	0.05197	1.53	25		
Copper	0.06255	0.0050	0.05	0.007833	109	75-125	0.05874	6.3	25		
Iron	5.64	0.20	5	0.08799	111	75-125	5.244	7.28	25		
Lead	0.05249	0.0050	0.05	0	105	75-125	0.05166	1.61	25		
Manganese	1.016	0.0050	0.05	0.9886	55.5	75-125	1.043	2.56	25	SO	
Molybdenum	0.05104	0.0050	0.05	0.003301	95.5	75-125	0.05065	0.753	25		
Nickel	0.05914	0.0050	0.05	0.01032	97.6	75-125	0.05995	1.36	25		
Potassium	5.175	0.20	5	0.3187	97.1	75-125	5.185	0.195	25		
Selenium	0.04861	0.0050	0.05	0	97.2	75-125	0.05066	4.12	25		
Silver	0.04821	0.0050	0.05	0	96.4	75-125	0.04846	0.523	25		
Sodium	77.87	0.20	5	75.22	52.9	75-125	80.45	3.26	25	SO	
Uranium	0.1148	0.0050	0.05	0.01453	201	75-125	0.1148	0.054	25	S	
Zinc	0.121	0.0050	0.05	0.111	19.9	75-125	0.1201	0.707	25	S	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67639** Instrument ID **ICPMS05** Method: **SW6020** (Dissolve)

DUP	Sample ID: 1302162-02DDUP					Units: mg/L		Analysis Date: 2/11/2013 05:49 PM		
Client ID:	Run ID: ICPMS05_130211A				SeqNo: 3109594		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1358	0.010	0	0	0	0-0	0.08538	45.6	25	R
Arsenic	0.001544	0.0050	0	0	0	0-0	0.001764	0	25	J
Barium	0.07134	0.0050	0	0	0	0-0	0.07333	2.75	25	
Boron	0.7208	0.050	0	0	0	0-0	0.723	0.295	25	
Cadmium	U	0.0020	0	0	0	0-0	0.000088	0	25	
Chromium	U	0.0050	0	0	0	0-0	0.000339	0	25	
Cobalt	0.002315	0.0050	0	0	0	0-0	0.00258	0	25	J
Copper	0.007413	0.0050	0	0	0	0-0	0.007833	5.51	25	
Iron	0.1153	0.20	0	0	0	0-0	0.08799	0	25	J
Lead	U	0.0050	0	0	0	0-0	0.000123	0	25	
Manganese	0.9603	0.0050	0	0	0	0-0	0.9886	2.9	25	
Molybdenum	0.003106	0.0050	0	0	0	0-0	0.003301	0	25	J
Nickel	0.0105	0.0050	0	0	0	0-0	0.01032	1.73	25	
Potassium	0.3152	0.20	0	0	0	0-0	0.3187	1.11	25	
Selenium	U	0.0050	0	0	0	0-0	-0.000908	0	25	
Silver	U	0.0050	0	0	0	0-0	0.000034	0	25	
Sodium	74.01	0.20	0	0	0	0-0	75.22	1.62	25	
Uranium	0.01412	0.0050	0	0	0		0.01453	2.91	25	
Zinc	0.1104	0.0050	0	0	0	0-0	0.111	0.546	25	

DUP	Sample ID: 1302162-02DDUP					Units: mg/L		Analysis Date: 2/12/2013 02:35 PM		
Client ID:	Run ID: ICPMS05_130212A				SeqNo: 3110589		Prep Date: 2/8/2013		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	198.5	5.0	0	0	0	0-0	202.2	1.85	25	

The following samples were analyzed in this batch:

1302189-01E	1302189-02E	1302189-03E
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67652** Instrument ID **SV-6** Method: **SW8270**

MBLK Sample ID: **SBLKW2-130207-67652** Units: **µg/L** Analysis Date: **2/8/2013 01:13 PM**

Client ID: Run ID: **SV-6_130208A** SeqNo: **3108320** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	U	0.20								
2-Methylnaphthalene	U	0.20								
Benzo(a)pyrene	U	0.20								
Naphthalene	U	0.20								
<i>Surr: 2,4,6-Tribromophenol</i>	3.917	0.20	5	0	78.3	34-129	0			
<i>Surr: 2-Fluorobiphenyl</i>	4.298	0.20	5	0	86	40-125	0			
<i>Surr: 2-Fluorophenol</i>	3.88	0.20	5	0	77.6	20-120	0			
<i>Surr: 4-Terphenyl-d14</i>	4.845	0.20	5	0	96.9	40-135	0			
<i>Surr: Nitrobenzene-d5</i>	4.337	0.20	5	0	86.7	41-120	0			
<i>Surr: Phenol-d6</i>	4.179	0.20	5	0	83.6	20-120	0			

LCS Sample ID: **SLCSW2-130207-67652** Units: **µg/L** Analysis Date: **2/8/2013 01:33 PM**

Client ID: Run ID: **SV-6_130208A** SeqNo: **3108321** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	4.55	0.20	5	0	91	45-120	0			
2-Methylnaphthalene	4.623	0.20	5	0	92.5	50-120	0			
Benzo(a)pyrene	4.718	0.20	5	0	94.4	45-120	0			
Naphthalene	4.463	0.20	5	0	89.3	45-120	0			
<i>Surr: 2,4,6-Tribromophenol</i>	4.284	0.20	5	0	85.7	34-129	0			
<i>Surr: 2-Fluorobiphenyl</i>	4.295	0.20	5	0	85.9	40-125	0			
<i>Surr: 2-Fluorophenol</i>	4.096	0.20	5	0	81.9	20-120	0			
<i>Surr: 4-Terphenyl-d14</i>	4.973	0.20	5	0	99.5	40-135	0			
<i>Surr: Nitrobenzene-d5</i>	4.235	0.20	5	0	84.7	41-120	0			
<i>Surr: Phenol-d6</i>	4.012	0.20	5	0	80.2	20-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67652** Instrument ID **SV-6** Method: **SW8270**

LCSD Sample ID: **SLCSDW2-130207-67652** Units: **µg/L** Analysis Date: **2/8/2013 01:52 PM**

Client ID: Run ID: **SV-6_130208A** SeqNo: **3108323** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	4.365	0.20	5	0	87.3	45-120	4.55	4.13	20	
2-Methylnaphthalene	4.423	0.20	5	0	88.5	50-120	4.623	4.44	20	
Benzo(a)pyrene	4.773	0.20	5	0	95.5	45-120	4.718	1.16	20	
Naphthalene	4.285	0.20	5	0	85.7	45-120	4.463	4.07	20	
Surr: 2,4,6-Tribromophenol	4.279	0.20	5	0	85.6	34-129	4.284	0.118	0	
Surr: 2-Fluorobiphenyl	4.281	0.20	5	0	85.6	40-125	4.295	0.322	0	
Surr: 2-Fluorophenol	4.05	0.20	5	0	81	20-120	4.096	1.12	0	
Surr: 4-Terphenyl-d14	4.878	0.20	5	0	97.6	40-135	4.973	1.92	0	
Surr: Nitrobenzene-d5	4.191	0.20	5	0	83.8	41-120	4.235	1.04	0	
Surr: Phenol-d6	4.006	0.20	5	0	80.1	20-120	4.012	0.155	0	

MS Sample ID: **1302166-02AMS** Units: **µg/L** Analysis Date: **2/8/2013 02:35 PM**

Client ID: Run ID: **SV-6_130208A** SeqNo: **3108326** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	4.507	0.20	5	0.041	89.3	45-120	0			
2-Methylnaphthalene	4.563	0.20	5	0.06144	90	50-120	0			
Benzo(a)pyrene	4.668	0.20	5	0	93.4	45-120	0			
Naphthalene	4.369	0.20	5	0.05768	86.2	45-120	0			
Surr: 2,4,6-Tribromophenol	4.338	0.20	5	0	86.8	34-129	0			
Surr: 2-Fluorobiphenyl	4.351	0.20	5	0	87	40-125	0			
Surr: 2-Fluorophenol	3.971	0.20	5	0	79.4	20-120	0			
Surr: 4-Terphenyl-d14	5.066	0.20	5	0	101	40-135	0			
Surr: Nitrobenzene-d5	4.259	0.20	5	0	85.2	41-120	0			
Surr: Phenol-d6	3.95	0.20	5	0	79	20-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67652** Instrument ID **SV-6** Method: **SW8270**

MSD		Sample ID: 1302166-02AMSD				Units: µg/L		Analysis Date: 2/8/2013 02:54 PM		
Client ID:		Run ID: SV-6_130208A				SeqNo: 3108327		Prep Date: 2/7/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	4.55	0.20	5	0.041	90.2	45-120	4.507	0.951	20	
2-Methylnaphthalene	4.617	0.20	5	0.06144	91.1	50-120	4.563	1.17	20	
Benzo(a)pyrene	4.952	0.20	5	0	99	45-120	4.668	5.91	20	
Naphthalene	4.415	0.20	5	0.05768	87.1	45-120	4.369	1.03	20	
<i>Surr: 2,4,6-Tribromophenol</i>	4.292	0.20	5	0	85.8	34-129	4.338	1.06	0	
<i>Surr: 2-Fluorobiphenyl</i>	4.291	0.20	5	0	85.8	40-125	4.351	1.38	0	
<i>Surr: 2-Fluorophenol</i>	3.848	0.20	5	0	77	20-120	3.971	3.15	0	
<i>Surr: 4-Terphenyl-d14</i>	5.26	0.20	5	0	105	40-135	5.066	3.77	0	
<i>Surr: Nitrobenzene-d5</i>	4.13	0.20	5	0	82.6	41-120	4.259	3.08	0	
<i>Surr: Phenol-d6</i>	3.943	0.20	5	0	78.9	20-120	3.95	0.168	0	

The following samples were analyzed in this batch:

1302189-01D	1302189-02D	1302189-03D
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142338** Instrument ID **VOA4** Method: **SW8260**

MBLK		Sample ID: VBLKW-130207-R142338				Units: µg/L		Analysis Date: 2/7/2013 01:04 PM		
Client ID:		Run ID: VOA4_130207A				SeqNo: 3106182		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichloroethane	U	1.0								
Benzene	U	1.0								
Carbon tetrachloride	U	1.0								
Chloroform	U	1.0								
Ethylbenzene	U	1.0								
Methylene chloride	U	2.0								
Tetrachloroethene	U	1.0								
Toluene	U	1.0								
Trichloroethene	U	1.0								
Vinyl chloride	U	1.0								
Xylenes, Total	U	1.0								
<i>Surr: 1,2-Dichloroethane-d4</i>	43.22	1.0	50	0	86.4	71-125	0			
<i>Surr: 4-Bromofluorobenzene</i>	47.27	1.0	50	0	94.5	70-125	0			
<i>Surr: Dibromofluoromethane</i>	48.09	1.0	50	0	96.2	74-125	0			
<i>Surr: Toluene-d8</i>	48.74	1.0	50	0	97.5	78-123	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142338** Instrument ID **VOA4** Method: **SW8260**

LCS		Sample ID: VLCSW-130207-R142338				Units: µg/L		Analysis Date: 2/7/2013 11:52 AM		
Client ID:		Run ID: VOA4_130207A				SeqNo: 3106180		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	54.12	1.0	50	0	108	80-120	0			
1,1,2,2-Tetrachloroethane	47.37	1.0	50	0	94.7	74-123	0			
1,1,2-Trichloroethane	49.93	1.0	50	0	99.9	80-120	0			
1,1-Dichloroethane	45.83	1.0	50	0	91.7	80-120	0			
1,1-Dichloroethene	53.33	1.0	50	0	107	80-120	0			
1,2-Dibromoethane	54.67	1.0	50	0	109	80-120	0			
1,2-Dichloroethane	47.37	1.0	50	0	94.7	79-120	0			
Benzene	48.2	1.0	50	0	96.4	80-120	0			
Carbon tetrachloride	58.64	1.0	50	0	117	79-120	0			
Chloroform	46.43	1.0	50	0	92.9	80-120	0			
Ethylbenzene	50.46	1.0	50	0	101	80-120	0			
Methylene chloride	47.39	2.0	50	0	94.8	75-125	0			
Tetrachloroethene	55.58	1.0	50	0	111	80-120	0			
Toluene	49.84	1.0	50	0	99.7	80-121	0			
Trichloroethene	54.31	1.0	50	0	109	80-120	0			
Vinyl chloride	48.12	1.0	50	0	96.2	75-125	0			
Xylenes, Total	147.3	1.0	150	0	98.2	80-124	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	40.29	1.0	50	0	80.6	71-125	0			
<i>Surr: 4-Bromofluorobenzene</i>	51.07	1.0	50	0	102	70-125	0			
<i>Surr: Dibromofluoromethane</i>	46.75	1.0	50	0	93.5	74-125	0			
<i>Surr: Toluene-d8</i>	48.46	1.0	50	0	96.9	78-123	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142338** Instrument ID **VOA4** Method: **SW8260**

LCSD Sample ID: **VLCS DW-130207-R142338** Units: **µg/L** Analysis Date: **2/7/2013 12:16 PM**

Client ID: Run ID: **VOA4_130207A** SeqNo: **3106181** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	53.04	1.0	50	0	106	80-120	54.12	2.03	20	
1,1,2,2-Tetrachloroethane	47.24	1.0	50	0	94.5	74-123	47.37	0.272	20	
1,1,2-Trichloroethane	50.09	1.0	50	0	100	80-120	49.93	0.316	20	
1,1-Dichloroethane	45.24	1.0	50	0	90.5	80-120	45.83	1.3	20	
1,1-Dichloroethene	51.67	1.0	50	0	103	80-120	53.33	3.17	20	
1,2-Dibromoethane	53.7	1.0	50	0	107	80-120	54.67	1.8	20	
1,2-Dichloroethane	46.81	1.0	50	0	93.6	79-120	47.37	1.19	20	
Benzene	46.92	1.0	50	0	93.8	80-120	48.2	2.7	20	
Carbon tetrachloride	55.21	1.0	50	0	110	79-120	58.64	6.03	20	
Chloroform	45.85	1.0	50	0	91.7	80-120	46.43	1.24	20	
Ethylbenzene	49.1	1.0	50	0	98.2	80-120	50.46	2.75	20	
Methylene chloride	46.39	2.0	50	0	92.8	75-125	47.39	2.13	20	
Tetrachloroethene	53.36	1.0	50	0	107	80-120	55.58	4.07	20	
Toluene	48.56	1.0	50	0	97.1	80-121	49.84	2.58	20	
Trichloroethene	52.61	1.0	50	0	105	80-120	54.31	3.17	20	
Vinyl chloride	46	1.0	50	0	92	75-125	48.12	4.5	20	
Xylenes, Total	144.2	1.0	150	0	96.1	80-124	147.3	2.14	20	
<i>Surr: 1,2-Dichloroethane-d4</i>	42.39	1.0	50	0	84.8	71-125	40.29	5.09	20	
<i>Surr: 4-Bromofluorobenzene</i>	51.83	1.0	50	0	104	70-125	51.07	1.47	20	
<i>Surr: Dibromofluoromethane</i>	48.24	1.0	50	0	96.5	74-125	46.75	3.14	20	
<i>Surr: Toluene-d8</i>	48.94	1.0	50	0	97.9	78-123	48.46	0.98	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142338** Instrument ID **VOA4** Method: **SW8260**

MS		Sample ID: 1302212-01AMS				Units: µg/L		Analysis Date: 2/7/2013 07:57 PM		
Client ID:		Run ID: VOA4_130207A				SeqNo: 3106199		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	53.97	1.0	50	0	108	80-120	0			
1,1,2,2-Tetrachloroethane	45.9	1.0	50	0	91.8	74-123	0			
1,1,2-Trichloroethane	49.51	1.0	50	0	99	80-120	0			
1,1-Dichloroethane	44.96	1.0	50	0	89.9	80-120	0			
1,1-Dichloroethene	54.68	1.0	50	0	109	80-120	0			
1,2-Dibromoethane	53.74	1.0	50	0	107	80-120	0			
1,2-Dichloroethane	47.08	1.0	50	0	94.2	79-120	0			
Benzene	48	1.0	50	0	96	80-120	0			
Carbon tetrachloride	58.28	1.0	50	0	117	79-120	0			
Chloroform	45.95	1.0	50	0	91.9	80-120	0			
Ethylbenzene	49.44	1.0	50	0	98.9	80-120	0			
Methylene chloride	46.21	2.0	50	0	92.4	75-125	0			
Tetrachloroethene	54.73	1.0	50	0	109	80-120	0			
Toluene	49.36	1.0	50	0	98.7	80-121	0			
Trichloroethene	54.11	1.0	50	0	108	80-120	0			
Vinyl chloride	49.09	1.0	50	0	98.2	75-125	0			
Xylenes, Total	144.9	1.0	150	0	96.6	80-124	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	42.45	1.0	50	0	84.9	71-125	0			
<i>Surr: 4-Bromofluorobenzene</i>	51.15	1.0	50	0	102	70-125	0			
<i>Surr: Dibromofluoromethane</i>	47.86	1.0	50	0	95.7	74-125	0			
<i>Surr: Toluene-d8</i>	48.37	1.0	50	0	96.7	78-123	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142338** Instrument ID **VOA4** Method: **SW8260**

MSD	Sample ID: 1302212-01AMSD				Units: µg/L		Analysis Date: 2/7/2013 08:21 PM			
Client ID:	Run ID: VOA4_130207A				SeqNo: 3106200		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	57.01	1.0	50	0	114	80-120	53.97	5.48	20	
1,1,2,2-Tetrachloroethane	48.94	1.0	50	0	97.9	74-123	45.9	6.42	20	
1,1,2-Trichloroethane	50.75	1.0	50	0	101	80-120	49.51	2.47	20	
1,1-Dichloroethane	48.16	1.0	50	0	96.3	80-120	44.96	6.87	20	
1,1-Dichloroethene	56.88	1.0	50	0	114	80-120	54.68	3.95	20	
1,2-Dibromoethane	56.5	1.0	50	0	113	80-120	53.74	5	20	
1,2-Dichloroethane	51.51	1.0	50	0	103	79-120	47.08	8.98	20	
Benzene	52.19	1.0	50	0	104	80-120	48	8.37	20	
Carbon tetrachloride	63.72	1.0	50	0	127	79-120	58.28	8.92	20	S
Chloroform	49.3	1.0	50	0	98.6	80-120	45.95	7.04	20	
Ethylbenzene	52.5	1.0	50	0	105	80-120	49.44	5.99	20	
Methylene chloride	48.73	2.0	50	0	97.5	75-125	46.21	5.31	20	
Tetrachloroethene	57.75	1.0	50	0	115	80-120	54.73	5.36	20	
Toluene	51.86	1.0	50	0	104	80-121	49.36	4.94	20	
Trichloroethene	58.65	1.0	50	0	117	80-120	54.11	8.06	20	
Vinyl chloride	52.37	1.0	50	0	105	75-125	49.09	6.45	20	
Xylenes, Total	153.8	1.0	150	0	103	80-124	144.9	5.99	20	
Surr: 1,2-Dichloroethane-d4	43	1.0	50	0	86	71-125	42.45	1.3	20	
Surr: 4-Bromofluorobenzene	50.33	1.0	50	0	101	70-125	51.15	1.61	20	
Surr: Dibromofluoromethane	48.55	1.0	50	0	97.1	74-125	47.86	1.44	20	
Surr: Toluene-d8	48.73	1.0	50	0	97.5	78-123	48.37	0.743	20	

The following samples were analyzed in this batch:

1302189-01A	1302189-02A	1302189-03A
1302189-04A	1302189-05A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142498** Instrument ID **VOA4** Method: **SW8260**

MBLK Sample ID: **VBLKW2-130208-R142498** Units: **µg/L** Analysis Date: **2/8/2013 11:09 PM**

Client ID: Run ID: **VOA4_130208B** SeqNo: **3108013** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichloroethane	U	1.0								
Benzene	U	1.0								
Carbon tetrachloride	U	1.0								
Chloroform	U	1.0								
Ethylbenzene	U	1.0								
Methylene chloride	U	2.0								
Tetrachloroethene	U	1.0								
Toluene	U	1.0								
Trichloroethene	U	1.0								
Vinyl chloride	U	1.0								
Xylenes, Total	U	1.0								
Surr: 1,2-Dichloroethane-d4	49.71	1.0	50	0	99.4	71-125	0			
Surr: 4-Bromofluorobenzene	50.66	1.0	50	0	101	70-125	0			
Surr: Dibromofluoromethane	49.37	1.0	50	0	98.7	74-125	0			
Surr: Toluene-d8	52.58	1.0	50	0	105	78-123	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142498** Instrument ID **VOA4** Method: **SW8260**

LCS		Sample ID: VLCSW2-130208-R142498				Units: µg/L		Analysis Date: 2/8/2013 09:57 PM		
Client ID:		Run ID: VOA4_130208B				SeqNo: 3108009		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	55.09	1.0	50	0	110	80-120	0			
1,1,2,2-Tetrachloroethane	49.36	1.0	50	0	98.7	74-123	0			
1,1,2-Trichloroethane	51.51	1.0	50	0	103	80-120	0			
1,1-Dichloroethane	51.83	1.0	50	0	104	80-120	0			
1,1-Dichloroethene	54.88	1.0	50	0	110	80-120	0			
1,2-Dibromoethane	54.57	1.0	50	0	109	80-120	0			
1,2-Dichloroethane	50.55	1.0	50	0	101	79-120	0			
Benzene	50.32	1.0	50	0	101	80-120	0			
Carbon tetrachloride	50.54	1.0	50	0	101	79-120	0			
Chloroform	50.55	1.0	50	0	101	80-120	0			
Ethylbenzene	51.95	1.0	50	0	104	80-120	0			
Methylene chloride	52.11	2.0	50	0	104	75-125	0			
Tetrachloroethene	53.98	1.0	50	0	108	80-120	0			
Toluene	52.03	1.0	50	0	104	80-121	0			
Trichloroethene	53.32	1.0	50	0	107	80-120	0			
Vinyl chloride	56.32	1.0	50	0	113	75-125	0			
Xylenes, Total	153.9	1.0	150	0	103	80-124	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	47.96	1.0	50	0	95.9	71-125	0			
<i>Surr: 4-Bromofluorobenzene</i>	53.9	1.0	50	0	108	70-125	0			
<i>Surr: Dibromofluoromethane</i>	49.34	1.0	50	0	98.7	74-125	0			
<i>Surr: Toluene-d8</i>	51.2	1.0	50	0	102	78-123	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142498** Instrument ID **VOA4** Method: **SW8260**

LCSD		Sample ID: VLCSDW2-130208-R142498				Units: µg/L		Analysis Date: 2/8/2013 10:21 PM		
Client ID:		Run ID: VOA4_130208B				SeqNo: 3108011		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	54.6	1.0	50	0	109	80-120	55.09	0.901	20	
1,1,2,2-Tetrachloroethane	49.32	1.0	50	0	98.6	74-123	49.36	0.068	20	
1,1,2-Trichloroethane	50.72	1.0	50	0	101	80-120	51.51	1.54	20	
1,1-Dichloroethane	50.95	1.0	50	0	102	80-120	51.83	1.71	20	
1,1-Dichloroethene	54.92	1.0	50	0	110	80-120	54.88	0.0699	20	
1,2-Dibromoethane	53.64	1.0	50	0	107	80-120	54.57	1.71	20	
1,2-Dichloroethane	50.43	1.0	50	0	101	79-120	50.55	0.233	20	
Benzene	49.36	1.0	50	0	98.7	80-120	50.32	1.93	20	
Carbon tetrachloride	49.16	1.0	50	0	98.3	79-120	50.54	2.78	20	
Chloroform	49.36	1.0	50	0	98.7	80-120	50.55	2.36	20	
Ethylbenzene	50.31	1.0	50	0	101	80-120	51.95	3.2	20	
Methylene chloride	51.14	2.0	50	0	102	75-125	52.11	1.88	20	
Tetrachloroethene	52.07	1.0	50	0	104	80-120	53.98	3.59	20	
Toluene	50.24	1.0	50	0	100	80-121	52.03	3.5	20	
Trichloroethene	51.88	1.0	50	0	104	80-120	53.32	2.73	20	
Vinyl chloride	54.47	1.0	50	0	109	75-125	56.32	3.34	20	
Xylenes, Total	149.4	1.0	150	0	99.6	80-124	153.9	2.94	20	
<i>Surr: 1,2-Dichloroethane-d4</i>	47.27	1.0	50	0	94.5	71-125	47.96	1.45	20	
<i>Surr: 4-Bromofluorobenzene</i>	53.48	1.0	50	0	107	70-125	53.9	0.798	20	
<i>Surr: Dibromofluoromethane</i>	49.25	1.0	50	0	98.5	74-125	49.34	0.193	20	
<i>Surr: Toluene-d8</i>	51.32	1.0	50	0	103	78-123	51.2	0.233	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142498** Instrument ID **VOA4** Method: **SW8260**

MS	Sample ID: 1302236-06AMS				Units: µg/L			Analysis Date: 2/9/2013 01:35 AM		
Client ID:		Run ID: VOA4_130208B			SeqNo: 3108165		Prep Date:		DF: 2500	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	133700	2,500	125000	0	107	80-120	0			
1,1,2,2-Tetrachloroethane	118800	2,500	125000	0	95	74-123	0			
1,1,2-Trichloroethane	124000	2,500	125000	0	99.2	80-120	0			
1,1-Dichloroethane	125300	2,500	125000	0	100	80-120	0			
1,1-Dichloroethene	133000	2,500	125000	0	106	80-120	0			
1,2-Dibromoethane	128600	2,500	125000	0	103	80-120	0			
1,2-Dichloroethane	122700	2,500	125000	0	98.1	79-120	0			
Benzene	120300	2,500	125000	0	96.3	80-120	0			
Carbon tetrachloride	119000	2,500	125000	0	95.2	79-120	0			
Chloroform	129400	2,500	125000	8729	96.5	80-120	0			
Ethylbenzene	128100	2,500	125000	4531	98.9	80-120	0			
Methylene chloride	126400	5,000	125000	3717	98.1	75-125	0			
Tetrachloroethene	125900	2,500	125000	0	101	80-120	0			
Toluene	123700	2,500	125000	0	99	80-121	0			
Trichloroethene	125300	2,500	125000	0	100	80-120	0			
Vinyl chloride	134600	2,500	125000	0	108	75-125	0			
Xylenes, Total	418500	2,500	375000	49150	98.5	80-124	0			
Surr: 1,2-Dichloroethane-d4	120700	2,500	125000	0	96.6	71-125	0			
Surr: 4-Bromofluorobenzene	134800	2,500	125000	0	108	70-125	0			
Surr: Dibromofluoromethane	125100	2,500	125000	0	100	74-125	0			
Surr: Toluene-d8	129500	2,500	125000	0	104	78-123	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142498** Instrument ID **VOA4** Method: **SW8260**

MSD				Sample ID: 1302236-06AMSD			Units: µg/L		Analysis Date: 2/9/2013 01:59 AM	
Client ID:				Run ID: VOA4_130208B			SeqNo: 3108166		Prep Date:	
									DF: 2500	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	126500	2,500	125000	0	101	80-120	133700	5.49	20	
1,1,2,2-Tetrachloroethane	114100	2,500	125000	0	91.3	74-123	118800	3.98	20	
1,1,2-Trichloroethane	121100	2,500	125000	0	96.9	80-120	124000	2.42	20	
1,1-Dichloroethane	119600	2,500	125000	0	95.7	80-120	125300	4.61	20	
1,1-Dichloroethene	126100	2,500	125000	0	101	80-120	133000	5.28	20	
1,2-Dibromoethane	125900	2,500	125000	0	101	80-120	128600	2.14	20	
1,2-Dichloroethane	120200	2,500	125000	0	96.2	79-120	122700	2.05	20	
Benzene	115900	2,500	125000	0	92.7	80-120	120300	3.75	20	
Carbon tetrachloride	114600	2,500	125000	0	91.7	79-120	119000	3.76	20	
Chloroform	126000	2,500	125000	8729	93.8	80-120	129400	2.64	20	
Ethylbenzene	123600	2,500	125000	4531	95.2	80-120	128100	3.62	20	
Methylene chloride	122300	5,000	125000	3717	94.8	75-125	126400	3.31	20	
Tetrachloroethene	121800	2,500	125000	0	97.5	80-120	125900	3.3	20	
Toluene	120100	2,500	125000	0	96.1	80-121	123700	2.94	20	
Trichloroethene	120400	2,500	125000	0	96.3	80-120	125300	3.98	20	
Vinyl chloride	126900	2,500	125000	0	102	75-125	134600	5.88	20	
Xylenes, Total	409000	2,500	375000	49150	96	80-124	418500	2.29	20	
<i>Surr: 1,2-Dichloroethane-d4</i>	119500	2,500	125000	0	95.6	71-125	120700	0.999	20	
<i>Surr: 4-Bromofluorobenzene</i>	135500	2,500	125000	0	108	70-125	134800	0.5	20	
<i>Surr: Dibromofluoromethane</i>	123000	2,500	125000	0	98.4	74-125	125100	1.7	20	
<i>Surr: Toluene-d8</i>	129000	2,500	125000	0	103	78-123	129500	0.346	20	

The following samples were analyzed in this batch:

1302189-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142275** Instrument ID **ICS2100** Method: **E300** (Dissolve)

MBLK	Sample ID: WBLKW2-R142275			Units: mg/L			Analysis Date: 2/6/2013 11:17 AM			
Client ID:	Run ID: ICS2100_130206A			SeqNo: 3104639			Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	U	0.10								
Nitrogen, Nitrate (As N)	U	0.10								
Nitrogen, Nitrite (As N)	U	0.10								
Surr: Selenate (surr)	4.316	0.10	5	0	86.3	85-115	0			

LCS	Sample ID: WLCSW2-R142275			Units: mg/L			Analysis Date: 2/6/2013 11:31 AM			
Client ID:	Run ID: ICS2100_130206A			SeqNo: 3104640			Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	3.608	0.10	4	0	90.2	90-110	0			
Nitrogen, Nitrate (As N)	4.033	0.10	4	0	101	90-110	0			
Nitrogen, Nitrite (As N)	4.332	0.10	4	0	108	90-110	0			
Surr: Selenate (surr)	4.436	0.10	5	0	88.7	85-115	0			

MS	Sample ID: 13011010-20BMS			Units: mg/L			Analysis Date: 2/6/2013 07:14 PM			
Client ID:	Run ID: ICS2100_130206A			SeqNo: 3104667			Prep Date:		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	8.773	0.50	10	0.125	86.5	80-120	0			
Nitrogen, Nitrate (As N)	10.03	0.50	10	0	100	80-120	0			H
Nitrogen, Nitrite (As N)	10.57	0.50	10	0	106	80-120	0			H
Surr: Selenate (surr)	21.26	0.50	25	0	85.1	85-115	0			

MSD	Sample ID: 13011010-20BMSD			Units: mg/L			Analysis Date: 2/6/2013 07:29 PM			
Client ID:	Run ID: ICS2100_130206A			SeqNo: 3104669			Prep Date:		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	9.222	0.50	10	0.125	91	80-120	8.773	4.99	20	
Nitrogen, Nitrate (As N)	10.45	0.50	10	0	105	80-120	10.03	4.12	20	H
Nitrogen, Nitrite (As N)	10.86	0.50	10	0	109	80-120	10.57	2.65	20	H
Surr: Selenate (surr)	22.16	0.50	25	0	88.6	85-115	21.26	4.11	20	

The following samples were analyzed in this batch:

1302189-02G 1302189-03G

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142545** Instrument ID **Balance1** Method: **M2540C** (Dissolve)

MBLK	Sample ID: WBLK-020813-R142545				Units: mg/L		Analysis Date: 2/8/2013 04:15 PM			
Client ID:	Run ID: BALANCE1_130208E				SeqNo: 3109325		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	U	10								

LCS	Sample ID: WLCS-020813-R142545				Units: mg/L		Analysis Date: 2/8/2013 04:15 PM			
Client ID:	Run ID: BALANCE1_130208E				SeqNo: 3109326		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	940	10	1000		0	94	85-115	0		

DUP	Sample ID: 1302121-01FDUP				Units: mg/L		Analysis Date: 2/8/2013 04:15 PM			
Client ID:	Run ID: BALANCE1_130208E				SeqNo: 3109329		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	496	10	0		0	0	0-0	498	0.402	20

DUP	Sample ID: 1302189-01GDUP				Units: mg/L		Analysis Date: 2/8/2013 04:15 PM			
Client ID: MW-116	Run ID: BALANCE1_130208E				SeqNo: 3109492		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	3598	10	0		0	0	0-0	3652	1.49	20

The following samples were analyzed in this batch:

1302189-01G

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142615** Instrument ID **ICS2100** Method: **E300** **(Dissolve)**

MBLK	Sample ID: WBLKW1-R142615				Units: mg/L		Analysis Date: 2/12/2013 10:37 AM			
Client ID:	Run ID: ICS2100_130212A				SeqNo: 3110343		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	U	0.10								
Nitrogen, Nitrate (As N)	0.064	0.10								J
Nitrogen, Nitrite (As N)	U	0.10								
<i>Surr: Selenate (surr)</i>	4.937	0.10	5	0	98.7	85-115	0			

LCS	Sample ID: WLCSW1-R142615				Units: mg/L		Analysis Date: 2/12/2013 10:52 AM			
Client ID:	Run ID: ICS2100_130212A				SeqNo: 3110344		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	3.832	0.10	4	0	95.8	90-110	0			
Nitrogen, Nitrate (As N)	4.379	0.10	4	0	109	90-110	0			
Nitrogen, Nitrite (As N)	4.304	0.10	4	0	108	90-110	0			
<i>Surr: Selenate (surr)</i>	5.024	0.10	5	0	100	85-115	0			

MS	Sample ID: 1302189-01GMS				Units: mg/L		Analysis Date: 2/12/2013 12:58 PM			
Client ID: MW-116	Run ID: ICS2100_130212A				SeqNo: 3110358		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	2.761	0.10	2	1.307	72.7	80-120	0			S
Nitrogen, Nitrate (As N)	3.165	0.10	2	1.367	89.9	80-120	0			H
Nitrogen, Nitrite (As N)	2.338	0.10	2	0	117	80-120	0			H
<i>Surr: Selenate (surr)</i>	4.387	0.10	5	0	87.7	85-115	0			

MSD	Sample ID: 1302189-01GMSD				Units: mg/L		Analysis Date: 2/12/2013 01:12 PM			
Client ID: MW-116	Run ID: ICS2100_130212A				SeqNo: 3110360		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	2.747	0.10	2	1.307	72	80-120	2.761	0.508	20	S
Nitrogen, Nitrate (As N)	3.201	0.10	2	1.367	91.7	80-120	3.165	1.13	20	H
Nitrogen, Nitrite (As N)	2.324	0.10	2	0	116	80-120	2.338	0.601	20	H
<i>Surr: Selenate (surr)</i>	4.498	0.10	5	0	90	85-115	4.387	2.5	20	

The following samples were analyzed in this batch:

1302189-01G

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142650** Instrument ID **UV-2450** Method: **M4500CN E&G (Dissolve)**

MBLK	Sample ID: WBLKW1-021213-R142650				Units: mg/L		Analysis Date: 2/12/2013 11:45 AM			
Client ID:	Run ID: UV-2450_130212D				SeqNo: 3111136		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	U	0.020								

LCS	Sample ID: WLCSW1-021213-R142650				Units: mg/L		Analysis Date: 2/12/2013 11:45 AM			
Client ID:	Run ID: UV-2450_130212D				SeqNo: 3111137		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.162	0.020	0.2	0	81	80-120	0			

LCSD	Sample ID: WLCSDW1-021213-R142650				Units: mg/L		Analysis Date: 2/12/2013 11:45 AM			
Client ID:	Run ID: UV-2450_130212D				SeqNo: 3111147		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.166	0.020	0.2	0	83	80-120	0.162	2.44	20	

MS	Sample ID: 1302217-01BMS				Units: mg/L		Analysis Date: 2/12/2013 11:45 AM			
Client ID:	Run ID: UV-2450_130212D				SeqNo: 3111146		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.172	0.020	0.2	0.002	85	80-120	0			

The following samples were analyzed in this batch:

1302189-01F	1302189-02F	1302189-03F
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142723** Instrument ID **BALANCE1** Method: **M2540C** **(Dissolve)**

MBLK Sample ID: **WBLK-021213-R142723** Units: **mg/L** Analysis Date: **2/12/2013 10:15 AM**

Client ID: Run ID: **BALANCE1_130212C** SeqNo: **3112460** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	U	10								

LCS Sample ID: **WLCS-021213-R142723** Units: **mg/L** Analysis Date: **2/12/2013 10:15 AM**

Client ID: Run ID: **BALANCE1_130212C** SeqNo: **3112461** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	964	10	1000	0	96.4	85-115	0			

DUP Sample ID: **1302159-01CDUP** Units: **mg/L** Analysis Date: **2/12/2013 10:15 AM**

Client ID: Run ID: **BALANCE1_130212C** SeqNo: **3112436** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	230	10	0	0	0	0-0	216	6.28	20	

DUP Sample ID: **1302276-01KDUP** Units: **mg/L** Analysis Date: **2/12/2013 10:15 AM**

Client ID: Run ID: **BALANCE1_130212C** SeqNo: **3112993** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1960	10	0	0	0	0-0	1960	0	20	

The following samples were analyzed in this batch:

1302189-02G	1302189-03G
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142773** Instrument ID **ICS3K2** Method: **E300** **(Dissolve)**

MBLK	Sample ID: WBLKW1-R142773				Units: mg/L			Analysis Date: 2/14/2013 12:37 AM		
Client ID:	Run ID: ICS3K2_130214B				SeqNo: 3113452			Prep Date: DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	0.50								
Sulfate	U	0.50								
Surr: Selenate (surr)	5.088	0.10	5	0	102	85-115	0			

LCS	Sample ID: WLC SW1-R142773				Units: mg/L			Analysis Date: 2/14/2013 12:59 AM		
Client ID:	Run ID: ICS3K2_130214B				SeqNo: 3113454			Prep Date: DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	18.08	0.50	20	0	90.4	90-110	0			
Sulfate	18.57	0.50	20	0	92.9	90-110	0			
Surr: Selenate (surr)	5.138	0.10	5	0	103	85-115	0			

MS	Sample ID: 1302276-01GMS				Units: mg/L			Analysis Date: 2/14/2013 06:46 AM		
Client ID:	Run ID: ICS3K2_130214B				SeqNo: 3113475			Prep Date: DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	749.4	0.50	10	762.7	-133	80-120	0			SEO
Sulfate	160.2	0.50	10	154.2	59.6	80-120	0			SEO
Surr: Selenate (surr)	5.296	0.10	5	0	106	85-115	0			

MSD	Sample ID: 1302276-01GMSD				Units: mg/L			Analysis Date: 2/14/2013 07:07 AM		
Client ID:	Run ID: ICS3K2_130214B				SeqNo: 3113476			Prep Date: DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	749	0.50	10	762.7	-137	80-120	749.4	0.0533	20	SEO
Sulfate	160.1	0.50	10	154.2	58.6	80-120	160.2	0.065	20	SEO
Surr: Selenate (surr)	5.309	0.10	5	0	106	85-115	5.296	0.245	20	

The following samples were analyzed in this batch:

1302189-01G	1302189-02G	1302189-03G
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Project: RO Discharge Sampling
WorkOrder: 1302189

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
mg/L	Milligrams per Liter

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**

Date/Time Received: **06-Feb-13 08:40**

Work Order: **1302189**

Received by: **JBA**

Checklist completed by Johannie B. Allen 12-Feb-13
eSignature Date

Reviewed by: Patricia L. Lynch 19-Feb-13
eSignature Date

Matrices: **water**

Carrier name: **FedEx Priority Overnight**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>1.6 C, 1.0 C, 1.1 C, 1.3 /uc</u> <u>IR 1</u>		
Cooler(s)/Kit(s):	<u>3747/3040/3306/4185</u>		
Date/Time sample(s) sent to storage:	<u>2/6/13 17:00</u>		
Water - VOA vials have zero headspace?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes: **1302189-01;-02; & -03 Radium fraction re-logged in WO 1302192-01;-02 & -03 respectively**

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:



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Chain of Custody Form

Page 1 of 1

COC ID: 72327

1302189

NAVAJO REFINING: Navajo Refining Company

Project: RO Discharge Sampling



Environmental

ALS Project Manager:

Customer Information		Project Information		
Purchase Order		Project Name	RO Discharge/Sampling	A
Work Order		Project Number	128823	B
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C
Send Report To	Robert Combs	Invoice Attn	Robert Combs	D
Address	501 East Main	Address	501 East Main	E
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	F
Phone	(575) 748-6733	Phone	(575) 748-6733	G
Fax	(575) 748-5421	Fax	(575) 748-5421	H
e-Mail Address		e-Mail Address		I
				J

LL SVOC (8270) NM GW List
Total Metals (6020/7000) RCRA 8 LONG LIST
Dissoived Metals (6020/7000) RCRA 8
TDS
Moisture Radium
Finger print (PLANO/S, GAW, SH, BIR) Anions, Cations, Cyanide

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-116	2-3-13	1315	water	MIX	16						X	X	X	X	X	Extra Bottles
2	MW-112	2-4-13	1040	water	Mix	11	X	X	X	X	X						
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign		Shipment Method		Required Turnaround Time: (Check Box)		Results Due Date:	
<i>[Signature]</i>				<input checked="" type="checkbox"/> Std 10 WK Days <input type="checkbox"/> 5 WK Days <input type="checkbox"/> Other 2 WK Days <input type="checkbox"/> 24 Hour			
Relinquished by:	Date:	Time:	Received by:	Notes:			
Eric Dergersen	2-5-13	0930	<i>[Signature]</i>	10 Day TAT. Dissolved Metals Field Filtered			
Relinquished by:	Date:	Time:	Received by (Laboratory):	Cooler ID	Cooler Temp.	QC Package: (Check One Box Below)	
				3040		<input checked="" type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP CheckList	
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):			<input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> TRRP Level IV	
						<input type="checkbox"/> Level IV SW846/CLP <input type="checkbox"/> Other / EDD	
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035							

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
 2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
 3. The Chain of Custody is a legal document. All information must be completed accurately.

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Environmental

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Chain of Custody Form

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COC ID: 72325

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Salt Lake City, UT
+1 801 266 7700

South Charleston, WV
+1 304 356 3168

York, PA
+1 717 505 5280

Customer Information		Project Information		ALS Project Manager: _____ ALS Work Order #: _____															
Parameter/Method Request for Analysis																			
Purchase Order		Project Name	RO Discharge/Sampling	A	VOC (8260) NW GW List														
Work Order		Project Number	128823	B	GRO (8015M)														
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	DRO (8015M)														
Send Report To	Robert Combs	Invoice Attn	Robert Combs	D	ORO (8015M)														
Address	501 East Main	Address	501 East Main	E	LL SVOC (8270) NM GW List														
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	F	Total Metals (6020/7000) RCRA 8 <i>Long List</i>														
Phone	(575) 748-6733	Phone	(575) 748-6733	G	Dissolved Metals (6020/7000) RCRA 8														
Fax	(575) 746-5421	Fax	(575) 746-5421	H	<i>ES Radium</i>														
e-Mail Address		e-Mail Address		I	Moisture														
				J	<i>Finger print (Pb, As, Cd, Cr, Cu, Fe, Ni, Se, Si, Zn) Cations, Anions Cyanide</i>														
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold		
1	MW-119	2/5/13	11:55 AM	water	Mix	17						X	X	X	X	X	Hold		
2	MW-118	2/5/13	4:25 PM	water	Mix	15						X	X	X	X	X	Extrac		
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Sampler(s) Please Print & Sign: <i>[Signature]</i>		Shipment Method		Required Turnaround Time: (Check Box)		Results Due Date:	
Relinquished by: <i>Eric Bergeesen</i>		Date: 2-5-13	Time: 1600	<input checked="" type="checkbox"/> Std 10 WK Days <input type="checkbox"/> 5 WK Days <input type="checkbox"/> Other		<input type="checkbox"/> 2 WK Days <input type="checkbox"/> 24 Hour	
Relinquished by:		Date:	Time:	Received by: <i>[Signature]</i>		Notes: 10 Day TAT. Dissolved Metals Field Filtered	
Logged by (Laboratory):		Date:	Time:	Received by (Laboratory):		Cooler ID: <i>3747</i> Cooler Temp.: QC Package: (Check One Box Below)	
				Checked by (Laboratory):		<input checked="" type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP CheckList	
						<input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> TRRP Level IV	
						<input type="checkbox"/> Level IV SW846/CLP	
						<input type="checkbox"/> Other / EDD	

Preservative Key: 1-HCl 2-HNO₃ 3-H₂SO₄ 4-NaOH 5-Na₂S₂O₃ 6-NaHSO₄ 7-Other 8-4°C 9-5035

FedEx Package
Express US Airbill

FedEx
Tracking
Number

8013 7025 2083

1 From
Date 2/5/13

Sender's Name Eric Bergesen Phone 281 781-1234

Company ARCADIS

Address 2929 Briarpark Suite 300 Dept./Floor/Suite/Room

City Houston State TX ZIP 77042

2 Your Internal Billing Reference

3 To
Recipient's Name CLIENT SERVICES Phone 281 530-5656

Company ALS LABORATORY GROUP

Address 10450 STANCLIFF RD STE 210 We cannot deliver to P.O. boxes or P.O. ZIP codes. Dept./Floor/Suite/Room

Address Use this line for the HOLD location address or for continuation of your shipping address.

City HOUSTON State TX ZIP 77099-4338

HOLD Weekday
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.

HOLD Saturday
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.



8013 7025 2083

0215 Recipient's Copy

4 Express Package Service *To most locations.
NOTE: Service order has changed. Please select carefully.

Packages up to 150 lbs.
For packages over 150 lbs., use the
FedEx Express Freight US Airbill.

Next Business Day

☐ FedEx First Overnight
Earliest next business morning delivery to select
locations. Friday shipments will be delivered on
Monday unless SATURDAY Delivery is selected.

☐ FedEx Priority Overnight
Next business morning. * Friday shipments will be
delivered on Monday unless SATURDAY Delivery
is selected.

☒ FedEx Standard Overnight
Next business afternoon. *
Saturday Delivery NOT available.

2 or 3 Business Days

☐ FedEx 2Day A.M.
Second business morning. *
Saturday Delivery NOT available.

☐ FedEx 2Day
Second business afternoon. * Thursday shipments
will be delivered on Monday unless SATURDAY
Delivery is selected.

☐ FedEx Express Saver
Third business day. *
Saturday Delivery NOT available.

5 Packaging *Declared value limit \$500.

☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☒ Other

6 Special Handling and Delivery Signature Options

☐ SATURDAY Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐ No Signature Required
Package may be left without
obtaining a signature for delivery.

☐ Direct Signature
Someone at recipient's address
must sign for delivery. Fee applies.

☐ Indirect Signature
If no one is available at recipient's
address, someone at a neighboring
address may sign for delivery. For
residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?

One box must be checked.
☒ No ☐ Yes As per attached
Shipper's Declaration. ☐ Yes Shipper's Declaration
not required.

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging
or placed in a FedEx Express Drop Box.

☐ Dry Ice
Dry Ice, 9 UN 1845 x kg

☐ Cargo Aircraft Only

7 Payment Bill to:

Sender's Acct. No. in Section I will be billed. ☒ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

Total Packages Total Weight

Credit Card Auth.

*Our liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

611

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CUSTODY SEAL	
Date: 2-5-13	Time: 1100
Name: B. McKenna	
Company: ARCADIS U.S.	

ALS	Environmental
10450 Stancliff Rd Suite 210	
Houston, TX 77099	
Phone: 281 530 5656	
FAX: +1 281 530 5887	

1 From
Date **2/5/13**
Sender's Name **Eric Bergersen** Phone **281 787-1234**
Company **ARCADIS**
Address **2929 Briarpark Suite 300** Dept./Floor/Suite/Room
City **Houston** State **TX** ZIP **77042**

2 Your Internal Billing Reference
3 To
Recipient's Name **CLIENT SERVICES** Phone **281 530-3456**

Company **ALS LABORATORY GROUP**
Address **10450 STANCLIFF RD STE 210** Dept./Floor/Suite/Room
We cannot deliver to P.O. boxes or P.O. ZIP codes.
Address Use this line for the HOLD location address or for continuation of your shipping address.
City **HOUSTON** State **TX** ZIP **77099-4308**
0455550776



0215
4 Express Package Service * To most locations.
NOTE: Service order has changed. Please select carefully.
Next Business Day
☐ **FedEx 2Day A.M.** Second business morning. Saturday Delivery NOT available.
☐ **FedEx 2Day** Second business afternoon. Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
☐ **FedEx Express Saver** Third business day. Saturday Delivery NOT available.
☒ **FedEx Standard Overnight** Next business afternoon. Saturday Delivery NOT available.

5 Packaging * Declared value limit \$500
☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☒ Other

6 Special Handling and Delivery Signature Options
☐ **SATURDAY Delivery** NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.
☐ **No Signature Required** Package may be left without obtaining a signature for delivery.
☐ **Direct Signature** Someone at recipient's address may sign for delivery. Fee applies.
☐ **Indirect Signature** If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.
Does this shipment contain dangerous goods?
One box must be checked.
☒ **No** ☐ **Yes** As per attached Shipper's Declaration.
☐ **Yes** Shipper's Declaration not required.
☐ **Dry Ice** Dry ice, 9, UN 1845 x kg
☐ **Cargo Aircraft Only**
Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

7 Payment Bill to: Enter FedEx Acct. No. or Credit Card No. below.
☐ **Sender** Acct. No. in Section 1 will be billed.
☒ **Recipient** ☐ **Third Party** ☐ **Credit Card** ☐ **Cash/Cr**
Total Packages **1** Total Weight **16.00** lbs.
Obtain recip. Acct. No. []
1 Our liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.



ALS Environmental
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

374

CUSTODY SEAL		374 Date: 2/6/13
Date: 2-5-13	Time: 1600	
Name: BERGERSSEN		
Company: ARCADIS		



8022 1536 6851

0200

Recipient's Copy

1 From
Date
Sender's Name
Company
Address
City State TX ZIP 77042

2 Your Internal Billing Reference

3 To
Recipient's Name
Company
Address
City State TX ZIP 77042

HOLD Weekday
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.

HOLD Saturday
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.

4 Express Package Service

- Next Business Day
- ☐ FedEx First Overnight
Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- ☐ FedEx Priority Overnight
Next business morning. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- ☒ FedEx Standard Overnight
Next business afternoon. Saturday Delivery NOT available.

2 or 3 Business Days

☐ FedEx 2Day A.M.
Second business morning. Saturday Delivery NOT available.

☐ FedEx 2Day
Second business afternoon. Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

☐ FedEx Express Saver
Third business day. Saturday Delivery NOT available.

5 Packaging

- ☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☒ Other

6 Special Handling and Delivery Signature Options

- ☐ SATURDAY Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.
- ☐ No Signature Required
Package may be left without obtaining a signature for delivery.
- ☐ Direct Signature
Someone at recipient's address may sign for delivery. Fee applies.
- ☐ Indirect Signature
If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?

- One box must be checked.
- ☒ No ☐ Yes
As per attached Shipper's Declaration. ☐ Yes
Shipper's Declaration not required.
- ☐ Dry Ice
Dry Ice, 5, UN 1845 x kg
- ☐ Cargo Aircraft Only

7 Payment Bill to:

- Enter FedEx Acct. No. or Credit Card No. below.
- ☐ Sender Acct. No. in Section 1 will be billed. ☒ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check
- Total Packages Total Weight Credit Card Auth.

*Our liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

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fedex.com 1.800.GoFedEx 1.800.463.3339



8022 1536 6851



ALS Environmental

30450 Stancil Rd, Suite 210

Houston, Texas 77095

Tel. +1 281 530 5656

Fax. +1 281 530 5887

CUSTODY SEAL

Date: 2.5.13 Time: 1400
Name: BERGERSEN
Company: ARCADIS

Seal Broken By:

2/6/13

FedEx
Tracking
Number

8013 8012 5570

1 From
Date 7/5/13
Sender's Name Eric Bergersen
Company ARCADIS
Address 2929 Briarpark Dr Suite 300
City Houston State TX ZIP 77042

2 Your Internal Billing Reference

3 To
Recipient's Name CLIENT SERVICES
Company ALB LABORATORY GROUP
Address 10450 STANCLIFF RD STE 210
City HOUSTON State TX ZIP 77099-4338

HOLD Weekday
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.

HOLD Saturday
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.



8013 8012 5570

4 Express Package Service
NOTE: Service order has changed. Please select carefully.Packages up to 150 lbs.
For packages over 150 lbs., use the
FedEx Express Freight US Airbill.

Next Business Day
☒ FedEx First Overnight
Next business morning. * Friday shipments will be
delivered on Monday unless SATURDAY Delivery is
selected.
☐ FedEx Priority Overnight
Next business morning. * Friday shipments will be
delivered on Monday unless SATURDAY Delivery is
selected.
☒ FedEx Standard Overnight
Next business afternoon. *
Saturday Delivery NOT available.

2 or 3 Business Days
☐ FedEx 2Day A.M.
Second business morning. *
Saturday Delivery NOT available.
☐ FedEx 2Day
Second business afternoon. * Thursday shipments
will be delivered on Monday unless SATURDAY
Delivery is selected.
☐ FedEx Express Saver
Third business day. *
Saturday Delivery NOT available.

5 Packaging *Declared value limit \$500.

☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☒ Other

6 Special Handling and Delivery Signature Options

☐ SATURDAY Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.
☐ No Signature Required
Package may be left without
obtaining a signature for delivery.
☐ Direct Signature
Someone at recipient's address
may sign for delivery. Fee applies.
☐ Indirect Signature
If no one is available at recipient's
address, someone at a neighboring
address may sign for delivery. For
residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?

One box must be checked.
☒ No ☐ Yes
As per attached
Shipper's Declaration.
☐ Yes
Shipper's Declaration
not required.
☐ Dry Ice
Dry Ice, 1 UN 1845 x kg
☐ Cargo Aircraft Only

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below. Obtain recip. Acct. No. ☐
☐ Sender Acct. No. in Section 1 will be billed. ☒ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

Total Packages Total Weight
lbs. Credit Card Auth.

*Our liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.



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ALS Environmental

10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530-5656
Fax. +1 281 530-5887

D#
N#
C#

CUSTODY SEAL

ite: 43112 Time: 11:00
info: B. Bergersen
Company: ARCADIS US
49 of 49

Seal Broken By:

Date:



28-Feb-2013

Robert Combs
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 746-5382
Fax: (575) 746-5421

Re: RO Discharge Sampling

Work Order: **1302192**

Dear Robert,

ALS Environmental received 6 samples on 05-Feb-2013 through 06-Feb-2013 for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 38.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in black ink that reads "Sonia West".

Electronically approved by: Jumoke M. Lawal

Sonia West
Project Manager



Certificate No: T104704231-12-10

ADDRESS 10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 | PHONE (281) 530-5656 | FAX (281) 530-5887

DO NOT USE FOR SCHEDULING PURPOSES ONLY FOR INFORMATIONAL USES ONLY

Environmental

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 1302192

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1302192-01	MW-116	Water		2/3/2013 13:15	2/6/2013 08:40	<input type="checkbox"/>
1302192-02	MW-119	Water		2/5/2013 13:15	2/6/2013 08:40	<input type="checkbox"/>
1302192-03	MW-118	Water		2/5/2013 14:25	2/6/2013 08:40	<input type="checkbox"/>
1302192-05	MW-117	Water		2/3/2013 10:00	2/5/2013 09:15	<input type="checkbox"/>
1302192-06	MW-114	Water		2/3/2013 11:30	2/5/2013 09:15	<input type="checkbox"/>
1302192-07	MW-115	Water		2/3/2013 12:30	2/5/2013 09:15	<input type="checkbox"/>

ALS Environmental

Date: 28-Feb-13

Client: Navajo Refining Company

Project: RO Discharge Sampling

Work Order: 1302192

Case Narrative

The analyses for Radium 226 and Radium 228 were subcontracted to ALS Environmental in Ft. Collins, CO.

ALS Environmental

Date: 28-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116
Collection Date: 2/3/2013 01:15 PM

Work Order: 1302192
Lab ID: 1302192-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	2/28/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 28-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119
Collection Date: 2/5/2013 01:15 PM

Work Order: 1302192
Lab ID: 1302192-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	2/28/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 28-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118
Collection Date: 2/5/2013 02:25 PM

Work Order: 1302192
Lab ID: 1302192-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	2/28/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 28-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117
Collection Date: 2/3/2013 10:00 AM

Work Order: 1302192
Lab ID: 1302192-05
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	2/28/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 28-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114
Collection Date: 2/3/2013 11:30 AM

Work Order: 1302192
Lab ID: 1302192-06
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	2/28/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 28-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-115
Collection Date: 2/3/2013 12:30 PM

Work Order: 1302192
Lab ID: 1302192-07
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	2/28/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Navajo Refining Company
Project: RO Discharge Sampling
WorkOrder: 1302192

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
------------------------------	---------------------------

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**Date/Time Received: **06-Feb-13 00:00**Work Order: **1302192**Received by: **PMG**Checklist completed by Johanna B. Allen
eSignature

12-Feb-13

Date

Reviewed by:

eSignature

Date

Matrices: **water**Carrier name: **FedEx Priority Overnight**

Shipping container/cooler in good condition?

Yes ☒No ☐Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☒No ☐Not Present ☐

Custody seals intact on sample bottles?

Yes ☐No ☐Not Present ☒

Chain of custody present?

Yes ☒No ☐

Chain of custody signed when relinquished and received?

Yes ☒No ☐

Chain of custody agrees with sample labels?

Yes ☒No ☐

Samples in proper container/bottle?

Yes ☒No ☐

Sample containers intact?

Yes ☒No ☐

Sufficient sample volume for indicated test?

Yes ☒No ☐

All samples received within holding time?

Yes ☒No ☐

Container/Temp Blank temperature in compliance?

Yes ☒No ☐

Temperature(s)/Thermometer(s):

1.2 C, 1.4 C, 1.0 C, 1.6 C/ucIR 1

Cooler(s)/Kit(s):

3323/7119/3040/3747

Date/Time sample(s) sent to storage:

2/5/13 17:00 & 2/6/13 17:00

Water - VOA vials have zero headspace?

Yes ☒No ☐No VOA vials submitted ☐

Water - pH acceptable upon receipt?

Yes ☒No ☐N/A ☐

pH adjusted?

Yes ☐No ☒N/A ☐

pH adjusted by:

-Login Notes: Two separate arrival dates; These samples were initially in WO 1302138 & 1302189 for Radium analyses

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



Environmental

Cincinnati, OH
+1 513 733 5336

Everett, WA
+1 425 356 2600

Fort Collins, CO
+1 970 490 1511

Holland, MI
+1 616 399 6070

Chain of Custody Form

Page ____ of ____

COC ID: 72329

1302192

NAVAJO REFINING: Navajo Refining Company

Project: RO Discharge Sampling



Customer Information				Project Information				ALS Project Manager:											
Purchase Order		Project Name	RO Discharge/Sampling	A	VOC														
Work Order		Project Number	128823	B	GRO (8015M)														
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	DRO (8015M)														
Send Report To	Robert Combs	Invoice Attn	Robert Combs	D	ORO (8015M)														
Address	501 East Main	Address	501 East Main	E	LL SVOC (8270) NM GW List														
				F	Total Metals (6020/7000) RCRA 8 <i>Long List</i>														
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	G	Dissolved Metals (6020/7000) RCRA 8														
Phone	(575) 748-6733	Phone	(575) 748-6733	H	TDS														
Fax	(575) 746-5421	Fax	(575) 746-5421	I	Moisture <i>Cyanide</i>														
e-Mail Address		e-Mail Address		J	Fingerprint (PIANO) Sp. Grav. Sim. Dist. <i>Radium, Anions, Cations</i>														
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold		
1	RO Discharge MW-117	2.3.13	0930	water	mix	18						X	X	X	X	X			
2		2.3.13	1000	water	Mix	18						X	X	X	X	X			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Sampler(s) Please Print & Sign <i>Ben McKenna</i>				Shipment Method		Required Turnaround Time: (Check Box) <input checked="" type="checkbox"/> Std. 10 WK Days <input type="checkbox"/> 5 WK Days <input type="checkbox"/> 2 WK Days <input type="checkbox"/> 24 Hour				Results Due Date:	
Relinquished by: <i>[Signature]</i>		Date: 2/4/13	Time: 1345	Received by: <i>[Signature]</i>		Notes: 10 Day TAT. Dissolved Metals Field Filtered					
Retinquished by:		Date:	Time:	Received by (Laboratory): <i>[Signature]</i>		Cooler ID: 3223	Cooler Temp.:	QC Package: (Check One Box Below) <input checked="" type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP Checklist <input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> TRRP Level IV <input type="checkbox"/> Level IV SW846/CLP <input type="checkbox"/> Other / EDD			
Logged by (Laboratory):		Date:	Time:	Checked by (Laboratory): <i>[Signature]</i>							
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035											

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.

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Environmental

Cincinnati, OH
+1 513 733 5336

Everett, WA
+1 425 356 2600

Fort Collins, CO
+1 970 490 1511

Holland, MI
+1 616 399 6070

Chain of Custody Form

Page 1 of 1

COC ID: 72328

Houston, TX
+1 281 530 5656

Middletown, PA
+1 717 944 5541

Spring City, PA
+1 610 948 4903

Salt Lake City, UT
+1 801 266 7700

South Charleston, WV
+1 304 356 3168

York, PA
+1 717 505 5280

ALS Project Manager:

ALS Work Order #:

1302138

Customer Information		Project Information		Parameter/Method Request for Analysis													
Purchase Order		Project Name	RO Discharge/Sampling	A	VOC (8260) NW GW List												
Work Order		Project Number	128823	B	GRO (8015M)												
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	DRO (8015M)												
Send Report To	Robert Combs	Invoice Attn	Robert Combs	D	ORO (8015M)												
Address	501 East Main	Address	501 East Main	E	LL SVOC (8270) NM GW List												
				F	Total Metals (6020/7000) RCRA 8 Long List												
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	G	Dissolved Metals (6020/7000) RCRA 8												
Phone	(575) 748-6733	Phone	(575) 748-6733	H	TDS												
Fax	(575) 746-5421	Fax	(575) 746-5421	I	Moisture Cyanide												
e-Mail Address		e-Mail Address		J	Fingerprint (Plastic/Grav, Sim Dist) Radium, Anions, Cations												

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-114	2-3-13	1130	water	Mix	16							X	X	X	X	Extra Bottles
2	MW-115	2-3-13	1230	water	Mix	16							X	X	X	X	"
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign		Shipment Method		Required Turnaround Time: (Check Box)				Results Due Date:	
 Eric Bergersen				<input checked="" type="checkbox"/> Std 10-WK Days <input type="checkbox"/> 5 WK Days <input type="checkbox"/> Other <input type="checkbox"/> 2 WK Days <input type="checkbox"/> 24 Hour					
				Notes: 10 Day TAT. Dissolved Metals Field Filtered					
Relinquished by:	Date: 2/4/13	Time: 1400	Received by:		Received by (Laboratory):		Cooler ID:	Cooler Temp:	QC Package: (Check One Box Below)
Relinquished by:			 2-5-13 0915						<input checked="" type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP CheckLis <input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> TRRP Level IV <input type="checkbox"/> Level IV SW846/CLP <input type="checkbox"/> Other / EDD
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):						

Preservative Key: 1-HCl 2-HNO₃ 3-H₂SO₄ 4-NaOH 5-Na₂S₂O₃ 6-NaHSO₄ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.

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Cincinnati, OH
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Everett, WA
+1 425 356 2600

Fort Collins, CO
+1 970 490 1511

Holland, MI
+1 616 399 6070

Chain of Custody Form

Page ____ of ____

COC ID: 72325

Houston, TX
+1 281 530 5656

Middletown, PA
+1 717 944 5541

Spring City, PA
+1 610 948 4903

Salt Lake City, UT
+1 801 266 7700

South Charleston, WV
+1 304 356 3168

York, PA
+1 717 505 5280

Customer Information				Project Information				Parameter/Method Request for Analysis											
Purchase Order		Project Name	RO Discharge/Sampling	A	VOC (8260) NW GW List														
Work Order		Project Number	128823	B	GRO (8015M)														
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	DRO (8015M)														
Send Report To	Robert Combs	Invoice Attn	Robert Combs	D	ORO (8015M)														
Address	501 East Main	Address	501 East Main	E	LL SVOC (8270) NM GW List														
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	F	Total Metals (6020/7000) RCRA 8 <i>Long List</i>														
Phone	(575) 748-6733	Phone	(575) 748-6733	G	Dissolved Metals (6020/7000) RCRA 8														
Fax	(575) 746-5421	Fax	(575) 746-5421	H	<i>Radium</i>														
e-Mail Address		e-Mail Address		I	Moisture														
				J	<i>Fingerprint (Pb, As, Cd, Cr, Cu, Fe, Ni, Se, Zn) Cations, Anions Cyanide</i>														

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-119	2/5/13	11:15	water	Mix	17						X	X	X	X	X	Hold
2	MW-118	2/5/13	14:25	water	Mix	15						X	X	X	X	X	Extras
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign		Shipment Method		Required Turnaround Time: (Check Box)				Results Due Date:	
<i>[Signature]</i>				<input checked="" type="checkbox"/> Std 10 WK Days <input type="checkbox"/> 5 WK Days <input type="checkbox"/> 2 WK Days <input type="checkbox"/> 24 Hour <input type="checkbox"/> Other					
Relinquished by:	Date:	Time:	Received by:	Notes:					
<i>Eric Bergesen</i>	2-5-13	1600	<i>[Signature]</i>	10 Day TAT. Dissolved Metals Field Filtered					
Relinquished by:	Date:	Time:	Received by (Laboratory):	Cooler ID	Cooler Temp.	QC Package: (Check One Box Below)			
				3747		<input checked="" type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP CheckList <input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> TRRP Level IV <input type="checkbox"/> Level IV SW846/CLP <input type="checkbox"/> Other / EDD			
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):						
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035									

**ALS Environmental**

10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

Date: 2
Name: 14/13
Company: Eric Bergersen
ARCADIS

CUSTODY SEAL

Time: 1400

Seal Broken By: 2

Date: 2-5-13

FedEx Package
Express US Airbill

FedEx
Tracking
Number

8013 8012 5560

From

Date

Sender's
Name

Company

Address

City

Phone

State

ZIP

Dept./Floor/Suite/Room

2 Your Internal Billing Reference

ALS Environmental
 10450 Stancliff Rd., Suite 210
 Houston, Texas 77099
 Tel. +1 281 530 5656
 Fax. +1 281 530 5887

2323

CUSTODY SEAL		Seal Broken By:
Date: 2/4/13	Time: 1400	
Name: Eric Bergesen		Date: 2-5-13
Company: J. ARCADIS		

FedEx Package Express **US Airbill** FedEx Tracking Number: 8013 7714 1240

1 From [Redacted] Date: 2/4/13

Sender's Name: Eric Bergesen Phone: 281 787 123

Company: ARCADIS

Address: 2979 Briarpark Suite 300 Dept./Floor/Suite/Room

City: Houston State: TX ZIP: 77042

2 Your Internal Billing Reference

1 From
 Date 2/5/13
 Sender's Name Fric Bergeron Phone 281 781-1231
 Company ARCADIS
 Address 2929 Briarpark Suite 300
 City Houston State TX ZIP 77012

2 Your Internal Billing Reference

3 To
 Recipient's Name CLIENT SERVICES Phone 281 530-5656
 Company ALS LABORATORY GROUP
 Address 10450 STANCLIFF RD STE 210
 We cannot deliver to P.O. boxes or P.O. ZIP codes.
 Address _____
 Use this line for the HOLD location address or for continuation of your shipping address.
 City HOUSTON State TX ZIP 77099-4338

0455309602



8013 7025 2083

4 Express Package Service *To most locations.
 NOTE: Service order has changed. Please select carefully.
 Packages up to 150 lbs. For packages over 150 lbs., use the FedEx Express Freight US Airbill.
 Next Business Day
☐ FedEx First Overnight
☐ FedEx Priority Overnight
☒ FedEx Standard Overnight
 2 or 3 Business Days
☐ FedEx 2Day A.M.
☐ FedEx 2Day
☐ FedEx Express Saver

5 Packaging *Declared value limit \$500.
☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☒ Other

6 Special Handling and Delivery Signature Options
☐ SATURDAY Delivery
☐ No Signature Required
☐ Direct Signature
☐ Indirect Signature
 Does this shipment contain dangerous goods?
☒ No ☐ Yes
☐ Dry Ice ☐ Cargo Aircraft Only

7 Payment Bill to:
 Enter FedEx Acct. No. or Credit Card No. below.
☐ Sender ☒ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check
 Total Packages _____ Total Weight _____
 Credit Card Auth. _____

Your liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

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CUSTODY SEAL
 Date: 2-5-13 Time: 1100
 Name: B. McKenna
 Company: ARCADIS U.S.

FedEx Package
Express US Airbill

FedEx
Tracking
Number

8013 8012 5537

1 From
Date 2/5/13
Sender's Name Eric Bergesen
Company ARCADIS
Address 2929 Brairpark Suite 300
City Houston State TX ZIP 77042

2 Your Internal Billing Reference

3 To
Recipient's Name CLIENT SERVICES
Phone 281 530-5656

Company ALS LABORATORY GROUP
Address 10450 STANCLIFF RD STE 210
We cannot deliver to P.O. boxes or P.O. ZIP codes.

HOLD Weekday
FedEx location address
REQUIRED, NOT available for
FedEx First Overnight.
HOLD Saturday
FedEx location address
REQUIRED, Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.

Address
Use this line for the HOLD location address or for continuation of your shipping address.
City HOUSTON State TX ZIP 77099-4098



8013 8012 5537

0215

4 Express Package Service
NOTE: Service order has changed. Please select carefully.

Next Business Day
☐ Next business morning. End of day shipments will be delivered on Monday unless SATURDAY Delivery is selected.
☐ FedEx Priority Overnight
Next business morning. End of day shipments will be delivered on Monday unless SATURDAY Delivery is selected.
☒ FedEx Standard Overnight
Next business afternoon. Saturday Delivery NOT available.

2 or 3 Business Days
☐ FedEx 2Day A.M.
Second business morning. Saturday Delivery NOT available.
☐ FedEx 2Day
Second business afternoon. Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
☐ FedEx Express Saver
Third business day. Saturday Delivery NOT available.

5 Packaging *Declared value limit \$500.
☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☒ Other

6 Special Handling and Delivery Signature Options
☐ SATURDAY Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.
☐ No Signature Required
Package may be left without obtaining a signature for delivery.
☐ Direct Signature
Someone at recipient's address may sign for delivery. Fee applies.
☐ Indirect Signature
If no one is available at recipient's address, someone at a neighboring address may sign for delivery. Fee applies for residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?
One box must be checked.
☒ No ☐ Yes As per attached Shipper's Declaration. ☐ Yes Shipper's Declaration not required.
Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

7 Payment Bill to:
Enter FedEx Acct. No. or Credit Card No. below.
☐ Sender Acct. No. in Section 1 will be billed. ☒ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/CF
Total Packages Total Weight
100 lbs.
Obtain recip. Acct. No. []
Credit Card Auth. []
Our liability is limited to \$500 unless you declare a higher value. See the current FedEx Service Guide for details.



ALS Environmental
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
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374

CUSTODY SEAL

Date: 2-5-13 Time: 11:00
Name: ERIC BERGSEN
Company: ARCADIS

374

FedEx *NEW Package*
Express *US Airbill*

FedEx
Tracking
Number

8022 1536 6851

0200

Recipient's Copy

From
Date 2-3-13
Sender's Name [Redacted]
Company [Redacted]
Address [Redacted]
City [Redacted] State TX ZIP 77042

Your Internal Billing Reference

To
Recipient's Name ALS Services
Company ALS Lab Group
Address 1450 Sandida Rd
City Houston State TX ZIP 77059

HOLD Weekday
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.

HOLD Saturday
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.

4 Express Package Service * To most locations.
NOTE: Service order has changed. Please select carefully.

- Next Business Day**
- ☐ FedEx First Overnight
Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
 - ☐ FedEx Priority Overnight
Next business morning. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
 - ☒ FedEx Standard Overnight
Next business afternoon. Saturday Delivery NOT available.

- 2 or 3 Business Days**
- ☐ FedEx 2Day A.M.
Second business morning. Saturday Delivery NOT available.
 - ☐ FedEx 2Day
Second business afternoon. Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
 - ☐ FedEx Express Saver
Third business day. Saturday Delivery NOT available.

5 Packaging * Declared value limit \$500.

- ☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☒ Other

6 Special Handling and Delivery Signature Options

- ☐ **SATURDAY Delivery**
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.
- ☐ **No Signature Required**
Package may be left without obtaining a signature for delivery.
- ☐ **Direct Signature**
Someone at recipient's address may sign for delivery. Fee applies.
- ☐ **Indirect Signature**
If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.
- Does this shipment contain dangerous goods?**
One box must be checked.
☒ No ☐ Yes As per attached Shipper's Declaration. ☐ Yes Shipper's Declaration not required. ☐ Dry Ice Dry ice, 3 UN 1845 x kg ☐ Cargo Aircraft Only
- Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

7 Payment Bill to:

- Enter FedEx Acct. No. or Credit Card No. below. Obtain recip. Acct. No. ☐
- ☐ Sender Acct. No. in Section 7 will be billed. ☒ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check
- Total Packages Total Weight lbs. Credit Card Acct. #

*Our liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

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644

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ALS Environmental

10450 Stancin Rd, Suite 217
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

CUSTODY SEAL

Date: 2-3-13 Time: 11:00
Name: BERGERSEN
Company: ARCADIS

20 of 38

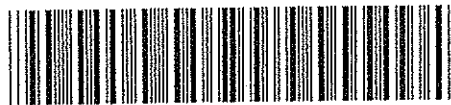
FedEx
Tracking
Number

8013 8012 5570

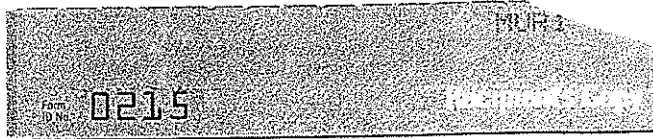
1 From
Date 2/5/13
Sender's Name Eric Bergersen
Company ARCADIS
Address 2929 Briarpark Dr Suite 300
City Houston State TX ZIP 77042

2 Your Internal Billing Reference

3 To
Recipient's Name CLIENT SERVICES
Company ALS LABORATORY GROUP
Address 10450 STANCLIFF RD STE 210
We cannot deliver to P.O. boxes or P.O. ZIP codes.
Address
Use this line for the HOLD location address or for continuation of your shipping address.
City HOUSTON State TX ZIP 77099-4338

HOLD Weekday
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.HOLD Saturday
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.

8013 8012 5570



4 Express Package Service

NOTE: Service order has changed. Please select carefully.

Next Business Day
☒ FedEx First Overnight
FedEx First Overnight
Next business morning. * Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

☐ FedEx Priority Overnight
Next business morning. * Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

☒ FedEx Standard Overnight
Next business afternoon. * Saturday Delivery NOT available.

2 or 3 Business Days
☐ FedEx 2Day A.M.
Second business morning. * Saturday Delivery NOT available.

☐ FedEx 2Day
Second business afternoon. * Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

☐ FedEx Express Saver
Third business day. * Saturday Delivery NOT available.

5 Packaging

*Declared value limit \$500.

☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☒ Other

6 Special Handling and Delivery Signature Options

☐ SATURDAY Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐ No Signature Required
Package may be left without obtaining a signature for delivery.

☐ Direct Signature
Someone at recipient's address may sign for delivery. Fee applies.

☐ Indirect Signature
If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?

One box must be checked.
☒ No ☐ Yes As per attached Shipper's Declaration ☐ Yes Shipper's Declaration not required

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

☐ Dry Ice
Dry ice, 9, UN 1845 x kg

☐ Cargo Aircraft Only

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below. Obtain recip. Acct. No. ☐

☐ Sender Acct. No. in Section 1 will be billed. ☒ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

Total Packages Total Weight

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ALS Environmental

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Houston, Texas 77099
Tel. +1 281 530-5656
Fax. +1 281 530-5887

Da
Ne
Co

CUSTODY SEAL

Date: 2/5/13 Time: 11:00
From: B. Bergersen
Company: ARCADIS US
21 of 30

Seal Broken By:

Date:



February 28, 2013

Ms. Sonia West
ALS Environmental
10450 Stancliff Rd, Suite 210
Houston, TX 77099

Re: ALS Workorder: 13-02-163
Project Name: None Submitted
Project Number: 1302192

Dear Ms. West:

Six water samples were received from ALS Environmental on February 14, 2013. The samples were scheduled for the following analyses:

Radium-226
Radium-228

The results for these analyses are contained in the enclosed report.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Jeff Kujawa
Project Manager

JRK/mic
Enclosure (s): Report

ADDRESS 225 Commerce Drive, Fort Collins, Colorado, USA 80524 | PHONE +1 970 490 1511 | FAX +1 970 490 1522

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Environmental

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO00078
Arizona (AZ)*	AZ0742
California (CA)	06251CA
Colorado (CO)	CO00078
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO00078
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri	175
Nevada (NV)	CO000782008A
New Jersey (NJ)**	CO003
North Dakota (ND)	R-057
Oklahoma	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241-09-1
Utah (UT)	CO00078
Washington	C1280



1302163

Radium-228:

The samples were analyzed for the presence of ^{228}Ra by low background gas flow proportional counting of ^{228}Ac , which is the ingrown progeny of ^{228}Ra , according to the current revision of SOP 724.

All acceptance criteria were met.

Radium-226:

The samples were prepared and analyzed according to the current revision of SOP 783.

All acceptance criteria were met.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1302163

Client Name: ALS Environmental

Client Project Name: 1302192

Client Project Number:

Client PO Number: 10-1302192

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
1302192-01A (MW-116)	1302163-1		WATER	03-Feb-13	13:15
1302192-02A (MW-119)	1302163-2		WATER	05-Feb-13	13:15
1302192-03A (MW-118)	1302163-3		WATER	05-Feb-13	14:25
1302192-05A (MW-117)	1302163-4		WATER	03-Feb-13	10:00
1302192-06A (MW-114)	1302163-5		WATER	03-Feb-13	11:30
1302192-07A (MW-115)	1302163-6		WATER	03-Feb-13	12:30

**Subcontractor:**ALS Environmental
225 Commerce Drive

TEL: (800) 443-1511

FAX: (970) 490-1522

Fort Collins, CO 80524

Acct #:

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Date: 13-Feb-13COC ID: 13351Due Date: 21-Feb-13Salesperson: Mala H. Belmonte

1302163

Customer Information		Project Information		Parameter/Method Request for Analysis												
Purchase Order	10-1302192	Project Name	1302192	A	Radium 226, 228 Sub to ALS Ft. Collins											
Work Order		Project Number		B												
Company Name	ALS Group USA, Corp.	Bill To Company	ALS Group USA, Corp.	C												
Send Report To	Sonia West	Inv Attn	Accounts Payable	D												
Address	10450 Stancliff Rd, Suite 210	Address	10450 Stancliff Rd, Suite 210	E												
				F												
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G												
Phone	(281) 530-5656	Phone	(281) 530-5656	H												
Fax	(281) 530-5887	Fax	(281) 530-5887	I												
eMail Address	Sonia.West@alsglobal.com	eMail CC	jumoke.lawal@alsglobal.com	J												

Sample ID	Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J
1302192-01A (MW-116) ①	Water	3/Feb/2013 13:15	(2) 1LPHNO3	X									
1302192-02A (MW-119) ②	Water	5/Feb/2013 13:15	(2) 1LPHNO3	X									
1302192-03A (MW-118) ③	Water	5/Feb/2013 14:25	(2) 1LPHNO3	X									
1302192-05A (MW-117) ④	Water	3/Feb/2013 10:00	(2) 1LPHNO3	X									
1302192-06A (MW-114) ⑤	Water	3/Feb/2013 11:30	(2) 1LPHNO3	X									
1302192-07A (MW-115) ⑥	Water	3/Feb/2013 12:30	(2) 1LPHNO3	X									

26 of 38

Comments:WO 1302192 - Please analyze for Radium 226/228

Relinquished by:

Date/Time

Received by:

Date/Time

Cooler IDs

Report/QC Level

Std

Relinquished by:

Date/Time

Received by:

Date/Time

Handi Brown 02-14-13



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS-TX

Workorder No: 1302163

Project Manager: JK

Initials: KR Date: 2-14-13

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<u>NO</u>
2. Are custody seals on shipping containers intact?	NONE	<u>YES</u>	NO
3. Are Custody seals on sample containers intact?	<u>NONE</u>	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<u>YES</u>	NO
5. Are the COC and bottle labels complete and legible?		<u>YES</u>	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<u>YES</u>	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<u>YES</u>	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	<u>YES</u>	NO
9. Are all aqueous non-preserved samples pH 4-9?	<u>N/A</u>	YES	NO
10. Is there sufficient sample for the requested analyses?		<u>YES</u>	NO
11. Were all samples placed in the proper containers for the requested analyses?		<u>YES</u>	NO
12. Are all samples within holding times for the requested analyses?		<u>YES</u>	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<u>YES</u>	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<u>N/A</u>	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	<u>NO</u>
16. Were the samples shipped on ice?		<u>YES</u>	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 <u>#4</u> <u>RAD ONLY</u>		<u>YES</u>	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>3.2</u>			
No. of custody seals on cooler: <u>1</u>			
DOT Survey/ Acceptance Information	External µR/hr reading: <u>12</u>		
	Background µR/hr reading: <u>12</u>		
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <u>YES</u> / NO / NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / NA Contact: _____ Date/Time: _____

Project Manager Signature / Date: [Signature] 2-14-13

af: pl/bf/jba Date: 13Feb13
ep: Environmental Wgt: 43.47 LBS

SHIPPING: 93.39
SPECIAL: 9.34
HANDLING: 0.00
TOTAL: 102.73

Svcs: PRIORITY OVERNIGHT
TRCK: 4340 2174 2849

1302163

ORIGIN ID: SGRA (281) 530-5856
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 13FEB13
ACTWGT: 43.5 LB
CAD: 300130/CAFE2606

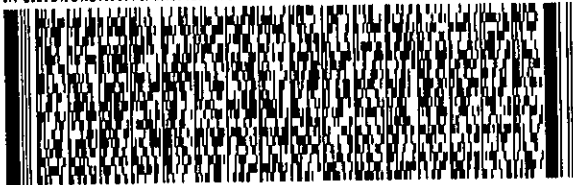
BILL SENDER

0 ROY FRENCH
ALS ENVIRONMENTAL
225 COMMERCE DRIVE

FORT COLLINS CO 80524
(970) 490-1511 REF: PL/BF/JBA
DEPT: ENVIRONMENTAL

S12C1/0F24/JFE0

12



FedEx
Express



J12131210050125

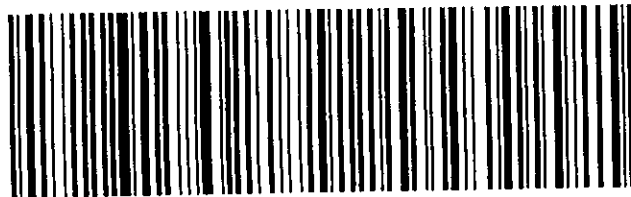
TRK# 4340 2174 2849
0201

THU - 14 FEB A2
PRIORITY OVERNIGHT

NA FTCA

80524
CO-US DEN

120142-434 1112 04712



ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 1302192
Sample ID: 1302192-01A (MW-116)
Legal Location:
Collection Date: 2/3/2013 13:15

Date: 28-Feb-13
Work Order: 1302163
Lab ID: 1302163-1
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	ND (+/- 0.17)	U	0.32	pCi/l	NA	2/27/2013 15:18
Carr: BARIUM	88		40-110	%REC	NA	2/27/2013 15:18
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	ND (+/- 0.29)	U	0.55	pCi/l	NA	2/21/2013 11:13
Carr: BARIUM	88		40-110	%REC	NA	2/21/2013 11:13

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 1302192
Sample ID: 1302192-02A (MW-119)
Legal Location:
Collection Date: 2/5/2013 13:15

Date: 28-Feb-13
Work Order: 1302163
Lab ID: 1302163-2
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	ND (+/- 0.17)	U	0.25	pCi/l	NA	2/27/2013 15:18
Carr: BARIUM	88.2		40-110	%REC	NA	2/27/2013 15:18
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	ND (+/- 0.26)	U	0.52	pCi/l	NA	2/21/2013 11:13
Carr: BARIUM	88.2		40-110	%REC	NA	2/21/2013 11:13

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 1302192
Sample ID: 1302192-03A (MW-118)
Legal Location:
Collection Date: 2/5/2013 14:25

Date: 28-Feb-13
Work Order: 1302163
Lab ID: 1302163-3
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>						
RA-226 BY RADON EMANATION - METHOD 903.1			PAI 783		Prep Date: 2/15/2013	PrepBy: PJW
Ra-226	0.38 (+/- 0.24)	Y1,LT	0.21	pCi/l	NA	2/27/2013 15:18
Carr: <i>BARIUM</i>	101	Y1	40-110	%REC	NA	2/27/2013 15:18
RADIUM-228 ANALYSIS BY GFPC			PAI 724		Prep Date: 2/15/2013	PrepBy: EKG
Ra-228	0.87 (+/- 0.33)	Y1,LT	0.49	pCi/l	NA	2/21/2013 11:13
Carr: <i>BARIUM</i>	101	Y1	40-110	%REC	NA	2/21/2013 11:13

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 1302192
Sample ID: 1302192-05A (MW-117)
Legal Location:
Collection Date: 2/3/2013 10:00

Date: 28-Feb-13
Work Order: 1302163
Lab ID: 1302163-4
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	0.54 (+/- 0.3)	LT	PAI 783	0.09 pCi/l	Prep Date: 2/15/2013	PrepBy: PJW
Carr: BARIUM	95.6		40-110 %REC		NA	2/27/2013 15:18
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	0.89 (+/- 0.34)	LT	PAI 724	0.48 pCi/l	Prep Date: 2/15/2013	PrepBy: EKG
Carr: BARIUM	95.6		40-110 %REC		NA	2/21/2013 11:13

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 1302192
Sample ID: 1302192-06A (MW-114)
Legal Location:
Collection Date: 2/3/2013 11:30

Date: 28-Feb-13
Work Order: 1302163
Lab ID: 1302163-5
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	0.43 (+/- 0.27)	LT	0.23	pCi/l	NA	2/27/2013 15:18
Carr: BARIUM	96		40-110	%REC	NA	2/27/2013 15:18
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	0.74 (+/- 0.31)	LT	0.49	pCi/l	NA	2/21/2013 11:13
Carr: BARIUM	96		40-110	%REC	NA	2/21/2013 11:13

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 1302192
Sample ID: 1302192-07A (MW-115)
Legal Location:
Collection Date: 2/3/2013 12:30

Date: 28-Feb-13
Work Order: 1302163
Lab ID: 1302163-6
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	ND (+/- 0.17)	U	0.23	pCi/l	NA	2/27/2013 15:18
Carr: BARIUM	99.4		40-110	%REC	NA	2/27/2013 15:18
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	ND (+/- 0.25)	U	0.52	pCi/l	NA	2/21/2013 11:13
Carr: BARIUM	99.4		40-110	%REC	NA	2/21/2013 11:13

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 1302192
Sample ID: 1302192-07A (MW-115)
Legal Location:
Collection Date: 2/3/2013 12:30

Date: 28-Feb-13
Work Order: 1302163
Lab ID: 1302163-6
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
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Explanation of Qualifiers

Radiochemistry:

U or ND - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.
- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.
G - Sample density differs by more than 15% of LCS density.
D - DER is greater than Control Limit
M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits
NC - Not Calculated for duplicate results less than 5 times MDC
B - Analyte concentration greater than MDC.
B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).
U or ND - Indicates that the compound was analyzed for but not detected.
E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.
M - Duplicate injection precision was not met.
N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.
Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.
* - Duplicate analysis (relative percent difference) not within control limits.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.
B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.
E - Analyte concentration exceeds the upper level of the calibration range.
J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).
A - A tentatively identified compound is a suspected aldol-condensation product.
X - The analyte was diluted below an accurate quantitation level.
* - The spike recovery is equal to or outside the control criteria used.
+ - The relative percent difference (RPD) equals or exceeds the control criteria.

Diesel Range Organics:

ALS Environmental -- FC**SAMPLE SUMMARY REPORT**

Client: ALS Environmental
Project: 1302192
Sample ID: 1302192-07A (MW-115)
Legal Location:
Collection Date: 2/3/2013 12:30

Date: 28-Feb-13
Work Order: 1302163
Lab ID: 1302163-6
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
G - A pattern resembling gasoline was detected in this sample.						
D - A pattern resembling diesel was detected in this sample.						
M - A pattern resembling motor oil was detected in this sample.						
C - A pattern resembling crude oil was detected in this sample.						
4 - A pattern resembling JP-4 was detected in this sample.						
5 - A pattern resembling JP-5 was detected in this sample.						
H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.						
L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.						
Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:						
- gasoline						
- JP-8						
- diesel						
- mineral spirits						
- motor oil						
- Stoddard solvent						
- bunker C						

ALS Environmental -- FC

Date: 2/28/2013 8:22:

Client: ALS Environmental

QC BATCH REPORT

Work Order: 1302163

Project: 1302192

Batch ID: RE130215-2-2

Instrument ID: Alpha Scin

Method: Ra-226 by Radon Emanation - Me

LCS	Sample ID: RE130215-2				Units: pCi/l		Analysis Date: 2/27/2013 15:41			
Client ID:	Run ID: RE130215-2A				Prep Date: 2/15/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	27.7 (+/- 7)	0.2	30		92.3	67-120				P,Y1
Carr: BARIUM	32180		31720		101	40-110				Y1

LCSD	Sample ID: RE130215-2				Units: pCi/l		Analysis Date: 2/27/2013 15:41			
Client ID:	Run ID: RE130215-2A				Prep Date: 2/15/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	26.1 (+/- 6.7)	0.4	30		87.2	67-120	27.7	0.16	2.13	P,Y1
Carr: BARIUM	32670		31720		103	40-110	32180			Y1

MB	Sample ID: RE130215-2				Units: pCi/l			Analysis Date: 2/27/2013 15:18		
Client ID:	Run ID: RE130215-2A				Prep Date: 2/15/2013			DF: NA		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	ND	0.3								U
Carr: BARIUM	30860		31720		97.3	40-110				

The following samples were analyzed in this batch:

1302163-1	1302163-2	1302163-3
1302163-4	1302163-5	1302163-6

Client: ALS Environmental
 Work Order: 1302163
 Project: 1302192

QC BATCH REPORT

Batch ID: **RA130215-1-2** Instrument ID: **LB4100-B** Method: **Radium-228 Analysis by GFPC**

LCS	Sample ID: RA130215-1				Units: pCi/l		Analysis Date: 2/21/2013 11:13			
Client ID:	Run ID: RA130215-1A				Prep Date: 2/15/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	11 (+/- 2.6)	0.5	10.19		108	70-130				P,Y1
Carr: BARIUM	32180		31720		101	40-110				Y1

LCSD	Sample ID: RA130215-1				Units: pCi/l		Analysis Date: 2/21/2013 11:13			
Client ID:	Run ID: RA130215-1A				Prep Date: 2/15/2013			DF: NA		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	10.7 (+/- 2.5)	0.5	10.19		105	70-130	11	0.095	2.13	P,Y1
Carr: BARIUM	32670		31720		103	40-110	32180			Y1

MB		Sample ID: RA130215-1				Units: pCi/l		Analysis Date: 2/21/2013 11:13			
Client ID:		Run ID: RA130215-1A				Prep Date: 2/15/2013		DF: NA			
Analyte		Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228		ND	0.49								U
Carr: BARIUM		30860		31720		97.3	40-110				

The following samples were analyzed in this batch:

1302163-1	1302163-2	1302163-3
1302163-4	1302163-5	1302163-6



18-Feb-2013

Robert Combs
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 746-5382
Fax: (575) 746-5421

Re: RO Discharge Sampling

Work Order: **1302213**

Dear Robert,

ALS Environmental received 31 samples on 06-Feb-2013 08:40 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 11.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in cursive script that reads "Sonia West".

Electronically approved by: Sonia West

Sonia West
Project Manager



Certificate No: T104704231-12-10

ADDRESS 10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 | PHONE (281) 530-5656 | FAX (281) 530-5887

ALS GROUP USA, CORP. Part of the ALS Group An ALS Limited Company

Environmental

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 1302213

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1302213-01	MW-118 (1)	Soil		2/4/2013 09:20	2/6/2013 08:40	<input type="checkbox"/>
1302213-02	MW-118 (3)	Soil		2/4/2013 09:30	2/6/2013 08:40	<input type="checkbox"/>
1302213-03	MW-118 (5)	Soil		2/4/2013 10:00	2/6/2013 08:40	<input type="checkbox"/>
1302213-04	MW-118 (7)	Soil		2/4/2013 09:40	2/6/2013 08:40	<input type="checkbox"/>
1302213-05	MW-118 (9)	Soil		2/4/2013 10:00	2/6/2013 08:40	<input type="checkbox"/>
1302213-06	MW-118 (10)	Soil		2/4/2013 10:10	2/6/2013 08:40	<input type="checkbox"/>
1302213-07	MW-118 (12)	Soil		2/4/2013 14:45	2/6/2013 08:40	<input type="checkbox"/>
1302213-08	MW-118 (14)	Soil		2/4/2013 14:47	2/6/2013 08:40	<input type="checkbox"/>
1302213-09	MW-118 (15)	Soil		2/4/2013 14:50	2/6/2013 08:40	<input type="checkbox"/>
1302213-10	MW-118 (17)	Soil		2/4/2013 14:53	2/6/2013 08:40	<input type="checkbox"/>
1302213-11	MW-118 (19)	Soil		2/4/2013 14:40	2/6/2013 08:40	<input type="checkbox"/>
1302213-12	MW-118 (20)	Soil		2/4/2013 14:52	2/6/2013 08:40	<input type="checkbox"/>
1302213-13	MW-118 (22)	Soil		2/4/2013 14:37	2/6/2013 08:40	<input type="checkbox"/>
1302213-14	MW-118 (24)	Soil		2/4/2013 14:37	2/6/2013 08:40	<input type="checkbox"/>
1302213-15	MW-118 (25)	Soil		2/4/2013 14:35	2/6/2013 08:40	<input type="checkbox"/>
1302213-16	MW-119 (1)	Soil		2/4/2013 11:05	2/6/2013 08:40	<input type="checkbox"/>
1302213-17	MW-119 (3)	Soil		2/4/2013 11:15	2/6/2013 08:40	<input type="checkbox"/>
1302213-18	MW-119 (5)	Soil		2/4/2013 11:20	2/6/2013 08:40	<input type="checkbox"/>
1302213-19	MW-119 (7)	Soil		2/4/2013 11:30	2/6/2013 08:40	<input type="checkbox"/>
1302213-20	MW-119 (9)	Soil		2/4/2013 11:35	2/6/2013 08:40	<input type="checkbox"/>
1302213-21	MW-119 (10)	Soil		2/4/2013 11:45	2/6/2013 08:40	<input type="checkbox"/>
1302213-22	MW-119 (12)	Soil		2/4/2013 16:05	2/6/2013 08:40	<input type="checkbox"/>
1302213-23	MW-119 (14)	Soil		2/4/2013 16:06	2/6/2013 08:40	<input type="checkbox"/>
1302213-24	MW-119 (15)	Soil		2/4/2013 16:08	2/6/2013 08:40	<input type="checkbox"/>
1302213-25	MW-119 (17)	Soil		2/4/2013 16:15	2/6/2013 08:40	<input type="checkbox"/>
1302213-26	MW-119 (19)	Soil		2/4/2013 16:14	2/6/2013 08:40	<input type="checkbox"/>
1302213-27	MW-119 (20)	Soil		2/4/2013 16:11	2/6/2013 08:40	<input type="checkbox"/>
1302213-28	MW-119 (22)	Soil		2/4/2013 16:17	2/6/2013 08:40	<input type="checkbox"/>
1302213-29	MW-119 (24)	Soil		2/4/2013 16:18	2/6/2013 08:40	<input type="checkbox"/>
1302213-30	MW-119 (25)	Soil		2/4/2013 16:20	2/6/2013 08:40	<input type="checkbox"/>
1302213-31	TRIP BLANK 011813-17	Water		2/4/2013	2/6/2013 08:40	<input type="checkbox"/>

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 1302213

Case Narrative

Your samples received for Radium 226 and Radium 228 are reported on ALS workorder 1302192.

Your samples MW-118 (15), MW-118 (15), MW-118 (20), MW-118 (25), MW-119 (1), MW-119 (5), MW-119 (10), MW-119 (15) and MW-119 (25) were analyzed for Total Metals 6020 at a dilution due to matrix effects. The lowest possible dilution was performed.

Batch 67688, Total Metals 6020, Sample 1302251-01B: MS/MSD and DUP are for an unrelated sample.

Batch 67741, Semivolatile Organics 8270, Sample 1302175-02B: MS/MSD is for an unrelated sample.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118 (1)
Collection Date: 2/4/2013 09:20 AM

Work Order: 1302213
Lab ID: 1302213-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3541 / 2/8/13 Analyst: KMB							
TPH (Oil Range)	U		0.67	4.6	mg/Kg-dry	1	2/14/2013 15:16
TPH (Diesel Range)	U		0.67	2.3	mg/Kg-dry	1	2/14/2013 15:16
Surr: 2-Fluorobiphenyl	60.8			60-135	%REC	1	2/14/2013 15:16
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: KKP							
Gasoline Range Organics	U		0.027	0.067	mg/Kg-dry	1	2/8/2013 16:02
Surr: 4-Bromofluorobenzene	88.1			70-130	%REC	1	2/8/2013 16:02
MERCURY - SW7471B Method: SW7471A Prep: SW7471A / 2/13/13 Analyst: OFO							
Mercury	40.1		0.37	4.61	µg/Kg-dry	1	2/13/2013 13:58
METALS Method: SW6020 Prep: SW3050A / 2/8/13 Analyst: ALR							
Aluminum	14,300		23	117	mg/Kg-dry	100	2/11/2013 19:53
Arsenic	4.08		0.12	0.585	mg/Kg-dry	1	2/8/2013 23:54
Barium	105		0.094	0.585	mg/Kg-dry	1	2/8/2013 23:54
Boron	7.25		3.3	5.85	mg/Kg-dry	2	2/12/2013 18:05
Cadmium	0.353	J	0.058	0.585	mg/Kg-dry	1	2/8/2013 23:54
Calcium	55,400		1,200	5,850	mg/Kg-dry	100	2/11/2013 19:53
Chromium	14.1		0.11	0.585	mg/Kg-dry	1	2/8/2013 23:54
Cobalt	4.33		0.082	0.585	mg/Kg-dry	1	2/8/2013 23:54
Copper	21.3		0.12	0.585	mg/Kg-dry	1	2/8/2013 23:54
Iron	9,280		12	58.5	mg/Kg-dry	1	2/8/2013 23:54
Lead	295		5.8	58.5	mg/Kg-dry	100	2/11/2013 19:53
Manganese	261		12	58.5	mg/Kg-dry	100	2/11/2013 19:53
Molybdenum	0.627		0.18	0.585	mg/Kg-dry	1	2/8/2013 23:54
Nickel	9.10		0.11	0.585	mg/Kg-dry	1	2/8/2013 23:54
Potassium	3,020		15	58.5	mg/Kg-dry	1	2/8/2013 23:54
Selenium	0.652		0.21	0.585	mg/Kg-dry	1	2/8/2013 23:54
Silver	U		0.094	0.585	mg/Kg-dry	1	2/8/2013 23:54
Sodium	152		13	58.5	mg/Kg-dry	1	2/8/2013 23:54
Uranium	U		0.58	0.585	mg/Kg-dry	1	2/8/2013 23:54
Zinc	37.5		0.29	0.585	mg/Kg-dry	1	2/8/2013 23:54
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3541 / 2/11/13 Analyst: LG							
1-Methylnaphthalene	U		2.1	8.8	µg/Kg-dry	1	2/12/2013 11:33
2-Methylnaphthalene	U		2.1	8.8	µg/Kg-dry	1	2/12/2013 11:33
Benzo(a)pyrene	U		2.1	8.8	µg/Kg-dry	1	2/12/2013 11:33
Naphthalene	U		2.1	8.8	µg/Kg-dry	1	2/12/2013 11:33
Surr: 2,4,6-Tribromophenol	44.7			36-126	%REC	1	2/12/2013 11:33
Surr: 2-Fluorobiphenyl	55.7			43-125	%REC	1	2/12/2013 11:33

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118 (1)
Collection Date: 2/4/2013 09:20 AM

Work Order: 1302213
Lab ID: 1302213-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	54.9			37-125	%REC	1	2/12/2013 11:33
Surr: 4-Terphenyl-d14	68.3			32-125	%REC	1	2/12/2013 11:33
Surr: Nitrobenzene-d5	54.0			37-125	%REC	1	2/12/2013 11:33
Surr: Phenol-d6	54.1			40-125	%REC	1	2/12/2013 11:33

VOLATILES - SW8260C			Method: SW8260			Analyst: WLR	
1,1,1-Trichloroethane	U		2.3	6.7	µg/Kg-dry	1	2/8/2013 12:40
1,1,2,2-Tetrachloroethane	U		0.67	6.7	µg/Kg-dry	1	2/8/2013 12:40
1,1,2-Trichloroethane	U		2.7	6.7	µg/Kg-dry	1	2/8/2013 12:40
1,1-Dichloroethane	U		0.67	6.7	µg/Kg-dry	1	2/8/2013 12:40
1,1-Dichloroethene	U		2.0	6.7	µg/Kg-dry	1	2/8/2013 12:40
1,2-Dibromoethane	U		0.94	6.7	µg/Kg-dry	1	2/8/2013 12:40
1,2-Dichloroethane	U		0.81	6.7	µg/Kg-dry	1	2/8/2013 12:40
Benzene	U		0.81	6.7	µg/Kg-dry	1	2/8/2013 12:40
Carbon tetrachloride	U		1.6	6.7	µg/Kg-dry	1	2/8/2013 12:40
Chloroform	U		2.4	6.7	µg/Kg-dry	1	2/8/2013 12:40
Ethylbenzene	U		1.2	6.7	µg/Kg-dry	1	2/8/2013 12:40
Methylene chloride	U		3.4	13	µg/Kg-dry	1	2/8/2013 12:40
Tetrachloroethene	U		1.3	6.7	µg/Kg-dry	1	2/8/2013 12:40
Toluene	U		0.94	6.7	µg/Kg-dry	1	2/8/2013 12:40
Trichloroethene	U		2.2	6.7	µg/Kg-dry	1	2/8/2013 12:40
Vinyl chloride	U		1.3	2.7	µg/Kg-dry	1	2/8/2013 12:40
Xylenes, Total	U		3.5	20	µg/Kg-dry	1	2/8/2013 12:40
Surr: 1,2-Dichloroethane-d4	100			70-128	%REC	1	2/8/2013 12:40
Surr: 4-Bromofluorobenzene	95.6			73-126	%REC	1	2/8/2013 12:40
Surr: Dibromofluoromethane	99.7			71-128	%REC	1	2/8/2013 12:40
Surr: Toluene-d8	99.5			73-127	%REC	1	2/8/2013 12:40

ANIONS - EPA 300.0 (1993)			Method: E300			Prep: E300 / 2/13/13		Analyst: JKP	
Chloride	34.0		2.4	6.08	mg/Kg-dry	1	2/13/2013 18:49		
Fluoride	5.27		0.37	1.22	mg/Kg-dry	1	2/13/2013 18:49		
Nitrogen, Nitrate (As N)	U		0.37	1.22	mg/Kg-dry	1	2/13/2013 18:49		
Nitrogen, Nitrite (As N)	U		0.37	1.22	mg/Kg-dry	1	2/13/2013 18:49		
Sulfate	3,100		24	60.8	mg/Kg-dry	10	2/14/2013 12:33		
Surr: Selenate (surr)	91.6			85-115	%REC	1	2/13/2013 18:49		
Surr: Selenate (surr)	89.7			85-115	%REC	10	2/14/2013 12:33		

CYANIDE			Method: SW9014			Prep: SW9010C / 2/14/13		Analyst: EDG	
Cyanide	U		0.75	2.50	mg/Kg-dry	1	2/14/2013 15:00		

MOISTURE			Method: SW3550			Analyst: KAH	
Percent Moisture	25.7		0.010	0.0100	wt%	1	2/13/2013 14:45

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118 (3)
Collection Date: 2/4/2013 09:30 AM

Work Order: 1302213
Lab ID: 1302213-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	22.9		0.010	0.0100	wt%	1	2/13/2013 14:45

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118 (5)
Collection Date: 2/4/2013 10:00 AM

Work Order: 1302213
Lab ID: 1302213-03
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
			Method: SW7471A		Prep: SW7471A / 2/13/13		Analyst: OFO
Mercury	7.39		0.42	5.12	µg/Kg-dry	1	2/13/2013 14:00
METALS							
			Method: SW6020		Prep: SW3050A / 2/8/13		Analyst: ALR
Aluminum	8,560		29	143	mg/Kg-dry	100	2/11/2013 19:58
Arsenic	3.53		0.14	0.715	mg/Kg-dry	1	2/8/2013 23:59
Barium	85.6		0.11	0.715	mg/Kg-dry	1	2/8/2013 23:59
Boron	7.21		4.0	7.15	mg/Kg-dry	2	2/12/2013 18:10
Cadmium	0.130	J	0.071	0.715	mg/Kg-dry	1	2/8/2013 23:59
Calcium	115,000		1,400	7,150	mg/Kg-dry	100	2/11/2013 19:58
Chromium	8.08		0.13	0.715	mg/Kg-dry	1	2/8/2013 23:59
Cobalt	2.15		0.10	0.715	mg/Kg-dry	1	2/8/2013 23:59
Copper	3.19		0.14	0.715	mg/Kg-dry	1	2/8/2013 23:59
Iron	5,220		14	71.5	mg/Kg-dry	1	2/8/2013 23:59
Lead	3.67		0.071	0.715	mg/Kg-dry	1	2/8/2013 23:59
Manganese	62.9		0.14	0.715	mg/Kg-dry	1	2/8/2013 23:59
Molybdenum	0.416	J	0.21	0.715	mg/Kg-dry	1	2/8/2013 23:59
Nickel	4.78		0.13	0.715	mg/Kg-dry	1	2/8/2013 23:59
Potassium	1,610		19	71.5	mg/Kg-dry	1	2/8/2013 23:59
Selenium	0.286	J	0.26	0.715	mg/Kg-dry	1	2/8/2013 23:59
Silver	U		0.11	0.715	mg/Kg-dry	1	2/8/2013 23:59
Sodium	248		16	71.5	mg/Kg-dry	1	2/8/2013 23:59
Uranium	0.953		0.71	0.715	mg/Kg-dry	1	2/8/2013 23:59
Zinc	13.5		0.36	0.715	mg/Kg-dry	1	2/8/2013 23:59
ANIONS - EPA 300.0 (1993)							
			Method: E300		Prep: E300 / 2/13/13		Analyst: JKP
Chloride	56.9		3.1	7.67	mg/Kg-dry	1	2/13/2013 19:04
Fluoride	4.29		0.46	1.53	mg/Kg-dry	1	2/13/2013 19:04
Nitrogen, Nitrate (As N)	U		0.46	1.53	mg/Kg-dry	1	2/13/2013 19:04
Nitrogen, Nitrite (As N)	U		0.46	1.53	mg/Kg-dry	1	2/13/2013 19:04
Sulfate	10,700		31	76.7	mg/Kg-dry	10	2/14/2013 12:47
Surr: Selenate (surr)	91.9			85-115	%REC	1	2/13/2013 19:04
Surr: Selenate (surr)	88.0			85-115	%REC	10	2/14/2013 12:47
CYANIDE							
			Method: SW9014		Prep: SW9010C / 2/14/13		Analyst: EDG
Cyanide	U		0.85	2.83	mg/Kg-dry	1	2/14/2013 15:00
MOISTURE							
			Method: SW3550		Analyst: KAH		
Percent Moisture	34.8		0.010	0.0100	wt%	1	2/13/2013 14:45

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118 (7)
Collection Date: 2/4/2013 09:40 AM

Work Order: 1302213
Lab ID: 1302213-04
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE							
			Method: SW3550				Analyst: KAH
Percent Moisture	29.3		0.010	0.0100	wt%	1	2/13/2013 14:45

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118 (9)
Collection Date: 2/4/2013 10:00 AM

Work Order: 1302213
Lab ID: 1302213-05
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	30.4		0.010	0.0100	wt%	1	2/13/2013 14:45

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118 (10)
Collection Date: 2/4/2013 10:10 AM

Work Order: 1302213
Lab ID: 1302213-06
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
Method: SW7471A				Prep: SW7471A / 2/13/13		Analyst: OFO	
Mercury	3.51	J	0.41	5.00	µg/Kg-dry	1	2/13/2013 14:02
METALS							
Method: SW6020				Prep: SW3050A / 2/8/13		Analyst: ALR	
Aluminum	7,230		25	127	mg/Kg-dry	100	2/11/2013 20:03
Arsenic	2.53		0.13	0.635	mg/Kg-dry	1	2/9/2013 00:04
Barium	84.0		0.10	0.635	mg/Kg-dry	1	2/9/2013 00:04
Boron	4.16	J	3.6	6.35	mg/Kg-dry	2	2/12/2013 18:15
Cadmium	0.172	J	0.064	0.635	mg/Kg-dry	1	2/9/2013 00:04
Calcium	187,000		1,300	6,350	mg/Kg-dry	100	2/11/2013 20:03
Chromium	7.53		0.11	0.635	mg/Kg-dry	1	2/9/2013 00:04
Cobalt	1.81		0.089	0.635	mg/Kg-dry	1	2/9/2013 00:04
Copper	3.38		0.13	0.635	mg/Kg-dry	1	2/9/2013 00:04
Iron	4,430		13	63.5	mg/Kg-dry	1	2/9/2013 00:04
Lead	6.52		0.13	1.27	mg/Kg-dry	2	2/12/2013 00:06
Manganese	98.8		0.13	0.635	mg/Kg-dry	1	2/9/2013 00:04
Molybdenum	0.464	J	0.19	0.635	mg/Kg-dry	1	2/9/2013 00:04
Nickel	4.37		0.11	0.635	mg/Kg-dry	1	2/9/2013 00:04
Potassium	1,530		17	63.5	mg/Kg-dry	1	2/9/2013 00:04
Selenium	0.344	J	0.23	0.635	mg/Kg-dry	1	2/9/2013 00:04
Silver	U		0.10	0.635	mg/Kg-dry	1	2/9/2013 00:04
Sodium	158		14	63.5	mg/Kg-dry	1	2/9/2013 00:04
Uranium	U		0.64	0.635	mg/Kg-dry	1	2/9/2013 00:04
Zinc	13.7		0.32	0.635	mg/Kg-dry	1	2/9/2013 00:04
ANIONS - EPA 300.0 (1993)							
Method: E300				Prep: E300 / 2/13/13		Analyst: JKP	
Chloride	74.6		2.7	6.83	mg/Kg-dry	1	2/13/2013 19:18
Fluoride	3.80		0.41	1.37	mg/Kg-dry	1	2/13/2013 19:18
Nitrogen, Nitrate (As N)	U		0.41	1.37	mg/Kg-dry	1	2/13/2013 19:18
Nitrogen, Nitrite (As N)	U		0.41	1.37	mg/Kg-dry	1	2/13/2013 19:18
Sulfate	3,020		27	68.3	mg/Kg-dry	10	2/14/2013 13:02
Surr: Selenate (surr)	93.0			85-115	%REC	1	2/13/2013 19:18
Surr: Selenate (surr)	89.3			85-115	%REC	10	2/14/2013 13:02
CYANIDE							
Method: SW9014				Prep: SW9010C / 2/14/13		Analyst: EDG	
Cyanide	U		0.80	2.67	mg/Kg-dry	1	2/14/2013 15:00
MOISTURE							
Method: SW3550				Analyst: KAH			
Percent Moisture	29.3		0.010	0.0100	wt%	1	2/13/2013 14:45

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118 (12)
Collection Date: 2/4/2013 02:45 PM

Work Order: 1302213
Lab ID: 1302213-07
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	28.9		0.010	0.0100	wt%	1	2/13/2013 14:45

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118 (14)
Collection Date: 2/4/2013 02:47 PM

Work Order: 1302213
Lab ID: 1302213-08
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	39.4		0.010	0.0100	wt%	1	2/13/2013 14:45

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118 (15)
Collection Date: 2/4/2013 02:50 PM

Work Order: 1302213
Lab ID: 1302213-09
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
Method: SW7471A				Prep: SW7471A / 2/13/13		Analyst: OFO	
Mercury	1.30	J	0.38	4.63	µg/Kg-dry	1	2/13/2013 14:04
METALS							
Method: SW6020				Prep: SW3050A / 2/8/13		Analyst: ALR	
Aluminum	2,930		25	127	mg/Kg-dry	100	2/11/2013 20:08
Arsenic	0.760	J	0.63	3.17	mg/Kg-dry	5	2/12/2013 00:21
Barium	8.93		0.51	3.17	mg/Kg-dry	5	2/12/2013 00:21
Boron	U		8.9	15.8	mg/Kg-dry	5	2/12/2013 18:20
Cadmium	0.335	J	0.32	3.17	mg/Kg-dry	5	2/12/2013 00:21
Calcium	245,000		1,300	6,330	mg/Kg-dry	100	2/11/2013 20:08
Chromium	3.62		0.57	3.17	mg/Kg-dry	5	2/12/2013 00:21
Cobalt	0.487	J	0.44	3.17	mg/Kg-dry	5	2/12/2013 00:21
Copper	U		0.63	3.17	mg/Kg-dry	5	2/12/2013 00:21
Iron	1,620		63	317	mg/Kg-dry	5	2/12/2013 00:21
Lead	2.99	J	0.32	3.17	mg/Kg-dry	5	2/12/2013 00:21
Manganese	36.3		0.63	3.17	mg/Kg-dry	5	2/12/2013 00:21
Molybdenum	U		0.19	0.633	mg/Kg-dry	1	2/9/2013 00:09
Nickel	1.58	J	0.57	3.17	mg/Kg-dry	5	2/12/2013 00:21
Potassium	561		16	63.3	mg/Kg-dry	1	2/9/2013 00:09
Selenium	1.49	J	1.1	3.17	mg/Kg-dry	5	2/12/2013 00:21
Silver	U		0.10	0.633	mg/Kg-dry	1	2/9/2013 00:09
Sodium	90.4		14	63.3	mg/Kg-dry	1	2/9/2013 00:09
Uranium	U		0.63	0.633	mg/Kg-dry	1	2/9/2013 00:09
Zinc	6.21		1.6	3.17	mg/Kg-dry	5	2/12/2013 00:21
ANIONS - EPA 300.0 (1993)							
Method: E300				Prep: E300 / 2/13/13		Analyst: JKP	
Chloride	52.0		2.4	6.08	mg/Kg-dry	1	2/13/2013 19:33
Fluoride	8.59		0.36	1.22	mg/Kg-dry	1	2/13/2013 19:33
Nitrogen, Nitrate (As N)	U		0.36	1.22	mg/Kg-dry	1	2/13/2013 19:33
Nitrogen, Nitrite (As N)	U		0.36	1.22	mg/Kg-dry	1	2/13/2013 19:33
Sulfate	777		2.4	6.08	mg/Kg-dry	1	2/13/2013 19:33
Surr: Selenate (surr)	95.6			85-115	%REC	1	2/13/2013 19:33
CYANIDE							
Method: SW9014				Prep: SW9010C / 2/14/13		Analyst: EDG	
Cyanide	U		0.75	2.51	mg/Kg-dry	1	2/14/2013 15:00
MOISTURE							
Method: SW3550				Analyst: KAH			
Percent Moisture	27.2		0.010	0.0100	wt%	1	2/13/2013 14:45

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118 (17)
Collection Date: 2/4/2013 02:53 PM

Work Order: 1302213
Lab ID: 1302213-10
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE							
			Method: SW3550				Analyst: KAH
Percent Moisture	30.7		0.010	0.0100	wt%	1	2/13/2013 14:45

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118 (19)
Collection Date: 2/4/2013 02:40 PM

Work Order: 1302213
Lab ID: 1302213-11
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	28.0		0.010	0.0100	wt%	1	2/13/2013 14:45

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118 (20)
Collection Date: 2/4/2013 02:52 PM

Work Order: 1302213
Lab ID: 1302213-12
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
Method: SW7471A				Prep: SW7471A / 2/13/13		Analyst: OFO	
Mercury	0.827	J	0.34	4.13	µg/Kg-dry	1	2/13/2013 14:06
METALS							
Method: SW6020				Prep: SW3050A / 2/8/13		Analyst: ALR	
Aluminum	3,230		24	118	mg/Kg-dry	100	2/11/2013 20:13
Arsenic	1.02	J	0.59	2.94	mg/Kg-dry	5	2/12/2013 00:26
Barium	6.44		0.47	2.94	mg/Kg-dry	5	2/12/2013 00:26
Boron	U		8.2	14.7	mg/Kg-dry	5	2/12/2013 00:26
Cadmium	0.457	J	0.29	2.94	mg/Kg-dry	5	2/12/2013 00:26
Calcium	249,000		1,200	5,880	mg/Kg-dry	100	2/11/2013 20:13
Chromium	3.22		0.53	2.94	mg/Kg-dry	5	2/12/2013 00:26
Cobalt	0.982	J	0.41	2.94	mg/Kg-dry	5	2/12/2013 00:26
Copper	0.614	J	0.59	2.94	mg/Kg-dry	5	2/12/2013 00:26
Iron	1,960		59	294	mg/Kg-dry	5	2/12/2013 00:26
Lead	3.71		0.29	2.94	mg/Kg-dry	5	2/12/2013 00:26
Manganese	58.4		0.59	2.94	mg/Kg-dry	5	2/12/2013 00:26
Molybdenum	U		0.88	2.94	mg/Kg-dry	5	2/12/2013 00:26
Nickel	2.51	J	0.53	2.94	mg/Kg-dry	5	2/12/2013 00:26
Potassium	603		76	294	mg/Kg-dry	5	2/12/2013 00:26
Selenium	1.38	J	1.1	2.94	mg/Kg-dry	5	2/12/2013 00:26
Silver	U		0.47	2.94	mg/Kg-dry	5	2/12/2013 00:26
Sodium	73.1	J	65	294	mg/Kg-dry	5	2/12/2013 00:26
Uranium	U		2.9	2.94	mg/Kg-dry	5	2/12/2013 00:26
Zinc	6.61		1.5	2.94	mg/Kg-dry	5	2/12/2013 00:26
ANIONS - EPA 300.0 (1993)							
Method: E300				Prep: E300 / 2/13/13		Analyst: JKP	
Chloride	66.2		2.2	5.49	mg/Kg-dry	1	2/13/2013 19:48
Fluoride	7.71		0.33	1.10	mg/Kg-dry	1	2/13/2013 19:48
Nitrogen, Nitrate (As N)	U		0.33	1.10	mg/Kg-dry	1	2/13/2013 19:48
Nitrogen, Nitrite (As N)	U		0.33	1.10	mg/Kg-dry	1	2/13/2013 19:48
Sulfate	681		2.2	5.49	mg/Kg-dry	1	2/13/2013 19:48
Surr: Selenate (surr)	96.6			85-115	%REC	1	2/13/2013 19:48
CYANIDE							
Method: SW9014				Prep: SW9010C / 2/14/13		Analyst: EDG	
Cyanide	U		0.69	2.29	mg/Kg-dry	1	2/14/2013 15:00
MOISTURE							
Method: SW3550				Analyst: KAH			
Percent Moisture	17.9		0.010	0.0100	wt%	1	2/13/2013 14:45

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118 (22)
Collection Date: 2/4/2013 02:37 PM

Work Order: 1302213
Lab ID: 1302213-13
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE							
			Method: SW3550				Analyst: KAH
Percent Moisture	26.9		0.010	0.0100	wt%	1	2/13/2013 14:45

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118 (24)
Collection Date: 2/4/2013 02:37 PM

Work Order: 1302213
Lab ID: 1302213-14
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	21.7		0.010	0.0100	wt%	1	2/13/2013 14:45

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118 (25)
Collection Date: 2/4/2013 02:35 PM

Work Order: 1302213
Lab ID: 1302213-15
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3541 / 2/8/13 Analyst: KMB							
TPH (Oil Range)	U		0.63	4.3	mg/Kg-dry	1	2/11/2013 21:17
TPH (Diesel Range)	U		0.63	2.1	mg/Kg-dry	1	2/11/2013 21:17
Surr: 2-Fluorobiphenyl	60.1			60-135	%REC	1	2/11/2013 21:17
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: KKP							
Gasoline Range Organics	U		0.025	0.063	mg/Kg-dry	1	2/8/2013 16:21
Surr: 4-Bromofluorobenzene	91.9			70-130	%REC	1	2/8/2013 16:21
MERCURY - SW7471B Method: SW7471A Prep: SW7471A / 2/13/13 Analyst: OFO							
Mercury	2.80	J	0.34	4.23	µg/Kg-dry	1	2/13/2013 14:08
METALS Method: SW6020 Prep: SW3050A / 2/8/13 Analyst: ALR							
Aluminum	9,540		24	119	mg/Kg-dry	100	2/11/2013 20:17
Arsenic	3.21		0.24	1.19	mg/Kg-dry	2	2/12/2013 00:30
Barium	32.6		0.19	1.19	mg/Kg-dry	2	2/12/2013 00:30
Boron	U		3.3	5.95	mg/Kg-dry	2	2/12/2013 18:25
Cadmium	0.220	J	0.12	1.19	mg/Kg-dry	2	2/12/2013 00:30
Calcium	99,200		1,200	5,950	mg/Kg-dry	100	2/11/2013 20:17
Chromium	9.08		0.21	1.19	mg/Kg-dry	2	2/12/2013 00:30
Cobalt	2.15		0.17	1.19	mg/Kg-dry	2	2/12/2013 00:30
Copper	4.53		0.24	1.19	mg/Kg-dry	2	2/12/2013 00:30
Iron	7,200		24	119	mg/Kg-dry	2	2/12/2013 00:30
Lead	4.81		0.12	1.19	mg/Kg-dry	2	2/12/2013 00:30
Manganese	95.7		0.24	1.19	mg/Kg-dry	2	2/12/2013 00:30
Molybdenum	0.545	J	0.36	1.19	mg/Kg-dry	2	2/12/2013 00:30
Nickel	7.10		0.21	1.19	mg/Kg-dry	2	2/12/2013 00:30
Potassium	1,740		31	119	mg/Kg-dry	2	2/12/2013 00:30
Selenium	0.724	J	0.43	1.19	mg/Kg-dry	2	2/12/2013 00:30
Silver	U		0.19	1.19	mg/Kg-dry	2	2/12/2013 00:30
Sodium	226		26	119	mg/Kg-dry	2	2/12/2013 00:30
Uranium	U		1.2	1.19	mg/Kg-dry	2	2/12/2013 00:30
Zinc	22.8		0.59	1.19	mg/Kg-dry	2	2/12/2013 00:30
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3541 / 2/11/13 Analyst: LG							
1-Methylnaphthalene	U		2.0	8.3	µg/Kg-dry	1	2/12/2013 11:53
2-Methylnaphthalene	U		2.0	8.3	µg/Kg-dry	1	2/12/2013 11:53
Benzo(a)pyrene	2.6	J	2.0	8.3	µg/Kg-dry	1	2/12/2013 11:53
Naphthalene	U		2.0	8.3	µg/Kg-dry	1	2/12/2013 11:53
Surr: 2,4,6-Tribromophenol	69.2			36-126	%REC	1	2/12/2013 11:53
Surr: 2-Fluorobiphenyl	76.3			43-125	%REC	1	2/12/2013 11:53

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118 (25)
Collection Date: 2/4/2013 02:35 PM

Work Order: 1302213
Lab ID: 1302213-15
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	62.6			37-125	%REC	1	2/12/2013 11:53
Surr: 4-Terphenyl-d14	93.7			32-125	%REC	1	2/12/2013 11:53
Surr: Nitrobenzene-d5	74.3			37-125	%REC	1	2/12/2013 11:53
Surr: Phenol-d6	69.9			40-125	%REC	1	2/12/2013 11:53

VOLATILES - SW8260C			Method: SW8260			Analyst: WLR	
1,1,1-Trichloroethane	U		2.2	6.3	µg/Kg-dry	1	2/8/2013 14:11
1,1,2,2-Tetrachloroethane	U		0.63	6.3	µg/Kg-dry	1	2/8/2013 14:11
1,1,2-Trichloroethane	U		2.5	6.3	µg/Kg-dry	1	2/8/2013 14:11
1,1-Dichloroethane	U		0.63	6.3	µg/Kg-dry	1	2/8/2013 14:11
1,1-Dichloroethene	U		1.9	6.3	µg/Kg-dry	1	2/8/2013 14:11
1,2-Dibromoethane	U		0.89	6.3	µg/Kg-dry	1	2/8/2013 14:11
1,2-Dichloroethane	U		0.76	6.3	µg/Kg-dry	1	2/8/2013 14:11
Benzene	U		0.76	6.3	µg/Kg-dry	1	2/8/2013 14:11
Carbon tetrachloride	U		1.5	6.3	µg/Kg-dry	1	2/8/2013 14:11
Chloroform	U		2.3	6.3	µg/Kg-dry	1	2/8/2013 14:11
Ethylbenzene	U		1.1	6.3	µg/Kg-dry	1	2/8/2013 14:11
Methylene chloride	U		3.2	13	µg/Kg-dry	1	2/8/2013 14:11
Tetrachloroethene	U		1.3	6.3	µg/Kg-dry	1	2/8/2013 14:11
Toluene	U		0.89	6.3	µg/Kg-dry	1	2/8/2013 14:11
Trichloroethene	U		2.0	6.3	µg/Kg-dry	1	2/8/2013 14:11
Vinyl chloride	U		1.3	2.5	µg/Kg-dry	1	2/8/2013 14:11
Xylenes, Total	U		3.3	19	µg/Kg-dry	1	2/8/2013 14:11
Surr: 1,2-Dichloroethane-d4	98.8			70-128	%REC	1	2/8/2013 14:11
Surr: 4-Bromofluorobenzene	94.5			73-126	%REC	1	2/8/2013 14:11
Surr: Dibromofluoromethane	100			71-128	%REC	1	2/8/2013 14:11
Surr: Toluene-d8	97.6			73-127	%REC	1	2/8/2013 14:11

MOISTURE			Method: SW3550			Analyst: KAH	
Percent Moisture	21.0		0.010	0.0100	wt%	1	2/13/2013 14:45

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119 (1)
Collection Date: 2/4/2013 11:05 AM

Work Order: 1302213
Lab ID: 1302213-16
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3541 / 2/8/13 Analyst: KMB							
TPH (Oil Range)	1.1	J	0.64	4.4	mg/Kg-dry	1	2/14/2013 15:40
TPH (Diesel Range)	U		0.64	2.2	mg/Kg-dry	1	2/14/2013 15:40
Surr: 2-Fluorobiphenyl	60.1			60-135	%REC	1	2/14/2013 15:40
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: KKP							
Gasoline Range Organics	U		0.026	0.064	mg/Kg-dry	1	2/8/2013 16:40
Surr: 4-Bromofluorobenzene	89.9			70-130	%REC	1	2/8/2013 16:40
MERCURY - SW7471B Method: SW7471A Prep: SW7471A / 2/13/13 Analyst: OFO							
Mercury	20.7		0.35	4.36	µg/Kg-dry	1	2/13/2013 14:10
METALS Method: SW6020 Prep: SW3050A / 2/8/13 Analyst: ALR							
Aluminum	13,800		24	119	mg/Kg-dry	100	2/11/2013 20:32
Arsenic	3.39		0.24	1.19	mg/Kg-dry	2	2/12/2013 00:40
Barium	89.9		0.19	1.19	mg/Kg-dry	2	2/12/2013 00:40
Boron	6.94		3.3	5.94	mg/Kg-dry	2	2/12/2013 18:30
Cadmium	0.483	J	0.12	1.19	mg/Kg-dry	2	2/12/2013 00:40
Calcium	77,800		1,200	5,940	mg/Kg-dry	100	2/11/2013 20:32
Chromium	13.0		0.21	1.19	mg/Kg-dry	2	2/12/2013 00:40
Cobalt	4.37		0.17	1.19	mg/Kg-dry	2	2/12/2013 00:40
Copper	12.1		0.24	1.19	mg/Kg-dry	2	2/12/2013 00:40
Iron	8,910		24	119	mg/Kg-dry	2	2/12/2013 00:40
Lead	61.0		0.12	1.19	mg/Kg-dry	2	2/12/2013 00:40
Manganese	131		0.24	1.19	mg/Kg-dry	2	2/12/2013 00:40
Molybdenum	0.593	J	0.36	1.19	mg/Kg-dry	2	2/12/2013 00:40
Nickel	9.34		0.21	1.19	mg/Kg-dry	2	2/12/2013 00:40
Potassium	3,310		31	119	mg/Kg-dry	2	2/12/2013 00:40
Selenium	1.18	J	0.43	1.19	mg/Kg-dry	2	2/12/2013 00:40
Silver	U		0.19	1.19	mg/Kg-dry	2	2/12/2013 00:40
Sodium	149		26	119	mg/Kg-dry	2	2/12/2013 00:40
Uranium	U		1.2	1.19	mg/Kg-dry	2	2/12/2013 00:40
Zinc	56.8		0.59	1.19	mg/Kg-dry	2	2/12/2013 00:40
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3541 / 2/11/13 Analyst: LG							
1-Methylnaphthalene	U		2.1	8.5	µg/Kg-dry	1	2/12/2013 15:34
2-Methylnaphthalene	U		2.1	8.5	µg/Kg-dry	1	2/12/2013 15:34
Benzo(a)pyrene	U		2.1	8.5	µg/Kg-dry	1	2/12/2013 15:34
Naphthalene	U		2.1	8.5	µg/Kg-dry	1	2/12/2013 15:34
Surr: 2,4,6-Tribromophenol	45.6			36-126	%REC	1	2/12/2013 15:34
Surr: 2-Fluorobiphenyl	48.1			43-125	%REC	1	2/12/2013 15:34

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119 (1)
Collection Date: 2/4/2013 11:05 AM

Work Order: 1302213
Lab ID: 1302213-16
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	41.4			37-125	%REC	1	2/12/2013 15:34
Surr: 4-Terphenyl-d14	74.6			32-125	%REC	1	2/12/2013 15:34
Surr: Nitrobenzene-d5	45.7			37-125	%REC	1	2/12/2013 15:34
Surr: Phenol-d6	43.2			40-125	%REC	1	2/12/2013 15:34

VOLATILES - SW8260C			Method: SW8260			Analyst: WLR	
1,1,1-Trichloroethane	U		2.2	6.4	µg/Kg-dry	1	2/8/2013 14:34
1,1,2,2-Tetrachloroethane	U		0.64	6.4	µg/Kg-dry	1	2/8/2013 14:34
1,1,2-Trichloroethane	U		2.6	6.4	µg/Kg-dry	1	2/8/2013 14:34
1,1-Dichloroethane	U		0.64	6.4	µg/Kg-dry	1	2/8/2013 14:34
1,1-Dichloroethene	U		1.9	6.4	µg/Kg-dry	1	2/8/2013 14:34
1,2-Dibromoethane	U		0.90	6.4	µg/Kg-dry	1	2/8/2013 14:34
1,2-Dichloroethane	U		0.77	6.4	µg/Kg-dry	1	2/8/2013 14:34
Benzene	U		0.77	6.4	µg/Kg-dry	1	2/8/2013 14:34
Carbon tetrachloride	U		1.5	6.4	µg/Kg-dry	1	2/8/2013 14:34
Chloroform	U		2.3	6.4	µg/Kg-dry	1	2/8/2013 14:34
Ethylbenzene	U		1.2	6.4	µg/Kg-dry	1	2/8/2013 14:34
Methylene chloride	U		3.2	13	µg/Kg-dry	1	2/8/2013 14:34
Tetrachloroethene	U		1.3	6.4	µg/Kg-dry	1	2/8/2013 14:34
Toluene	U		0.90	6.4	µg/Kg-dry	1	2/8/2013 14:34
Trichloroethene	U		2.1	6.4	µg/Kg-dry	1	2/8/2013 14:34
Vinyl chloride	U		1.3	2.6	µg/Kg-dry	1	2/8/2013 14:34
Xylenes, Total	U		3.3	19	µg/Kg-dry	1	2/8/2013 14:34
Surr: 1,2-Dichloroethane-d4	99.9			70-128	%REC	1	2/8/2013 14:34
Surr: 4-Bromofluorobenzene	94.7			73-126	%REC	1	2/8/2013 14:34
Surr: Dibromofluoromethane	99.6			71-128	%REC	1	2/8/2013 14:34
Surr: Toluene-d8	98.5			73-127	%REC	1	2/8/2013 14:34

MOISTURE			Method: SW3550			Analyst: KAH	
Percent Moisture	22.3		0.010	0.0100	wt%	1	2/13/2013 14:45

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119 (3)
Collection Date: 2/4/2013 11:15 AM

Work Order: 1302213
Lab ID: 1302213-17
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	22.9		0.010	0.0100	wt%	1	2/13/2013 14:45

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119 (5)
Collection Date: 2/4/2013 11:20 AM

Work Order: 1302213
Lab ID: 1302213-18
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
			Method: SW7471A		Prep: SW7471A / 2/13/13		Analyst: OFO
Mercury	7.31		0.37	4.50	µg/Kg-dry	1	2/13/2013 13:46
METALS							
			Method: SW6020		Prep: SW3050A / 2/8/13		Analyst: ALR
Aluminum	13,300		22	109	mg/Kg-dry	100	2/11/2013 20:37
Arsenic	4.21		0.22	1.09	mg/Kg-dry	2	2/12/2013 00:45
Barium	108		0.17	1.09	mg/Kg-dry	2	2/12/2013 00:45
Boron	5.63		3.0	5.43	mg/Kg-dry	2	2/12/2013 18:35
Cadmium	0.295	J	0.11	1.09	mg/Kg-dry	2	2/12/2013 00:45
Calcium	103,000		1,100	5,430	mg/Kg-dry	100	2/11/2013 20:37
Chromium	11.1		0.20	1.09	mg/Kg-dry	2	2/12/2013 00:45
Cobalt	3.77		0.15	1.09	mg/Kg-dry	2	2/12/2013 00:45
Copper	5.81		0.22	1.09	mg/Kg-dry	2	2/12/2013 00:45
Iron	8,220		22	109	mg/Kg-dry	2	2/12/2013 00:45
Lead	6.75		0.11	1.09	mg/Kg-dry	2	2/12/2013 00:45
Manganese	204		0.22	1.09	mg/Kg-dry	2	2/12/2013 00:45
Molybdenum	0.743	J	0.33	1.09	mg/Kg-dry	2	2/12/2013 00:45
Nickel	8.08		0.20	1.09	mg/Kg-dry	2	2/12/2013 00:45
Potassium	2,680		28	109	mg/Kg-dry	2	2/12/2013 00:45
Selenium	0.895	J	0.39	1.09	mg/Kg-dry	2	2/12/2013 00:45
Silver	U		0.17	1.09	mg/Kg-dry	2	2/12/2013 00:45
Sodium	131		24	109	mg/Kg-dry	2	2/12/2013 00:45
Uranium	U		1.1	1.09	mg/Kg-dry	2	2/12/2013 00:45
Zinc	27.1		0.54	1.09	mg/Kg-dry	2	2/12/2013 00:45
ANIONS - EPA 300.0 (1993)							
			Method: E300		Prep: E300 / 2/13/13		Analyst: JKP
Chloride	29.2		2.4	6.06	mg/Kg-dry	1	2/13/2013 20:02
Fluoride	12.3		0.36	1.21	mg/Kg-dry	1	2/13/2013 20:02
Nitrogen, Nitrate (As N)	U		0.36	1.21	mg/Kg-dry	1	2/13/2013 20:02
Nitrogen, Nitrite (As N)	U		0.36	1.21	mg/Kg-dry	1	2/13/2013 20:02
Sulfate	1,680		24	60.6	mg/Kg-dry	10	2/14/2013 13:17
Surr: Selenate (surr)	95.3			85-115	%REC	1	2/13/2013 20:02
Surr: Selenate (surr)	90.2			85-115	%REC	10	2/14/2013 13:17
CYANIDE							
			Method: SW9014		Prep: SW9010C / 2/14/13		Analyst: EDG
Cyanide	U		0.71	2.36	mg/Kg-dry	1	2/14/2013 15:00
MOISTURE							
			Method: SW3550		Analyst: KAH		
Percent Moisture	23.0		0.010	0.0100	wt%	1	2/13/2013 14:45

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119 (7)
Collection Date: 2/4/2013 11:30 AM

Work Order: 1302213
Lab ID: 1302213-19
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	24.4		0.010	0.0100	wt%	1	2/13/2013 14:45

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119 (9)
Collection Date: 2/4/2013 11:35 AM

Work Order: 1302213
Lab ID: 1302213-20
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	17.9		0.010	0.0100	wt%	1	2/13/2013 14:45

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119 (10)
Collection Date: 2/4/2013 11:45 AM

Work Order: 1302213
Lab ID: 1302213-21
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
			Method: SW7471A		Prep: SW7471A / 2/13/13		Analyst: OFO
Mercury	9.12		0.38	4.69	µg/Kg-dry	1	2/13/2013 14:12
METALS							
			Method: SW6020		Prep: SW3050A / 2/8/13		Analyst: ALR
Aluminum	9,390		25	126	mg/Kg-dry	100	2/11/2013 20:41
Arsenic	6.34		0.25	1.26	mg/Kg-dry	2	2/12/2013 00:49
Barium	50.7		0.20	1.26	mg/Kg-dry	2	2/12/2013 00:49
Boron	6.02	J	3.5	6.30	mg/Kg-dry	2	2/12/2013 18:40
Cadmium	0.167	J	0.13	1.26	mg/Kg-dry	2	2/12/2013 00:49
Calcium	89,200		1,300	6,300	mg/Kg-dry	100	2/11/2013 20:41
Chromium	9.37		0.23	1.26	mg/Kg-dry	2	2/12/2013 00:49
Cobalt	3.84		0.18	1.26	mg/Kg-dry	2	2/12/2013 00:49
Copper	4.42		0.25	1.26	mg/Kg-dry	2	2/12/2013 00:49
Iron	7,850		25	126	mg/Kg-dry	2	2/12/2013 00:49
Lead	6.14		0.13	1.26	mg/Kg-dry	2	2/12/2013 00:49
Manganese	252		0.25	1.26	mg/Kg-dry	2	2/12/2013 00:49
Molybdenum	0.858	J	0.38	1.26	mg/Kg-dry	2	2/12/2013 00:49
Nickel	9.28		0.23	1.26	mg/Kg-dry	2	2/12/2013 00:49
Potassium	2,500		33	126	mg/Kg-dry	2	2/12/2013 00:49
Selenium	0.644	J	0.45	1.26	mg/Kg-dry	2	2/12/2013 00:49
Silver	U		0.20	1.26	mg/Kg-dry	2	2/12/2013 00:49
Sodium	134		28	126	mg/Kg-dry	2	2/12/2013 00:49
Uranium	U		1.3	1.26	mg/Kg-dry	2	2/12/2013 00:49
Zinc	21.7		0.63	1.26	mg/Kg-dry	2	2/12/2013 00:49
ANIONS - EPA 300.0 (1993)							
			Method: E300		Prep: E300 / 2/13/13		Analyst: JKP
Chloride	22.6		2.4	6.07	mg/Kg-dry	1	2/13/2013 20:17
Fluoride	5.94		0.36	1.21	mg/Kg-dry	1	2/13/2013 20:17
Nitrogen, Nitrate (As N)	U		0.36	1.21	mg/Kg-dry	1	2/13/2013 20:17
Nitrogen, Nitrite (As N)	U		0.36	1.21	mg/Kg-dry	1	2/13/2013 20:17
Sulfate	1,080		2.4	6.07	mg/Kg-dry	1	2/13/2013 20:17
Surr: Selenate (surr)	93.5			85-115	%REC	1	2/13/2013 20:17
CYANIDE							
			Method: SW9014		Prep: SW9010C / 2/14/13		Analyst: EDG
Cyanide	U		0.77	2.58	mg/Kg-dry	1	2/14/2013 15:00
MOISTURE							
			Method: SW3550		Analyst: KAH		
Percent Moisture	24.8		0.010	0.0100	wt%	1	2/13/2013 15:25

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119 (12)
Collection Date: 2/4/2013 04:05 PM

Work Order: 1302213
Lab ID: 1302213-22
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	14.7		0.010	0.0100	wt%	1	2/13/2013 15:25

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119 (14)
Collection Date: 2/4/2013 04:06 PM

Work Order: 1302213
Lab ID: 1302213-23
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	15.2		0.010	0.0100	wt%	1	2/13/2013 15:25

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119 (15)
Collection Date: 2/4/2013 04:08 PM

Work Order: 1302213
Lab ID: 1302213-24
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
Method: SW7471A				Prep: SW7471A / 2/13/13		Analyst: OFO	
Mercury	6.11		0.37	4.62	µg/Kg-dry	1	2/13/2013 14:14
METALS							
Method: SW6020				Prep: SW3050A / 2/8/13		Analyst: ALR	
Aluminum	5,700		27	134	mg/Kg-dry	100	2/11/2013 20:46
Arsenic	2.98	J	0.67	3.34	mg/Kg-dry	5	2/12/2013 01:04
Barium	47.3		0.53	3.34	mg/Kg-dry	5	2/12/2013 01:04
Boron	11.9	J	9.3	16.7	mg/Kg-dry	5	2/12/2013 01:04
Cadmium	U		0.33	3.34	mg/Kg-dry	5	2/12/2013 01:04
Calcium	246,000		1,300	6,680	mg/Kg-dry	100	2/11/2013 20:46
Chromium	4.79		0.60	3.34	mg/Kg-dry	5	2/12/2013 01:04
Cobalt	2.05	J	0.47	3.34	mg/Kg-dry	5	2/12/2013 01:04
Copper	2.39	J	0.67	3.34	mg/Kg-dry	5	2/12/2013 01:04
Iron	4,080		67	334	mg/Kg-dry	5	2/12/2013 01:04
Lead	2.84	J	0.33	3.34	mg/Kg-dry	5	2/12/2013 01:04
Manganese	523		0.67	3.34	mg/Kg-dry	5	2/12/2013 01:04
Molybdenum	2.16	J	1.0	3.34	mg/Kg-dry	5	2/12/2013 01:04
Nickel	8.56		0.60	3.34	mg/Kg-dry	5	2/12/2013 01:04
Potassium	1,280		87	334	mg/Kg-dry	5	2/12/2013 01:04
Selenium	1.32	J	1.2	3.34	mg/Kg-dry	5	2/12/2013 01:04
Silver	U		0.53	3.34	mg/Kg-dry	5	2/12/2013 01:04
Sodium	U		73	334	mg/Kg-dry	5	2/12/2013 01:04
Uranium	U		3.3	3.34	mg/Kg-dry	5	2/12/2013 01:04
Zinc	11.8		1.7	3.34	mg/Kg-dry	5	2/12/2013 01:04
ANIONS - EPA 300.0 (1993)							
Method: E300				Prep: E300 / 2/13/13		Analyst: JKP	
Chloride	18.9		2.6	6.39	mg/Kg-dry	1	2/13/2013 20:31
Fluoride	5.87		0.38	1.28	mg/Kg-dry	1	2/13/2013 20:31
Nitrogen, Nitrate (As N)	U		0.38	1.28	mg/Kg-dry	1	2/13/2013 20:31
Nitrogen, Nitrite (As N)	U		0.38	1.28	mg/Kg-dry	1	2/13/2013 20:31
Sulfate	1,310		2.6	6.39	mg/Kg-dry	1	2/13/2013 20:31
Surr: Selenate (surr)	93.6			85-115	%REC	1	2/13/2013 20:31
CYANIDE							
Method: SW9014				Prep: SW9010C / 2/14/13		Analyst: EDG	
Cyanide	U		0.77	2.58	mg/Kg-dry	1	2/14/2013 15:00
MOISTURE							
Method: SW3550						Analyst: KAH	
Percent Moisture	26.0		0.010	0.0100	wt%	1	2/13/2013 15:25

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119 (17)
Collection Date: 2/4/2013 04:15 PM

Work Order: 1302213
Lab ID: 1302213-25
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	22.8		0.010	0.0100	wt%	1	2/13/2013 15:25

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119 (19)
Collection Date: 2/4/2013 04:14 PM

Work Order: 1302213
Lab ID: 1302213-26
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	22.0		0.010	0.0100	wt%	1	2/13/2013 15:25

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119 (20)
Collection Date: 2/4/2013 04:11 PM

Work Order: 1302213
Lab ID: 1302213-27
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
Method: SW7471A				Prep: SW7471A / 2/13/13		Analyst: OFO	
Mercury	5.01		0.36	4.39	µg/Kg-dry	1	2/13/2013 14:16
METALS							
Method: SW6020				Prep: SW3050A / 2/8/13		Analyst: ALR	
Aluminum	10,300		24	120	mg/Kg-dry	100	2/11/2013 20:51
Arsenic	2.80		0.12	0.599	mg/Kg-dry	1	2/12/2013 01:08
Barium	208		0.096	0.599	mg/Kg-dry	1	2/12/2013 01:08
Boron	4.44		1.7	3.00	mg/Kg-dry	1	2/12/2013 01:08
Cadmium	0.188	J	0.060	0.599	mg/Kg-dry	1	2/12/2013 01:08
Calcium	65,300		1,200	5,990	mg/Kg-dry	100	2/11/2013 20:51
Chromium	8.86		0.11	0.599	mg/Kg-dry	1	2/12/2013 01:08
Cobalt	2.77		0.084	0.599	mg/Kg-dry	1	2/12/2013 01:08
Copper	3.91		0.12	0.599	mg/Kg-dry	1	2/12/2013 01:08
Iron	6,080		12	59.9	mg/Kg-dry	1	2/12/2013 01:08
Lead	4.36		0.060	0.599	mg/Kg-dry	1	2/12/2013 01:08
Manganese	88.8		0.12	0.599	mg/Kg-dry	1	2/12/2013 01:08
Molybdenum	0.302	J	0.18	0.599	mg/Kg-dry	1	2/12/2013 01:08
Nickel	6.69		0.11	0.599	mg/Kg-dry	1	2/12/2013 01:08
Potassium	1,650		16	59.9	mg/Kg-dry	1	2/12/2013 01:08
Selenium	0.620		0.22	0.599	mg/Kg-dry	1	2/12/2013 01:08
Silver	U		0.096	0.599	mg/Kg-dry	1	2/12/2013 01:08
Sodium	130		13	59.9	mg/Kg-dry	1	2/12/2013 01:08
Uranium	U		0.60	0.599	mg/Kg-dry	1	2/12/2013 01:08
Zinc	19.7		0.30	0.599	mg/Kg-dry	1	2/12/2013 01:08
ANIONS - EPA 300.0 (1993)							
Method: E300				Prep: E300 / 2/13/13		Analyst: JKP	
Chloride	33.4		2.2	5.46	mg/Kg-dry	1	2/13/2013 21:15
Fluoride	4.97		0.33	1.09	mg/Kg-dry	1	2/13/2013 21:15
Nitrogen, Nitrate (As N)	U		0.33	1.09	mg/Kg-dry	1	2/13/2013 21:15
Nitrogen, Nitrite (As N)	U		0.33	1.09	mg/Kg-dry	1	2/13/2013 21:15
Sulfate	849		2.2	5.46	mg/Kg-dry	1	2/13/2013 21:15
Surr: Selenate (surr)	93.3			85-115	%REC	1	2/13/2013 21:15
CYANIDE							
Method: SW9014				Prep: SW9010C / 2/14/13		Analyst: EDG	
Cyanide	U		0.72	2.40	mg/Kg-dry	1	2/14/2013 15:00
MOISTURE							
Method: SW3550				Analyst: KAH			
Percent Moisture	20.7		0.010	0.0100	wt%	1	2/13/2013 15:25

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119 (22)
Collection Date: 2/4/2013 04:17 PM

Work Order: 1302213
Lab ID: 1302213-28
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	19.7		0.010	0.0100	wt%	1	2/13/2013 15:25

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119 (24)
Collection Date: 2/4/2013 04:18 PM

Work Order: 1302213
Lab ID: 1302213-29
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	24.2		0.010	0.0100	wt%	1	2/13/2013 15:25

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119 (25)
Collection Date: 2/4/2013 04:20 PM

Work Order: 1302213
Lab ID: 1302213-30
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3541 / 2/8/13 Analyst: KMB							
TPH (Oil Range)	U		0.62	4.2	mg/Kg-dry	1	2/11/2013 22:05
TPH (Diesel Range)	U		0.62	2.1	mg/Kg-dry	1	2/11/2013 22:05
Surr: 2-Fluorobiphenyl	60.5			60-135	%REC	1	2/11/2013 22:05
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: KKP							
Gasoline Range Organics	U		0.025	0.062	mg/Kg-dry	1	2/8/2013 16:58
Surr: 4-Bromofluorobenzene	91.9			70-130	%REC	1	2/8/2013 16:58
MERCURY - SW7471B Method: SW7471A Prep: SW7471A / 2/13/13 Analyst: OFO							
Mercury	2.25	J	0.34	4.16	µg/Kg-dry	1	2/13/2013 14:22
METALS Method: SW6020 Prep: SW3050A / 2/8/13 Analyst: ALR							
Aluminum	11,600		25	123	mg/Kg-dry	100	2/11/2013 20:56
Arsenic	2.38		0.25	1.23	mg/Kg-dry	2	2/12/2013 01:13
Barium	18.2		0.20	1.23	mg/Kg-dry	2	2/12/2013 01:13
Boron	6.19		3.4	6.13	mg/Kg-dry	2	2/12/2013 01:13
Cadmium	0.218	J	0.12	1.23	mg/Kg-dry	2	2/12/2013 01:13
Calcium	124,000		1,200	6,130	mg/Kg-dry	100	2/11/2013 20:56
Chromium	9.42		0.22	1.23	mg/Kg-dry	2	2/12/2013 01:13
Cobalt	4.83		0.17	1.23	mg/Kg-dry	2	2/12/2013 01:13
Copper	4.70		0.25	1.23	mg/Kg-dry	2	2/12/2013 01:13
Iron	8,790		25	123	mg/Kg-dry	2	2/12/2013 01:13
Lead	5.31		0.12	1.23	mg/Kg-dry	2	2/12/2013 01:13
Manganese	184		0.25	1.23	mg/Kg-dry	2	2/12/2013 01:13
Molybdenum	U		0.37	1.23	mg/Kg-dry	2	2/12/2013 01:13
Nickel	8.83		0.22	1.23	mg/Kg-dry	2	2/12/2013 01:13
Potassium	2,210		32	123	mg/Kg-dry	2	2/12/2013 01:13
Selenium	0.663	J	0.44	1.23	mg/Kg-dry	2	2/12/2013 01:13
Silver	U		0.20	1.23	mg/Kg-dry	2	2/12/2013 01:13
Sodium	140		27	123	mg/Kg-dry	2	2/12/2013 01:13
Uranium	U		1.2	1.23	mg/Kg-dry	2	2/12/2013 01:13
Zinc	23.2		0.61	1.23	mg/Kg-dry	2	2/12/2013 01:13
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3541 / 2/11/13 Analyst: LG							
1-Methylnaphthalene	U		2.0	8.2	µg/Kg-dry	1	2/12/2013 14:34
2-Methylnaphthalene	U		2.0	8.2	µg/Kg-dry	1	2/12/2013 14:34
Benzo(a)pyrene	U		2.0	8.2	µg/Kg-dry	1	2/12/2013 14:34
Naphthalene	U		2.0	8.2	µg/Kg-dry	1	2/12/2013 14:34
Surr: 2,4,6-Tribromophenol	58.8			36-126	%REC	1	2/12/2013 14:34
Surr: 2-Fluorobiphenyl	68.1			43-125	%REC	1	2/12/2013 14:34

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119 (25)
Collection Date: 2/4/2013 04:20 PM

Work Order: 1302213
Lab ID: 1302213-30
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	55.4			37-125	%REC	1	2/12/2013 14:34
Surr: 4-Terphenyl-d14	85.7			32-125	%REC	1	2/12/2013 14:34
Surr: Nitrobenzene-d5	66.6			37-125	%REC	1	2/12/2013 14:34
Surr: Phenol-d6	61.1			40-125	%REC	1	2/12/2013 14:34

VOLATILES - SW8260C			Method: SW8260			Analyst: WLR	
1,1,1-Trichloroethane	U		2.1	6.2	µg/Kg-dry	1	2/8/2013 14:57
1,1,2,2-Tetrachloroethane	U		0.62	6.2	µg/Kg-dry	1	2/8/2013 14:57
1,1,2-Trichloroethane	U		2.5	6.2	µg/Kg-dry	1	2/8/2013 14:57
1,1-Dichloroethane	U		0.62	6.2	µg/Kg-dry	1	2/8/2013 14:57
1,1-Dichloroethene	U		1.9	6.2	µg/Kg-dry	1	2/8/2013 14:57
1,2-Dibromoethane	U		0.87	6.2	µg/Kg-dry	1	2/8/2013 14:57
1,2-Dichloroethane	U		0.74	6.2	µg/Kg-dry	1	2/8/2013 14:57
Benzene	U		0.74	6.2	µg/Kg-dry	1	2/8/2013 14:57
Carbon tetrachloride	U		1.5	6.2	µg/Kg-dry	1	2/8/2013 14:57
Chloroform	U		2.2	6.2	µg/Kg-dry	1	2/8/2013 14:57
Ethylbenzene	U		1.1	6.2	µg/Kg-dry	1	2/8/2013 14:57
Methylene chloride	U		3.1	12	µg/Kg-dry	1	2/8/2013 14:57
Tetrachloroethene	U		1.2	6.2	µg/Kg-dry	1	2/8/2013 14:57
Toluene	U		0.87	6.2	µg/Kg-dry	1	2/8/2013 14:57
Trichloroethene	U		2.0	6.2	µg/Kg-dry	1	2/8/2013 14:57
Vinyl chloride	U		1.2	2.5	µg/Kg-dry	1	2/8/2013 14:57
Xylenes, Total	U		3.2	19	µg/Kg-dry	1	2/8/2013 14:57
Surr: 1,2-Dichloroethane-d4	102			70-128	%REC	1	2/8/2013 14:57
Surr: 4-Bromofluorobenzene	95.9			73-126	%REC	1	2/8/2013 14:57
Surr: Dibromofluoromethane	102			71-128	%REC	1	2/8/2013 14:57
Surr: Toluene-d8	97.5			73-127	%REC	1	2/8/2013 14:57

ANIONS - EPA 300.0 (1993)			Method: E300			Prep: E300 / 2/13/13		Analyst: JKP	
Chloride	34.4		2.3	5.66	mg/Kg-dry	1	2/13/2013 21:29		
Fluoride	3.28		0.34	1.13	mg/Kg-dry	1	2/13/2013 21:29		
Nitrogen, Nitrate (As N)	U		0.34	1.13	mg/Kg-dry	1	2/13/2013 21:29		
Nitrogen, Nitrite (As N)	U		0.34	1.13	mg/Kg-dry	1	2/13/2013 21:29		
Sulfate	495		2.3	5.66	mg/Kg-dry	1	2/13/2013 21:29		
Surr: Selenate (surr)	95.7			85-115	%REC	1	2/13/2013 21:29		

MOISTURE			Method: SW3550			Analyst: KAH			
Percent Moisture	19.3		0.010	0.0100	wt%	1	2/13/2013 15:25		

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: TRIP BLANK 011813-17
Collection Date: 2/4/2013

Work Order: 1302213
Lab ID: 1302213-31
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/8/2013 18:18
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	2/8/2013 18:18
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/8/2013 18:18
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/8/2013 18:18
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	2/8/2013 18:18
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	2/8/2013 18:18
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/8/2013 18:18
Benzene	U		0.00020	0.0010	mg/L	1	2/8/2013 18:18
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	2/8/2013 18:18
Chloroform	U		0.00030	0.0010	mg/L	1	2/8/2013 18:18
Ethylbenzene	U		0.00030	0.0010	mg/L	1	2/8/2013 18:18
Methylene chloride	U		0.00040	0.0020	mg/L	1	2/8/2013 18:18
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	2/8/2013 18:18
Toluene	U		0.00030	0.0010	mg/L	1	2/8/2013 18:18
Trichloroethene	U		0.00020	0.0010	mg/L	1	2/8/2013 18:18
Vinyl chloride	U		0.00040	0.0010	mg/L	1	2/8/2013 18:18
Xylenes, Total	U		0.00030	0.0010	mg/L	1	2/8/2013 18:18
Surr: 1,2-Dichloroethane-d4	98.2			71-125	%REC	1	2/8/2013 18:18
Surr: 4-Bromofluorobenzene	102			70-125	%REC	1	2/8/2013 18:18
Surr: Dibromofluoromethane	100			74-125	%REC	1	2/8/2013 18:18
Surr: Toluene-d8	105			78-123	%REC	1	2/8/2013 18:18

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Work Order: 1302213
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67694** Instrument ID **FID-7** Method: **SW8015M**

MBLK	Sample ID: FBLKS1-130208-67694				Units: mg/Kg		Analysis Date: 2/11/2013 11:06 AM			
Client ID:	Run ID: FID-7_130211A				SeqNo: 3109863		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Oil Range)	U	3.4								
TPH (Diesel Range)	U	1.7								
<i>Surr: 2-Fluorobiphenyl</i>	2.223	0.10	3.33	0	66.8	60-135	0			

LCS	Sample ID: FLCSS1-130208-67694				Units: mg/Kg		Analysis Date: 2/11/2013 11:30 AM			
Client ID:	Run ID: FID-7_130211A				SeqNo: 3109864		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Oil Range)	26.93	3.4	33.33	0	80.8	70-130	0			
TPH (Diesel Range)	32.23	1.7	33.33	0	96.7	70-130	0			
<i>Surr: 2-Fluorobiphenyl</i>	2.189	0.10	3.33	0	65.7	60-135	0			

MS	Sample ID: 1302130-07CMS				Units: mg/Kg		Analysis Date: 2/11/2013 02:14 PM			
Client ID:	Run ID: FID-7_130211A				SeqNo: 3109869		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Oil Range)	30.4	3.4	33.3	0.924	88.5	70-130	0			
TPH (Diesel Range)	33.5	1.7	33.3	0.04855	100	70-130	0			
<i>Surr: 2-Fluorobiphenyl</i>	2.122	0.10	3.327	0	63.8	60-135	0			

MSD	Sample ID: 1302130-07CMSD				Units: mg/Kg		Analysis Date: 2/11/2013 02:38 PM			
Client ID:	Run ID: FID-7_130211A				SeqNo: 3109870		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Oil Range)	29.07	3.4	33.3	0.924	84.5	70-130	30.4	4.49	30	
TPH (Diesel Range)	32.78	1.7	33.3	0.04855	98.3	70-130	33.5	2.19	30	
<i>Surr: 2-Fluorobiphenyl</i>	2.058	0.10	3.327	0	61.9	60-135	2.122	3.09	30	

The following samples were analyzed in this batch:

1302213-01C	1302213-15C	1302213-16C
1302213-30C		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 1 of 23

Client: Navajo Refining Company
Work Order: 1302213
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142598** Instrument ID **FID-9** Method: **SW8015**

MBLK	Sample ID: GBLKS-130208-R142598				Units: mg/Kg		Analysis Date: 2/8/2013 11:29 AM			
Client ID:	Run ID: FID-9_130208A				SeqNo: 3110069		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	U	0.050								
Surr: 4-Bromofluorobenzene	0.08244	0.0050	0.1	0	82.4	70-130	0			

LCS	Sample ID: GLCSS-130208-R142598				Units: mg/Kg		Analysis Date: 2/8/2013 10:51 AM			
Client ID:	Run ID: FID-9_130208A				SeqNo: 3110067		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	1.066	0.050	1	0	107	70-130	0			
Surr: 4-Bromofluorobenzene	0.08679	0.0050	0.1	0	86.8	70-130	0			

LCSD	Sample ID: GLCSDS-130208-R142598				Units: mg/Kg		Analysis Date: 2/8/2013 11:10 AM			
Client ID:	Run ID: FID-9_130208A				SeqNo: 3110068		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	1.046	0.050	1	0	105	70-130	1.066	1.92	30	
Surr: 4-Bromofluorobenzene	0.08518	0.0050	0.1	0	85.2	70-130	0.08679	1.86	30	

MS	Sample ID: 1302130-05BMS				Units: mg/Kg		Analysis Date: 2/8/2013 02:46 PM			
Client ID:	Run ID: FID-9_130208A				SeqNo: 3110078		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	1.048	0.050	1	0	105	70-130	0			
Surr: 4-Bromofluorobenzene	0.08551	0.0050	0.1	0	85.5	70-130	0			

MSD	Sample ID: 1302130-05BMSD				Units: mg/Kg		Analysis Date: 2/8/2013 03:05 PM			
Client ID:	Run ID: FID-9_130208A				SeqNo: 3110079		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	1.019	0.050	1	0	102	70-130	1.048	2.82	30	
Surr: 4-Bromofluorobenzene	0.08438	0.0050	0.1	0	84.4	70-130	0.08551	1.33	30	

The following samples were analyzed in this batch:

1302213-01B	1302213-15B	1302213-16B
1302213-30B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302213
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67688** Instrument ID **ICPMS05** Method: **SW6020**

MBLK Sample ID: **MBLKS1-020813-67688** Units: **mg/Kg** Analysis Date: **2/8/2013 03:52 PM**

Client ID: Run ID: **ICPMS05_130208A** SeqNo: **3107176** Prep Date: **2/8/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.4223	1.0								J
Arsenic	U	0.50								
Barium	U	0.50								
Cadmium	U	0.50								
Calcium	U	50								
Chromium	U	0.50								
Cobalt	U	0.50								
Copper	0.2178	0.50								J
Iron	U	50								
Lead	U	0.50								
Manganese	U	0.50								
Molybdenum	U	0.50								
Nickel	U	0.50								
Potassium	U	50								
Selenium	U	0.50								
Silver	U	0.50								
Uranium	U	0.50								
Zinc	U	0.50								

MBLK Sample ID: **MBLKS1-020813-67688** Units: **mg/Kg** Analysis Date: **2/11/2013 02:05 PM**

Client ID: Run ID: **ICPMS05_130211A** SeqNo: **3108768** Prep Date: **2/8/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	U	2.5								
Sodium	U	50								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302213
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67688** Instrument ID **ICPMS05** Method: **SW6020**

LCS		Sample ID: MLCSS1-020813-67688				Units: mg/Kg		Analysis Date: 2/8/2013 03:54 PM		
Client ID:		Run ID: ICPMS05_130208A				SeqNo: 3107177		Prep Date: 2/8/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	9.551	1.0	10	0	95.5	80-120	0			
Arsenic	9.288	0.50	10	0	92.9	80-120	0			
Barium	9.21	0.50	10	0	92.1	80-120	0			
Cadmium	8.995	0.50	10	0	89.9	80-120	0			
Calcium	876.4	50	1000	0	87.6	80-120	0			
Chromium	9.365	0.50	10	0	93.7	80-120	0			
Cobalt	9.464	0.50	10	0	94.6	80-120	0			
Copper	9.594	0.50	10	0	95.9	80-120	0			
Iron	918.6	50	1000	0	91.9	80-120	0			
Lead	9.292	0.50	10	0	92.9	80-120	0			
Manganese	9.29	0.50	10	0	92.9	80-120	0			
Molybdenum	9.045	0.50	10	0	90.4	80-120	0			
Nickel	9.358	0.50	10	0	93.6	80-120	0			
Potassium	866.4	50	1000	0	86.6	80-120	0			
Selenium	9.645	0.50	10	0	96.4	80-120	0			
Silver	9.071	0.50	10	0	90.7	80-120	0			
Uranium	9.13	0.50	10	0	91.3	80-120	0			
Zinc	9.501	0.50	10	0	95	80-120	0			

LCS		Sample ID: MLCSS1-020813-67688				Units: mg/Kg		Analysis Date: 2/11/2013 02:07 PM		
Client ID:		Run ID: ICPMS05_130211A				SeqNo: 3108769		Prep Date: 2/8/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	48.15	2.5	50	0	96.3	80-120	0			
Sodium	959.9	50	1000	0	96	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302213
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67688** Instrument ID **ICPMS05** Method: **SW6020**

MS		Sample ID: 1302251-01BMS				Units: mg/Kg		Analysis Date: 2/8/2013 04:13 PM		
Client ID:		Run ID: ICPMS05_130208A				SeqNo: 3107188		Prep Date: 2/8/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	7184	0.94	9.362	5268	20500	75-125	0			SEO
Arsenic	10.43	0.47	9.362	1.442	96	75-125	0			
Barium	36.97	0.47	9.362	27.73	98.7	75-125	0			
Cadmium	8.679	0.47	9.362	0.007344	92.6	75-125	0			
Calcium	1444	47	936.2	563.6	94	75-125	0			
Chromium	15.45	0.47	9.362	5.189	110	75-125	0			
Cobalt	10.01	0.47	9.362	0.9823	96.4	75-125	0			
Copper	11.14	0.47	9.362	2.43	93	75-125	0			
Iron	6750	47	936.2	4746	214	75-125	0			SO
Lead	13.34	0.47	9.362	4.276	96.8	75-125	0			
Manganese	19.81	0.47	9.362	8.513	121	75-125	0			
Molybdenum	8.064	0.47	9.362	0.124	84.8	75-125	0			
Nickel	11.16	0.47	9.362	2.036	97.5	75-125	0			
Potassium	1214	47	936.2	302.4	97.4	75-125	0			
Selenium	8.572	0.47	9.362	0.1601	89.8	75-125	0			
Silver	8.625	0.47	9.362	0.03348	91.8	75-125	0			
Uranium	8.882	0.47	9.362	0.4215	90.4	75-125	0			
Zinc	17.66	0.47	9.362	6.006	124	75-125	0			

MS		Sample ID: 1302251-01BMS				Units: mg/Kg		Analysis Date: 2/11/2013 01:04 PM		
Client ID:		Run ID: ICPMS05_130211A				SeqNo: 3108707		Prep Date: 2/8/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	43.62	2.3	46.81	2.12	88.6	75-125	0			
Sodium	1460	47	936.2	523	100	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302213
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67688** Instrument ID **ICPMS05** Method: **SW6020**

MSD		Sample ID: 1302251-01BMSD				Units: mg/Kg		Analysis Date: 2/8/2013 04:15 PM		
Client ID:		Run ID: ICPMS05_130208A				SeqNo: 3107189		Prep Date: 2/8/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	7085	0.93	9.322	5268	19500	75-125	7184	1.39	25	SEO
Arsenic	10.04	0.47	9.322	1.442	92.3	75-125	10.43	3.79	25	
Barium	36.69	0.47	9.322	27.73	96.1	75-125	36.97	0.768	25	SO
Cadmium	8.191	0.47	9.322	0.007344	87.8	75-125	8.679	5.79	25	
Calcium	1351	47	932.2	563.6	84.5	75-125	1444	6.62	25	
Chromium	15.48	0.47	9.322	5.189	110	75-125	15.45	0.204	25	
Cobalt	9.642	0.47	9.322	0.9823	92.9	75-125	10.01	3.71	25	
Copper	11.09	0.47	9.322	2.43	92.9	75-125	11.14	0.462	25	
Iron	6733	47	932.2	4746	213	75-125	6750	0.25	25	
Lead	13.07	0.47	9.322	4.276	94.4	75-125	13.34	1.99	25	
Manganese	19.66	0.47	9.322	8.513	120	75-125	19.81	0.784	25	
Molybdenum	8.081	0.47	9.322	0.124	85.4	75-125	8.064	0.211	25	
Nickel	10.93	0.47	9.322	2.036	95.4	75-125	11.16	2.13	25	
Potassium	1177	47	932.2	302.4	93.8	75-125	1214	3.09	25	
Selenium	8.376	0.47	9.322	0.1601	88.1	75-125	8.572	2.31	25	
Silver	8.161	0.47	9.322	0.03348	87.2	75-125	8.625	5.53	25	
Uranium	8.588	0.47	9.322	0.4215	87.6	75-125	8.882	3.37	25	
Zinc	16.13	0.47	9.322	6.006	109	75-125	17.66	9.04	25	

MSD		Sample ID: 1302251-01BMSD				Units: mg/Kg		Analysis Date: 2/11/2013 01:06 PM		
Client ID:		Run ID: ICPMS05_130211A				SeqNo: 3108708		Prep Date: 2/8/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	43.49	2.3	46.61	2.12	88.8	75-125	43.62	0.292	25	
Sodium	1364	47	932.2	523	90.2	75-125	1460	6.78	25	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302213
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67688** Instrument ID **ICPMS05** Method: **SW6020**

DUP Sample ID: **1302251-01BDUP** Units: **mg/Kg** Analysis Date: **2/8/2013 04:11 PM**
Client ID: Run ID: **ICPMS05_130208A** SeqNo: **3107184** Prep Date: **2/8/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	1.432	0.47	0	0	0	0-0	1.442	0.69	25	
Barium	25.82	0.47	0	0	0	0-0	27.73	7.13	25	
Cadmium	U	0.47	0	0	0	0-0	0.007344	0	25	
Calcium	524.9	47	0	0	0	0-0	563.6	7.12	25	
Chromium	5.187	0.47	0	0	0	0-0	5.189	0.0449	25	
Cobalt	0.8574	0.47	0	0	0	0-0	0.9823	13.6	25	
Copper	1.648	0.47	0	0	0	0-0	2.43	38.4	25	R
Iron	4243	47	0	0	0	0-0	4746	11.2	25	
Lead	4.189	0.47	0	0	0	0-0	4.276	2.05	25	
Manganese	8.105	0.47	0	0	0	0-0	8.513	4.9	25	
Molybdenum	0.1995	0.47	0	0	0	0-0	0.124	0	25	J
Nickel	1.848	0.47	0	0	0	0-0	2.036	9.68	25	
Potassium	302	47	0	0	0	0-0	302.4	0.125	25	
Selenium	0.4194	0.47	0	0	0	0-0	0.1601	0	25	J
Silver	U	0.47	0	0	0	0-0	0.03348	0	25	
Uranium	U	0.47	0	0	0		0.4215	0	25	
Zinc	5.742	0.47	0	0	0	0-0	6.006	4.49	25	

DUP Sample ID: **1302251-01BDUP** Units: **mg/Kg** Analysis Date: **2/11/2013 02:12 PM**
Client ID: Run ID: **ICPMS05_130211A** SeqNo: **3108771** Prep Date: **2/8/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	5438	0.94	0	0	0	0-0	5931	8.68	25	E
Boron	2.326	2.4	0	0	0	0-0	2.847	0	25	J
Sodium	657.7	47	0	0	0	0-0	721.9	9.3	25	

The following samples were analyzed in this batch:

1302213-01D	1302213-03A	1302213-06A
1302213-09A	1302213-12A	1302213-15D
1302213-16D	1302213-18A	1302213-21A
1302213-24A	1302213-27A	1302213-30D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302213
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67786** Instrument ID **HG02** Method: **SW7471A**

MBLK	Sample ID: GBLKS1-021313-67786				Units: µg/Kg		Analysis Date: 2/13/2013 01:42 PM			
Client ID:	Run ID: HG02_130213A				SeqNo: 3112188		Prep Date: 2/13/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	3.3								

LCS	Sample ID: GLCSS1-021313-67786				Units: µg/Kg		Analysis Date: 2/13/2013 01:44 PM			
Client ID:	Run ID: HG02_130213A				SeqNo: 3112190		Prep Date: 2/13/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	346	3.3	333.3	0	104	85-115	0			

MS	Sample ID: 1302213-18AMS				Units: µg/Kg		Analysis Date: 2/13/2013 01:50 PM			
Client ID: MW-119 (5)	Run ID: HG02_130213A				SeqNo: 3112197		Prep Date: 2/13/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	337.1	3.4	346.1	5.633	95.8	85-115	0			

MSD	Sample ID: 1302213-18AMSD				Units: µg/Kg		Analysis Date: 2/13/2013 01:52 PM			
Client ID: MW-119 (5)	Run ID: HG02_130213A				SeqNo: 3112199		Prep Date: 2/13/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	348.7	3.4	345.9	5.633	99.2	85-115	337.1	3.38	20	

DUP	Sample ID: 1302213-18ADUP				Units: µg/Kg		Analysis Date: 2/13/2013 01:48 PM			
Client ID: MW-119 (5)	Run ID: HG02_130213A				SeqNo: 3112194		Prep Date: 2/13/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	5.832	3.5	0	0	0		5.633	3.48	20	

The following samples were analyzed in this batch:

1302213-01D	1302213-03A	1302213-06A
1302213-09A	1302213-12A	1302213-15D
1302213-16D	1302213-18A	1302213-21A
1302213-24A	1302213-27A	1302213-30D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302213
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67741** Instrument ID **SV-4** Method: **SW8270**

MBLK Sample ID: **SBLKS2-130211-67741** Units: **µg/Kg** Analysis Date: **2/12/2013 07:15 PM**
 Client ID: Run ID: **SV-4_130212A** SeqNo: **3112136** Prep Date: **2/11/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	U	6.6								
2-Methylnaphthalene	U	6.6								
Benzo(a)pyrene	U	6.6								
Naphthalene	U	6.6								
Surr: 2,4,6-Tribromophenol	107.3	6.6	166.7	0	64.4	36-126	0			
Surr: 2-Fluorobiphenyl	131	6.6	166.7	0	78.6	43-125	0			
Surr: 2-Fluorophenol	128.7	6.6	166.7	0	77.2	37-125	0			
Surr: 4-Terphenyl-d14	147.3	6.6	166.7	0	88.4	32-125	0			
Surr: Nitrobenzene-d5	122.4	6.6	166.7	0	73.4	37-125	0			
Surr: Phenol-d6	127	6.6	166.7	0	76.2	40-125	0			

LCS Sample ID: **SLCSS2-130211-67741** Units: **µg/Kg** Analysis Date: **2/12/2013 07:35 PM**
 Client ID: Run ID: **SV-4_130212A** SeqNo: **3112137** Prep Date: **2/11/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	134.8	6.6	166.7	0	80.9	50-120	0			
2-Methylnaphthalene	137	6.6	166.7	0	82.2	50-120	0			
Benzo(a)pyrene	101.1	6.6	166.7	0	60.7	50-130	0			
Naphthalene	133.1	6.6	166.7	0	79.8	50-125	0			
Surr: 2,4,6-Tribromophenol	124.5	6.6	166.7	0	74.7	36-126	0			
Surr: 2-Fluorobiphenyl	128.1	6.6	166.7	0	76.9	43-125	0			
Surr: 2-Fluorophenol	125.8	6.6	166.7	0	75.5	37-125	0			
Surr: 4-Terphenyl-d14	146.9	6.6	166.7	0	88.1	32-125	0			
Surr: Nitrobenzene-d5	121.8	6.6	166.7	0	73.1	37-125	0			
Surr: Phenol-d6	122.8	6.6	166.7	0	73.7	40-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302213
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67741** Instrument ID **SV-4** Method: **SW8270**

MS Sample ID: 1302175-02BMS				Units: µg/Kg			Analysis Date: 2/12/2013 08:16 PM			
Client ID:		Run ID: SV-4_130212A		SeqNo: 3112139		Prep Date: 2/11/2013		DF: 10		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	699.3	66	166.4	583.8	69.4	50-120	0			
2-Methylnaphthalene	132.4	66	166.4	0	79.6	50-120	0			
Benzo(a)pyrene	101.7	66	166.4	0	61.1	50-130	0			
Naphthalene	159.1	66	166.4	0	95.6	50-125	0			
Surr: 2,4,6-Tribromophenol	124.4	66	166.4	0	74.7	36-126	0			
Surr: 2-Fluorobiphenyl	163.5	66	166.4	0	98.2	43-125	0			
Surr: 2-Fluorophenol	93.61	66	166.4	0	56.3	37-125	0			
Surr: 4-Terphenyl-d14	151.1	66	166.4	0	90.8	32-125	0			
Surr: Nitrobenzene-d5	130.9	66	166.4	0	78.7	37-125	0			
Surr: Phenol-d6	186.6	66	166.4	0	112	40-125	0			

MSD Sample ID: 1302175-02BMSD				Units: µg/Kg			Analysis Date: 2/12/2013 08:36 PM			
Client ID:		Run ID: SV-4_130212A		SeqNo: 3112140		Prep Date: 2/11/2013		DF: 10		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	723.6	66	166.3	583.8	84	50-120	699.3	3.42	30	
2-Methylnaphthalene	109	66	166.3	0	65.5	50-120	132.4	19.4	30	
Benzo(a)pyrene	98.85	66	166.3	0	59.4	50-130	101.7	2.84	30	
Naphthalene	150.2	66	166.3	0	90.3	50-125	159.1	5.72	30	
Surr: 2,4,6-Tribromophenol	131.7	66	166.3	0	79.2	36-126	124.4	5.72	30	
Surr: 2-Fluorobiphenyl	151.5	66	166.3	0	91.1	43-125	163.5	7.63	30	
Surr: 2-Fluorophenol	113.3	66	166.3	0	68.1	37-125	93.61	19.1	30	
Surr: 4-Terphenyl-d14	147.9	66	166.3	0	88.9	32-125	151.1	2.1	30	
Surr: Nitrobenzene-d5	112.5	66	166.3	0	67.6	37-125	130.9	15.1	30	
Surr: Phenol-d6	111.5	66	166.3	0	67	40-125	186.6	50.4	30	R

The following samples were analyzed in this batch:

1302213-01C	1302213-15C	1302213-16C
1302213-30C		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302213
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142332** Instrument ID **VOA5** Method: **SW8260**

MBLK Sample ID: **VBLKS1-020813-R142332** Units: **µg/Kg** Analysis Date: **2/8/2013 08:51 AM**

Client ID: Run ID: **VOA5_130208A** SeqNo: **3105805** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	5.0								
1,1,2,2-Tetrachloroethane	U	5.0								
1,1,2-Trichloroethane	U	5.0								
1,1-Dichloroethane	U	5.0								
1,1-Dichloroethene	U	5.0								
1,2-Dibromoethane	U	5.0								
1,2-Dichloroethane	U	5.0								
Benzene	U	5.0								
Carbon tetrachloride	U	5.0								
Chloroform	U	5.0								
Ethylbenzene	U	5.0								
Methylene chloride	U	10								
Tetrachloroethene	U	5.0								
Toluene	U	5.0								
Trichloroethene	U	5.0								
Vinyl chloride	U	2.0								
Xylenes, Total	U	15								
Surr: 1,2-Dichloroethane-d4	48.35	0	50	0	96.7	70-128	0			
Surr: 4-Bromofluorobenzene	47.21	0	50	0	94.4	73-126	0			
Surr: Dibromofluoromethane	49.57	0	50	0	99.1	71-128	0			
Surr: Toluene-d8	50.84	0	50	0	102	73-127	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302213
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142332** Instrument ID **VOA5** Method: **SW8260**

LCS Sample ID: **VLCSS1-020813-R142332** Units: **µg/Kg** Analysis Date: **2/8/2013 08:06 AM**

Client ID: Run ID: **VOA5_130208A** SeqNo: **3105804** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	50.93	5.0	50	0	102	79-124	0			
1,1,2,2-Tetrachloroethane	43.86	5.0	50	0	87.7	75-123	0			
1,1,2-Trichloroethane	46.4	5.0	50	0	92.8	79-120	0			
1,1-Dichloroethane	47.42	5.0	50	0	94.8	75-124	0			
1,1-Dichloroethene	41.54	5.0	50	0	83.1	80-122	0			
1,2-Dibromoethane	46.55	5.0	50	0	93.1	79-120	0			
1,2-Dichloroethane	49.08	5.0	50	0	98.2	73-121	0			
Benzene	49.42	5.0	50	0	98.8	79-120	0			
Carbon tetrachloride	48.23	5.0	50	0	96.5	74-126	0			
Chloroform	49.47	5.0	50	0	98.9	78-120	0			
Ethylbenzene	48.58	5.0	50	0	97.2	80-122	0			
Methylene chloride	48.46	10	50	0	96.9	70-123	0			
Tetrachloroethene	46.35	5.0	50	0	92.7	80-121	0			
Toluene	48.79	5.0	50	0	97.6	79-120	0			
Trichloroethene	50.47	5.0	50	0	101	80-121	0			
Vinyl chloride	49.07	2.0	50	0	98.1	76-126	0			
Xylenes, Total	148.3	15	150	0	98.9	80-120	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	49.87	0	50	0	99.7	70-128	0			
<i>Surr: 4-Bromofluorobenzene</i>	49.17	0	50	0	98.3	73-126	0			
<i>Surr: Dibromofluoromethane</i>	50.57	0	50	0	101	71-128	0			
<i>Surr: Toluene-d8</i>	48.65	0	50	0	97.3	73-127	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302213
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142332** Instrument ID **VOA5** Method: **SW8260**

MS		Sample ID: 1302237-05AMS				Units: µg/Kg		Analysis Date: 2/8/2013 11:31 AM		
Client ID:		Run ID: VOA5_130208A				SeqNo: 3106577		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	53.69	5.0	50	0	107	79-124	0			
1,1,2,2-Tetrachloroethane	43.64	5.0	50	0	87.3	75-123	0			
1,1,2-Trichloroethane	46.42	5.0	50	0	92.8	79-120	0			
1,1-Dichloroethane	51.53	5.0	50	0	103	75-124	0			
1,1-Dichloroethene	47.74	5.0	50	0	95.5	80-122	0			
1,2-Dibromoethane	47.24	5.0	50	0	94.5	79-120	0			
1,2-Dichloroethane	49.61	5.0	50	0	99.2	73-121	0			
Benzene	54.96	5.0	50	1.572	107	79-120	0			
Carbon tetrachloride	50.46	5.0	50	0	101	74-126	0			
Chloroform	54.12	5.0	50	0	108	78-120	0			
Ethylbenzene	50	5.0	50	0	100	80-122	0			
Methylene chloride	49.54	10	50	0	99.1	70-123	0			
Tetrachloroethene	46.55	5.0	50	0	93.1	80-121	0			
Toluene	52.61	5.0	50	1.122	103	79-120	0			
Trichloroethene	54.13	5.0	50	0	108	80-121	0			
Vinyl chloride	51.46	2.0	50	0	103	76-126	0			
Xylenes, Total	153	15	150	0	102	80-120	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	48.02	0	50	0	96	70-128	0			
<i>Surr: 4-Bromofluorobenzene</i>	49.6	0	50	0	99.2	73-126	0			
<i>Surr: Dibromofluoromethane</i>	49.01	0	50	0	98	71-128	0			
<i>Surr: Toluene-d8</i>	49.1	0	50	0	98.2	73-127	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302213
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142332** Instrument ID **VOA5** Method: **SW8260**

MSD		Sample ID: 1302237-05AMSD				Units: µg/Kg		Analysis Date: 2/8/2013 11:54 AM		
Client ID:		Run ID: VOA5_130208A				SeqNo: 3106578		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	53.75	5.0	50	0	107	79-124	53.69	0.113	30	
1,1,2,2-Tetrachloroethane	44.34	5.0	50	0	88.7	75-123	43.64	1.58	30	
1,1,2-Trichloroethane	48.38	5.0	50	0	96.8	79-120	46.42	4.14	30	
1,1-Dichloroethane	51.5	5.0	50	0	103	75-124	51.53	0.0479	30	
1,1-Dichloroethene	44.04	5.0	50	0	88.1	80-122	47.74	8.05	30	
1,2-Dibromoethane	48.04	5.0	50	0	96.1	79-120	47.24	1.69	30	
1,2-Dichloroethane	47.39	5.0	50	0	94.8	73-121	49.61	4.57	30	
Benzene	57.93	5.0	50	1.572	113	79-120	54.96	5.25	30	
Carbon tetrachloride	50.3	5.0	50	0	101	74-126	50.46	0.329	30	
Chloroform	52.68	5.0	50	0	105	78-120	54.12	2.71	30	
Ethylbenzene	48.83	5.0	50	0	97.7	80-122	50	2.36	30	
Methylene chloride	51.56	10	50	0	103	70-123	49.54	3.99	30	
Tetrachloroethene	47.71	5.0	50	0	95.4	80-121	46.55	2.44	30	
Toluene	54.74	5.0	50	1.122	107	79-120	52.61	3.97	30	
Trichloroethene	54.27	5.0	50	0	109	80-121	54.13	0.251	30	
Vinyl chloride	51.8	2.0	50	0	104	76-126	51.46	0.65	30	
Xylenes, Total	146	15	150	0	97.4	80-120	153	4.68	30	
Surr: 1,2-Dichloroethane-d4	46.98	0	50	0	94	70-128	48.02	2.19	30	
Surr: 4-Bromofluorobenzene	49.03	0	50	0	98.1	73-126	49.6	1.17	30	
Surr: Dibromofluoromethane	49.86	0	50	0	99.7	71-128	49.01	1.73	30	
Surr: Toluene-d8	48.96	0	50	0	97.9	73-127	49.1	0.276	30	

The following samples were analyzed in this batch:

1302213-01A	1302213-15A	1302213-16A
1302213-30A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302213
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142411** Instrument ID **VOA4** Method: **SW8260**

MBLK Sample ID: **VBLKW-130208-R142411** Units: **µg/L** Analysis Date: **2/8/2013 03:28 PM**

Client ID: Run ID: **VOA4_130208A** SeqNo: **3107211** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichloroethane	U	1.0								
Benzene	U	1.0								
Carbon tetrachloride	U	1.0								
Chloroform	U	1.0								
Ethylbenzene	U	1.0								
Methylene chloride	U	2.0								
Tetrachloroethene	U	1.0								
Toluene	U	1.0								
Trichloroethene	U	1.0								
Vinyl chloride	U	1.0								
Xylenes, Total	U	1.0								
Surr: 1,2-Dichloroethane-d4	49.26	1.0	50	0	98.5	71-125	0			
Surr: 4-Bromofluorobenzene	50.97	1.0	50	0	102	70-125	0			
Surr: Dibromofluoromethane	49.88	1.0	50	0	99.8	74-125	0			
Surr: Toluene-d8	52.35	1.0	50	0	105	78-123	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302213
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142411** Instrument ID **VOA4** Method: **SW8260**

LCS Sample ID: **VLCSW-130208-R142411** Units: **µg/L** Analysis Date: **2/8/2013 02:39 PM**

Client ID: Run ID: **VOA4_130208A** SeqNo: **3107210** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	52.86	1.0	50	0	106	80-120	0			
1,1,2,2-Tetrachloroethane	47.98	1.0	50	0	96	74-123	0			
1,1,2-Trichloroethane	50.07	1.0	50	0	100	80-120	0			
1,1-Dichloroethane	50.7	1.0	50	0	101	80-120	0			
1,1-Dichloroethene	54.16	1.0	50	0	108	80-120	0			
1,2-Dibromoethane	51.59	1.0	50	0	103	80-120	0			
1,2-Dichloroethane	48.17	1.0	50	0	96.3	79-120	0			
Benzene	47.86	1.0	50	0	95.7	80-120	0			
Carbon tetrachloride	48.36	1.0	50	0	96.7	79-120	0			
Chloroform	48.15	1.0	50	0	96.3	80-120	0			
Ethylbenzene	49.39	1.0	50	0	98.8	80-120	0			
Methylene chloride	50.36	2.0	50	0	101	75-125	0			
Tetrachloroethene	51.48	1.0	50	0	103	80-120	0			
Toluene	49.61	1.0	50	0	99.2	80-121	0			
Trichloroethene	51.24	1.0	50	0	102	80-120	0			
Vinyl chloride	53.9	1.0	50	0	108	75-125	0			
Xylenes, Total	146.1	1.0	150	0	97.4	80-124	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	47.45	1.0	50	0	94.9	71-125	0			
<i>Surr: 4-Bromofluorobenzene</i>	53.53	1.0	50	0	107	70-125	0			
<i>Surr: Dibromofluoromethane</i>	50.08	1.0	50	0	100	74-125	0			
<i>Surr: Toluene-d8</i>	51.42	1.0	50	0	103	78-123	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302213
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142411** Instrument ID **VOA4** Method: **SW8260**

MS		Sample ID: 1302186-03AMS			Units: µg/L		Analysis Date: 2/8/2013 05:05 PM			
Client ID:		Run ID: VOA4_130208A			SeqNo: 3107855		Prep Date:		DF: 100	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	5465	100	5000	0	109	80-120	0			
1,1,2,2-Tetrachloroethane	4608	100	5000	0	92.2	74-123	0			
1,1,2-Trichloroethane	4986	100	5000	0	99.7	80-120	0			
1,1-Dichloroethane	5028	100	5000	0	101	80-120	0			
1,1-Dichloroethene	5538	100	5000	0	111	80-120	0			
1,2-Dibromoethane	5196	100	5000	0	104	80-120	0			
1,2-Dichloroethane	5039	100	5000	0	101	79-120	0			
Benzene	10820	100	5000	5736	102	80-120	0			
Carbon tetrachloride	4875	100	5000	0	97.5	79-120	0			
Chloroform	4926	100	5000	0	98.5	80-120	0			
Ethylbenzene	5806	100	5000	730.1	102	80-120	0			
Methylene chloride	5077	200	5000	0	102	75-125	0			
Tetrachloroethene	5283	100	5000	0	106	80-120	0			
Toluene	6015	100	5000	951	101	80-121	0			
Trichloroethene	5148	100	5000	0	103	80-120	0			
Vinyl chloride	5413	100	5000	0	108	75-125	0			
Xylenes, Total	16630	100	15000	1612	100	80-124	0			
Surr: 1,2-Dichloroethane-d4	4817	100	5000	0	96.3	71-125	0			
Surr: 4-Bromofluorobenzene	5461	100	5000	0	109	70-125	0			
Surr: Dibromofluoromethane	5005	100	5000	0	100	74-125	0			
Surr: Toluene-d8	5199	100	5000	0	104	78-123	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302213
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142411** Instrument ID **VOA4** Method: **SW8260**

MSD		Sample ID: 1302186-03AMSD			Units: µg/L			Analysis Date: 2/8/2013 05:30 PM		
Client ID:		Run ID: VOA4_130208A			SeqNo: 3107856			Prep Date: DF: 100		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	5339	100	5000	0	107	80-120	5465	2.34	20	
1,1,2,2-Tetrachloroethane	4755	100	5000	0	95.1	74-123	4608	3.15	20	
1,1,2-Trichloroethane	4957	100	5000	0	99.1	80-120	4986	0.589	20	
1,1-Dichloroethane	5015	100	5000	0	100	80-120	5028	0.268	20	
1,1-Dichloroethene	5299	100	5000	0	106	80-120	5538	4.4	20	
1,2-Dibromoethane	5263	100	5000	0	105	80-120	5196	1.3	20	
1,2-Dichloroethane	5061	100	5000	0	101	79-120	5039	0.453	20	
Benzene	10490	100	5000	5736	95	80-120	10820	3.18	20	
Carbon tetrachloride	4761	100	5000	0	95.2	79-120	4875	2.36	20	
Chloroform	4821	100	5000	0	96.4	80-120	4926	2.15	20	
Ethylbenzene	5600	100	5000	730.1	97.4	80-120	5806	3.61	20	
Methylene chloride	5082	200	5000	0	102	75-125	5077	0.09	20	
Tetrachloroethene	5072	100	5000	0	101	80-120	5283	4.06	20	
Toluene	5842	100	5000	951	97.8	80-121	6015	2.92	20	
Trichloroethene	4962	100	5000	0	99.2	80-120	5148	3.69	20	
Vinyl chloride	5259	100	5000	0	105	75-125	5413	2.88	20	
Xylenes, Total	16150	100	15000	1612	96.9	80-124	16630	2.92	20	
Surr: 1,2-Dichloroethane-d4	4925	100	5000	0	98.5	71-125	4817	2.21	20	
Surr: 4-Bromofluorobenzene	5363	100	5000	0	107	70-125	5461	1.82	20	
Surr: Dibromofluoromethane	5107	100	5000	0	102	74-125	5005	2.01	20	
Surr: Toluene-d8	5145	100	5000	0	103	78-123	5199	1.05	20	

The following samples were analyzed in this batch:

1302213-31A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302213
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67808** Instrument ID **UV-2450** Method: **SW9014** (Dissolve)

MBLK Sample ID: **WBLKS1-021413-67808** Units: **mg/Kg** Analysis Date: **2/14/2013 03:00 PM**

Client ID: Run ID: **UV-2450_130214F** SeqNo: **3114919** Prep Date: **2/14/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	U	2.0								

LCS Sample ID: **WLCSS1-021413-67808** Units: **mg/Kg** Analysis Date: **2/14/2013 03:00 PM**

Client ID: Run ID: **UV-2450_130214F** SeqNo: **3114920** Prep Date: **2/14/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	9.5	2.0	10	0	95	80-120	0			

LCSD Sample ID: **WLCSDS1-021413-67808** Units: **mg/Kg** Analysis Date: **2/14/2013 03:00 PM**

Client ID: Run ID: **UV-2450_130214F** SeqNo: **3114932** Prep Date: **2/14/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	9.2	2.0	10	0	92	80-120	9.5	3.21	30	

MS Sample ID: **1302213-12BMS** Units: **mg/Kg** Analysis Date: **2/14/2013 03:00 PM**

Client ID: **MW-118 (20)** Run ID: **UV-2450_130214F** SeqNo: **3114933** Prep Date: **2/14/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	9.377	1.8	8.846	0	106	75-125	0			

The following samples were analyzed in this batch:

1302213-01E	1302213-03B	1302213-06B
1302213-09B	1302213-12B	1302213-18B
1302213-21B	1302213-24B	1302213-27B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302213
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67821** Instrument ID **ICS2100** Method: **E300** **(Dissolve)**

MBLK	Sample ID: WBLKS1-67821			Units: mg/Kg			Analysis Date: 2/13/2013 06:20 PM			
Client ID:	Run ID: ICS2100_130213A			SeqNo: 3113807			Prep Date: 2/13/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	2.63	5.0								J
Fluoride	U	1.0								
Nitrogen, Nitrate (As N)	0.65	1.0								J
Nitrogen, Nitrite (As N)	U	1.0								
Sulfate	U	5.0								
<i>Surr: Selenate (surr)</i>	47.69	1.0	50	0	95.4	85-115	0			

LCS	Sample ID: WLCSS1-67821			Units: mg/Kg			Analysis Date: 2/13/2013 06:35 PM			
Client ID:	Run ID: ICS2100_130213A			SeqNo: 3113808			Prep Date: 2/13/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	218.3	5.0	200	0	109	90-110	0			
Fluoride	36.81	1.0	40	0	92	90-110	0			
Nitrogen, Nitrate (As N)	42.43	1.0	40	0	106	90-110	0			
Nitrogen, Nitrite (As N)	43.2	1.0	40	0	108	90-110	0			
Sulfate	209.7	5.0	200	0	105	90-110	0			
<i>Surr: Selenate (surr)</i>	46.98	1.0	50	0	94	85-115	0			

MS	Sample ID: 1302386-02AMS			Units: mg/Kg			Analysis Date: 2/13/2013 10:57 PM			
Client ID:	Run ID: ICS2100_130213A			SeqNo: 3113826			Prep Date: 2/13/2013		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	447.7	23	455.4	0	98.3	75-125	0			
Fluoride	83.99	4.6	91.09	0	92.2	75-125	0			
Nitrogen, Nitrate (As N)	92.65	4.6	91.09	0	102	75-125	0			
Nitrogen, Nitrite (As N)	96.77	4.6	91.09	0	106	75-125	0			
Sulfate	465.2	23	455.4	13.54	99.2	75-125	0			
<i>Surr: Selenate (surr)</i>	199.5	4.6	227.7	0	87.6	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302213
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67821** Instrument ID **ICS2100** Method: **E300** **(Dissolve)**

MSD		Sample ID: 1302386-02AMSD				Units: mg/Kg		Analysis Date: 2/13/2013 11:11 PM		
Client ID:		Run ID: ICS2100_130213A				SeqNo: 3113827		Prep Date: 2/13/2013		DF: 5
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	452.7	23	454.4	0	99.6	75-125	447.7	1.11	20	
Fluoride	85.05	4.5	90.89	0	93.6	75-125	83.99	1.24	20	
Nitrogen, Nitrate (As N)	93.85	4.5	90.89	0	103	75-125	92.65	1.29	20	
Nitrogen, Nitrite (As N)	97.46	4.5	90.89	0	107	75-125	96.77	0.707	20	
Sulfate	469.6	23	454.4	13.54	100	75-125	465.2	0.954	20	
<i>Surr: Selenate (surr)</i>	202.4	4.5	227.2	0	89.1	80-120	199.5	1.43	20	

The following samples were analyzed in this batch:

1302213-01E	1302213-03B	1302213-06B
1302213-09B	1302213-12B	1302213-18B
1302213-21B	1302213-24B	1302213-27B
1302213-30D		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302213
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142774** Instrument ID **Balance1** Method: **SW3550** **(Dissolve)**

DUP Sample ID: **1302213-20ADUP** Units: **wt%** Analysis Date: **2/13/2013 02:45 PM**
Client ID: **MW-119 (9)** Run ID: **BALANCE1_130213B** SeqNo: **3113511** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Percent Moisture	17.39	0.010	0	0	0	0-0	17.86	2.65	20	

The following samples were analyzed in this batch:

1302213-01E	1302213-02A	1302213-03B
1302213-04A	1302213-05A	1302213-06B
1302213-07A	1302213-08A	1302213-09B
1302213-10A	1302213-11A	1302213-12B
1302213-13A	1302213-14A	1302213-15D
1302213-16D	1302213-17A	1302213-18B
1302213-19A	1302213-20A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302213
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142775** Instrument ID **Balance1** Method: **SW3550** **(Dissolve)**

DUP Sample ID: **1302305-10BDUP** Units: **wt%** Analysis Date: **2/13/2013 03:25 PM**

Client ID: Run ID: **BALANCE1_130213C** SeqNo: **3113534** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Percent Moisture	18.14	0.010	0	0	0	0-0	17.01	6.44	20	

The following samples were analyzed in this batch:

1302213-21B	1302213-22A	1302213-23A
1302213-24B	1302213-25A	1302213-26A
1302213-27B	1302213-28A	1302213-29A
1302213-30D		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Project: RO Discharge Sampling
WorkOrder: 1302213

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
µg/Kg-dry	Micrograms per Kilogram - Dry weight corrected
mg/Kg-dry	Milligrams per Kilogram - Dry weight corrected
mg/L	Milligrams per Liter
wt%	

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**

Date/Time Received: **06-Feb-13 08:40**

Work Order: **1302213**

Received by: **JBA**

Checklist completed by *Johannie B. Allen*
eSignature

12-Feb-13
Date

Reviewed by:

eSignature

Date

Matrices: soil/water

Carrier name: ALS.HS

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>1.6 C, 1.0 C, 1.1 C, 1.3 C/uc</u>		<u>IR 1</u>
Cooler(s)/Kit(s):	<u>3747/3040/3306/4185</u>		
Date/Time sample(s) sent to storage:	<u>2/6/13 18:00</u>		
Water - VOA vials have zero headspace?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes: MW-118(5) no time on COC collected 02/4/13 @ 09:45; COC not relinquished by client ; Radium fraction soil samples are in WO 1302223

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



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Page 1 of 2

COC ID: 72333

1302213

NAVAJO REFINING: Navajo Refining Company

Project: RO Discharge Sampling



ALS Project Manager:

Customer Information		Project Information			
Purchase Order		Project Name	RO Discharge/Sampling	A	VOC (8260) NW GW List
Work Order		Project Number	128823	B	GRO (8015M)
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	DRO (8015M)
Send Report To	Robert Combs	Invoice Attn	Robert Combs	D	ORO (8015M)
Address	501 East Main	Address	501 East Main	E	LL SVOC (8270) NM GW List
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	F	Total Metals (6020/7000) RCRA 8 LONG LIST
Phone	(575) 748-3733	Phone	(575) 748-6733	G	Dissolved Metals (6020/7000) RCRA 8
Fax	(575) 748-5421	Fax	(575) 748-5421	H	Radon Radium
e-Mail Address		e-Mail Address		I	Moisture
				J	Finger Print (PDA) (Asp. Grav. Sim. Dist.) Cyanide, Arsenic

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-118 (1)	2/4/13	0920	Soil	-	5	X	X	X	X	X	X		X	X	X	
2	MW-118 (3)		0930			1									X		
3	MW-118 (5)					3					X			X	X	X	
4	MW-118 (7)		0940			1									X		
5	MW-118 (9)		1000			1									X		
6	MW-118 (10)		1010			3					X			X	X	X	
7	MW-118 (12)		1445			1									X		
8	MW-118 (14)		1447			1									X		
9	MW-118 (15)		1450 1447			3					X			X	X	X	
10	MW-118 (17)		1453			1									X		

Sampler(s) Please Print & Sign		Shipment Method		Required Turnaround Time: (Check Box)		Results Due Date:	
				<input checked="" type="checkbox"/> Std 10 WK Days <input type="checkbox"/> 5 WK Days <input type="checkbox"/> Other <input type="checkbox"/> 2 WK Days <input type="checkbox"/> 24 Hour			
Relinquished by:	Date: <u>2/6/13</u> Time: <u>0840</u>	Received by:	Received by (Laboratory):		Notes: 10 Day TAT. Dissolved Metals Field Filtered		
Relinquished by:	Date: Time:	Checked by (Laboratory):		Cooler ID	Cooler Temp.	QC Package: (Check One Box Below)	
Logged by (Laboratory):	Date: Time:					<input checked="" type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP CheckList <input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> TRRP Level IV <input type="checkbox"/> Level IV SW846/CLP <input type="checkbox"/> Other / EDD	
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035							

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Salt Lake City, UT
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South Charleston, WV
+1 304 356 3168

York, PA
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Customer Information		Project Information		Parameter/Method Request for Analysis																
Purchase Order		Project Name	RO Discharge/Sampling	A	VOC (8260) NW GW List															
Work Order		Project Number	128823	B	GRO (8015M)															
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	DRO (8015M)															
Send Report To	Robert Combs	Invoice Attn	Robert Combs	D	ORO (8015M)															
Address	501 East Main	Address	501 East Main	E	LL SVOC (8270) NM GW List															
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	F	Total Metals (6020/7000) RCRA 8 <i>Long List</i>															
Phone	(575) 748-6733	Phone	(575) 748-6733	G	Dissolved Metals (6020/7000) RCRA 8															
Fax	(575) 746-5421	Fax	(575) 746-5421	H	TOC <i>Radiation</i>															
e-Mail Address		e-Mail Address		I	Moisture															
				J	Fingerprint (Pb, As, Cd, Cr, Cu, Fe, Ni, Se, Zn) <i>Anions, Cyanide</i>															

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	65 of 66 MW-118 (19)	2/4/13	1440	Soil	—	1									X		
2	MW-118 (20)		1452	Soil		3						X		X	X	X	
3	MW-118 (22)		1437			1									X		
4	MW-118 (24)		1437			1									X		
5	MW-118 (25)		1435			5	X	X	X	X	X	X		X	X	X	
6	MW-119 (1)		1105			5	X	X	X	X	X	X		X	X	X	
7	MW-119 (3)		1115			1									X		
8	MW-119 (5)		1120			3						X		X	X	X	
9	MW-119 (7)		1130			1									X		
10	MW-119 (9)		1135			1									X		

Sampler(s) Please Print & Sign		Shipment Method		Required Turnaround Time: (Check Box)				Results Due Date:	
				<input checked="" type="checkbox"/> Std 10 WK Days <input type="checkbox"/> 5 WK Days <input type="checkbox"/> Other _____					
Relinquished by:		Date: 2/4/13	Time: 0840	Received by: [Signature]				Notes: 10 Day TAT. Dissolved Metals Field Filtered	
Relinquished by:		Date:	Time:	Received by (Laboratory):				Cooler ID: Cooler Temp.: QC Package: (Check One Box Below)	
Logged by (Laboratory):		Date:	Time:	Checked by (Laboratory):				<input checked="" type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP Checklist <input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> TRRP Level IV <input type="checkbox"/> Level IV SW846/CLP <input type="checkbox"/> Other / EDD _____	
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035									

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South Charleston, WV
+1 304 356 3168

York, PA
+1 717 505 5280

ALS Project Manager:

ALS Work Order #:

Customer Information

Project Information

Parameter/Method Request for Analysis

Purchase Order		Project Name	RO Discharge/Sampling	A	VOC (8260) NW GW List
Work Order		Project Number	128823	B	GRO (8015M)
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	DRO (8015M)
Send Report To	Robert Combs	Invoice Attn	Robert Combs	D	ORO (8015M)
Address	501 East Main	Address	501 East Main	E	LL SVOC (8270) NM GW List
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	F	Total Metals (6020/7000) RCRA 8 <i>Long List</i>
Phone	(575) 748-6733	Phone	(575) 748-6733	G	Dissolved Metals (6020/7000) RCRA 8
Fax	(575) 746-5421	Fax	(575) 746-5421	H	<i>TDS Radium</i>
e-Mail Address		e-Mail Address		I	Moisture
				J	Fingerprint (Pb, As, Cd, Cr, Cu, Fe, Hg, Mn, Ni, Se, Zn) <i>Cyanide, Anions</i>

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-119 (10)	2/4/13	1145	Soil	—	3						X		X	X	X	
2	MW-119 (12)		1605			1									X		
3	MW-119 (14)		1606			1									X		
4	MW-119 (15)		1608			3						X		X	X	X	
5	MW-119 (17)		1615			1									X		
6	MW-119 (19)		1614			1									X		
7	MW-119 (20)		1611			3						X		X	X	X	
8	MW-119 (22)		1617			1									X		
9	MW-119 (24)		1618			1									X		
10	MW-119 (25)		1620			5	X	X	X	X	X	X		X	X	X	

Sampler(s) Please Print & Sign		Shipment Method		Required Turnaround Time: (Check Box)				Results Due Date:	
				<input checked="" type="checkbox"/> Std 10 WK Days <input type="checkbox"/> 5 WK Days <input type="checkbox"/> Other <u>2 WK Days</u> <input type="checkbox"/> 24 Hour					
Relinquished by:	Date: <u>2/4/13</u>	Time: <u>0840</u>	Received by:	Notes: 10 Day TAT. Dissolved Metals Field Filtered					
Relinquished by:	Date:	Time:	Received by (Laboratory):	Cooler ID	Cooler Temp.	QC Package: (Check One Box Below)			
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):			<input checked="" type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP CheckList <input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> TRRP Level IV <input type="checkbox"/> Level IV SW846/CLP <input type="checkbox"/> Other / EDD			
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035									

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29-Mar-2013

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Tel: (575) 746-5382
Fax: (575) 746-5421

Re: RO Discharge Sampling

Work Order: **1302223**

Dear Robert,

ALS Environmental received 26 samples on 06-Feb-2013 for the analyses presented in the following report.

This is a REVISED REPORT. Please see the Case Narrative for discussion concerning this revision.

The total number of pages in this revised report is JJ.

Regards,

A handwritten signature in black ink that reads "Sonia West".

Electronically approved by: Sonia West

Sonia West
Project Manager



Certificate No: T104704231-12-10

ADDRESS 10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 | PHONE (281) 530-5656 | FAX (281) 530-5887

ALS GROUP USA, CORP. Part of the ALS Group An ALS Limited Company

Environmental 

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 1302223

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1302223-01	MW-118 (1)	Soil		2/4/2013 09:20	2/6/2013	<input type="checkbox"/>
1302223-02	MW-118 (5)	Soil		2/4/2013 09:05	2/6/2013	<input type="checkbox"/>
1302223-03	MW-118 (10)	Soil		2/4/2013 10:10	2/6/2013	<input type="checkbox"/>
1302223-04	MW-118 (15)	Soil		2/4/2013 14:50	2/6/2013	<input type="checkbox"/>
1302223-05	MW-118 (20)	Soil		2/4/2013 14:52	2/6/2013	<input type="checkbox"/>
1302223-06	MW-118 (25)	Soil		2/4/2013 14:35	2/6/2013	<input type="checkbox"/>
1302223-07	MW-119 (1)	Soil		2/4/2013 11:05	2/6/2013	<input type="checkbox"/>
1302223-08	MW-119 (5)	Soil		2/4/2013 11:20	2/6/2013	<input type="checkbox"/>
1302223-09	MW-119 (10)	Soil		2/4/2013 11:45	2/6/2013	<input type="checkbox"/>
1302223-10	MW-119 (15)	Soil		2/4/2013 16:08	2/6/2013	<input type="checkbox"/>
1302223-11	MW-119 (20)	Soil		2/4/2013 16:11	2/6/2013	<input type="checkbox"/>
1302223-12	MW-119 (25)	Soil		2/4/2013 16:20	2/6/2013	<input type="checkbox"/>
1302223-13	MW-117 (1)	Soil		1/31/2013 08:55	2/6/2013	<input type="checkbox"/>
1302223-14	MW-117 (5)	Soil		1/31/2013 09:15	2/6/2013	<input type="checkbox"/>
1302223-15	MW-117 (10)	Soil		1/31/2013 10:30	2/6/2013	<input type="checkbox"/>
1302223-16	MW-117 (15)	Soil		1/31/2013 15:20	2/6/2013	<input type="checkbox"/>
1302223-17	MW-117 (20)	Soil		1/31/2013 15:25	2/6/2013	<input type="checkbox"/>
1302223-18	MW-117 (25)	Soil		1/31/2013 15:40	2/6/2013	<input type="checkbox"/>
1302223-19	RO-SB-1 (1)	Soil		1/31/2013 11:45	2/6/2013	<input type="checkbox"/>
1302223-20	RO-SB-1 (5)	Soil		1/31/2013 12:00	2/6/2013	<input type="checkbox"/>
1302223-21	RO-SB-1 (10)	Soil		1/31/2013 12:50	2/6/2013	<input type="checkbox"/>
1302223-22	RO-SB-1 (15)	Soil		2/1/2013 09:57	2/6/2013	<input type="checkbox"/>
1302223-23	RO-SB-1 (20)	Soil		2/1/2013 09:40	2/6/2013	<input type="checkbox"/>
1302223-24	RO-SB-1 (25)	Soil		2/1/2013 10:18	2/6/2013	<input type="checkbox"/>
1302223-25	RO-SB-1 (30)	Soil		2/1/2013 10:10	2/6/2013	<input type="checkbox"/>
1302223-26	RO-SB-1 (35)	Soil		2/1/2013 10:05	2/6/2013	<input type="checkbox"/>

Client: Navajo Refining Company**Project:** RO Discharge Sampling**Work Order:** 1302223**Case Narrative**

This report has been revised to include the Radium 226 and 228 data for samples RO-SB-1 (1) through RO-SB-1 (35).

The analyses for Radium 226 and Radium 228 were subcontracted to ALS Environmental in Ft. Collins, CO.

ALS Environmental

Date: 29-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118 (1)
Collection Date: 2/4/2013 09:20 AM

Work Order: 1302223
Lab ID: 1302223-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/15/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 29-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118 (5)
Collection Date: 2/4/2013 09:05 AM

Work Order: 1302223
Lab ID: 1302223-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/15/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 29-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118 (10)
Collection Date: 2/4/2013 10:10 AM

Work Order: 1302223
Lab ID: 1302223-03
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/15/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 29-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118 (15)
Collection Date: 2/4/2013 02:50 PM

Work Order: 1302223
Lab ID: 1302223-04
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/15/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 29-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118 (20)
Collection Date: 2/4/2013 02:52 PM

Work Order: 1302223
Lab ID: 1302223-05
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/15/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 29-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118 (25)
Collection Date: 2/4/2013 02:35 PM

Work Order: 1302223
Lab ID: 1302223-06
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/15/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 29-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119 (1)
Collection Date: 2/4/2013 11:05 AM

Work Order: 1302223
Lab ID: 1302223-07
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/15/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 29-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119 (5)
Collection Date: 2/4/2013 11:20 AM

Work Order: 1302223
Lab ID: 1302223-08
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/15/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 29-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119 (10)
Collection Date: 2/4/2013 11:45 AM

Work Order: 1302223
Lab ID: 1302223-09
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/15/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 29-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119 (15)
Collection Date: 2/4/2013 04:08 PM

Work Order: 1302223
Lab ID: 1302223-10
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/15/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 29-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119 (20)
Collection Date: 2/4/2013 04:11 PM

Work Order: 1302223
Lab ID: 1302223-11
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS							
			Method: NA				Analyst: SUB
Miscellaneous Analysis	See Attached		0			1	3/15/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 29-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119 (25)
Collection Date: 2/4/2013 04:20 PM

Work Order: 1302223
Lab ID: 1302223-12
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/15/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 29-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117 (1)
Collection Date: 1/31/2013 08:55 AM

Work Order: 1302223
Lab ID: 1302223-13
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/6/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 29-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117 (5)
Collection Date: 1/31/2013 09:15 AM

Work Order: 1302223
Lab ID: 1302223-14
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/6/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 29-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117 (10)
Collection Date: 1/31/2013 10:30 AM

Work Order: 1302223
Lab ID: 1302223-15
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS							
			Method: NA				Analyst: SUB
Miscellaneous Analysis	See Attached		0			1	3/6/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 29-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117 (15)
Collection Date: 1/31/2013 03:20 PM

Work Order: 1302223
Lab ID: 1302223-16
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/6/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 29-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117 (20)
Collection Date: 1/31/2013 03:25 PM

Work Order: 1302223
Lab ID: 1302223-17
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/6/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 29-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117 (25)
Collection Date: 1/31/2013 03:40 PM

Work Order: 1302223
Lab ID: 1302223-18
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/6/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 29-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (1)
Collection Date: 1/31/2013 11:45 AM

Work Order: 1302223
Lab ID: 1302223-19
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/6/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 29-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (5)
Collection Date: 1/31/2013 12:00 PM

Work Order: 1302223
Lab ID: 1302223-20
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/6/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 29-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (10)
Collection Date: 1/31/2013 12:50 PM

Work Order: 1302223
Lab ID: 1302223-21
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS							
			Method: NA				Analyst: SUB
Miscellaneous Analysis	See Attached		0			1	3/6/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 29-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (15)
Collection Date: 2/1/2013 09:57 AM

Work Order: 1302223
Lab ID: 1302223-22
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/6/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 29-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (20)
Collection Date: 2/1/2013 09:40 AM

Work Order: 1302223
Lab ID: 1302223-23
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/6/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 29-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (25)
Collection Date: 2/1/2013 10:18 AM

Work Order: 1302223
Lab ID: 1302223-24
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/6/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 29-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (30)
Collection Date: 2/1/2013 10:10 AM

Work Order: 1302223
Lab ID: 1302223-25
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/6/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 29-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO-SB-1 (35)
Collection Date: 2/1/2013 10:05 AM

Work Order: 1302223
Lab ID: 1302223-26
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/6/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Navajo Refining Company
Project: RO Discharge Sampling
WorkOrder: 1302223

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
------------------------------	---------------------------

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**

Date/Time Received: **06-Feb-13 00:00**

Work Order: **1302223**

Received by: **JBA**

Checklist completed by Johannie B. Allen
eSignature

18-Feb-13

Date

Reviewed by:

eSignature

Date

Matrices: soil/water

Carrier name: FedEx Priority Overnight

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

Temperature(s)/Thermometer(s):

1.6 C, 1.0 C, 1.1 C, 1.3 C, 2.7 C, 0.6 C/uc

IR 1

Cooler(s)/Kit(s):

3747/3040/3306/4185/7034/4672

Date/Time sample(s) sent to storage:

2/6/13 17:30; 2/4/13 09:23:02/4/13 10:00

Water - VOA vials have zero headspace?

Yes ☒ No ☐ No VOA vials submitted ☐

Water - pH acceptable upon receipt?

Yes ☒ No ☐ N/A ☐

pH adjusted?

Yes ☐ No ☒ N/A ☐

pH adjusted by:

-

Login Notes: These are Radium fraction soil samples; WO 1302079-01, -03 & -06 which are 1302223-13 thru -15; WO 1302082 - 01, -03 & -06 which are 1302223-19 thru -21 were sent ahead.

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



Environmental

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Everett, WA
+1 425 356 2600

Fort Collins, CO
+1 970 490 1511

Holland, MI
+1 616 399 6070

Chain of Custody Form

Page 1 of 2

COC ID: 72333

1302223

NAVAJO REFINING: Navajo Refining Company

Project: RO Discharge Sampling



Customer Information		Project Information		ALS Project Manager:	
Purchase Order		Project Name	RO Discharge/Sampling	A	VOC (6000, 6010, 6015M)
Work Order		Project Number	128823	B	GRO (8015M)
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	DRO (8015M)
Send Report To	Robert Combs	Invoice Attn	Robert Combs	D	ORO (8015M)
Address	501 East Main	Address	501 East Main	E	LL SVOC (8270) NM GW List
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	F	Total Metals (6020/7000) RCRA 8 LONG LIST
Phone	(575) 748-6733	Phone	(575) 748-6733	G	Dissolved Metals (6020/7000) RCRA 8
Fax	(575) 746-5421	Fax	(575) 746-5421	H	DBP Radium
e-Mail Address		e-Mail Address		I	Moisture
				J	Fingerprint (1410150) Gray, Sim Dist Cyanide, Anions

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-118 (1)	2/4/13	0920	Soil	-	5	X	X	X	X	X	X		X	X	X	
2	MW-118 (3)		0930			1									X		
3	MW-118 (5)					3					X			X	X	X	
4	MW-118 (7)		0940			1									X		
5	MW-118 (9)		1000			1									X		
6	MW-118 (10)		1010			3					X			X	X	X	
7	MW-118 (12)		1445			1									X		
8	MW-118 (14)		1447			1									X		
9	MW-118 (15)		1450			3					X			X	X	X	
10	MW-118 (17)		1453			1									X		

Sampler(s) Please Print & Sign		Shipment Method		Required Turnaround Time: (Check Box)				Results Due Date:	
				<input checked="" type="checkbox"/> Std 10 WK Days <input type="checkbox"/> 5 WK Days <input type="checkbox"/> 2 WK Days <input type="checkbox"/> 24 Hour					
Relinquished by:	Date: <u>2/6/13</u> Time: <u>0840</u>	Received by:	Notes: 10 Day TAT. Dissolved Metals Field Filtered						
Relinquished by:	Date: Time:	Received by (Laboratory):	Cooler ID	Cooler Temp	QC Package: (Check One Box Below)				
Logged by (Laboratory):	Date: Time:	Checked by (Laboratory):			<input checked="" type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP Checklist <input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> TRRP Level IV <input type="checkbox"/> Level IV SW846/CLP <input type="checkbox"/> Other / EDD				
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035									

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
 2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.

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+1 513 733 5336

Everett, WA
+1 425 356 2600

Fort Collins, CO
+1 970 490 1511

Holland, MI
+1 616 399 6070

Chain of Custody Form

Page 2 of 3

COC ID: 72326

Houston, TX
+1 281 530 5656

Middletown, PA
+1 717 944 5541

Spring City, PA
+1 610 948 4903

Salt Lake City, UT
+1 801 266 7700

South Charleston, WV
+1 304 356 3168

York, PA
+1 717 505 5280

Environmental

Customer Information		Project Information		ALS Project Manager: _____ ALS Work Order #: _____															
Purchase Order		Project Name		Parameter/Method Request for Analysis															
Work Order		Project Number	RO Discharge/Sampling	A	VOC (8260) NW GW List														
Company Name	Navajo Refining Company	Bill To Company	128823	B	GRO (8015M)														
Send Report To	Robert Combs	Invoice Attn	Navajo Refining Company	C	DRO (8015M)														
Address	501 East Main	Address	Robert Combs	D	ORO (8015M)														
City/State/Zip	Artesia, NM 88211	City/State/Zip	501 East Main	E	LL SVOC (8270) NM GW List														
Phone	(575) 748-8733	Phone	Artesia, NM 88211	F	Total Metals (6020/7000) RCRA 8 <i>Long List</i>														
Fax	(575) 746-5421	Fax	(575) 748-8733	G	Dissolved Metals (6020/7000) RCRA 8														
e-Mail Address		e-Mail Address	(575) 746-5421	H	TOB <i>Radium</i>														
				I	Moisture														
				J	Fingerprint (Pb, Ni, Cr, Cu, Zn, Fe, Mn, Co, Cd, Se, Sb, Sn, Ti, V, W, Mo, As, Ba, Be, Bi, Br, Ca, Cl, Cr, Cs, D, Dy, Eu, Ga, Ge, Hf, Ir, K, La, Li, Lu, Mg, Mn, Na, Nb, Ni, N, O, Os, Pd, P, Pt, Rb, Rh, Ru, S, Sc, Se, Si, Sm, Sr, Ta, Te, Th, Tl, U, V, W, Y, Zn, Zr) <i>Anions, Cyanide</i>														
Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold			
MW-118 (19)	2/4/13	1440	Soil	—	1									X					
MW-118 (20)		1452	Soil		3						X		X	X	X				
MW-118 (22)		1437			1									X					
MW-118 (24)		1437			1									X					
MW-118 (25)		1435			5	X	X	X	X	X	X		X	X	X				
MW-119 (1)		1105			5	X	X	X	X	X	X		X	X	X				
MW-119 (3)		1115			1									X					
MW-119 (5)		1120			3						X		X	X	X				
MW-119 (7)		1130			1									X					
MW-119 (9)		1135			1									X					

Sampler(s) Please Print & Sign		Shipment Method		Required Turnaround Time: (Check Box)				Results Due Date:	
				<input checked="" type="checkbox"/> Std 10 WK Days <input type="checkbox"/> 5 WK Days <input type="checkbox"/> Other <input type="checkbox"/> 2 WK Days <input type="checkbox"/> 24 Hour					
Inquired by:	Date: 2/4/13	Time: 0840	Received by:	Notes: 10 Day TAT. Dissolved Metals Field Filtered					
Inquired by:	Date:	Time:	Received by (Laboratory):	Cooler ID	Cooler Temp.	QC Package: (Check One Box Below)			
Inquired by (Laboratory):	Date:	Time:	Checked by (Laboratory):			<input checked="" type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP CheckList <input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> TRRP Level IV <input type="checkbox"/> Level IV SW846/CLP <input type="checkbox"/> Other / EDD			

Preservative Key: 1-HCl 2-HNO₃ 3-H₂SO₄ 4-NaOH 5-Na₂S₂O₃ 6-NaHSO₄ 7-Other 8-4°C 9-5035

- Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
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- The Chain of Custody is a legal document. All information must be completed accurately.

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+1 425 356 2600

Fort Collins, CO
+1 970 490 1511

Holland, MI
+1 616 399 6070

Chain of Custody Form

Page 3 of 3

COC ID: 72319

Houston, TX
+1 281 530 5656

Middletown, PA
+1 717 944 5541

Spring City, PA
+1 610 948 4903

Salt Lake City, UT
+1 801 266 7700

South Charleston, WV
+1 304 356 3168

York, PA
+1 717 505 5280

Environmental

Customer Information		Project Information		ALS Project Manager: _____ ALS Work Order #: _____																
Parameter/Method Request for Analysis																				
Purchase Order		Project Name	RO Discharge/Sampling	A	VOC (8260) NW GW List															
Work Order		Project Number	128823	B	GRO (8015M)															
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	DRO (8015M)															
Send Report To	Robert Combs	Invoice Attn	Robert Combs	D	ORO (8015M)															
Address	501 East Main	Address	501 East Main	E	LL SVOC (8270) NM GW List															
				F	Total Metals (6020/7000) RCRA 8 <i>Long List</i>															
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	G	Dissolved Metals (6020/7000) RCRA 8															
Phone	(575) 748-6733	Phone	(575) 748-6733	H	<i>Radium</i>															
Fax	(575) 748-5421	Fax	(575) 748-5421	I	Moisture															
e-Mail Address		e-Mail Address		J	Fingerprint (Pb, As, Cd, Cr, Cu, Fe, Hg, Mn, Ni, Se, Zn) <i>Cyanide, Anions</i>															
Sample Description		Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold			
34 of 99	MW-119 (10)	2/4/13	1145	Soil	—	3						X		X	X	X				
	MW-119 (12)		1605											X						
	MW-119 (14)		1606												X					
	MW-119 (15)		1608									X		X	X					
	MW-119 (17)		1615												X					
	MW-119 (19)		1614												X					
	MW-119 (20)		1611									X		X	X					
	MW-119 (22)		1617												X					
	MW-119 (24)		1618												X					
	MW-119 (25)		1620				5	X	X	X	X	X	X		X	X	X			
Impeller(s) Please Print & Sign		Shipment Method		Required Turnaround Time: (Check Box)				Results Due Date:												
				<input checked="" type="checkbox"/> Std. 10 WK Days <input type="checkbox"/> 5 WK Days <input type="checkbox"/> Other _____ <input type="checkbox"/> 2 WK Days <input type="checkbox"/> 24 Hour																
Relinquished by:	Date: <u>2/4/13</u>	Time: <u>0840</u>	Received by:	Notes: 10 Day TAT. Dissolved Metals Field Filtered																
Relinquished by:	Date:	Time:	Received by (Laboratory):	Cooler ID	Cooler Temp.	QC Package: (Check One Box Below)														
Relinquished by (Laboratory):	Date:	Time:	Checked by (Laboratory):			<input checked="" type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP CheckList <input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> TRRP Level IV <input type="checkbox"/> Level IV SW846/CLP <input type="checkbox"/> Other / EDD _____														
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035																				

- Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
- Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
- The Chain of Custody is a legal document. All information must be completed accurately.

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From **[Redacted]**
Date **2/5/13**
Sender's Name **Fred Bergeren** Phone **281 787 1254**
Company **ARCADIS**
Address **2979 Lapack Suite 300**
City **Houston** State **TX** ZIP **77042**

Your Internal Billing Reference

To Recipient's Name **Client Services** Phone **281 530 5656**
Company **ALS Lab Group**
Address **10450 Stancil Rd**
We cannot deliver to P.O. boxes or P.O. ZIP codes.
Address **Suite 210**
City **Houston** State **TX** ZIP **77049**

☐ **HOLD Weekday**
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.
☐ **HOLD Saturday**
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.

4 Express Package Service * To most locations.
NOTE: Service order has changed. Please select carefully.

Next Business Day
☐ **FedEx First Overnight**
Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
☐ **FedEx Priority Overnight**
Next business morning. * Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
☒ **FedEx Standard Overnight**
Next business afternoon. * Saturday Delivery NOT available.

2 or 3 Business Days
☐ **FedEx 2Day A.M.**
Second business morning. * Saturday Delivery NOT available.
☐ **FedEx 2Day**
Second business afternoon. * Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
☐ **FedEx Express Saver**
Third business day. * Saturday Delivery NOT available.

5 Packaging * Declared value limit \$500.

☐ **FedEx Envelope*** ☐ **FedEx Pak*** ☐ **FedEx Box** ☐ **FedEx Tube** ☒ **Other**

6 Special Handling and Delivery Signature Options

☐ **SATURDAY Delivery**
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.
☐ **No Signature Required**
Package may be left without obtaining a signature for delivery.
☐ **Direct Signature**
Someone at recipient's address may sign for delivery. Fee applies.
☐ **Indirect Signature**
If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?
One box must be checked.
☒ **No** ☐ **Yes** As per attached Shipper's Declaration. ☐ **Yes** Shipper's Declaration not required. ☐ **Dry Ice**
Dry ice, 9, UN 1845 x kg
Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box. ☐ **Cargo Aircraft Only**

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below. Obtain recip. Acct. No. ☐
☐ **Sender** Acct. No. in Section 1 will be billed. ☒ **Recipient** ☐ **Third Party** ☐ **Credit Card** ☐ **Cash/Check**
Total Packages **17** Total Weight **[Redacted]** Credit Card Auth. **[Redacted]**

*Our liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

644

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8022 1536 6851

ALS Environmental
10450 Stancil Rd, Suite 210
Houston, Texas 77049
Tel. +1 281 530 5656
Fax. +1 281 530 5887

CUSTODY SEAL
Date: **2-5-13** Time: **1600**
Name: **BERGEREN**
Company: **ARCADIS**
Seal Broken By: **[Signature]**

FedEx Package
Express US Airbill

FedEx Tracking Number 8013 8012 5570

From
Date 2/5/13
Sender's Name Eric Bergersen
Company ARCADIS
Address 2929 Briarpark Dr Suite 300
City Houston State TX ZIP 77042
Your Internal Billing Reference

To
Recipient's Name CLIENT SERVICES
Company ALS LABORATORY GROUP
Address 10450 STANCLIFF RD STE 210
City HOUSTON State TX ZIP 77099-4338
Phone 281 530-5656

HOLD Weekday
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.
HOLD Saturday
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.



8013 8012 5570

Form ID No. 0215
Recipient's Copy

4 Express Package Service
NOTE: Service order has changed. Please select carefully.

Packages up to 150 lbs.
For packages over 150 lbs., see the
FedEx Express Freight US Airbill.

Next Business Day
☒ FedEx First Overnight
Next business morning. * Friday shipments will be
delivered on Monday unless SATURDAY Delivery is selected.
☐ FedEx Priority Overnight
Next business morning. * Friday shipments will be
delivered on Monday unless SATURDAY Delivery is selected.
☒ FedEx Standard Overnight
Next business afternoon. *
Saturday Delivery NOT available.

2 or 3 Business Days
☐ FedEx 2Day A.M.
Second business morning. *
Saturday Delivery NOT available.
☐ FedEx 2Day
Second business morning. * Thursday shipments
will be delivered on Monday unless SATURDAY
Delivery is selected.
☐ FedEx Express Saver
Third business day. *
Saturday Delivery NOT available.

5 Packaging *Declared value limit \$500.

☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☒ Other

6 Special Handling and Delivery Signature Options

☐ SATURDAY Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐ No Signature Required
Package may be left without
obtaining a signature for delivery.
☐ Direct Signature
Someone at recipient's address
may sign for delivery. Fee applies.
☐ Indirect Signature
If no one is available at recipient's
address, someone at a neighboring
address may sign for delivery. For
residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?

One box must be checked.
☒ No ☐ Yes
As per attached
Shipper's Declaration. ☐ Yes
Shipper's Declaration
not required. ☐ Dry Ice
Dry Ice, 5 UN 1845 _____ x _____ kg
Dangerous goods (including dry ice) cannot be shipped in FedEx packaging
or placed in a FedEx Express Drop Box. ☐ Cargo Aircraft Only

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below. Obtain recip. Acct. No. ☐
☐ Sender Acct. No. in Section 1 will be billed. ☒ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

Total Packages Total Weight Credit Card Auth.

*Our liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

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ALS Environmental
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530-5656
Fax. +1 281 530-5887

CUSTODY SEAL

Date: 4/3/13 Time: 1100
Signature: B. McKenna
Company: ARCADIS U.S.

Seal Broken By:

Date:



Package
US Airbill

FedEx
Tracking
Number

8013 8012 5537

MUR1

Form
ID No. 0215

Recipient's Copy

1 From
Date 2/5/13
Sender's Name Eric Bergersen
Company ARCADIS
Address 2929 Briarpark Suite 300
City Houston State TX ZIP 77042

2 Your Internal Billing Reference

3 To
Recipient's Name CLIENT SERVICES
Company ALS LABORATORY GROUP
Address 10450 STANCLIFF RD STE 210
We cannot deliver to P.O. boxes or P.O. ZIP codes.
Address
Use this line for the HOLD location address or for continuation of your shipping address.
City HOUSTON State TX ZIP 77099-4338

0455550776



8013 8012 5537

4 Express Package Service *To most locations.
NOTE: Service order has changed. Please select carefully.

Packages up to 150 lbs.
For packages over 150 lbs., use the
FedEx Express Freight US Airbill.

Next Business Day

- ☐ FedEx Standard Overnight
Earliest next business morning delivery. Saturday delivery NOT available.
☐ FedEx Priority Overnight
Next business morning. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
☒ FedEx Standard Overnight
Next business afternoon. Saturday Delivery NOT available.

2 or 3 Business Days

- ☐ FedEx 2Day A.M.
Second business morning. Saturday Delivery NOT available.
☐ FedEx 2Day
Second business afternoon. Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
☐ FedEx Express Saver
Third business day. Saturday Delivery NOT available.

5 Packaging *Declared value limit \$500.

- ☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☒ Other

6 Special Handling and Delivery Signature Options

- ☐ SATURDAY Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

- ☐ No Signature Required
Package may be left without obtaining a signature for delivery.
☐ Direct Signature
Someone at recipient's address may sign for delivery. Fee applies.
☐ Indirect Signature
If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?

- One box must be checked.
☒ No ☐ Yes
As per attached Shipper's Declaration. ☐ Yes
Shipper's Declaration not required.
Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.
☐ Dry Ice
Dry ice, 5, UN 1845 x kg
☐ Cargo Aircraft Only

7 Payment Bill to:

- Enter FedEx Acct. No. or Credit Card No. below. Obtain recip. Acct. No. ☐
☐ Sender Acct. No. in Section 1 will be billed. ☒ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check
Total Packages Total Weight Credit Card Auth.
lbs.

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ALS Environmental
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

374

CUSTODY SEAL

Date: 2-5-13 Time: 12:00
Name: BERGERSEN
Company: ARCADIS
37 of 99

Seal Broken By

330
2/6/13

From
Date 2/5/13
Sender's Name Eric Bergesen Phone 281 787-1234
Company ARCADIS
Address 2929 Briarpark Suite 300
City Houston State TX ZIP 77042

2 Your Internal Billing Reference

3 To
Recipient's Name CLIENT SERVICES Phone 281 530-5656
Company ALS LABORATORY GROUP
Address 10450 STANCLIFF RD STE 210
We cannot deliver to P.O. boxes or P.O. ZIP codes.
Address
Use this line for the HOLD location address or for continuation of your shipping address.
City HOUSTON State TX ZIP 77059-4338

HOLD Weekday
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.

HOLD Saturday
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.



8013 7025 2083

4 Express Package Service * To most locations.
NOTE: Service order has changed. Please select carefully.

Packages up to 150 lbs.
For packages over 150 lbs., use the
FedEx Express Freight US Airbill.

Next Business Day

- ☐ FedEx First Overnight
Earliest next business morning delivery to select
locations. Friday shipments will be delivered on
Monday unless SATURDAY Delivery is selected.
- ☐ FedEx Priority Overnight
Next business morning. * Friday shipments will be
delivered on Monday unless SATURDAY Delivery
is selected.
- ☒ FedEx Standard Overnight
Next business afternoon.
Saturday Delivery NOT available.

2 or 3 Business Days

- ☐ FedEx 2Day A.M.
Second business morning.
Saturday Delivery NOT available.
- ☐ FedEx 2Day
Second business afternoon. * Thursday shipments
will be delivered on Monday unless SATURDAY
Delivery is selected.
- ☐ FedEx Express Saver
Third business day.
Saturday Delivery NOT available.

5 Packaging * Declared value limit \$500.

- ☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☒ Other

6 Special Handling and Delivery Signature Options

- ☐ SATURDAY Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.
- ☐ No Signature Required
Package may be left without
obtaining a signature for delivery.
- ☐ Direct Signature
Someone at recipient's address
may sign for delivery. Fee applies.
- ☐ Indirect Signature
If no one is available at recipient's
address, someone at a neighboring
address may sign for delivery. For
residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?

- ☒ No ☐ Yes
As per attached
Shipper's Declaration. ☐ Yes
Shipper's Declaration
not required.
- ☐ Dry Ice
Dry ice, 5 UN 1845 x kg
- ☐ Cargo Aircraft Only

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below. Obtain recip. Acct. No. ☐

Sender ☐ Acct. No. in Section I will be billed. ☒ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

Total Packages Total Weight lbs. Credit Card Auth.

*Our liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

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CUSTODY SEAL

Date: 2-5-13 Time: 1100
Name: B. McKenna
Company: ARCADIS U.S.

2/4/13

ALS
10450 Stancliff Rd Suite 210
Houston, TX 77059-4338
Tel: 281 530 5656
Fax: 281 530 5887

FedEx
Tracking
Number

8013 7714 1158

Form
ID No.

0215

Recipient's Copy

1 From
Date 2/5/13
Sender's Name Eric Bergeson
Company ARCADISO
Address 2929 Briarpark Suite 300
City Houston State TX ZIP 77042

2 Your Internal Billing Reference

3 To
Recipient's Name CLIENT SERVICES
Company ALS LABORATORY GROUP
Address 10450 STANCLIFF RD STE 210
City HOUSTON State TX ZIP 77099-4338



8013 7714 1158

0455550114

4 Express Package Service

NOTE: Service order has changed. Please select carefully.

Packages up to 150 lbs.
For packages over 150 lbs., use the
FedEx Express Freight US Airbill.

Next Business Day

- ☒ FedEx First Overnight
Earliest next business morning delivery to select locations. Saturday shipments not to be shipped on Monday unless SATURDAY Delivery is selected.
- ☐ FedEx Priority Overnight
Next business morning. * Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- ☒ FedEx Standard Overnight
Next business afternoon. * Saturday Delivery NOT available.

2 or 3 Business Days

- ☐ FedEx 2Day A.M.
Second business morning. * Saturday Delivery NOT available.
- ☐ FedEx 2Day
Second business afternoon. * Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- ☐ FedEx Express Saver
Third business day. * Saturday Delivery NOT available.

5 Packaging

- ☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☒ Other

6 Special Handling and Delivery Signature Options

- ☐ SATURDAY Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.
- ☐ No Signature Required
Package may be left without obtaining a signature for delivery.
- ☐ Direct Signature
Someone at recipient's address may sign for delivery. Fee applies.
- ☐ Indirect Signature
If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.
- Does this shipment contain dangerous goods?
One box must be checked.
☒ No ☐ Yes As per attached Shipper's Declaration ☐ Yes Shipper's Declaration not required ☐ Dry Ice Dry Ice, 9 UN 1845 x kg ☐ Cargo Aircraft Only
- Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

7 Payment Bill to

- Enter FedEx Acct. No. or Credit Card No. below. Obtain recip. Acct. No. ☐
- ☐ Sender Acct. No. in Section 1 will be billed. ☒ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

Total Packages Total Weight

Your liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

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March 15, 2013

Ms. Sonia West
ALS Environmental
10450 Stancliff Rd, Suite 210
Houston, TX 77099

Re: ALS Workorder: 13-02-165
Project Name: None Submitted
Project Number: 1302223

Dear Ms. West:

Twenty soil samples were received from ALS Environmental on February 14, 2013. The samples were scheduled for the following analysis:

Gamma Spectroscopy

The results for this analysis are contained in the enclosed report.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Jeff Kujawa
Project Manager

JRK/mlc
Enclosure (s): Report

ADDRESS 225 Commerce Drive, Fort Collins, Colorado, USA 80524 | PHONE +1 970 490 1511 | FAX +1 970 490 1522

ALS GROUP USA, CORP. Part of the ALS Laboratory Group An ALS Limited Company

Environmental

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



1302165

Gamma Spectroscopy:

These samples were prepared according to the current revision of SOP 739. The samples were sealed in steel cans and stored for at least 21 days prior to analysis.

All acceptance criteria were met.

ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO00078
Arizona (AZ)*	AZ0742
California (CA)	06251CA
Colorado (CO)	CO00078
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO00078
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri	175
Nevada (NV)	CO000782008A
New Jersey (NJ)**	CO003
North Dakota (ND)	R-057
Oklahoma	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241-09-1
Utah (UT)	CO00078
Washington	C1280

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1302165

Client Name: ALS Environmental

Client Project Name:

Client Project Number: 1302223

Client PO Number: 10-1302223

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
1302223-01A (MW-118 (1))	1302165-1		SOIL	04-Feb-13	9:20
1302223-02A (MW-118 (5))	1302165-2		SOIL	04-Feb-13	9:05
1302223-03A (MW-118 (10))	1302165-3		SOIL	04-Feb-13	10:10
1302223-04A (MW-118 (15))	1302165-4		SOIL	04-Feb-13	14:50
1302223-05A (MW-118 (20))	1302165-5		SOIL	04-Feb-13	14:52
1302223-06A (MW-118 (25))	1302165-6		SOIL	04-Feb-13	14:35
1302223-07A (MW-119 (1))	1302165-7		SOIL	04-Feb-13	11:05
1302223-08A (MW-119 (5))	1302165-8		SOIL	04-Feb-13	11:20
1302223-09A (MW-119 (10))	1302165-9		SOIL	04-Feb-13	11:45
1302223-10A (MW-119 (15))	1302165-10		SOIL	04-Feb-13	16:08
1302223-11A (MW-119 (20))	1302165-11		SOIL	04-Feb-13	16:11
1302223-12A (MW-119 (25))	1302165-12		SOIL	04-Feb-13	16:20
1302223-16A (MW-117 (15))	1302165-13		SOIL	31-Jan-13	15:20
1302223-17A (MW-117 (20))	1302165-14		SOIL	31-Jan-13	15:25
1302223-18A (MW-117 (25))	1302165-15		SOIL	31-Jan-13	15:40
1302223-22A (RO-SB-1 (15))	1302165-16		SOIL	31-Jan-13	9:57
1302223-23A (RO-SB-1 (20))	1302165-17		SOIL	31-Jan-13	9:40
1302223-24A (RO-SB-1 (25))	1302165-18		SOIL	01-Feb-13	10:18
1302223-25A (RO-SB-1 (30))	1302165-19		SOIL	01-Feb-13	10:10
1302223-26A (RO-SB-1 (35))	1302165-20		SOIL	01-Feb-13	10:05

**Subcontractor:**ALS Environmental
225 Commerce Drive

Fort Collins, CO 80524

TEL: (800) 443-1511

FAX: (970) 490-1522

Acct #:

CHAIN-OF-CUSTODY RECORD

Page 1 of 2

Date: 13-Feb-13COC ID: 13353Due Date: 21-Feb-13

Salesperson

Mala H. Belmonte

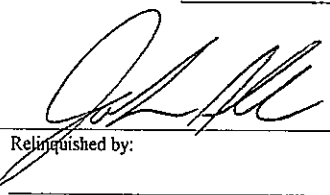
1302165

Customer Information		Project Information		Parameter/Method Request for Analysis												
Purchase Order	10-130223	Project Name	1302223	A	Radium 226, 228 Sub to ALS Ft. Collins											
Work Order		Project Number		B												
Company Name	ALS Group USA, Corp.	Bill To Company	ALS Group USA, Corp.	C												
Send Report To	Sonia West	Inv Attn	Accounts Payable	D												
Address	10450 Stancliff Rd, Suite 210	Address	10450 Stancliff Rd, Suite 210	E												
				F												
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G												
Phone	(281) 530-5656	Phone	(281) 530-5656	H												
Fax	(281) 530-5887	Fax	(281) 530-5887	I												
eMail Address	Sonia.West@alsglobal.com	eMail CC	jumoke.lawal@alsglobal.com	J												

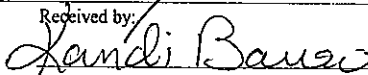
Sample ID	Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J
1302223-01A (MW-118 (1))	Soil	4/Feb/2013 9:20	(1) 80ZAGNEAT	X									
1302223-02A (MW-118 (5))	Soil	4/Feb/2013 9:05	(1) 80ZAGNEAT	X									
1302223-03A (MW-118 (10))	Soil	4/Feb/2013 10:10	(1) 80ZAGNEAT	X									
1302223-04A (MW-118 (15))	Soil	4/Feb/2013 14:50	(1) 80ZAGNEAT	X									
1302223-05A (MW-118 (20))	Soil	4/Feb/2013 14:52	(1) 80ZAGNEAT	X									
1302223-06A (MW-118 (25))	Soil	4/Feb/2013 14:35	(1) 80ZAGNEAT	X									
1302223-07A (MW-119 (1))	Soil	4/Feb/2013 11:05	(1) 80ZAGNEAT	X									
1302223-08A (MW-119 (5))	Soil	4/Feb/2013 11:20	(1) 80ZAGNEAT	X									
1302223-09A (MW-119 (10))	Soil	4/Feb/2013 11:45	(1) 80ZAGNEAT	X									
1302223-10A (MW-119 (15))	Soil	4/Feb/2013 16:08	(1) 80ZAGNEAT	X									
1302223-11A (MW-119 (20))	Soil	4/Feb/2013 16:11	(1) 80ZAGNEAT	X									
1302223-12A (MW-119 (25))	Soil	4/Feb/2013 16:20	(1) 80ZAGNEAT	X									
1302223-13A (MW-117 (1))	Soil	31/Jan/2013 8:55	(1) 80ZAGNEAT	X									
1302223-14A (MW-117 (5))	Soil	31/Jan/2013 9:15	(1) 80ZAGNEAT	X									

Comments:

WO 1302223 - Please analyze for Radium 226/228. Samples that were sent from previous WO 1302079 & 1302082 match with this WO those on enclosed list

Relinquished by:  Date/Time: 13 Feb 13

Received by:



Date/Time

02-14-13 0915

Cooler IDs

Report/QC Level

Std

Relinquished by:

Date/Time

Received by:

Date/Time

**Subcontractor:**ALS Environmental
225 Commerce Drive

Fort Collins, CO 80524

TEL: (800) 443-1511

FAX: (970) 490-1522

Acct #:

CHAIN-OF-CUSTODY RECORD

Page 2 of 2

Date: 13-Feb-13COC ID: 13353Due Date: 21-Feb-13Salesperson: Mala H. Belmonte

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	10-130223	Project Name	1302223	A	Radium 226, 228 Sub to ALS Ft. Collins
Work Order		Project Number		B	
Company Name	ALS Group USA, Corp.	Bill To Company	ALS Group USA, Corp.	C	
Send Report To	Sonia West	Inv Attn	Accounts Payable	D	
Address	10450 Stancliff Rd, Suite 210	Address	10450 Stancliff Rd, Suite 210	E	
				F	
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G	
Phone	(281) 530-5656	Phone	(281) 530-5656	H	
Fax	(281) 530-5887	Fax	(281) 530-5887	I	
eMail Address	Sonia.West@alsglobal.com	eMail CC	jumoke.lawal@alsglobal.com	J	

Sample ID	Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J
1302223-15A (MW-117 (10))	Soil	31/Jan/2013 10:30	(1) 8OZAGNEAT	X									
1302223-16A (MW-117 (15))	Soil	31/Jan/2013 15:20	(1) 8OZAGNEAT	X									
1302223-17A (MW-117 (20))	Soil	31/Jan/2013 15:25	(1) 8OZAGNEAT	X									
1302223-18A (MW-117 (25))	Soil	31/Jan/2013 15:40	(1) 8OZAGNEAT	X									
1302223-19A (RO-SB-1 (1))	Soil	31/Jan/2013 11:45	(1) 8OZAGNEAT	X									
1302223-20A (RO-SB-1 (5))	Soil	31/Jan/2013 12:00	(1) 8OZAGNEAT	X									
1302223-21A (RO-SB-1 (10))	Soil	31/Jan/2013 12:50	(1) 8OZAGNEAT	X									
1302223-22A (RO-SB-1 (15))	Soil	1/Feb/2013 9:57	(1) 8OZAGNEAT	X									
1302223-23A (RO-SB-1 (20))	Soil	1/Feb/2013 9:40	(1) 8OZAGNEAT	X									
1302223-24A (RO-SB-1 (25))	Soil	1/Feb/2013 10:18	(1) 8OZAGNEAT	X									
1302223-25A (RO-SB-1 (30))	Soil	1/Feb/2013 10:10	(1) 8OZAGNEAT	X									
1302223-26A (RO-SB-1 (35))	Soil	1/Feb/2013 10:05	(1) 8OZAGNEAT	X									

Comments:

WO 1302223 - Please analyze for Radium 226/228. Samples that were sent from previous WO 1302079 & 1302082 match with this WO those on enclosed list

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
	13/Feb/13		2-13-13 0915		Std
Relinquished by:	Date/Time	Received by:	Date/Time		



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS-TX

Workorder No: 1302165

Project Manager: OK

Initials: KB Date: 2-14-13

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	NONE	<input checked="" type="radio"/> YES	NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<input checked="" type="radio"/> YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<input checked="" type="radio"/> YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<input checked="" type="radio"/> N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	<input checked="" type="radio"/> N/A	YES	NO
16. Were the samples shipped on ice?		<input checked="" type="radio"/> YES	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 <input checked="" type="radio"/> #4 <input checked="" type="radio"/> RAD ONLY <input checked="" type="radio"/>		<input checked="" type="radio"/> YES	NO
Cooler #: <u>1</u> <u>2KB</u>			
Temperature (°C): <u>4.5</u>			
No. of custody seals on cooler: <u>1</u>			
External µR/hr reading: <u>13</u>			
Background µR/hr reading: <u>11</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <input checked="" type="radio"/> YES <input type="radio"/> NO <input type="radio"/> NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / ☒ NA Contact: _____ Date/Time: _____

Project Manager Signature / Date: [Signature] 2-14-13

ef: pl/bf/jba
ep: Environmental

Date: 13FEB13
Wgt: 48.49 LBS
DV:

SPECIAL: 9.97
HANDLING: 0.00
TOTAL: 109.70

Svcs: PRIORITY OVERNIGHT
TRCK: 4340 2174 2850

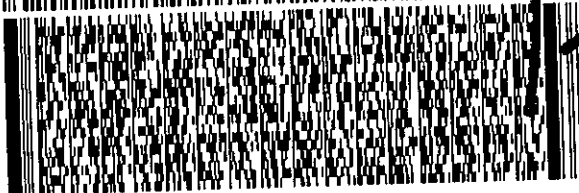
ORIGIN ID: SGRA (281) 530-5656
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 13FEB13
ACTWGT: 48.5 LB
CAD: 300130/CAFE2606

BILL SENDER

ROY FRENCH
ALS ENVIRONMENTAL
225 COMMERCE DRIVE

FORT COLLINS CO 80524
(970) 490-1611 REF: PL/BF/JBA
DEPT: ENVIRONMENTAL



FedEx
Express



J12131210050125

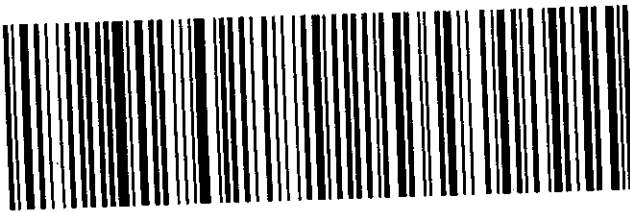
TRK# 4340 2174 2850
0201

THU - 14 FEB 12
PRIORITY OVERNIGHT

NA FTCA

80524
CO-US DEN

Part # 156148-434 RIT2 04/12



F dhw= ALS Environmental

G dhw= 14-Mar-13

Sumhfw= 1302223

Z run Rughu= 1302165

Vdp sch IG = 1302223-01A (MW-118 (1))

Ode IG = 1302165-1

OhjdoOrfdwlrq=

P dwl{= SOIL

F rnfwrq G dhw= 2/4/2013 09:20

ShufhwP rlxuh=

D qdq vrv	Uhxow	T xdo	Uhsruw Olp lw	Xqlw	G lxwlrq Idfvru	G dhwD qdq hg
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GAMMA SPECTROSCOPY RESULTS**PAI 713**

Prep Date: 2/18/2013

PrepBy: SAM

Ra-226	1.5 (+/- 0.36)	G
Ra-228	0.89 (+/- 0.5)	NQ,G

0.58 pCi/g
0.86 pCi/g

NA	3/11/2013 09:43
NA	3/11/2013 09:43

F dhw= ALS Environmental

G dhw= 14-Mar-13

Sumhfw= 1302223

Z run Rughu= 1302165

Vdp sch IG= 1302223-02A (MW-118 (5))

Ode IG= 1302165-2

OhjdoOrfdwlrq=

P dwl{= SOIL

F rnfwrq G dhw= 2/4/2013 09:05

ShufhwP rlxuh=

D qdqlv	Uhxow	T xdo	Uhsruw Olp lw	Xqlw	G lxwlrq Idfvr	G dhwD qdql }hg
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GAMMA SPECTROSCOPY RESULTS**PAI 713**

Prep Date: 2/18/2013

PrepBy: SAM

Ra-226	1.64 (+/- 0.39)	G
Ra-228	0.96 (+/- 0.63)	NQ,G

0.55 pCi/g
0.84 pCi/g

NA	3/11/2013 09:43
NA	3/11/2013 09:43

F dhw= ALS Environmental

G dhw= 14-Mar-13

Sumhfw= 1302223

Z run Rughu= 1302165

Vdp sch IG = 1302223-03A (MW-118 (10))

Ode IG = 1302165-3

OhjdoOrfdwlrq=

P dwl{= SOIL

F rnfwrq G dhw= 2/4/2013 10:10

ShufhwP rlxuh=

D qdq vrv	Uhxow	T xdo	Uhsruw Olp lw	Xqlw	G lxwlrq Idfvru	G dhwD qdq hg
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GAMMA SPECTROSCOPY RESULTS**PAI 713**

Prep Date: 2/18/2013

PrepBy: SAM

Ra-226 0.62 (+/- 0.29) LT,G,TI

0.48 pCi/g

NA

3/11/2013 09:43

Ra-228 ND (+/- 0.51) U,G

0.74 pCi/g

NA

3/11/2013 09:43

F dhw= ALS Environmental

G dhw= 14-Mar-13

Sumhfw= 1302223

Z run Rughu= 1302165

Vdp sch IG = 1302223-04A (MW-118 (15))

Ode IG = 1302165-4

OhjdoOrfdwlrq=

P dwl{= SOIL

F rnfwrq G dhw= 2/4/2013 14:50

ShufhwP rlxuh=

D qdq vlv	Uhxow	T xdo	Uhsruw Olp lw	Xqlw	G lxwlrq Idfvru	G dhwD qdq }hg
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GAMMA SPECTROSCOPY RESULTS**PAI 713**

Prep Date: 2/18/2013

PrepBy: SAM

Ra-226	ND (+/- 0.19)	U,G	0.36 pCi/g	NA	3/11/2013 09:43
Ra-228	ND (+/- 0.38)	U,G	0.57 pCi/g	NA	3/11/2013 09:43

F dhw= ALS Environmental

G dhw= 14-Mar-13

Sumhfw= 1302223

Z run Rughu= 1302165

Vdp sch IG = 1302223-05A (MW-118 (20))

Ode IG = 1302165-5

OhjdoOrfdwlrq=

P dwl{= SOIL

F rnfwrq G dhw= 2/4/2013 14:52

ShufhwP rlxuh=

D qdq vrv	Uhxow	T xdo	Uhsruw Olp lw	Xqlw	G lxwlrq Idfvru	G dhwD qdq hg
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GAMMA SPECTROSCOPY RESULTS**PAI 713**Prep Date: **2/18/2013**PrepBy: **SAM**

Ra-226	ND (+/- 0.28)	U,G	0.52 pCi/g	NA	3/11/2013 09:43
Ra-228	ND (+/- 0.6)	U,G	0.89 pCi/g	NA	3/11/2013 09:43

F dhw= ALS Environmental

G dhw= 14-Mar-13

Sumhfw= 1302223

Z run Rughu= 1302165

Vdp sch IG = 1302223-06A (MW-118 (25))

Ode IG = 1302165-6

OhjdoOrfdwlrq=

P dwl{= SOIL

F rnfwrq G dhw= 2/4/2013 14:35

ShufhwP rlxuh=

D qdq vrv	Uhxow	T xdo	Uhsruw Olp lw	Xqlw	G lxwlrq Idfvru	G dhwD qdq hg
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GAMMA SPECTROSCOPY RESULTS**PAI 713**Prep Date: **2/18/2013**PrepBy: **SAM**

Ra-226 0.74 (+/- 0.26) LT,G

0.44 pCi/g

NA

3/11/2013 09:43

Ra-228 1.04 (+/- 0.54) G,TI

0.63 pCi/g

NA

3/11/2013 09:43

F dhw= ALS Environmental

G dhw= 14-Mar-13

Sumhfw= 1302223

Z run Rughu= 1302165

Vdp sch IG = 1302223-07A (MW-119 (1))

Ode IG = 1302165-7

OhjdoOrfdwlrq=

P dwl{= SOIL

F rdnfwlrq G dhw= 2/4/2013 11:05

ShufhwP rlxuh=

D qdq vrv	Uhxow	T xdo	Uhsruw Olp lw	Xqlw	G lxwlrq Idfvru	G dhwD qdq hg
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GAMMA SPECTROSCOPY RESULTS**PAI 713**Prep Date: **2/18/2013**PrepBy: **SAM**

Ra-226	1.41 (+/- 0.3)	G
Ra-228	ND (+/- 0.4)	U,G

0.45 pCi/g
0.9 pCi/g

NA	3/11/2013 09:43
NA	3/11/2013 09:43

F d hq w= ALS Environmental
Sum hfw= 1302223
Vdp sch IG= 1302223-08A (MW-119 (5))
Ohj doOrfdwlrq=
F r d hfwlrq G d h= 2/4/2013 11:20

G d h= 14-Mar-13
Z run R ughu= 1302165
Ode IG= 1302165-8
P dwl{= SOIL
Shuf hq wP r l wkuh=

D q d d vlv	U h v x o w	T x d o	U h s r u w	O l p l w	X q l w	G l o x w l r q	I d f v r u	G d h D q d d } h g
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GAMMA SPECTROSCOPY RESULTS**PAI 713**Prep Date: **2/18/2013**PrepBy: **SAM**

Ra-226	1.14 (+/- 0.29)	G
Ra-228	ND (+/- 0.44)	U,G

0.46 pCi/g
0.67 pCi/g

NA	3/11/2013 09:43
NA	3/11/2013 09:43

F dhw= ALS Environmental

G dhw= 14-Mar-13

Sumhfw= 1302223

Z run Rughu= 1302165

Vdp sch IG = 1302223-09A (MW-119 (10))

Ode IG = 1302165-9

OhjdoOrfdwlrq=

P dwl{= SOIL

F rnfwrq G dhw= 2/4/2013 11:45

ShufhwP rlwuh=

D qdq vlv	Uhxow	T xdo	Uhsruw Olp lw	Xqlw	G lxwlrq Idfvru	G dhwD qdq }hg
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GAMMA SPECTROSCOPY RESULTS**PAI 713**

Prep Date: 2/18/2013

PrepBy: SAM

Ra-226	1.44 (+/- 0.36)	G
Ra-228	0.8 (+/- 0.53)	LT,G,TI

0.55 pCi/g
0.68 pCi/g

NA	3/11/2013 10:45
NA	3/11/2013 10:45

F dhw= ALS Environmental

G dhw= 14-Mar-13

Sumhfw= 1302223

Z run Rughu= 1302165

Vdp sch IG = 1302223-10A (MW-119 (15))

Ode IG = 1302165-10

OhjdoOrfdwlrq=

P dwl{= SOIL

F rdnfwlrq G dhw= 2/4/2013 16:08

ShufhgwP rlwkuh=

D qdq vrv	Uhxow	T xdo	Uhsruw Olp lw	Xqlw	G lxwlrq Idfvru	G dhwD qdq hg
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GAMMA SPECTROSCOPY RESULTS**PAI 713**

Prep Date: 2/18/2013

PrepBy: SAM

Ra-226 0.56 (+/- 0.21) LT,G

0.37 pCi/g

NA

3/11/2013 10:45

Ra-228 ND (+/- 0.55) U,G

0.97 pCi/g

NA

3/11/2013 10:45

F dhw= ALS Environmental

G dhw= 14-Mar-13

Sumhfw= 1302223

Z run Rughu= 1302165

Vdp sch IG= 1302223-11A (MW-119 (20))

Ode IG= 1302165-11

OhjdoOrfdwlrq=

P dwl{= SOIL

F rnfwrq G dhw= 2/4/2013 16:11

ShufhwP rlwuh=

D qdq vrv	Uhxow	T xdo	Uhsruw Olp lw	Xqlw	G lxwlrq Idfvru	G dhwD qdq hg
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GAMMA SPECTROSCOPY RESULTS**PAI 713**

Prep Date: 2/18/2013

PrepBy: SAM

Ra-226	1.07 (+/- 0.29)	G
Ra-228	0.9 (+/- 0.44)	LT,G

0.48 pCi/g
0.65 pCi/g

NA	3/11/2013 10:46
NA	3/11/2013 10:46

F dhw= ALS Environmental

G dhw= 14-Mar-13

Sumhfw= 1302223

Z run Rughu= 1302165

Vdp sch IG = 1302223-12A (MW-119 (25))

Ode IG = 1302165-12

OhjdoOrfdwlrq=

P dwl{= SOIL

F rnfwrq G dhw= 2/4/2013 16:20

ShufhwP rlxuh=

D qdq vrv	Uhxow	T xdo	Uhsruw Olp lw	Xqlw	G lxwlrq Idfvru	G dhwD qdq }hg
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GAMMA SPECTROSCOPY RESULTS**PAI 713**

Prep Date: 2/18/2013

PrepBy: SAM

Ra-226 0.66 (+/- 0.33) LT,G,TI

0.64 pCi/g

NA

3/11/2013 10:46

Ra-228 ND (+/- 0.45) U,G

0.72 pCi/g

NA

3/11/2013 10:46

F dhw= ALS Environmental
 Sumthf= 1302223
 Vdp sch IG = 1302223-26A (RO-SB-1 (35))
 OhjdoOrfdwlrq=
 F rnfwrq G dwh= 2/1/2013 10:05

G dwh= 14-Mar-13
 Z run R ughu= 1302165
 Ode IG = 1302165-20
 P dwl{= SOIL
 Shufhgwp r lwxuh=

D qdq vrv	Uhxow	T xdo	Uhsruw Olp lw	Xqlw	G lxwlrq Idfvru	G dwh D qdq }hg
-----------	-------	-------	------------------	------	--------------------	-----------------

H {sdlqdwlrq ri T xddiluv

Radiochemistry:

U or ND - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

G - Sample density differs by more than 15% of LCS density.

D - DER is greater than Control Limit

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).

U or ND - Indicates that the compound was analyzed for but not detected.

E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.

M - Duplicate injection precision was not met.

N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.

Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.

* - Duplicate analysis (relative percent difference) not within control limits.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.

B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.

E - Analyte concentration exceeds the upper level of the calibration range.

J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).

A - A tentatively identified compound is a suspected aldol-condensation product.

X - The analyte was diluted below an accurate quantitation level.

* - The spike recovery is equal to or outside the control criteria used.

+ - The relative percent difference (RPD) equals or exceeds the control criteria.

Diesel Range Organics:

F d h g w = ALS Environmental

G d w h = 14-Mar-13

S u m h f w = 1302223

Z r u n R u g h u = 1302165

V d p s c h I G = 1302223-26A (RO-SB-1 (35))

O d e I G = 1302165-20

O h j d o O r f d w l r g =

P d w l { = SOIL

F r a n f w l r g G d w h = 2/1/2013 10:05

S h u f h g w P r l w x u h =

D q d d v i v	U h v x o w	T x d o	U h s r u w	O l p l w	X q l w	G l o x w l r g	I d f v r u	G d w h D q d d } h g
-----------------	-------------	---------	-------------	-----------	---------	-----------------	-------------	-------------------------

G - A pattern resembling gasoline was detected in this sample.

D - A pattern resembling diesel was detected in this sample.

M - A pattern resembling motor oil was detected in this sample.

C - A pattern resembling crude oil was detected in this sample.

4 - A pattern resembling JP-4 was detected in this sample.

5 - A pattern resembling JP-5 was detected in this sample.

H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.

L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.

Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:

- gasoline

- JP-8

- diesel

- mineral spirits

- motor oil

- Stoddard solvent

- bunker C

ALS Environmental -- FC

G dwh= 3/14/2013 8:55:

F dhw= ALS Environmental
Z run R ughu= 1302165
Sumthfw= 1302223

T F EDWFK UHSRUW

Batch ID: **GS130215-3-1** Instrument ID: **GAMMA** Method: **Gamma Spectroscopy Results**

DUP	Sample ID: 1302165-1				Units: pCi/g		Analysis Date: 3/11/2013 10:45			
Client ID: 1302223-01A (MW-118 (1))			Run ID: GS130215-3A			Prep Date: 2/18/2013			DF: NA	
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	1.43 (+/- 0.34)	0.52					1.5	0.139	2.13	G
Ra-228	0.87 (+/- 0.62)	0.86					0.89	0.0287	2.13	LT,G,TI

LCS	Sample ID: GS130215-3A				Units: pCi/g		Analysis Date: 3/11/2013 11:05			
Client ID:	Run ID: GS130215-3A				Prep Date: 2/18/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	454 (+/- 53)	3	469.4		96.8	85-115				P,M3

LCS	Sample ID: GS130215-3				Units: pCi/g		Analysis Date: 3/11/2013 10:46			
Client ID:	Run ID: GS130215-3A				Prep Date: 2/18/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Am-241	463 (+/- 55)	7	475.3		97.5	85-115				P
Co-60	205 (+/- 24)	1	204.4		100	85-115				P
Cs-137	183 (+/- 22)	1	173.6		105	85-115				P

MB	Sample ID: GS130215-3				Units: pCi/g		Analysis Date: 3/11/2013 10:46			
Client ID:	Run ID: GS130215-3A				Prep Date: 2/18/2013			DF: NA		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	ND	0.24								U
Ra-228	ND	0.37								U

The following samples were analyzed in this batch:

1302165-1	1302165-2	1302165-3
1302165-4	1302165-5	1302165-6
1302165-7	1302165-8	1302165-9
1302165-10	1302165-11	1302165-12

TECHNICAL BULLETIN ADDENDUM

The library used for analysis defines the gamma emission(s) to be used for analysis of each nuclide. If multiple gamma emissions are used for quantification, then a 'NET' quantification emission (or peak) must be defined in the library. This designation provides for the calculation of nuclide activity concentrations and detection limits in the case of non-presence of the nuclide. When the nuclide is not present, or the software is unable to resolve a peak at the library defined 'NET' energy, the software evaluates the 'NET' region of interest ('NET' peak energy \pm 2 keV) by performing a summation of the net counts above the background level. This 'NET' quantification can result in net negative, zero, or positive activity results, and is highly dependent on the spectral distribution in the region of interest of the 'NET' peak. In cases where only the 'NET' peak is found, and the software performs a net quantification, the nuclide result will be flagged with an 'NQ' qualifier on the final reports. This indicates that the nuclide is not detected or supported at any level above the reported MDC. Results are submitted without further qualification.

All nuclides specified in the library of analysis for gamma spectroscopy are evaluated for positive OR tentative identification on the following criteria:

- The individual abundances for the gamma emissions specified for each nuclide are summed to obtain a total nuclide abundance.
- From the total nuclide abundance, a positive identification criterion is set as 75% of this total nuclide abundance.
- For all nuclide peaks that are not net quantified, those peak abundances are summed. The total non-net quantified peak sum is compared to the calculated 75% abundance criterion. If this sum is greater than the 75% criterion, the nuclide is considered to be positively identified at the reported concentration. If the sum is less than the 75% criterion, the nuclide is tentatively identified at the reported concentration. These results will be flagged with a 'TI' qualifier on the final reports to indicate that the 75% abundance criterion was not met.



March 6, 2013

Ms. Sonia West
ALS Environmental
10450 Stancliff Rd, Suite 210
Houston, TX 77099

Re: ALS Workorder: 13-02-040
Project Name: None Submitted
Project Number: 1302223

Dear Ms. West:

Six soil samples were received from ALS Environmental on February 05, 2013. The samples were scheduled for the following analysis:

Gamma Spectroscopy

The results for this analysis are contained in the enclosed report.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Jeff Kujawa
Project Manager

JRK/mlc
Enclosure (s): Report

ADDRESS 225 Commerce Drive, Fort Collins, Colorado, USA 80524 | PHONE +1 970 490 1511 | FAX +1 970 490 1522

ALS GROUP USA, CORP. Part of the ALS Laboratory Group An ALS Limited Company

Environmental

www.alsglobal.com

RIGHT SOLUTIONS, RIGHT PARTNER

04 of 09

ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO00078
Arizona (AZ)*	AZ0742
California (CA)	06251CA
Colorado (CO)	CO00078
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO00078
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri	175
Nevada (NV)	CO000782008A
New Jersey (NJ)**	CO003
North Dakota (ND)	R-057
Oklahoma	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241-09-1
Utah (UT)	CO00078
Washington	C1280



1302040

Gamma Spectroscopy:

The samples were analyzed for the presence of gamma emitting radionuclides according to the current revision of SOP 713.

These samples were prepared according to the current revision of SOP 739. The samples were sealed in steel cans and stored for at least 24 days prior to analysis.

All acceptance criteria were met.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1302040

Client Name: ALS Environmental

Client Project Name:

Client Project Number: 1302223

Client PO Number: 10-1302223

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
1302223-13A (MW-117 (1))	1302040-1		SOIL	31-Jan-13	8:55
1302223-14A (MW-117 (5))	1302040-2		SOIL	31-Jan-13	9:15
1302223-15A (MW-117 (10))	1302040-3		SOIL	31-Jan-13	10:30
1302223-16A (MW-117 (15))	1302040-4		SOIL	31-Jan-13	15:20
1302223-17A (MW-117 (20))	1302040-5		SOIL	31-Jan-13	15:25
1302223-18A (MW-117 (25))	1302040-6		SOIL	31-Jan-13	15:40

**Subcontractor:**ALS Environmental
225 Commerce Drive

Fort Collins, CO 80524

TEL: (800) 443-1511

FAX: (970) 490-1522

Acct #:

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

1302040

Date: 04-Feb-13COC ID: 13244Due Date: 08-Feb-13Salesperson Mala H. Belmonte

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	1302079	A	Radium 226 228 Sub to ALS Ft. Collins
Work Order		Project Number		B	
Company Name	ALS Group USA, Corp.	Bill To Company	ALS Group USA, Corp.	C	
Send Report To	Sonia West	Inv Attn	Accounts Payable	D	
Address	10450 Stancliff Rd, Suite 210	Address	10450 Stancliff Rd, Suite 210	E	
				F	
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G	
Phone	(281) 530-5656	Phone	(281) 530-5656	H	
Fax	(281) 530-5887	Fax	(281) 530-5887	I	
eMail Address	Sonia.West@alsglobal.com	eMail CC		J	

Sample ID	Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J
① 1302079-01E (MW-117 (1))	Soil	31/Jan/2013 8:55	(1) 4OZGNEAT	X									
② 1302079-03C (MW-117 (5))	Soil	31/Jan/2013 9:15	(1) 4OZGNEAT	X									
③ 1302079-06C (MW-119 (10))	Soil	31/Jan/2013 10:30	(1) 4OZGNEAT	X									
④ 1302079-09C (MW-117 (15))	Soil	31/Jan/2013 15:20	(1) 4OZGNEAT	X									
⑤ 1302079-12C (MW-117 (20))	Soil	31/Jan/2013 15:25	(1) 4OZGNEAT	X									
⑥ 1302079-15E (MW-117 (25))	Soil	31/Jan/2013 15:40	(1) 4OZGNEAT	X									

Comments:

Please analyze for Radium 226/228. Email results to sonia.west@alsglobal.com and CC jumoke.lawal@alsglobal.com

RN AS 02/04/13 18:00 C Sumble 2-5-13 0910

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
					Std
Relinquished by:	Date/Time	Received by:	Date/Time		



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS-TX

Workorder No: 1302040

Project Manager: JK

Initials: CDT Date: 2-5-13

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	NONE	<input checked="" type="radio"/> YES	NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		YES	<input checked="" type="radio"/> NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<input checked="" type="radio"/> YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<input checked="" type="radio"/> N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	<input checked="" type="radio"/> N/A	YES	NO
16. Were the samples shipped on ice?		<input checked="" type="radio"/> YES	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 <input checked="" type="radio"/> #4	RAD ONLY	<input checked="" type="radio"/> YES	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>2.0</u>			
No. of custody seals on cooler: <u>2</u>			
External µR/hr reading: <u>12</u>			
Background µR/hr reading: <u>11</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <input checked="" type="radio"/> YES <input type="radio"/> NO <input type="radio"/> NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

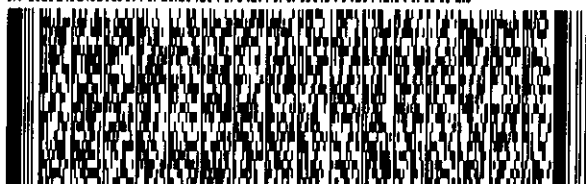
SAMPLES RECEIVED IN 8 OZ SOIL JARS-

If applicable, was the client contacted? YES / NO / ☒ NA Contact: _____ Date/Time: _____

Project Manager Signature / Date: [Signature] 2-5-13

BILL SENDER

REF: SUB SAMPLES

**E**

TUE - 05 FEB A2
PRIORITY OVERNIGHT

NA-FTCA

CO - US DEN



F dhw= ALS Environmental

G dhw= 06-Mar-13

Sumhfw= 1302223

Z run Rughu= 1302040

Vdp schIG= 1302223-13A (MW-117 (1))

Ode IG= 1302040-1

OhjdoOrfdwlrq=

P dwl{= SOIL

F rnfwrq G dhw= 1/31/2013 08:55

ShufhwP rlxuh=

D qdq vlv	Uhxow	T xdo	Uhsruw Olp lw	Xqlw	G lxwlrq Idfvr	G dhwD qdq }hg
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GAMMA SPECTROSCOPY RESULTS**PAI 713**Prep Date: **2/8/2013**PrepBy: **SAM**

Ra-226	1.55 (+/- 0.35)	G
Ra-228	ND (+/- 0.62)	U,G

0.57 pCi/g
0.93 pCi/g

NA
NA

3/4/2013 08:41
3/4/2013 08:41

F dhw= ALS Environmental

G dwh= 06-Mar-13

Sumhfw= 1302223

Z run Rughu= 1302040

Vdp schIG= 1302223-14A (MW-117 (5))

Ode IG= 1302040-2

OhjdoOrfdwlrq=

P dwl{= SOIL

F rnfwrq G dwh= 1/31/2013 09:15

ShufhwP rlxuh=

D qdq vrv	Uhxow	T xdo	Uhsruw Olp lw	Xqlw	G lxwlrq Idfvru	G dwhD qdq hg
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GAMMA SPECTROSCOPY RESULTS**PAI 713**Prep Date: **2/8/2013**PrepBy: **SAM**

Ra-226 0.5 (+/- 0.24) LT, TI

0.46 pCi/g

NA

3/4/2013 08:41

Ra-228 ND (+/- 0.51) U

0.82 pCi/g

NA

3/4/2013 08:41

F dhw= ALS Environmental

G dwh= 06-Mar-13

Sumhfw= 1302223

Z run Rughu= 1302040

Vdp sch IG = 1302223-15A (MW-117 (10))

Ode IG = 1302040-3

OhjdoOrfdwlrq=

P dwl{= SOIL

F rdnfwlrq G dwh= 1/31/2013 10:30

ShufhgwP rlxuh=

D qdq vrv	Uhxow	T xdo	Uhsruw Olp lw	Xqlw	G lxwlrq Idfvru	G dwhD qdq hg
------------	-------	-------	------------------	------	--------------------	----------------

GAMMA SPECTROSCOPY RESULTS**PAI 713**Prep Date: **2/8/2013**PrepBy: **SAM**

Ra-226 0.68 (+/- 0.22) LT,G

0.38 pCi/g

NA

3/4/2013 08:41

Ra-228 ND (+/- 0.5) U,G

0.81 pCi/g

NA

3/4/2013 08:41

F dhw= ALS Environmental

G dhw= 06-Mar-13

Sumhfw= 1302223

Z run Rughu= 1302040

Vdp schIG= 1302223-16A (MW-117 (15))

Ode IG= 1302040-4

OhjdoOrfdwlrq=

P dwl{= SOIL

F rnfwrq G dhw= 1/31/2013 15:20

ShufhwP rlxuh=

D qdq vlv	Uhxow	T xdo	Uhsruw Olp lw	Xqlw	G lxwlrq Idfvru	G dhwD qdq }hg
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GAMMA SPECTROSCOPY RESULTS**PAI 713**Prep Date: **2/8/2013**PrepBy: **SAM**

Ra-226 ND (+/- 0.24) U,G

0.44 pCi/g

NA

3/4/2013 08:41

Ra-228 ND (+/- 0.44) U,G

0.73 pCi/g

NA

3/4/2013 08:41

F dhw= ALS Environmental

G dhw= 06-Mar-13

Sumhfw= 1302223

Z run Rughu= 1302040

Vdp schIG= 1302223-17A (MW-117 (20))

Ode IG= 1302040-5

OhjdoOrfdwlrq=

P dwl{= SOIL

F rnfwrq G dhw= 1/31/2013 15:25

ShufhwP rlxuh=

D qdq vrv	Uhxow	T xdo	Uhsruw Olp lw	Xqlw	G lxwlrq Idfvru	G dhwD qdq hg
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GAMMA SPECTROSCOPY RESULTS**PAI 713**Prep Date: **2/8/2013**PrepBy: **SAM**

Ra-226 0.87 (+/- 0.26) LT,G

0.48 pCi/g

NA

3/4/2013 08:42

Ra-228 ND (+/- 0.5) U,G

0.75 pCi/g

NA

3/4/2013 08:42

F dhw= ALS Environmental

G dhw= 06-Mar-13

Sumhfw= 1302223

Z run Rughu= 1302040

Vdp schIG= 1302223-18A (MW-117 (25))

Ode IG= 1302040-6

OhjdoOrfdwlrq=

P dwl{= SOIL

F rdnfwlrq G dhw= 1/31/2013 15:40

ShufhwP rlxuh=

D qdq vrv	Uhxow	T xdo	Uhsruw Olp lw	Xqlw	G lxwlrq Idfvr	G dhwD qdq hg
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GAMMA SPECTROSCOPY RESULTS**PAI 713**Prep Date: **2/8/2013**PrepBy: **SAM**

Ra-226	0.51 (+/- 0.21)	LT,G
Ra-228	0.82 (+/- 0.49)	LT,G,Tl

0.37 pCi/g
0.64 pCi/g

NA
NA

3/4/2013 08:42
3/4/2013 08:42

F dhw= ALS Environmental

G dwh= 06-Mar-13

Sumthf= 1302223

Z run R ughu= 1302040

Vdp sch IG = 1302223-18A (MW-117 (25))

Ode IG = 1302040-6

OhjdoOrfdwlrq=

P dwl{= SOIL

F rdnfwlrq G dwh= 1/31/2013 15:40

Shufhgwp r lwxuh=

D qdq vrv	Uhxow	T xdo	Uhsruw Olp lw	Xqlw	G lwxlrq Idfvru	G dwhD qdq }hg
-----------	-------	-------	------------------	------	--------------------	----------------

H {sdlqdwlrq riT xddiluv

Radiochemistry:

U or ND - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

G - Sample density differs by more than 15% of LCS density.

D - DER is greater than Control Limit

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).

U or ND - Indicates that the compound was analyzed for but not detected.

E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.

M - Duplicate injection precision was not met.

N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.

Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.

* - Duplicate analysis (relative percent difference) not within control limits.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.

B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.

E - Analyte concentration exceeds the upper level of the calibration range.

J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).

A - A tentatively identified compound is a suspected aldol-condensation product.

X - The analyte was diluted below an accurate quantitation level.

* - The spike recovery is equal to or outside the control criteria used.

+ - The relative percent difference (RPD) equals or exceeds the control criteria.

Diesel Range Organics:

F d hq w= ALS Environmental

G d w= 06-Mar-13

S um h f w= 1302223

Z run R ughu= 1302040

Vdp sch IG = 1302223-18A (MW-117 (25))

Ode IG = 1302040-6

O h j d o r f d w l r q =

P d w l { = SOIL

F r a n f w l r q G d w = 1/31/2013 15:40

S h u f h q w P r l w x u h =

D q d q v r v	U h v x o w	T x d o	U h s r u w	O l p l w	X q l w	G l o x w l r q	I d f v r u	G d w h D q d q } h g
-----------------	-------------	---------	-------------	-----------	---------	-----------------	-------------	-------------------------

G - A pattern resembling gasoline was detected in this sample.

D - A pattern resembling diesel was detected in this sample.

M - A pattern resembling motor oil was detected in this sample.

C - A pattern resembling crude oil was detected in this sample.

4 - A pattern resembling JP-4 was detected in this sample.

5 - A pattern resembling JP-5 was detected in this sample.

H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.

L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.

Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:

- gasoline

- JP-8

- diesel

- mineral spirits

- motor oil

- Stoddard solvent

- bunker C

ALS Environmental -- FC

Gdw= 3/6/2013 7:16:1

F dhw= ALS Environmental
Z run R ughu= 1302040
Sumhfw= 1302223

T F EDWFK UHSRUW

Batch ID: **GS130207-2-1** Instrument ID: **GAMMA** Method: **Gamma Spectroscopy Results**

DUP	Sample ID: 1302040-6				Units: pCi/g		Analysis Date: 3/4/2013 09:44			
Client ID: 1302223-18A (MW-117 (25))			Run ID: GS130207-2A			Prep Date: 2/8/2013			DF: NA	
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	ND	0.61					0.51	0.0381	2.13	U,G
Ra-228	ND	0.97					0.82	0.367	2.13	U,G

LCS	Sample ID: GS130207-2A				Units: pCi/g		Analysis Date: 3/4/2013 10:40			
Client ID:	Run ID: GS130207-2A				Prep Date: 2/8/2013			DF: NA		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	466 (+/- 55)	3	469.4		99.3	85-115				P,M3

LCS	Sample ID: GS130207-2				Units: pCi/g		Analysis Date: 3/4/2013 10:39			
Client ID:	Run ID: GS130207-2A						Prep Date: 2/8/2013		DF: NA	
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Am-241	487 (+/- 59)	15	475.4		103	85-115				P
Co-60	206 (+/- 24)	1	204.9		100	85-115				P
Cs-137	179 (+/- 21)	1	173.7		103	85-115				P

MB	Sample ID: GS130207-2				Units: pCi/g		Analysis Date: 3/4/2013 09:49			
Client ID:	Run ID: GS130207-2A				Prep Date: 2/8/2013			DF: NA		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	ND	0.24								U
Ra-228	ND	0.4								U

The following samples were analyzed in this batch:

1302040-1	1302040-2	1302040-3
1302040-4	1302040-5	1302040-6

TECHNICAL BULLETIN ADDENDUM

The library used for analysis defines the gamma emission(s) to be used for analysis of each nuclide. If multiple gamma emissions are used for quantification, then a 'NET' quantification emission (or peak) must be defined in the library. This designation provides for the calculation of nuclide activity concentrations and detection limits in the case of non-presence of the nuclide. When the nuclide is not present, or the software is unable to resolve a peak at the library defined 'NET' energy, the software evaluates the 'NET' region of interest ('NET' peak energy +/- 2 keV) by performing a summation of the net counts above the background level. This 'NET' quantification can result in net negative, zero, or positive activity results, and is highly dependent on the spectral distribution in the region of interest of the 'NET' peak. In cases where only the 'NET' peak is found, and the software performs a net quantification, the nuclide result will be flagged with an 'NQ' qualifier on the final reports. This indicates that the nuclide is not detected or supported at any level above the reported MDC. Results are submitted without further qualification.

All nuclides specified in the library of analysis for gamma spectroscopy are evaluated for positive OR tentative identification on the following criteria:

- The individual abundances for the gamma emissions specified for each nuclide are summed to obtain a total nuclide abundance.
- From the total nuclide abundance, a positive identification criterion is set as 75% of this total nuclide abundance.
- For all nuclide peaks that are not net quantified, those peak abundances are summed. The total non-net quantified peak sum is compared to the calculated 75% abundance criterion. If this sum is greater than the 75% criterion, the nuclide is considered to be positively identified at the reported concentration. If the sum is less than the 75% criterion, the nuclide is tentatively identified at the reported concentration. These results will be flagged with a 'TI' qualifier on the final reports to indicate that the 75% abundance criterion was not met.



March 6, 2013

Ms. Sonia West
ALS Environmental
10450 Stancliff Rd, Suite 210
Houston, TX 77099

Re: ALS Workorder: 13-02-041
Project Name: None Submitted
Project Number: 1302223

Dear Ms. West:

Eight soil samples were received from ALS Environmental on February 05, 2013. The samples were scheduled for the following analysis:

Gamma Spectroscopy

The results for this analysis are contained in the enclosed report.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Jeff Kujawa
Project Manager

JRK/mlc
Enclosure (s): Report

ADDRESS 225 Commerce Drive, Fort Collins, Colorado, USA 80524 | PHONE +1 970 490 1511 | FAX +1 970 490 1522

ALS GROUP USA, CORP. Part of the ALS Laboratory Group An ALS Limited Company

Environmental

www.alsglobal.com

RIGHT SOLUTIONS. RIGHT PARTNER

81 of 99

ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO00078
Arizona (AZ)*	AZ0742
California (CA)	06251CA
Colorado (CO)	CO00078
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO00078
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri	175
Nevada (NV)	CO000782008A
New Jersey (NJ)**	CO003
North Dakota (ND)	R-057
Oklahoma	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241-09-1
Utah (UT)	CO00078
Washington	C1280



1302041

Gamma Spectroscopy:

The samples were analyzed for the presence of gamma emitting radionuclides according to the current revision of SOP 713.

These samples were prepared according to the current revision of SOP 739. The samples were sealed in steel cans and stored for at least 24 days prior to analysis.

All acceptance criteria were met.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1302041

Client Name: ALS Environmental

Client Project Name:

Client Project Number: 1302223

Client PO Number: 10-1302223

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
1302223-19A (RO-SB-1 (1))	1302041-1		SOIL	31-Jan-13	11:45
1302223-20A (RO-SB-1 (5))	1302041-2		SOIL	31-Jan-13	12:00
1302223-21A (RO-SB-1 (10))	1302041-3		SOIL	31-Jan-13	12:50
1302223-22A (RO-SB-1 (15))	1302041-4		SOIL	01-Feb-13	9:57
1302223-23A (RO-SB-1 (20))	1302041-5		SOIL	01-Feb-13	9:40
1302223-24A (RO-SB-1 (25))	1302041-6		SOIL	01-Feb-13	10:18
1302223-25A (RO-SB-1 (30))	1302041-7		SOIL	01-Feb-13	10:10
1302223-26A (RO-SB-1 (35))	1302041-8		SOIL	01-Feb-13	10:05

1302041



Subcontractor:

ALS Environmental
225 Commerce Drive

Fort Collins, CO 80524

TEL: (800) 443-1511

FAX: (970) 490-1522

Acct #:

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Date: **04-Feb-13**

COC ID: **13246**

Due Date: **14-Feb-13**

Salesperson: **Mala H. Belmonte**

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	1302082	A	Radium 226, 228 Sub to ALS Ft. Collins
Work Order		Project Number		B	
Company Name	ALS Group USA, Corp.	Bill To Company	ALS Group USA, Corp.	C	
Send Report To	Sonia West	Inv Attn	Accounts Payable	D	
Address	10450 Stancliff Rd, Suite 210	Address	10450 Stancliff Rd, Suite 210	E	
				F	
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G	
Phone	(281) 530-5656	Phone	(281) 530-5656	H	
Fax	(281) 530-5887	Fax	(281) 530-5887	I	
eMail Address	Sonia.West@alsglobal.com	eMail CC		J	

Sample ID	Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J
① 1302082-01E (RO-SB-1 (1))	Soil	31/Jan/2013 11:45	(1) 4OZGNEAT	X									
② 1302082-03C (RO-SB-1 (5))	Soil	31/Jan/2013 12:00	(1) 4OZGNEAT	X									
③ 1302082-06C (RO-SB-1 (10))	Soil	31/Jan/2013 12:50	(1) 4OZGNEAT	X									
④ 1302082-09C (RO-SB-1 (15))	Soil	1/Feb/2013 9:57	(1) 4OZGNEAT	X									
⑤ 1302082-12C (RO-SB-1 (20))	Soil	1/Feb/2013 9:40	(1) 4OZGNEAT	X									
⑥ 1302082-15C (RO-SB-1 (25))	Soil	1/Feb/2013 10:18	(1) 4OZGNEAT	X									
⑦ 1302082-18C (RO-SB-1 (30))	Soil	1/Feb/2013 10:10	(1) 4OZGNEAT	X									
⑧ 1302082-21E (RO-SB-1 (35))	Soil	1/Feb/2013 10:05	(1) 4OZGNEAT	X									

Comments:

Please analysis for Radium 226/228. Email results to sonia.west@alsglobal.com and CC jumoke.lawal@alsglobal.com

Relinquished by: ALS 2/4/13 18:00 Date/Time
Received by: C Jumoke Date/Time

2-5-13 0910

Cooler IDs

Report/QC Level

Std.

Relinquished by: _____ Date/Time
Received by: _____ Date/Time



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS-TX

Workorder No: 1302041

Project Manager: JK

Initials: CDT Date: 2-5-13

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	NONE	<input checked="" type="radio"/> YES	NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		YES	<input checked="" type="radio"/> NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<input checked="" type="radio"/> YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<input checked="" type="radio"/> N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	<input checked="" type="radio"/> N/A	YES	NO
16. Were the samples shipped on ice?		<input checked="" type="radio"/> YES	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 <input checked="" type="radio"/> #4	RAD ONLY	<input checked="" type="radio"/> YES	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>2.0</u>			
No. of custody seals on cooler: <u>2</u>			
External µR/hr reading: <u>12</u>			
Background µR/hr reading: <u>11</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <input checked="" type="radio"/> YES / NO / NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

SAMPLES RECEIVED IN 8 OZ. SOIL JARS

If applicable, was the client contacted? YES / NO / NA Contact: _____ Date/Time: _____

Project Manager Signature / Date: _____

ORIGIN ID: SGRA (281) 530-5656
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 04FEB13
ACTWGT: 49.1 LB
CAD: 300130/CAFE2606

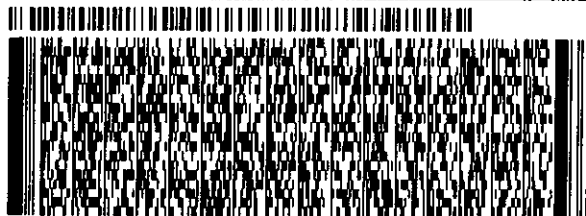
BILL SENDER

TO ROY FRENCH
ALS ENVIRONMENTAL
225 COMMERCE DRIVE

FORT COLLINS CO 80524
(970) 490-1511
REF: SUB SAMPLES

12
-2

51201/0524/FE0



FedEx
Express



J121312 10050125

TRK# 4340 2174 0813
0201

TUE - 05 FEB A2
PRIORITY OVERNIGHT

NA FTCA

80524
CO-US DEN

Part # 156148-434 RIT2 04/12



F dhw= ALS Environmental

G dhw= 06-Mar-13

Sumhfw= 1302223

Z run Rughu= 1302041

Vdp schIG= 1302223-19A (RO-SB-1 (1))

Ode IG= 1302041-1

OhjdoOrfdwlrq=

P dwl{= SOIL

F rdnfwlrq G dhw= 1/31/2013 11:45

ShufhwP rlxuh=

D qdq vrv	Uhxow	T xdo	Uhsruw Olp lw	Xqlw	G lxwlrq Idfvru	G dwhD qdq hg
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GAMMA SPECTROSCOPY RESULTS**PAI 713**Prep Date: **2/8/2013**PrepBy: **SAM**

Ra-226	1.32 (+/- 0.29)	G
Ra-228	ND (+/- 0.5)	U,G

0.46 pCi/g
0.9 pCi/g

NA	3/4/2013 08:42
NA	3/4/2013 08:42

F dhw= ALS Environmental

G dhw= 06-Mar-13

Sumhfw= 1302223

Z run Rughu= 1302041

Vdp schIG= 1302223-20A (RO-SB-1 (5))

Ode IG= 1302041-2

OhjdoOrfdwlrq=

P dwl{= SOIL

F rchfwlrq G dhw= 1/31/2013 12:00

ShufhwP rlxuh=

D qdq vrv	Uhxow	T xdo	Uhsruw Olp lw	Xqlw	G lxwlrq Idfvr	G dhwD qdq hg
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GAMMA SPECTROSCOPY RESULTS**PAI 713**Prep Date: **2/8/2013**PrepBy: **SAM**

Ra-226 1.09 (+/- 0.34) G

0.54 pCi/g

NA

3/4/2013 09:44

Ra-228 1.17 (+/- 0.75) M,G,NQ

1.03 pCi/g

NA

3/4/2013 09:44

F dhw= ALS Environmental

G dwh= 06-Mar-13

Sumhfw= 1302223

Z run Rughu= 1302041

Vdp schIG= 1302223-21A (RO-SB-1 (10))

Ode IG= 1302041-3

OhjdoOrfdwlrq=

P dwl{= SOIL

F rdnfwlrq G dwh= 1/31/2013 12:50

ShufhwP rlxuh=

D qdq vrv	Uhxow	T xdo	Uhsruw Olp lw	Xqlw	G lxwlrq Idfvru	G dwhD qdq hg
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GAMMA SPECTROSCOPY RESULTS**PAI 713**Prep Date: **2/8/2013**PrepBy: **SAM**

Ra-226 0.89 (+/- 0.34) LT,G,TI

0.58 pCi/g

NA

3/4/2013 09:44

Ra-228 ND (+/- 0.53) U,G

0.93 pCi/g

NA

3/4/2013 09:44

F dhw= ALS Environmental

G dhw= 06-Mar-13

Sumhfw= 1302223

Z run Rughu= 1302041

Vdp sch IG = 1302223-22A (RO-SB-1 (15))

Ode IG = 1302041-4

OhjdoOrfdwlrq=

P dwl{= SOIL

F rdnfwlrq G dhw= 2/1/2013 09:57

ShufhwP rlxuh=

D qdq vrv	Uhxow	T xdo	Uhsruw Olp lw	Xqlw	G lxwlrq Idfvru	G dhwD qdq hg
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GAMMA SPECTROSCOPY RESULTS**PAI 713**Prep Date: **2/8/2013**PrepBy: **SAM**

Ra-226 0.87 (+/- 0.25) LT,G

0.38 pCi/g

NA

3/4/2013 09:44

Ra-228 ND (+/- 0.4) U,G

0.82 pCi/g

NA

3/4/2013 09:44

F dhw= ALS Environmental

G dwh= 06-Mar-13

Sumhfw= 1302223

Z run Rughu= 1302041

Vdp sch IG = 1302223-23A (RO-SB-1 (20))

Ode IG = 1302041-5

OhjdoOrfdwlrq=

P dwl{= SOIL

F rdnfwlrq G dwh= 2/1/2013 09:40

ShufhwP rlxuh=

D qdq vrv	Uhxow	T xdo	Uhsruw Olp lw	Xqlw	G lxwlrq Idfvru	G dwhD qdq hg
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GAMMA SPECTROSCOPY RESULTS**PAI 713**Prep Date: **2/8/2013**PrepBy: **SAM**

Ra-226 0.58 (+/- 0.27) LT,G,TI

0.51 pCi/g

NA

3/4/2013 09:44

Ra-228 **0.99 (+/- 0.62)** NQ,G**0.81 pCi/g**

NA

3/4/2013 09:44

F dhw= ALS Environmental

G dhw= 06-Mar-13

Sumhfw= 1302223

Z run Rughu= 1302041

Vdp schIG= 1302223-24A (RO-SB-1 (25))

Ode IG= 1302041-6

OhjdoOrfdwlrq=

P dwl{= SOIL

F rdnfwlrq G dhw= 2/1/2013 10:18

ShufhwP rlxuh=

D qdq vrv	Uhxow	T xdo	Uhsruw Olp lw	Xqlw	G lxwlrq Idfvr	G dhwD qdq hg
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GAMMA SPECTROSCOPY RESULTS**PAI 713**Prep Date: **2/8/2013**PrepBy: **SAM****Ra-226** **1.07 (+/- 0.28)** G**0.45 pCi/g**

NA

3/4/2013 09:44

Ra-228 **1.11 (+/- 0.43)** G,Tl**0.64 pCi/g**

NA

3/4/2013 09:44

F dhw= ALS Environmental

G dhw= 06-Mar-13

Sumhfw= 1302223

Z run Rughu= 1302041

Vdp sch IG = 1302223-25A (RO-SB-1 (30))

Ode IG = 1302041-7

OhjdoOrfdwlrq=

P dwl{= SOIL

F rdnfwlrq G dhw= 2/1/2013 10:10

ShufhwP rlxuh=

D qdq vrv	Uhxow	T xdo	Uhsruw Olp lw	Xqlw	G lxwlrq Idfvru	G dhwD qdq hg
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GAMMA SPECTROSCOPY RESULTS**PAI 713**Prep Date: **2/8/2013**PrepBy: **SAM**

Ra-226 0.56 (+/- 0.26) LT,G,TI

0.49 pCi/g

NA

3/4/2013 09:44

Ra-228 ND (+/- 0.6) U,G

0.94 pCi/g

NA

3/4/2013 09:44

F dhw= ALS Environmental

G dhw= 06-Mar-13

Sumhfw= 1302223

Z run Rughu= 1302041

Vdp sch IG = 1302223-26A (RO-SB-1 (35))

Ode IG = 1302041-8

OhjdoOrfdwlrq=

P dwl{= SOIL

F rnfwrq G dhw= 2/1/2013 10:05

ShufhwP rlxuh=

D qdq vrv	Uhxow	T xdo	Uhsruw Olp lw	Xqlw	G lxwlrq Idfvr	G dhwD qdq hg
------------	-------	-------	------------------	------	-------------------	----------------

GAMMA SPECTROSCOPY RESULTS**PAI 713**Prep Date: **2/8/2013**PrepBy: **SAM**

Ra-226 0.72 (+/- 0.22) LT

0.38 pCi/g

NA

3/4/2013 09:44

Ra-228 ND (+/- 0.39) U

0.59 pCi/g

NA

3/4/2013 09:44

F dhw= ALS Environmental

G dwh= 06-Mar-13

Sumthf= 1302223

Z run R ughu= 1302041

Vdp sch IG = 1302223-26A (RO-SB-1 (35))

Ode IG = 1302041-8

OhjdoOrfdwlrq=

P dwl{= SOIL

F rnfwrq G dwh= 2/1/2013 10:05

Shufhgwp r lwxuh=

D qdq vlv	Uhxow	T xdo	Uhsruw Olp lw	Xqlw	G lxwlrq Idfvru	G dwh D qdq }hg
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H {sdlqdwlrq ri T xddiluv

Radiochemistry:

U or ND - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

G - Sample density differs by more than 15% of LCS density.

D - DER is greater than Control Limit

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).

U or ND - Indicates that the compound was analyzed for but not detected.

E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.

M - Duplicate injection precision was not met.

N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.

Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.

* - Duplicate analysis (relative percent difference) not within control limits.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.

B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.

E - Analyte concentration exceeds the upper level of the calibration range.

J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).

A - A tentatively identified compound is a suspected aldol-condensation product.

X - The analyte was diluted below an accurate quantitation level.

* - The spike recovery is equal to or outside the control criteria used.

+ - The relative percent difference (RPD) equals or exceeds the control criteria.

Diesel Range Organics:

F d h g w = ALS Environmental

G d w h = 06-Mar-13

S u m h f w = 1302223

Z r u n R u g h u = 1302041

V d p s c h I G = 1302223-26A (RO-SB-1 (35))

O d e I G = 1302041-8

O h j d o O r f d w l r g =

P d w l { = SOIL

F r a n f w l r g G d w h = 2/1/2013 10:05

S h u f h g w P r l w x u h =

D q d d v i v	U h v x o w	T x d o	U h s r u w	O l p l w	X q l w	G l o x w l r g	I d f v r u	G d w h D q d d } h g
-----------------	-------------	---------	-------------	-----------	---------	-----------------	-------------	-------------------------

G - A pattern resembling gasoline was detected in this sample.

D - A pattern resembling diesel was detected in this sample.

M - A pattern resembling motor oil was detected in this sample.

C - A pattern resembling crude oil was detected in this sample.

4 - A pattern resembling JP-4 was detected in this sample.

5 - A pattern resembling JP-5 was detected in this sample.

H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.

L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.

Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:

- gasoline

- JP-8

- diesel

- mineral spirits

- motor oil

- Stoddard solvent

- bunker C

ALS Environmental -- FC

Gdw= 3/6/2013 7:19:1

F dhw= ALS Environmental
Z run R ughu= 1302041
Sumhfw= 1302223

T F EDWFK UHSRUW

Batch ID: **GS130207-2-1** Instrument ID: **GAMMA** Method: **Gamma Spectroscopy Results**

LCS	Sample ID: GS130207-2A				Units: pCi/g		Analysis Date: 3/4/2013 10:40			
Client ID:	Run ID: GS130207-2A				Prep Date: 2/8/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	466 (+/- 55)	3	469.4		99.3	85-115				P,M3

LCS	Sample ID: GS130207-2				Units: pCi/g		Analysis Date: 3/4/2013 10:39			
Client ID:	Run ID: GS130207-2A				Prep Date: 2/8/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Am-241	487 (+/- 59)	15	475.4		103	85-115				P
Co-60	206 (+/- 24)	1	204.9		100	85-115				P
Cs-137	179 (+/- 21)	1	173.7		103	85-115				P

MB	Sample ID: GS130207-2				Units: pCi/g			Analysis Date: 3/4/2013 09:49		
Client ID:	Run ID: GS130207-2A				Prep Date: 2/8/2013			DF: NA		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	ND	0.24								U
Ra-228	ND	0.4								U

The following samples were analyzed in this batch:

1302041-1	1302041-2	1302041-3
1302041-4	1302041-5	1302041-6
1302041-7	1302041-8	

TECHNICAL BULLETIN ADDENDUM

The library used for analysis defines the gamma emission(s) to be used for analysis of each nuclide. If multiple gamma emissions are used for quantification, then a 'NET' quantification emission (or peak) must be defined in the library. This designation provides for the calculation of nuclide activity concentrations and detection limits in the case of non-presence of the nuclide. When the nuclide is not present, or the software is unable to resolve a peak at the library defined 'NET' energy, the software evaluates the 'NET' region of interest ('NET' peak energy +/- 2 keV) by performing a summation of the net counts above the background level. This 'NET' quantification can result in net negative, zero, or positive activity results, and is highly dependent on the spectral distribution in the region of interest of the 'NET' peak. In cases where only the 'NET' peak is found, and the software performs a net quantification, the nuclide result will be flagged with an 'NQ' qualifier on the final reports. This indicates that the nuclide is not detected or supported at any level above the reported MDC. Results are submitted without further qualification.

All nuclides specified in the library of analysis for gamma spectroscopy are evaluated for positive OR tentative identification on the following criteria:

- The individual abundances for the gamma emissions specified for each nuclide are summed to obtain a total nuclide abundance.
- From the total nuclide abundance, a positive identification criterion is set as 75% of this total nuclide abundance.
- For all nuclide peaks that are not net quantified, those peak abundances are summed. The total non-net quantified peak sum is compared to the calculated 75% abundance criterion. If this sum is greater than the 75% criterion, the nuclide is considered to be positively identified at the reported concentration. If the sum is less than the 75% criterion, the nuclide is tentatively identified at the reported concentration. These results will be flagged with a 'TI' qualifier on the final reports to indicate that the 75% abundance criterion was not met.



06-Mar-2013

Robert Combs
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 746-5382
Fax: (575) 746-5421

Re: RO Discharge Sampling

Work Order: **1302400**

Dear Robert,

ALS Environmental received 20 samples on 31-Jan-2013 09:10 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 9H

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in black ink that reads "Sonia West".

Electronically approved by: Jumoke M. Lawal

Sonia West
Project Manager



Certificate No: T104704231-12-10

ADDRESS 10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 | PHONE (281) 530-5656 | FAX (281) 530-5887

DOV#T UR X S#K VD /#R U S#Sdu#h i#hch#DOV#T ur xs##D q#DOV#Dp i#hg#F r p s dq |

Environmental

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 1302400

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1302400-01	MW-115 (1)	Soil		1/29/2013 14:25	1/31/2013 09:10	<input type="checkbox"/>
1302400-02	MW-115 (5)	Soil		1/29/2013 14:35	1/31/2013 09:10	<input type="checkbox"/>
1302400-03	MW-115 (10)	Soil		1/29/2013 16:10	1/31/2013 09:10	<input type="checkbox"/>
1302400-04	MW-115 (15)	Soil		1/29/2013 15:20	1/31/2013 09:10	<input type="checkbox"/>
1302400-05	MW-115 (20)	Soil		1/29/2013 16:00	1/31/2013 09:10	<input type="checkbox"/>
1302400-06	MW-115 (25)	Soil		1/29/2013 15:45	1/31/2013 09:10	<input type="checkbox"/>
1302400-07	MW-116 (1)	Soil		1/29/2013 16:05	1/31/2013 09:10	<input type="checkbox"/>
1302400-08	MW-116 (5)	Soil		1/29/2013 16:32	1/31/2013 09:10	<input type="checkbox"/>
1302400-09	MW-116 (10)	Soil		1/30/2013 09:02	1/31/2013 09:10	<input type="checkbox"/>
1302400-10	MW-116 (15)	Soil		1/30/2013 09:10	1/31/2013 09:10	<input type="checkbox"/>
1302400-11	MW-116 (20)	Soil		1/30/2013 09:20	1/31/2013 09:10	<input type="checkbox"/>
1302400-12	MW-116 (25)	Soil		1/30/2013 09:35	1/31/2013 09:10	<input type="checkbox"/>
1302400-13	MW-114 (1)	Soil		1/28/2013 14:30	1/31/2013 09:10	<input type="checkbox"/>
1302400-14	MW-114 (5)	Soil		1/28/2013 14:45	1/31/2013 09:10	<input type="checkbox"/>
1302400-15	MW-114 (10)	Soil		1/28/2013 15:30	1/31/2013 09:10	<input type="checkbox"/>
1302400-16	MW-114 (15)	Soil		1/28/2013 15:50	1/31/2013 09:10	<input type="checkbox"/>
1302400-17	MW-114 (20)	Soil		1/28/2013 16:10	1/31/2013 09:10	<input type="checkbox"/>
1302400-18	MW-114 (25)	Soil		1/28/2013 16:20	1/31/2013 09:10	<input type="checkbox"/>
1302400-19	MW-114 (30)	Soil		1/28/2013 16:00	1/31/2013 09:10	<input type="checkbox"/>
1302400-20	MW-114 (35)	Soil		1/28/2013 16:50	1/31/2013 09:10	<input type="checkbox"/>

ALS Environmental

Date: 06-Mar-13

Client: Navajo Refining Company

Project: RO Discharge Sampling

Work Order: 1302400

Case Narrative

The analyses for Radium 226 and Radium 228 were subcontracted to ALS Environmental in Ft. Collins, CO.

ALS Environmental

Date: 06-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-115 (1)
Collection Date: 1/29/2013 02:25 PM

Work Order: 1302400
Lab ID: 1302400-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/5/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 06-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-115 (5)
Collection Date: 1/29/2013 02:35 PM

Work Order: 1302400
Lab ID: 1302400-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/5/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 06-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-115 (10)
Collection Date: 1/29/2013 04:10 PM

Work Order: 1302400
Lab ID: 1302400-03
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/5/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 06-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-115 (15)
Collection Date: 1/29/2013 03:20 PM

Work Order: 1302400
Lab ID: 1302400-04
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/5/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 06-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-115 (20)
Collection Date: 1/29/2013 04:00 PM

Work Order: 1302400
Lab ID: 1302400-05
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/5/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 06-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-115 (25)
Collection Date: 1/29/2013 03:45 PM

Work Order: 1302400
Lab ID: 1302400-06
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/5/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 06-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116 (1)
Collection Date: 1/29/2013 04:05 PM

Work Order: 1302400
Lab ID: 1302400-07
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/5/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 06-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116 (5)
Collection Date: 1/29/2013 04:32 PM

Work Order: 1302400
Lab ID: 1302400-08
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/5/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 06-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116 (10)
Collection Date: 1/30/2013 09:02 AM

Work Order: 1302400
Lab ID: 1302400-09
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/5/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 06-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116 (15)
Collection Date: 1/30/2013 09:10 AM

Work Order: 1302400
Lab ID: 1302400-10
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/5/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 06-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116 (20)
Collection Date: 1/30/2013 09:20 AM

Work Order: 1302400
Lab ID: 1302400-11
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/5/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 06-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116 (25)
Collection Date: 1/30/2013 09:35 AM

Work Order: 1302400
Lab ID: 1302400-12
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/5/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 06-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (1)
Collection Date: 1/28/2013 02:30 PM

Work Order: 1302400
Lab ID: 1302400-13
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/5/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 06-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (5)
Collection Date: 1/28/2013 02:45 PM

Work Order: 1302400
Lab ID: 1302400-14
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/5/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 06-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (10)
Collection Date: 1/28/2013 03:30 PM

Work Order: 1302400
Lab ID: 1302400-15
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/5/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 06-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (15)
Collection Date: 1/28/2013 03:50 PM

Work Order: 1302400
Lab ID: 1302400-16
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/5/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 06-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (20)
Collection Date: 1/28/2013 04:10 PM

Work Order: 1302400
Lab ID: 1302400-17
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/5/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 06-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (25)
Collection Date: 1/28/2013 04:20 PM

Work Order: 1302400
Lab ID: 1302400-18
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/5/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 06-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (30)
Collection Date: 1/28/2013 04:00 PM

Work Order: 1302400
Lab ID: 1302400-19
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/5/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 06-Mar-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114 (35)
Collection Date: 1/28/2013 04:50 PM

Work Order: 1302400
Lab ID: 1302400-20
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	3/5/2013

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Navajo Refining Company
Project: RO Discharge Sampling
WorkOrder: 1302400

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
------------------------------	---------------------------

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**

Date/Time Received: **31-Jan-13 09:10**

Work Order: **1301997**

Received by: **RDH**

Checklist completed by Johannie B. Allen
eSignature

31-Jan-13
Date

Reviewed by: Patricia L. Lynch
eSignature

01-Feb-13
Date

Matrices: soil/water

Carrier name: FedEx Priority Overnight

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>1.2 C/uc</u> <u>IR 1</u>		
Cooler(s)/Kit(s):	<u>5414</u>		
Date/Time sample(s) sent to storage:	<u>1/31/13 14:50</u>		
Water - VOA vials have zero headspace?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes: Ra-226/228 & cyanide not on COC. Incorrect metals list on COC.

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**Date/Time Received: **31-Jan-13 09:10**Work Order: **13011005**Received by: **RDH**Checklist completed by Johannie B. Allen
eSignature

31-Jan-13

Date

Reviewed by: Patricia L. Lynch
eSignature

01-Feb-13

Date

Matrices: soil/waterCarrier name: FedEx Priority Overnight

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>1.4 C/uc</u> <u>IR 1</u>		
Cooler(s)/Kit(s):	<u>4028</u>		
Date/Time sample(s) sent to storage:	<u>1/31/13 14:30</u>		
Water - VOA vials have zero headspace?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes: Trip blank received, but not on COC. Ra-226/228 & cyanide not on COC. Incorrect metals list on COC.

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**

Date/Time Received: **31-Jan-13 09:10**

Work Order: **1302026**

Received by: **RDH**

Checklist completed by Robert D. Harris 01-Feb-13
eSignature Date

Reviewed by: Patricia L. Lynch 13-Feb-13
eSignature Date

Matrices: soils

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>1.8c c/u</u> <u>005</u>		
Cooler(s)/Kit(s):	<u>3725</u>		
Date/Time sample(s) sent to storage:	<u>2/1/13 14:50</u>		
Water - VOA vials have zero headspace?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes: COC and sample count received didn't match up. PL spoke with client and got everything corrected. Logged in by PL.

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:



Chain of Custody Form

Page 1 of 2

COC ID: **41202**

- ☐ Cincinnati, OH
+1 513 733 5336
- ☐ Everett, WA
+1 425 356 2600
- ☐ Fort Collins, CO
+1 970 490 1511

1302400

NAVAJO REFINING: Navajo Refining Company

Project: RO Discharge Sampling



Customer Information			ALS Project Manager:				Parameter/Method Request for Analysis												
Purchase Order	Project Information																		
Work Order	Project Name	Project Number																	
Company Name	Bill To Company	Invoice Attn:																	
Send Report To	Address																		
Address	City/State/Zip	Phone																	
City/State/Zip	City/State/Zip	Phone																	
Phone	City/State/Zip	Phone																	
Fax	City/State/Zip	Phone																	
e-Mail Address	City/State/Zip	Phone																	
e-Mail Address	City/State/Zip	Phone																	
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold		
1	MW 115 (1)	1-29-13	1425	Soil	—	5	X	X	X	X	X	X	X	X	X	X			
2	MW 115 (3)		1430			1													
3	MW 115 (5)		1435			5	X	X	X	X	X	X	X	X	X	X			
4	MW 115 (7)		1502			1													
5	MW 115 (9)		1502			1													
6	MW 115 (10)		1610			5	X	X	X	X	X	X	X	X	X	X			
7	MW 115 (11)		1612			1													
8	MW 115 (13)		1612			1													
9	MW 115 (15)		1520			5	X	X	X	X	X	X	X	X	X	X			
10	MW 115 (17)		1522			1													

Sampler(s): Please Print & Sign

Relinquished by: Eric Bergeron Date: 1/30/13 Time: 1300

Relinquished by: _____ Date: _____ Time: _____

Logged by (Laboratory): _____ Date: _____ Time: _____

Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035

Shipment Method: _____

Required Turnaround Time: ☒ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour

Results Due Date: _____

Notes: 10 Day TAT, Dissolved Metals Field Filtered

QC Package: (Check Box Below)

☒ Level II: Standard QC

☐ Level III: Std QC + Raw Data

☐ Level IV: SW846 CLP-Like

Other: _____

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Fort Collins, CO
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Chain of Custody Form

Page 2 of 2

COC ID: 72330

Houston, TX
+1 281 530 5656

Middletown, PA
+1 717 944 5541

Spring City, PA
+1 610 948 4903

Salt Lake City, UT
+1 801 266 7700

South Charleston, WV
+1 304 356 3168

York, PA
+1 717 505 5280

Customer Information		Project Information		ALS Project Manager:		ALS Work Order #:	
Purchase Order		Project Name	RO Discharge/Sampling	Parameter/Method Request for Analysis			
Work Order		Project Number	128823	A	VOC (8260) MW GW List		
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	B	GRO (8015M)		
Send Report To	Robert Combs	Invoice Attn	Robert Combs	C	DRO (8015M)		
Address	501 East Main	Address	501 East Main	D	ORO (8015M)		
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	E	LL SVOC (8270) NM GW List		
Phone	(575) 748-6733	Phone	(575) 748-6733	F	Total Metals (6020/7000) RCRA 8		
Fax	(575) 746-5421	Fax	(575) 746-5421	G	Dissolved Metals (6020/7000) RCRA 8		
e-Mail Address		e-Mail Address		H	TDS		
				I	Moisture		
				J	Fingerprint (PIANO/Sp Grav, Sim Dist)		

No	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW 115 (19)	1-29-13	1522	Soil	-	1									X		
2	MW 115 (20)		1600			5	X	X	X	X	X	X	X		X		
3	MW 115 (21)		1530			1									X		
4	MW 115 (23)		1530			1									X		
5	MW 115 (25)		1545			5	X	X	X	X	X	X	X		X		
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign		Shipment Method		Required Turnaround Time: (Check Box)		Results Due Date:	
 Relinquished by: Eric Bergersen				<input checked="" type="checkbox"/> Std 10 WK Days <input type="checkbox"/> 5 WK Days <input type="checkbox"/> Other 2 WK Days <input type="checkbox"/> 24 Hour			
Date: 1/30/13 Time: 1300		Received by:		Notes: 10 Day TAT. Dissolved Metals Field Filtered			
Date: Time:		Received by (Laboratory):		Cooler ID		Cooler Temp.	
Date: Time:		Checked by (Laboratory):		QC Package: (Check One Box Below)			
Logged by (Laboratory):				<input checked="" type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP CheckList			
				<input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> TRRP Level IV			
				<input type="checkbox"/> Level IV SW846/CLP			
				<input type="checkbox"/> Other / EDD			

Preservative Key: 1-HCl 2-HNO₃ 3-H₂SO₄ 4-NaOH 5-Na₂S₂O₃ 6-NaHSO₃ 7-Other 8-4°C 9-5035

- Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
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COC ID: 41210

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- ☐ Everett, WA
+1 425 356 2600
- ☐ Fort Collins, CO
+1 970 490 1511

1302400

NAVAJO REFINING: Navajo Refining Company

Project: RO Discharge Sampling



Customer Information			Project Information			Parameter/Method Request for Analysis													
Purchase Order			Project Name	RO Discharge/Sampling		A	VOC (8260) NW GW List												
Work Order			Project Number	128823		B	GRO (8015M)												
Company Name	Navajo Refining		Bill To Company	Navajo Refining Co		C	DRO (8015M)												
Send Report To	Robert Combs		Invoice Attn.	Robert Combs		D	ORO (8015M)												
Address	501 East Main		Address	501 East Main		E	LC SVOC (8270) NW GW List												
City/State/Zip	Artesia, NM		City/State/Zip	Artesia, NM		F	Total Metals (6020/7000) RCRA8												
Phone			Phone	575-748-6733		G	Dissolved Metals (6020/7000) RCRA8												
Fax			Fax	575-746-5421		H	TDS												
e-Mail Address			e-Mail Address			I	Moisture												
						J													
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold		
1	MW-116 (1)	1/29/13	1605	Soil	-	5	X	X	X	X	X	X	X		X				
2	MW-116 (3)	1/29/13	1618			1									X				
3	MW-116 (5)	1/29/13	1632			5	X	X	X	X	X	X	X		X				
4	MW-116 (7)	1/30/13	0855			1									X				
5	MW-116 (9)	1/30/13	0855			1									X				
6	MW-116 (11)	1/30/13	0902			5	X	X	X	X	X	X	X		X				
7	MW-116 (11)	1/30/13	0905			1									X				
8	MW-116 (13)	1/30/13	0905			1									X				
9	MW-116 (15)	1/30/13	0910			5	X	X	X	X	X	X	X		X				
10	MW-116 (17)	1/30/13	0915			1									X				
Sampler(s): Please Print & Sign			Shipment Method:			Required Turnaround Time:			<input type="checkbox"/> Other			Results Due Date:							
Relinquished by: <u>Eric Bergersen</u>			Date: <u>1/30/13</u> Time: <u>1300</u>			Received by: <u>ASR</u>			Notes: <u>10 Day TAT, Dissolved Metals Field Filtered</u>										
Relinquished by:			Date:			Time:			Received by (Laboratory):			QC Package: (Check Box Below)							
Logged by (Laboratory):			Date:			Time:			Checked by (Laboratory):			<input checked="" type="checkbox"/> Level II: Standard QC							
												<input type="checkbox"/> Level III: Std QC + Raw Data							
												<input type="checkbox"/> Level IV: SW846 CLP-Like							
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035												Other:							

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COC ID: **41190**

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☐ Everett, WA
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☐ Holland, MI
+1 616 399 6070

☐ Houston, TX
+1 281 530 5656

☐ Middletown, PA
+1 717 944 5541

☐ Salt Lake City, UT
+1 801 266 7700

☐ Spring City, PA
+1 610 948 4903

☐ York, PA
+1 717 505 5280

ALS Project Manager

Work Order #

1301/09

Customer Information			Project Information				Parameter/Method Request for Analysis												
Purchase Order			Project Name	RO Discharge/Sampling			A	VOC (8260) NM GW List											
Work Order			Project Number	128823			B	GR0 (8015M)											
Company Name	Navajo Refining		Bill To Company	Navajo Refining Co			C	DRO (8015M)											
Send Report To	Robert Combs		Invoice Attn.	Robert Combs			D	DRO (8015M)											
Address	501 East Main		Address	501 East Main			E	LL SVOC (8270) NM GW List											
City/State/Zip	Artesia, NM		City/State/Zip	Artesia, NM			F	Total Metals (6020/7000) RCRA 8											
Phone			Phone	575-748-6733			G	Dissolved Metals (6020/7000) RCRA 8											
Fax			Fax	575-746-5421			H	TDS											
e-Mail Address			e-Mail Address				I	Moisture											
J																			
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold		
1	MW-116 (19)	1/30/13	0935	Soil	-	1									X				
2	MW-116 (20)	1/30/13	0920			5	X	X	X	X	X	X	X		X				
3	MW-116 (21)	1/30/13	0930			1									X				
4	MW-116 (23)	1/30/13	0930			1									X				
5	MW-116 (25)	1/30/13	0935			5	X	X	X	X	X	X	X		X				
6																			
7																			
8																			
9																			
10																			
Sampler(s): Please Print & Sign			Shipment Method:			Required Turnaround Time:			<input type="checkbox"/> Other			Results Due Date:							
<i>[Signature]</i>						<input checked="" type="checkbox"/> STD 10 Wk Days			<input type="checkbox"/> 5 Wk Days			<input type="checkbox"/> 2 Wk Days			<input type="checkbox"/> 24 Hour				
Relinquished by:		Date:	Time:	Received by:		Notes:													
Eric Bergersen		1/30/13	1300	<i>[Signature]</i>		10 Day TAT, Dissolved Metals Field Filtered													
Relinquished by:		Date:	Time:	Received by (Laboratory):		QC Package: (Check Box Below)													
				<i>[Signature]</i> 1/31/13 0910		<input checked="" type="checkbox"/> Level II: Standard QC													
Logged by (Laboratory):		Date:	Time:	Checked by (Laboratory):		<input type="checkbox"/> Level III: Std QC + Raw Data													
						<input type="checkbox"/> Level IV: SW846 CLP-Like													
Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035						Other:													

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COC ID: 41198

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- ☐ Everett, WA
+1 425 356 2600
- ☐ Fort Collins, CO
+1 970 490 1511

1302400

NAVAJO REFINING: Navajo Refining Company

Project: RO Discharge Sampling



Customer Information			Project Information				Parameter/Method Request for Analysis												
Purchase Order		Project Name	RO Discharge/Sampling				A VOC (8260) NW GW List												
Work Order		Project Number	128823				B GRO (8015M)												
Company Name	Navajo Refining	Bill To Company	Navajo Refining				C DRO (8015M)												
Send Report To	Robert Combs	Invoice Attn:	Robert Combs				D DRO (8015M)												
Address	501 East Main	Address	501 East Main				E LL SVOC (8270) NM GW List												
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211				F Total Metals (6020/7000) RCRA 8												
Phone	575-748-6733	Phone	575-748-6733				G Dissolved Metals (6020/7000) RCRA 8												
Fax	575-746-5421	Fax	575-746-5421				H TDS												
e-Mail Address		e-Mail Address					I Moisture												
							J Fingerprint (PIANO/Sp Grav, S.M Dist)												
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold		
1	MW-114(1)	1/28/13	1430	Soil	-	5	X	X	X	X	X	X	X		X				
2	MW-114(3)	1/28/13	1440	Soil		1									X				
3	MW-114(5)	1/28/13	1445	"		2	X	X	X	X	X	X	X		X				
4	MW-114(7)	1/28/13	1530			1									X				
5	MW-114(9)	1/28/13	1545			1									X				
6	MW-114(10)	1/28/13	1530			2	X	X	X	X	X	X	X		X				
7	MW-114(11)	1/28/13	1530			1									X				
8	MW-114(13)	1/28/13	1550			1									X				
9	MW-114(15)	1/28/13	1550			2	X	X	X	X	X	X	X		X				
10	MW-114(17)	1/28/13	1600			1									X				
Sampler(s): Please Print & Sign		Shipment Method:		Required Turnaround Time:		Other		Results Due Date:											
Eric Bergersen				STD 10 Wk Days		5 Wk Days		2 Wk Days		24 Hour									
Relinquished by:	Date:	Time:	Received by:	Notes:															
Eric Bergersen	1/30/13	1300		10 Day TAT. Dissolved Metals Field Filtered															
Relinquished by:	Date:	Time:	Received by (Laboratory):	Coc. or Temp.															
			AS. R- 1/31/13 0910	QC Package: (Check Box Below)															
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	Level II: Standard QC															
				Level III: Std QC + Raw Data															
				Level IV: SW846 CLP-Like															
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035				Other:															

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Fort Collins, CO
+1 970 490 1511

Holland, MI
+1 616 399 6070

Chain of Custody Form

Page 2 of 3

COC ID: 72331

Houston, TX
+1 281 530 5656

Middletown, PA
+1 717 944 5541

Spring City, PA
+1 610 948 4903

Salt Lake City, UT
+1 801 266 7700

South Charleston, WV
+1 304 356 3168

York, PA
+1 717 505 5280

ALS Project Manager:

ALS Work Order #:

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	RO Discharge/Sampling	A	VOC (8260) NW GW List
Work Order		Project Number	128823	B	GRO (8015M)
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	DRO (8015M)
Send Report To	Robert Combs	Invoice Attn	Robert Combs	D	ORO (8015M)
Address	501 East Main	Address	501 East Main	E	LL SVOC (8270) NM GW List
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	F	Total Metals (6020/7000) RCRA 8
Phone	(575) 748-6733	Phone	(575) 748-6733	G	Dissolved Metals (6020/7000) RCRA 8
Fax	(575) 746-5421	Fax	(575) 746-5421	H	TDS
e-Mail Address		e-Mail Address		I	Moisture
				J	Fingerprint (PIANO/Sp Grav, Sim Dist)

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW 114 (19)	1/28/13	1605	Soil	---	1									X		
2	MW 114 (20)	1/28/13	1610			2	R	R	R	R	R	X	R		X		
3	MW 114 (21)	1/28/13	1615			1									X		
4	MW 114 (23)	1/28/13	1615			1									X		
5	MW 114 (25)	1/28/13	1620			2	R	R	R	R	R	X	R		X		
6	MW 114 (27)	1/28/13	1625			1									X		
7	MW 114 (29)	1/28/13	1627			1									X		
8	MW 114 (30)	1/28/13	1600			2	R	R	R	R	R	X	R		X		
9	MW 114 (31)	1/28/13	1640			1									X		
10	MW 114 (33)	1/28/13	1640			1									X		

Sampler(s) Please Print & Sign		Shipment Method		Required Turnaround Time: (Check Box)				Results Due Date:	
<i>Eric Bergersen</i>				<input checked="" type="checkbox"/> Std. 10 WK Days <input type="checkbox"/> 5 WK Days <input type="checkbox"/> 2 WK Days <input type="checkbox"/> 24 Hour					
Relinquished by:	Date:	Time:	Received by:	Notes:					
<i>Eric Bergersen</i>	1/30/13	1300		10 Day TAT. Dissolved Metals Field Filtered					
Relinquished by:	Date:	Time:	Received by (Laboratory):	Cooler ID		Cooler Temp		QC Package: (Check One Box Below)	
			<i>M.S. # 1/31/13 0910</i>					<input checked="" type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP Checklist	
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):					<input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> TRRP Level IV	
								<input type="checkbox"/> Level IV SW846/CLP	
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035				<input type="checkbox"/> Other / EDD					

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2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
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COC ID: 41209

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☐ Houston, TX
+1 281 530 5656

☐ Middletown, PA
+1 717 944 5541

☐ Salt Lake City, UT
+1 801 266 7700

☐ Spring City, PA
+1 610 948 4903

☐ York, PA
+1 717 505 5280

Customer Information			Project Information					Parameter/Method Request for Analysis														
Purchase Order			Project Name						A	VOC (8260) NW GW List												
Work Order			Project Number						B	GRO (8015 M)												
Company Name	Navajo Refining		Bill To Company	Navajo Refining					C	DRO (8015 M)												
Send Report To	Robert Combs		Invoice Attn.	Robert Combs					D	ORO (8015 M)												
Address	501 East Main		Address	501 East Main					E	LL SVOC (8270) NW GW List												
City/State/Zip	Artesia, NM 88211		City/State/Zip	Artesia, NM 88211					F	Total Metals (6020/7000) RCRA 8												
Phone	575-748-6733		Phone						G	Dissolved Metals (6020/7000) RCRA 8												
Fax	575-746-5421		Fax						H	TDS												
e-Mail Address			e-Mail Address						I	Moisture												
J																						
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold					
1	MW-114 (35)	1/28/13	1650	Soil	-	5	X	X	X	X	X	X	X	X	X							
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
Sampler(s): Please Print & Sign			Shipment Method:			Required Turnaround Time:			<input type="checkbox"/> Other			Results Due Date:										
						<input checked="" type="checkbox"/> STD 10 Wk Days <input type="checkbox"/> 5 Wk Days <input type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour																
Relinquished by:			Date:			Time:			Received by:			Notes:										
Eric Bergersen			1/30/13			1300						10 Day TAT, Dissolved Metal Field Filtered										
Relinquished by:			Date:			Time:			Received by (Laboratory):			QC Package: (Check Box Below)										
									1/21/13			<input type="checkbox"/> Level II: Standard QC <input type="checkbox"/> Level III: Std QC + Raw Data <input type="checkbox"/> Level IV: SW846 CLP-Like <input type="checkbox"/> Other:										
Logged by (Laboratory):			Date:			Time:			Checked by (Laboratory):													
Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035																						

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March 4, 2013

Ms. Sonia West
ALS Environmental
10450 Stancliff Rd, Suite 210
Houston, TX 77099

Re: ALS Workorder: 13-02-029
Project Name: None Submitted
Project Number: 1302400

Dear Ms. West:

Eight soil samples were received from ALS Environmental on February 02, 2013. The samples were scheduled for the following analysis:

Gamma Spectroscopy

The results for this analysis are contained in the enclosed report.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Jeff Kujawa
Project Manager

JRK/mlc
Enclosure (s): Report

ADDRESS 225 Commerce Drive, Fort Collins, Colorado, USA 80524 | PHONE +1 970 490 1511 | FAX +1 970 490 1522

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Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO00078
Arizona (AZ)*	AZ0742
California (CA)	06251CA
Colorado (CO)	CO00078
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO00078
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri	175
Nevada (NV)	CO000782008A
New Jersey (NJ)**	CO003
North Dakota (ND)	R-057
Oklahoma	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241-09-1
Utah (UT)	CO00078
Washington	C1280



1302029

Gamma Spectroscopy:

The samples were analyzed for the presence of gamma emitting radionuclides according to the current revision of SOP 713.

These samples were prepared according to the current revision of SOP 739. The samples were sealed in steel cans and stored for at least 21 days prior to analysis.

All acceptance criteria were met.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1302029

Client Name: ALS Environmental

Client Project Name:

Client Project Number: 1302400

Client PO Number: 10-1302400

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
1302400-13A (MW-114 (1))	1302029-1		SOIL	28-Jan-13	14:30
1302400-14A (MW-114 (5))	1302029-2		SOIL	28-Jan-13	14:45
1302400-15A (MW-114 (10))	1302029-3		SOIL	28-Jan-13	15:30
1302400-16A (MW-114 (15))	1302029-4		SOIL	28-Jan-13	15:50
1302400-17A (MW-114 (20))	1302029-5		SOIL	28-Jan-13	16:10
1302400-18A (MW-114 (25))	1302029-6		SOIL	28-Jan-13	16:20
1302400-19A (MW-114 (30))	1302029-7		SOIL	28-Jan-13	16:00
1302400-20A (MW-114 (35))	1302029-8		SOIL	28-Jan-13	16:50



Subcontractor:

ALS Environmental
225 Commerce Drive

Fort Collins, CO 80524

TEL: (800) 443-1511

FAX: (970) 490-1522

Acct #:

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Date: 01-Feb-13

COC ID: 13239

Due Date: 06-Feb-13

Salesperson: Mala H. Belmonte

1302029

Customer Information		Project Information		Parameter/Method Request for Analysis													
Purchase Order	10-1302026	Project Name	1302026	A	Radium 226 .228 Sub to ALS Ft. Collins												
Work Order		Project Number		B													
Company Name	ALS Group USA, Corp.	Bill To Company	ALS Group USA, Corp.	C													
Send Report To	Sonia West	Inv Attn	Accounts Payable	D													
Address	10450 Stancliff Rd, Suite 210	Address	10450 Stancliff Rd, Suite 210	E													
				F													
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G													
Phone	(281) 530-5656	Phone	(281) 530-5656	H													
Fax	(281) 530-5887	Fax	(281) 530-5887	I													
eMail Address	Sonia.West@alsglobal.com	eMail CC	jumoke.lawal@alsglobal.com	J													

Sample ID	Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J
1302026-01E (MW-114 (1)) ①	Soil	28/Jan/2013 14:30	(1) 4OZGNEAT	X									
1302026-03E (MW-114 (5)) ②	Soil	28/Jan/2013 14:45	(1) 4OZGNEAT	X									
1302026-06E (MW-114 (10)) ③	Soil	28/Jan/2013 15:30	(1) 4OZGNEAT	X									
1302026-09E (MW-114 (15)) ④	Soil	28/Jan/2013 15:50	(1) 4OZGNEAT	X									
1302026-12E (MW-114 (20)) ⑤	Soil	28/Jan/2013 16:10	(1) 4OZGNEAT	X									
1302026-15E (MW-114 (25)) ⑥	Soil	28/Jan/2013 16:20	(1) 4OZGNEAT	X									
1302026-18E (MW-114 (30)) ⑦	Soil	28/Jan/2013 16:00	(1) 4OZGNEAT	X									
1302026-21E (MW-114 (35)) ⑧	Soil	28/Jan/2013 16:50	(1) 4OZGNEAT	X									

Comments:

WO 1302026 - Please analyze for Radium 226/228

Relinquished by:

Date/Time

Received by:

Date/Time

Cooler IDs

Report/QC Level

Relinquished by:

Date/Time

Received by:

Date/Time

Std



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS TX

Workorder No: 1302029

Project Manager: JRK

Initials: LAS Date: 2/2/13

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	NONE	<input checked="" type="radio"/> YES	NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<input checked="" type="radio"/> YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<input checked="" type="radio"/> YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<input checked="" type="radio"/> N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	<input checked="" type="radio"/> N/A	YES	NO
16. Were the samples shipped on ice?		YES	<input checked="" type="radio"/> NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	<input checked="" type="radio"/> RAD ONLY	YES	<input checked="" type="radio"/> NO
Cooler #: <u>1</u>			
Temperature (°C): <u>AMB</u>			
No. of custody seals on cooler: <u>2</u>			
External µR/hr reading: <u>12</u>			
Background µR/hr reading: <u>11</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <input checked="" type="radio"/> YES <input type="radio"/> NO / NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

Flu - limited volume.

If applicable, was the client contacted? ☒ YES ☐ NO ☐ NA Contact: S. West Date/Time: 2-2-13

Project Manager Signature / Date: [Signature] 2-2-13



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS-TX

Workorder No: 1302029

Project Manager: JK

Initials: CDT Date: 2-5-13

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	NONE	<input checked="" type="radio"/> YES	NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		YES	<input checked="" type="radio"/> NO
5. Are the COC and bottle labels complete and legible?		YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<input checked="" type="radio"/> YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: <u> </u> < green pea <u> </u> > green pea	<input checked="" type="radio"/> N/A	YES	NO
15. Do any water samples contain sediment? Amount of sediment: <u> </u> dusting <u> </u> moderate <u> </u> heavy	Amount <input checked="" type="radio"/> N/A	YES	NO
16. Were the samples shipped on ice?		<input checked="" type="radio"/> YES	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 <input checked="" type="radio"/> #4	RAD ONLY <input checked="" type="radio"/> YES	NO	
Cooler #: <u>1</u>			
Temperature (°C): <u>2.0</u>			
No. of custody seals on cooler: <u>2</u>			
External µR/hr reading: <u>12</u>			
Background µR/hr reading: <u>11</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <input checked="" type="radio"/> YES / NO / NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

Extra volume that was requested.

If applicable, was the client contacted? YES / NO ☒ NA Contact: Date/Time:

Project Manager Signature / Date:  2-5-13

1302029

ORIGIN ID: SGRA (281) 530-5656
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF
SUITE 210
HOUSTON, TX 77089
UNITED STATES US

SHIP DATE: 01FEB13
ACTWGT: 21.0 LB
CAD: 300130/CAFE2606

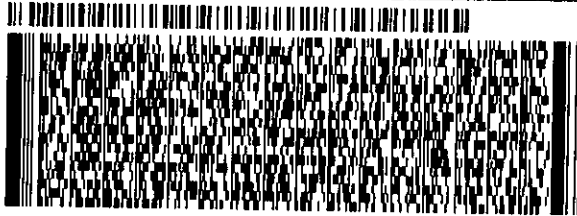
BILL SENDER

TO **ROY FRENCH**
ALS ENVIRONMENTAL
225 COMMERCE DRIVE

FORT COLLINS CO 80524

(970) 490-1611
DEPT: ENVIRONMENTAL

REF: SW/PL/JBA



FedEx
Express



J12131210050125

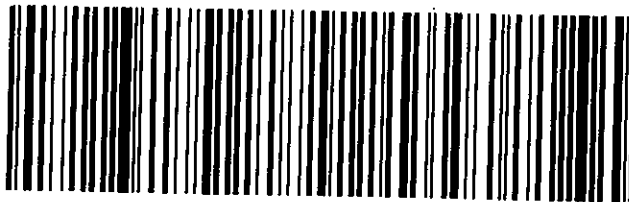
TRK# 4340 2174 0732
0201

SATURDAY ### A2
PRIORITY OVERNIGHT

X0 FTCA

80524
CO-US **DEN**

Part # 156148-434 RIT2 04/12



DO NOT EDIT USING THIS TAG

1302029

ORIGIN ID: SGRA (281) 530-5656
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 04FEB13
ACTWGT: 49.1 LB
CAD: 300130/CAFE2606

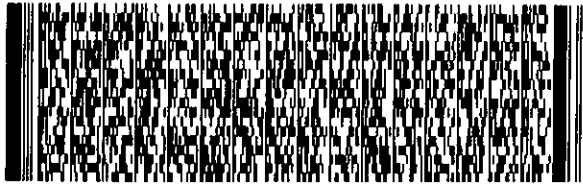
BILL SENDER

TO ROY FRENCH
ALS ENVIRONMENTAL
225 COMMERCE DRIVE

FORT COLLINS CO 80524
(970) 490-1511
REF: SUB SAMPLES

12
-2

S12C1/0F24/FF60



FedEx
Express



JT2131210050126

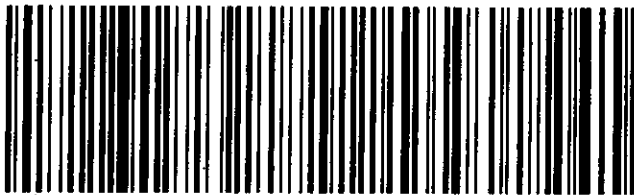
TRK# 4340 2174 0813
0201

TUE - 05 FEB A2
PRIORITY OVERNIGHT

NA FTCA

80524
CO-US DEN

Part # 156148-434 RIT2 04/12



ALS Environmental -- FC**SAMPLE SUMMARY REPORT**

Client: ALS Environmental
Project: 1302400
Sample ID: 1302400-13A (MW-114 (1))
Legal Location:
Collection Date: 1/28/2013 14:30

Date: 04-Mar-13
Work Order: 1302029
Lab ID: 1302029-1
Matrix: SOIL
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GAMMA SPECTROSCOPY RESULTS						
			PAI 713		Prep Date: 2/6/2013	PrepBy: SAM
Ra-226	1.83 (+/- 0.42)	G	0.65	pCi/g	NA	2/27/2013 12:58
Ra-228	ND (+/- 0.69)	U,G	0.99	pCi/g	NA	2/27/2013 12:58

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental

Date: 04-Mar-13

Project: 1302400

Work Order: 1302029

Sample ID: 1302400-14A (MW-114 (5))

Lab ID: 1302029-2

Legal Location:

Matrix: SOIL

Collection Date: 1/28/2013 14:45

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GAMMA SPECTROSCOPY RESULTS						
Ra-226	1.9 (+/- 0.39)	G	PAI 713 0.38	pCi/g	NA	Prep Date: 2/6/2013 2/27/2013 12:58
Ra-228	1.12 (+/- 0.57)	G,NQ	1	pCi/g	NA	PrepBy: SAM 2/27/2013 12:58

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental

Date: 04-Mar-13

Project: 1302400

Work Order: 1302029

Sample ID: 1302400-15A (MW-114 (10))

Lab ID: 1302029-3

Legal Location:

Matrix: SOIL

Collection Date: 1/28/2013 15:30

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GAMMA SPECTROSCOPY RESULTS			PAI 713		Prep Date: 2/6/2013	PrepBy: SAM
Ra-226	1.13 (+/- 0.28)	G	0.41	pCi/g	NA	2/27/2013 12:59
Ra-228	ND (+/- 0.45)	U,G	0.66	pCi/g	NA	2/27/2013 12:59

ALS Environmental -- FC**SAMPLE SUMMARY REPORT****Client:** ALS Environmental**Date:** 04-Mar-13**Project:** 1302400**Work Order:** 1302029**Sample ID:** 1302400-16A (MW-114 (15))**Lab ID:** 1302029-4**Legal Location:****Matrix:** SOIL**Collection Date:** 1/28/2013 15:50**Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GAMMA SPECTROSCOPY RESULTS			PAI 713		Prep Date: 2/6/2013	PrepBy: SAM
Ra-226	0.9 (+/- 0.26)	LT,G	0.43	pCi/g	NA	2/27/2013 13:32
Ra-228	ND (+/- 0.52)	U,G	0.89	pCi/g	NA	2/27/2013 13:32

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental

Date: 04-Mar-13

Project: 1302400

Work Order: 1302029

Sample ID: 1302400-17A (MW-114 (20))

Lab ID: 1302029-5

Legal Location:

Matrix: SOIL

Collection Date: 1/28/2013 16:10

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GAMMA SPECTROSCOPY RESULTS			PAI 713		Prep Date: 2/6/2013	PrepBy: SAM
Ra-226	0.94 (+/- 0.29)	LT,G	0.46	pCi/g	NA	2/27/2013 14:27
Ra-228	1.06 (+/- 0.63)	G,NQ	0.77	pCi/g	NA	2/27/2013 14:27

ALS Environmental -- FC**SAMPLE SUMMARY REPORT****Client:** ALS Environmental**Date:** 04-Mar-13**Project:** 1302400**Work Order:** 1302029**Sample ID:** 1302400-18A (MW-114 (25))**Lab ID:** 1302029-6**Legal Location:****Matrix:** SOIL**Collection Date:** 1/28/2013 16:20**Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GAMMA SPECTROSCOPY RESULTS			PAI 713		Prep Date: 2/6/2013	PrepBy: SAM
Ra-226	0.8 (+/- 0.26)	LT,G	0.45	pCi/g	NA	2/28/2013 13:51
Ra-228	ND (+/- 0.4)	U,G	0.73	pCi/g	NA	2/28/2013 13:51

ALS Environmental -- FC**SAMPLE SUMMARY REPORT****Client:** ALS Environmental**Date:** 04-Mar-13**Project:** 1302400**Work Order:** 1302029**Sample ID:** 1302400-19A (MW-114 (30))**Lab ID:** 1302029-7**Legal Location:****Matrix:** SOIL**Collection Date:** 1/28/2013 16:00**Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GAMMA SPECTROSCOPY RESULTS			PAI 713		Prep Date: 2/6/2013	PrepBy: SAM
Ra-226	0.73 (+/- 0.25)	LT,G,TI	0.38	pCi/g	NA	2/27/2013 14:27
Ra-228	0.86 (+/- 0.47)	LT,G,TI	0.57	pCi/g	NA	2/27/2013 14:27

ALS Environmental -- FC**SAMPLE SUMMARY REPORT**

Client: ALS Environmental
Project: 1302400
Sample ID: 1302400-20A (MW-114 (35))
Legal Location:
Collection Date: 1/28/2013 16:50

Date: 04-Mar-13
Work Order: 1302029
Lab ID: 1302029-8
Matrix: SOIL
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GAMMA SPECTROSCOPY RESULTS			PAI 713		Prep Date: 2/6/2013	PrepBy: SAM
Ra-226	0.82 (+/- 0.28)	LT,G	0.5	pCi/g	NA	2/27/2013 14:27
Ra-228	0.99 (+/- 0.47)	LT,G,Tl	0.88	pCi/g	NA	2/27/2013 14:27

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 1302400
Sample ID: 1302400-20A (MW-114 (35))
Legal Location:
Collection Date: 1/28/2013 16:50

Date: 04-Mar-13
Work Order: 1302029
Lab ID: 1302029-8
Matrix: SOIL
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
----------	--------	------	--------------	-------	-----------------	---------------

Explanation of Qualifiers

Radiochemistry:

U or ND - Result is less than the sample specific MDC.	M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.	L - LCS Recovery below lower control limit.
Y2 - Chemical Yield outside default limits.	H - LCS Recovery above upper control limit.
W - DER is greater than Warning Limit of 1.42	P - LCS, Matrix Spike Recovery within control limits.
* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.	N - Matrix Spike Recovery outside control limits
# - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.	NC - Not Calculated for duplicate results less than 5 times MDC
G - Sample density differs by more than 15% of LCS density.	B - Analyte concentration greater than MDC.
D - DER is greater than Control Limit	B3 - Analyte concentration greater than MDC but less than Requested MDC.
M - Requested MDC not met.	

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).
 U or ND - Indicates that the compound was analyzed for but not detected.
 E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.
 M - Duplicate injection precision was not met.
 N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.
 Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.
 * - Duplicate analysis (relative percent difference) not within control limits.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.
 B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.
 E - Analyte concentration exceeds the upper level of the calibration range.
 J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).
 A - A tentatively identified compound is a suspected aldol-condensation product.
 X - The analyte was diluted below an accurate quantitation level.
 * - The spike recovery is equal to or outside the control criteria used.
 + - The relative percent difference (RPD) equals or exceeds the control criteria.

Diesel Range Organics:

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental

Date: 04-Mar-13

Project: 1302400

Work Order: 1302029

Sample ID: 1302400-20A (MW-114 (35))

Lab ID: 1302029-8

Legal Location:

Matrix: SOIL

Collection Date: 1/28/2013 16:50

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<p>G - A pattern resembling gasoline was detected in this sample.</p> <p>D - A pattern resembling diesel was detected in this sample.</p> <p>M - A pattern resembling motor oil was detected in this sample.</p> <p>C - A pattern resembling crude oil was detected in this sample.</p> <p>4 - A pattern resembling JP-4 was detected in this sample.</p> <p>5 - A pattern resembling JP-5 was detected in this sample.</p> <p>H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.</p> <p>L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.</p> <p>Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:</p> <ul style="list-style-type: none"> - gasoline - JP-8 - diesel - mineral spirits - motor oil - Stoddard solvent - bunker C 						

ALS Environmental -- FC

Date: 3/4/2013 1:58:1

Client: ALS Environmental

Work Order: 1302029

Project: 1302400

QC BATCH REPORT

Batch ID: **GS130205-2-1** Instrument ID: **GAMMA** Method: **Gamma Spectroscopy Results**

DUP	Sample ID: 1302029-1				Units: pCi/g		Analysis Date: 2/27/2013 14:27			
Client ID: 1302400-13A (MW-114 (1))			Run ID: GS130205-2A			Prep Date: 2/6/2013			DF: NA	
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	1.84 (+/- 0.41)	0.55					1.83	0.00854	2.13	G
Ra-228	1.37 (+/- 0.58)	1.04					0.92	0.499	2.13	M3,G,TI

LCS	Sample ID: GS130205-2A				Units: pCi/g		Analysis Date: 2/28/2013 15:34			
Client ID:	Run ID: GS130205-2A						Prep Date: 2/6/2013		DF: NA	
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	469 (+/- 55)	3	469.4		100	85-115				P,M3

LCS	Sample ID: GS130205-2				Units: pCi/g		Analysis Date: 2/28/2013 15:32			
Client ID:	Run ID: GS130205-2A				Prep Date: 2/6/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Am-241	479 (+/- 58)	14	475.4		101	85-115				P
Co-60	205 (+/- 24)	1	205.2		99.9	85-115				P
Cs-137	180 (+/- 21)	1	173.7		103	85-115				P

MB	Sample ID: GS130205-2				Units: pCi/g		Analysis Date: 2/28/2013 15:32			
Client ID:	Run ID: GS130205-2A				Prep Date: 2/6/2013			DF: NA		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	ND	0.35								U
Ra-228	ND	0.47								U

The following samples were analyzed in this batch:

1302029-1	1302029-2	1302029-3
1302029-4	1302029-5	1302029-6
1302029-7	1302029-8	

TECHNICAL BULLETIN ADDENDUM

The library used for analysis defines the gamma emission(s) to be used for analysis of each nuclide. If multiple gamma emissions are used for quantification, then a 'NET' quantification emission (or peak) must be defined in the library. This designation provides for the calculation of nuclide activity concentrations and detection limits in the case of non-presence of the nuclide. When the nuclide is not present, or the software is unable to resolve a peak at the library defined 'NET' energy, the software evaluates the 'NET' region of interest ('NET' peak energy \pm 2 keV) by performing a summation of the net counts above the background level. This 'NET' quantification can result in net negative, zero, or positive activity results, and is highly dependent on the spectral distribution in the region of interest of the 'NET' peak. In cases where only the 'NET' peak is found, and the software performs a net quantification, the nuclide result will be flagged with an 'NQ' qualifier on the final reports. This indicates that the nuclide is not detected or supported at any level above the reported MDC. Results are submitted without further qualification.

All nuclides specified in the library of analysis for gamma spectroscopy are evaluated for positive OR tentative identification on the following criteria:

- The individual abundances for the gamma emissions specified for each nuclide are summed to obtain a total nuclide abundance.
- From the total nuclide abundance, a positive identification criterion is set as 75% of this total nuclide abundance.
- For all nuclide peaks that are not net quantified, those peak abundances are summed. The total non-net quantified peak sum is compared to the calculated 75% abundance criterion. If this sum is greater than the 75% criterion, the nuclide is considered to be positively identified at the reported concentration. If the sum is less than the 75% criterion, the nuclide is tentatively identified at the reported concentration. These results will be flagged with a 'TI' qualifier on the final reports to indicate that the 75% abundance criterion was not met.



March 4, 2013

Ms. Sonia West
ALS Environmental
10450 Stancliff Rd, Suite 210
Houston, TX 77099

Re: ALS Workorder: 13-02-030
Project Name: None Submitted
Project Number: 1302400

Dear Ms. West:

Six soil samples were received from ALS Environmental on February 02, 2013. The samples were scheduled for the following analysis:

Gamma Spectroscopy

The results for this analysis are contained in the enclosed report.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Jeff Kujawa
Project Manager

JRK/mlc
Enclosure (s): Report

ADDRESS 225 Commerce Drive, Fort Collins, Colorado, USA 80524 | PHONE +1 970 490 1511 | FAX +1 970 490 1522

ALS GROUP USA, CORP. Part of the ALS Laboratory Group An ALS Limited Company

Environmental

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO00078
Arizona (AZ)*	AZ0742
California (CA)	06251CA
Colorado (CO)	CO00078
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO00078
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri	175
Nevada (NV)	CO000782008A
New Jersey (NJ)**	CO003
North Dakota (ND)	R-057
Oklahoma	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241-09-1
Utah (UT)	CO00078
Washington	C1280



1302030

Gamma Spectroscopy:

The samples were analyzed for the presence of gamma emitting radionuclides according to the current revision of SOP 713.

These samples were prepared according to the current revision of SOP 739. The samples were sealed in steel cans and stored for at least 21 days prior to analysis.

All acceptance criteria were met.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1302030

Client Name: ALS Environmental

Client Project Name:

Client Project Number: 1302400

Client PO Number: 10-1302400

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
1302400-07A (MW-116 (1))	1302030-1		SOIL	29-Jan-13	16:05
1302400-08A (MW-116 (5))	1302030-2		SOIL	29-Jan-13	16:32
1302400-09A (MW-116 (10))	1302030-3		SOIL	30-Jan-13	9:02
1302400-10A (MW-116 (15))	1302030-4		SOIL	30-Jan-13	9:10
1302400-11A (MW-116 (20))	1302030-5		SOIL	30-Jan-13	9:20
1302400-12A (MW-116 (25))	1302030-6		SOIL	30-Jan-13	9:35

**Subcontractor:**ALS Environmental
225 Commerce Drive

Fort Collins, CO 80524

TEL: (800) 443-1511

FAX: (970) 490-1522

Acct #:

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Date: 01-Feb-13

COC ID: 13238

Due Date: 06-Feb-13

Salesperson: Mala H. Belmonte

1302030

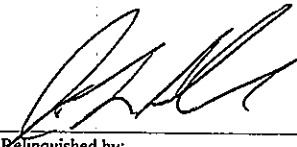

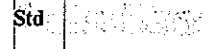
Customer Information		Project Information		Parameter/Method Request for Analysis												
Purchase Order	10-13011005	Project Name	13011005	A	Radium 226 228 Sub to ALS Ft. Collins											
Work Order		Project Number		B												
Company Name	ALS Group USA, Corp.	Bill To Company	ALS Group USA, Corp.	C												
Send Report To	Sonia West	Inv Attn	Accounts Payable	D												
Address	10450 Stancliff Rd, Suite 210	Address	10450 Stancliff Rd, Suite 210	E												
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	F												
Phone	(281) 530-5656	Phone	(281) 530-5656	G												
Fax	(281) 530-5887	Fax	(281) 530-5887	H												
eMail Address	Sonia.West@alsglobal.com	eMail CC	jumoke.lawal@alsglobal.com	I												
				J												

Sample ID	Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J
13011005-01E (MW-116 (1)) ①	Soil	29/Jan/2013 16:05	(1) 4OZGNEAT	X									
13011005-03E (MW-116 (5)) ②	Soil	29/Jan/2013 16:32	(1) 4OZGNEAT	X									
13011005-06E (MW-116 (10)) ③	Soil	30/Jan/2013 9:02	(1) 4OZGNEAT	X									
13011005-09E (MW-116 (15)) ④	Soil	30/Jan/2013 9:10	(1) 4OZGNEAT	X									
13011005-12E (MW-116 (20)) ⑤	Soil	30/Jan/2013 9:20	(1) 4OZGNEAT	X									
13011005-15E (MW-116 (25)) ⑥	Soil	30/Jan/2013 9:35	(1) 4OZGNEAT	X									

60 of 93

Comments:

WO 13011005 - Please analyze for Radium 226/228

Relinquished by: 	Date/Time: 1 Feb 13	Received by: 	Date/Time: 2/2/13 0930	Cooler IDs	Report/QC Level
Relinquished by:	Date/Time:	Received by:	Date/Time:		Std: 



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS TX

Workorder No: 1302030

Project Manager: JRK

Initials: LAS Date: 2/2/13

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	NONE	<input checked="" type="radio"/> YES	NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<input checked="" type="radio"/> YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<input checked="" type="radio"/> YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<input checked="" type="radio"/> N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	<input checked="" type="radio"/> N/A	YES	NO
16. Were the samples shipped on ice?		YES	<input checked="" type="radio"/> NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	<input checked="" type="radio"/> RAD ONLY	YES	<input checked="" type="radio"/> NO
Cooler #: <u>1</u>			
Temperature (°C): <u>AMB</u>			
No. of custody seals on cooler: <u>2</u>			
External µR/hr reading: <u>12</u>			
Background µR/hr reading: <u>11</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <input checked="" type="radio"/> YES / NO / NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

#10 - Limited Volume

If applicable, was the client contacted? ☒ YES / NO / NA Contact: S West Date/Time: 2-2-13

Project Manager Signature / Date: [Signature] 2-2-13



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS-TX

Workorder No: 1302030

Project Manager: JK

Initials: CDT

Date: 2-5-13

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	NONE	<input checked="" type="radio"/> YES	NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		YES	<input checked="" type="radio"/> NO
5. Are the COC and bottle labels complete and legible?		YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<input checked="" type="radio"/> YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<input checked="" type="radio"/> N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	<input checked="" type="radio"/> N/A	YES	NO
16. Were the samples shipped on ice?		<input checked="" type="radio"/> YES	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 <input checked="" type="radio"/> #4 RAD ONLY		<input checked="" type="radio"/> YES	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>2.0</u>			
No. of custody seals on cooler: <u>2</u>			
External µR/hr reading: <u>12</u>			
Background µR/hr reading: <u>11</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <input checked="" type="radio"/> YES / NO / NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

Extra volume that was requested

If applicable, was the client contacted? YES / NO / ☒ NA Contact: _____

Date/Time: _____

Project Manager Signature / Date: _____

*IR Gun #2: Oakton, SN 29922500201-0066

*IR Gun #4: Oakton, SN 2372220101-0002

1302030

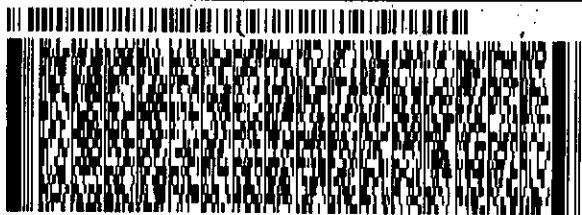
ORIGIN ID: SGRA (281) 530-5656
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 01FEB13
ACTWGT: 21.0 LB
CAD: 300130/CAFE2606

BILL SENDER

TO ROY FRENCH
ALS ENVIRONMENTAL
225 COMMERCE DRIVE

FORT COLLINS CO 80524
(870) 490-1611 REF: SW/PL/JBA
DEPT: ENVIRONMENTAL



FedEx
Express



J12131210050126

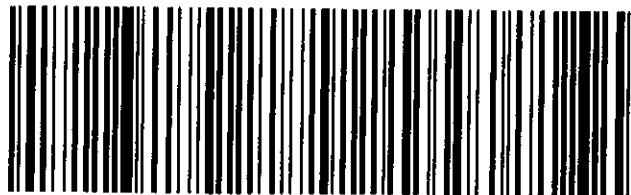
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0201

SATURDAY ### A2
PRIORITY OVERNIGHT

X0 FTCA

80524
CO-US DEN

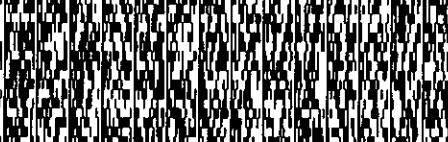
Part # 156148-434 RIT2 04/12



1302030

BILL SENDER

12
-2

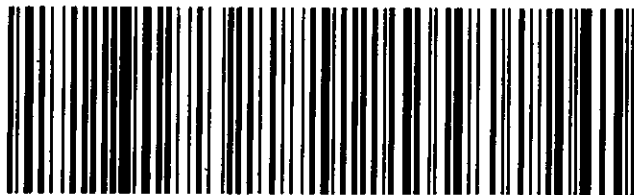
**E**

TUE - 05 FEB A2
PRIORITY OVERNIGHT

NA-FTCA

80524
CO--US DEN

Part # 156148-434 ATT2 04/12 ☐☐



ALS Environmental -- FC**SAMPLE SUMMARY REPORT**

Client: ALS Environmental
Project: 1302400
Sample ID: 1302400-07A (MW-116 (1))
Legal Location:
Collection Date: 1/29/2013 16:05

Date: 04-Mar-13
Work Order: 1302030
Lab ID: 1302030-1
Matrix: SOIL
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GAMMA SPECTROSCOPY RESULTS			PAI 713		Prep Date: 2/6/2013	PrepBy: SAM
Ra-226	1.87 (+/- 0.39)	G	0.53	pCi/g	NA	2/27/2013 14:27
Ra-228	1.2 (+/- 0.51)	G,TI	0.64	pCi/g	NA	2/27/2013 14:27

ALS Environmental -- FC**SAMPLE SUMMARY REPORT**

Client: ALS Environmental
Project: 1302400
Sample ID: 1302400-08A (MW-116 (5))
Legal Location:
Collection Date: 1/29/2013 16:32

Date: 04-Mar-13
Work Order: 1302030
Lab ID: 1302030-2
Matrix: SOIL
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GAMMA SPECTROSCOPY RESULTS			PAI 713		Prep Date: 2/6/2013	PrepBy: SAM
Ra-226	0.86 (+/- 0.27)	LT,G	0.51	pCi/g	NA	2/27/2013 14:49
Ra-228	ND (+/- 0.44)	U,G	0.8	pCi/g	NA	2/27/2013 14:49

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental

Date: 04-Mar-13

Project: 1302400

Work Order: 1302030

Sample ID: 1302400-09A (MW-116 (10))

Lab ID: 1302030-3

Legal Location:

Matrix: SOIL

Collection Date: 1/30/2013 09:02

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GAMMA SPECTROSCOPY RESULTS						
Ra-226	1.75 (+/- 0.41)	G	PAI 713 0.61	pCi/g	NA	Prep Date: 2/6/2013 2/28/2013 13:52
Ra-228	1.4 (+/- 0.6)	M3,G	1.05	pCi/g	NA	PrepBy: SAM 2/28/2013 13:52

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental

Date: 04-Mar-13

Project: 1302400

Work Order: 1302030

Sample ID: 1302400-10A (MW-116 (15))

Lab ID: 1302030-4

Legal Location:

Matrix: SOIL

Collection Date: 1/30/2013 09:10

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GAMMA SPECTROSCOPY RESULTS			PAI 713		Prep Date: 2/6/2013	PrepBy: SAM
Ra-226	0.66 (+/- 0.22)	LT,G	0.46	pCi/g	NA	2/28/2013 13:52
Ra-228	ND (+/- 0.44)	U,G	0.75	pCi/g	NA	2/28/2013 13:52

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental

Date: 04-Mar-13

Project: 1302400

Work Order: 1302030

Sample ID: 1302400-11A (MW-116 (20))

Lab ID: 1302030-5

Legal Location:

Matrix: SOIL

Collection Date: 1/30/2013 09:20

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GAMMA SPECTROSCOPY RESULTS			PAI 713		Prep Date: 2/6/2013	PrepBy: SAM
Ra-226	0.94 (+/- 0.29)	LT,G	0.5	pCi/g	NA	2/28/2013 13:52
Ra-228	1.06 (+/- 0.56)	G,TI	0.6	pCi/g	NA	2/28/2013 13:52

ALS Environmental -- FC**SAMPLE SUMMARY REPORT**

Client: ALS Environmental
Project: 1302400
Sample ID: 1302400-12A (MW-116 (25))
Legal Location:
Collection Date: 1/30/2013 09:35

Date: 04-Mar-13
Work Order: 1302030
Lab ID: 1302030-6
Matrix: SOIL
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GAMMA SPECTROSCOPY RESULTS			PAI 713		Prep Date: 2/6/2013	PrepBy: SAM
Ra-226	0.78 (+/- 0.23)	LT,G	0.37	pCi/g	NA	2/28/2013 13:52
Ra-228	ND (+/- 0.4)	U,G	0.85	pCi/g	NA	2/28/2013 13:52

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 1302400
Sample ID: 1302400-12A (MW-116 (25))
Legal Location:
Collection Date: 1/30/2013 09:35

Date: 04-Mar-13
Work Order: 1302030
Lab ID: 1302030-6
Matrix: SOIL
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
----------	--------	------	--------------	-------	-----------------	---------------

Explanation of Qualifiers

Radiochemistry:

U or ND - Result is less than the sample specific MDC.	M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.	L - LCS Recovery below lower control limit.
Y2 - Chemical Yield outside default limits.	H - LCS Recovery above upper control limit.
W - DER is greater than Warning Limit of 1.42	P - LCS, Matrix Spike Recovery within control limits.
* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.	N - Matrix Spike Recovery outside control limits
# - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.	NC - Not Calculated for duplicate results less than 5 times MDC
G - Sample density differs by more than 15% of LCS density.	B - Analyte concentration greater than MDC.
D - DER is greater than Control Limit	B3 - Analyte concentration greater than MDC but less than Requested MDC.
M - Requested MDC not met.	

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).
 U or ND - Indicates that the compound was analyzed for but not detected.
 E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.
 M - Duplicate injection precision was not met.
 N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.
 Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.
 * - Duplicate analysis (relative percent difference) not within control limits.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.
 B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.
 E - Analyte concentration exceeds the upper level of the calibration range.
 J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).
 A - A tentatively identified compound is a suspected aldol-condensation product.
 X - The analyte was diluted below an accurate quantitation level.
 * - The spike recovery is equal to or outside the control criteria used.
 + - The relative percent difference (RPD) equals or exceeds the control criteria.

Diesel Range Organics:

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental

Date: 04-Mar-13

Project: 1302400

Work Order: 1302030

Sample ID: 1302400-12A (MW-116 (25))

Lab ID: 1302030-6

Legal Location:

Matrix: SOIL

Collection Date: 1/30/2013 09:35

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<p>G - A pattern resembling gasoline was detected in this sample.</p> <p>D - A pattern resembling diesel was detected in this sample.</p> <p>M - A pattern resembling motor oil was detected in this sample.</p> <p>C - A pattern resembling crude oil was detected in this sample.</p> <p>4 - A pattern resembling JP-4 was detected in this sample.</p> <p>5 - A pattern resembling JP-5 was detected in this sample.</p> <p>H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.</p> <p>L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.</p> <p>Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:</p> <ul style="list-style-type: none"> - gasoline - JP-8 - diesel - mineral spirits - motor oil - Stoddard solvent - bunker C 						

ALS Environmental -- FC

Date: 3/4/2013 1:59:4

Client: ALS Environmental

QC BATCH REPORT

Work Order: 1302030

Project: 1302400

Batch ID: GS130205-2-1

Instrument ID: GAMMA

Method: Gamma Spectroscopy Results

LCS	Sample ID: GS130205-2A				Units: pCi/g		Analysis Date: 2/28/2013 15:34			
Client ID:	Run ID: GS130205-2A				Prep Date: 2/6/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	469 (+/- 55)	3	469.4		100	85-115				P,M3

LCS	Sample ID: GS130205-2				Units: pCi/g		Analysis Date: 2/28/2013 15:32			
Client ID:	Run ID: GS130205-2A				Prep Date: 2/6/2013			DF: NA		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Am-241	479 (+/- 58)	14	475.4		101	85-115				P
Co-60	205 (+/- 24)	1	205.2		99.9	85-115				P
Cs-137	180 (+/- 21)	1	173.7		103	85-115				P

MB	Sample ID: GS130205-2				Units: pCi/g		Analysis Date: 2/28/2013 15:32			
Client ID:	Run ID: GS130205-2A				Prep Date: 2/6/2013			DF: NA		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	ND	0.35								U
Ra-228	ND	0.47								U

The following samples were analyzed in this batch:

1302030-1	1302030-2	1302030-3
1302030-4	1302030-5	1302030-6

TECHNICAL BULLETIN ADDENDUM

The library used for analysis defines the gamma emission(s) to be used for analysis of each nuclide. If multiple gamma emissions are used for quantification, then a 'NET' quantification emission (or peak) must be defined in the library. This designation provides for the calculation of nuclide activity concentrations and detection limits in the case of non-presence of the nuclide. When the nuclide is not present, or the software is unable to resolve a peak at the library defined 'NET' energy, the software evaluates the 'NET' region of interest ('NET' peak energy +/- 2 keV) by performing a summation of the net counts above the background level. This 'NET' quantification can result in net negative, zero, or positive activity results, and is highly dependent on the spectral distribution in the region of interest of the 'NET' peak. In cases where only the 'NET' peak is found, and the software performs a net quantification, the nuclide result will be flagged with an 'NQ' qualifier on the final reports. This indicates that the nuclide is not detected or supported at any level above the reported MDC. Results are submitted without further qualification.

All nuclides specified in the library of analysis for gamma spectroscopy are evaluated for positive OR tentative identification on the following criteria:

- The individual abundances for the gamma emissions specified for each nuclide are summed to obtain a total nuclide abundance.
- From the total nuclide abundance, a positive identification criterion is set as 75% of this total nuclide abundance.
- For all nuclide peaks that are not net quantified, those peak abundances are summed. The total non-net quantified peak sum is compared to the calculated 75% abundance criterion. If this sum is greater than the 75% criterion, the nuclide is considered to be positively identified at the reported concentration. If the sum is less than the 75% criterion, the nuclide is tentatively identified at the reported concentration. These results will be flagged with a 'TI' qualifier on the final reports to indicate that the 75% abundance criterion was not met.



March 4, 2013

Ms. Sonia West
ALS Environmental
10450 Standcliff Rd, Suite 210
Houston, TX 77099

Re: ALS Workorder: 13-02-031
Project Name: None Submitted
Project Number: 1302400

Dear Ms. West:

Six soil samples were received from ALS Environmental on February 02, 2013. The samples were scheduled for the following analysis:

Gamma Spectroscopy pages 1-17

The results for this analysis are contained in the enclosed report.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Jeff Kujawa
Project Manager

JRK/mic
Enclosure (s): Report

ADDRESS 225 Commerce Drive, Fort Collins, Colorado, USA 80524 | PHONE +1 970 490 1511 | FAX +1 970 490 1522

ALS GROUP USA, CORP. Part of the ALS Laboratory Group An ALS Limited Company

Environmental

www.alsglobal.com

RIGHT SOLUTIONS. RIGHT PARTNER

ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO00078
Arizona (AZ)*	AZ0742
California (CA)	06251CA
Colorado (CO)	CO00078
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO00078
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri	175
Nevada (NV)	CO000782008A
New Jersey (NJ)**	CO003
North Dakota (ND)	R-057
Oklahoma	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241-09-1
Utah (UT)	CO00078
Washington	C1280



1302031

Gamma Spectroscopy:

The samples were analyzed for the presence of gamma emitting radionuclides according to the current revision of SOP 713.

These samples were prepared according to the current revision of SOP 739. The samples were sealed in steel cans and stored for at least 21 days prior to analysis.

All acceptance criteria were met.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1302031

Client Name: ALS Environmental

Client Project Name:

Client Project Number: 1302400

Client PO Number: 10-1302400

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
1302400-01A (MW-115 (1))	1302031-1		SOIL	29-Jan-13	14:25
1302400-02A (MW-115 (5))	1302031-2		SOIL	29-Jan-13	14:35
1302400-03A (MW-115 (10))	1302031-3		SOIL	29-Jan-13	16:10
1302400-04A (MW-115 (15))	1302031-4		SOIL	29-Jan-13	15:20
1302400-05A (MW-115 (20))	1302031-5		SOIL	29-Jan-13	16:00
1302400-06A (MW-115 (25))	1302031-6		SOIL	29-Jan-13	15:45

**Subcontractor:**ALS Environmental
225 Commerce Drive

Fort Collins, CO 80524

TEL: (800) 443-1511

FAX: (970) 490-1522

Acct #:

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Date: 01-Feb-13COC ID: 13237Due Date: 06-Feb-13Salesperson: Mala H. Belmonte1302031

Customer Information		Project Information		Parameter/Method Request for Analysis												
Purchase Order	10-1301997	Project Name	1301997	A	Radium 226, 228 Sub to ALS Ft. Collins											
Work Order		Project Number		B												
Company Name	ALS Group USA, Corp.	Bill To Company	ALS Group USA, Corp.	C												
Send Report To	Sonia West	Inv Attn	Accounts Payable	D												
Address	10450 Stancliff Rd, Suite 210	Address	10450 Stancliff Rd, Suite 210	E												
				F												
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G												
Phone	(281) 530-5656	Phone	(281) 530-5656	H												
Fax	(281) 530-5887	Fax	(281) 530-5887	I												
eMail Address	Sonia.West@alsglobal.com	eMail CC	jumoke.lawal@alsglobal.com	J												

Sample ID	Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J
1301997-01E (MW -115 (1))	Soil	29/Jan/2013 14:25	(1) 4OZGNEAT	X									
1301997-03E (MW- 115 (5))	Soil	29/Jan/2013 14:35	(1) 4OZGNEAT	X									
1301997-06E (MW- 115 (10))	Soil	29/Jan/2013 16:10	(1) 4OZGNEAT	X									
1301997-09E (MW- 115 (15))	Soil	29/Jan/2013 15:20	(1) 4OZGNEAT	X									
1301997-12E (MW -115 (20))	Soil	29/Jan/2013 16:00	(1) 4OZGNEAT	X									
1301997-15E (MW-115 (25))	Soil	29/Jan/2013 15:45	(1) 4OZGNEAT	X									

Comments:WO 1301997 - Please analyze for Radium 226/228

Relinquished by:

Date/Time

Received by:

Date/Time

Cooler IDs

Report/QC Level

Relinquished by:

Date/Time

Received by:

Date/Time

Std



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS TX
Project Manager: JRK

Workorder No: 1302031
Initials: LAS Date: 2/2/13

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	NONE	<input checked="" type="radio"/> YES	NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<input checked="" type="radio"/> YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<input checked="" type="radio"/> YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<input checked="" type="radio"/> N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	<input checked="" type="radio"/> N/A	YES	NO
16. Were the samples shipped on ice?		YES	<input checked="" type="radio"/> NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	<input checked="" type="radio"/> RAD ONLY	YES	<input checked="" type="radio"/> NO
Cooler #: <u>1</u>			
Temperature (°C): <u>AMB</u>			
No. of custody seals on cooler: <u>2</u>			
External µR/hr reading: <u>12</u>			
Background µR/hr reading: <u>11</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <input checked="" type="radio"/> YES / NO / NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

#10 - Limited Volume

If applicable, was the client contacted? ☒ YES / NO / NA Contact: S. West. Date/Time: 2-2-13

Project Manager Signature / Date: [Signature] 2-2-13



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS-TX

Workorder No: 1302031

Project Manager: JK

Initials: CDT Date: 2-5-13

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<u>NO</u>
2. Are custody seals on shipping containers intact?	NONE	<u>YES</u>	NO
3. Are Custody seals on sample containers intact?	<u>NONE</u>	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		YES	<u>NO</u>
5. Are the COC and bottle labels complete and legible?		YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<u>YES</u>	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<u>N/A</u>	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<u>N/A</u>	YES	NO
10. Is there sufficient sample for the requested analyses?		<u>YES</u>	NO
11. Were all samples placed in the proper containers for the requested analyses?		<u>YES</u>	NO
12. Are all samples within holding times for the requested analyses?		<u>YES</u>	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<u>YES</u>	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<u>N/A</u>	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	<u>N/A</u>	YES	NO
16. Were the samples shipped on ice?		<u>YES</u>	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 <u>#4</u>	RAD ONLY	<u>YES</u>	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>2.0</u>			
No. of custody seals on cooler: <u>2</u>			
External µR/hr reading: <u>12</u>			
Background µR/hr reading: <u>11</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <u>YES</u> / NO / NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

Extra volume that was requested.

If applicable, was the client contacted? YES / NO / NA Contact: _____

Date/Time: _____

Project Manager Signature / Date: _____

[Signature] 2-5-13

*IR Gun #2: Oakton, SN 29922500201-0066

*IR Gun #4: Oakton, SN 2372220101-0002

1302031

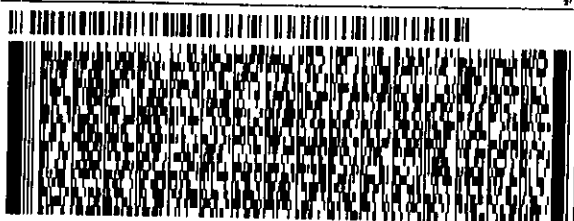
ORIGIN ID: SGRA (281).530-5656
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 01FEB13
ACTWGT: 21.0 LB
CAD: 300130/CAFE2606

BILL SENDER

TO **ROY FRENCH**
ALS ENVIRONMENTAL
225 COMMERCE DRIVE

FORT COLLINS CO 80524
(970) 490-1611 REF: SW/PL/JBA
DEPT: ENVIRONMENTAL



FedEx
Express

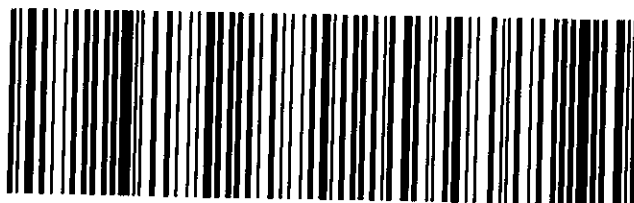


TRK# 4340 2174 0732
0201

SATURDAY ### A2
PRIORITY OVERNIGHT

X0 FTCA

80524
CO-US DEN



Part # 156143-434 RIT2 04/12

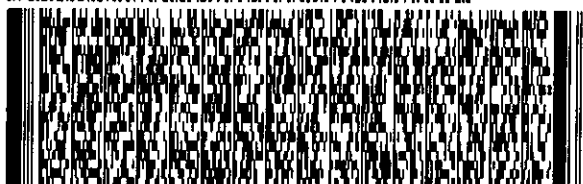
1302031

BILL SENDER

12

12

REF: SUB SAMPLES

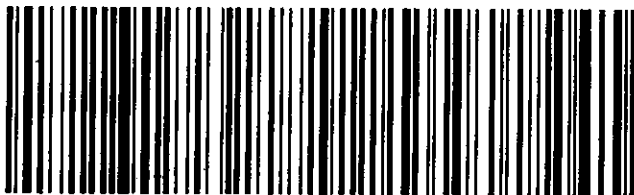
**E**

TUE - 05 FEB A2
PRIORITY OVERNIGHT

NA FTCA

CO-US DEN

Part # 158148-434 RT2 04/12 ☺☺



ALS Environmental -- FC**SAMPLE SUMMARY REPORT**

Client: ALS Environmental
Project: 1302400
Sample ID: 1302400-01A (MW-115 (1))
Legal Location:
Collection Date: 1/29/2013 14:25

Date: 04-Mar-13
Work Order: 1302031
Lab ID: 1302031-1
Matrix: SOIL
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GAMMA SPECTROSCOPY RESULTS			PAI 713		Prep Date: 2/6/2013	PrepBy: SAM
Ra-226	1.62 (+/- 0.38)	G	0.6	pCi/g	NA	2/28/2013 14:48
Ra-228	1.25 (+/- 0.67)	G,TI	0.83	pCi/g	NA	2/28/2013 14:48

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental

Date: 04-Mar-13

Project: 1302400

Work Order: 1302031

Sample ID: 1302400-02A (MW-115 (5))

Lab ID: 1302031-2

Legal Location:

Matrix: SOIL

Collection Date: 1/29/2013 14:35

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GAMMA SPECTROSCOPY RESULTS						
Ra-226	1.29 (+/- 0.28)	G	PAI 713	0.41 pCi/g	Prep Date: 2/6/2013	PrepBy: SAM
Ra-228	0.78 (+/- 0.5)	LT,G,TI		0.7 pCi/g	NA	2/28/2013 14:48

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental

Date: 04-Mar-13

Project: 1302400

Work Order: 1302031

Sample ID: 1302400-03A (MW-115 (10))

Lab ID: 1302031-3

Legal Location:

Matrix: SOIL

Collection Date: 1/29/2013 16:10

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GAMMA SPECTROSCOPY RESULTS						
Ra-226	1.39 (+/- 0.37)	G	0.64	pCi/g	NA	2/28/2013 14:49
Ra-228	1.03 (+/- 0.67)	G,NQ	0.91	pCi/g	NA	2/28/2013 14:49

ALS Environmental -- FC**SAMPLE SUMMARY REPORT****Client:** ALS Environmental**Date:** 04-Mar-13**Project:** 1302400**Work Order:** 1302031**Sample ID:** 1302400-04A (MW-115 (15))**Lab ID:** 1302031-4**Legal Location:****Matrix:** SOIL**Collection Date:** 1/29/2013 15:20**Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GAMMA SPECTROSCOPY RESULTS			PAI 713		Prep Date: 2/6/2013	PrepBy: SAM
Ra-226	0.57 (+/- 0.24)	LT,G	0.47	pCi/g	NA	2/28/2013 14:49
Ra-228	ND (+/- 0.46)	U,G	0.63	pCi/g	NA	2/28/2013 14:49

ALS Environmental -- FC**SAMPLE SUMMARY REPORT****Client:** ALS Environmental**Date:** 04-Mar-13**Project:** 1302400**Work Order:** 1302031**Sample ID:** 1302400-05A (MW-115 (20))**Lab ID:** 1302031-5**Legal Location:****Matrix:** SOIL**Collection Date:** 1/29/2013 16:00**Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GAMMA SPECTROSCOPY RESULTS			PAI 713		Prep Date: 2/6/2013	PrepBy: SAM
Ra-226	0.58 (+/- 0.29)	LT,G,TI	0.49	pCi/g	NA	2/28/2013 14:49
Ra-228	ND (+/- 0.57)	U,G	0.81	pCi/g	NA	2/28/2013 14:49

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental

Date: 04-Mar-13

Project: 1302400

Work Order: 1302031

Sample ID: 1302400-06A (MW-115 (25))

Lab ID: 1302031-6

Legal Location:

Matrix: SOIL

Collection Date: 1/29/2013 15:45

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GAMMA SPECTROSCOPY RESULTS			PAI 713		Prep Date: 2/6/2013	PrepBy: SAM
Ra-226	ND (+/- 0.23)	U,G	0.51	pCi/g	NA	2/28/2013 14:52
Ra-228	0.75 (+/- 0.51)	NQ	0.68	pCi/g	NA	2/28/2013 14:52

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 1302400
Sample ID: 1302400-06A (MW-115 (25))
Legal Location:
Collection Date: 1/29/2013 15:45

Date: 04-Mar-13
Work Order: 1302031
Lab ID: 1302031-6
Matrix: SOIL
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
----------	--------	------	--------------	-------	-----------------	---------------

Explanation of Qualifiers

Radiochemistry:

U or ND - Result is less than the sample specific MDC.	M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.	L - LCS Recovery below lower control limit.
Y2 - Chemical Yield outside default limits.	H - LCS Recovery above upper control limit.
W - DER is greater than Warning Limit of 1.42	P - LCS, Matrix Spike Recovery within control limits.
* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.	N - Matrix Spike Recovery outside control limits
# - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.	NC - Not Calculated for duplicate results less than 5 times MDC
G - Sample density differs by more than 15% of LCS density.	B - Analyte concentration greater than MDC.
D - DER is greater than Control Limit	B3 - Analyte concentration greater than MDC but less than Requested MDC.
M - Requested MDC not met.	

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).
 U or ND - Indicates that the compound was analyzed for but not detected.
 E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.
 M - Duplicate injection precision was not met.
 N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.
 Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.
 * - Duplicate analysis (relative percent difference) not within control limits.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.
 B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.
 E - Analyte concentration exceeds the upper level of the calibration range.
 J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).
 A - A tentatively identified compound is a suspected aldol-condensation product.
 X - The analyte was diluted below an accurate quantitation level.
 * - The spike recovery is equal to or outside the control criteria used.
 + - The relative percent difference (RPD) equals or exceeds the control criteria.

Diesel Range Organics:

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental

Date: 04-Mar-13

Project: 1302400

Work Order: 1302031

Sample ID: 1302400-06A (MW-115 (25))

Lab ID: 1302031-6

Legal Location:

Matrix: SOIL

Collection Date: 1/29/2013 15:45

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<p>G - A pattern resembling gasoline was detected in this sample.</p> <p>D - A pattern resembling diesel was detected in this sample.</p> <p>M - A pattern resembling motor oil was detected in this sample.</p> <p>C - A pattern resembling crude oil was detected in this sample.</p> <p>4 - A pattern resembling JP-4 was detected in this sample.</p> <p>5 - A pattern resembling JP-5 was detected in this sample.</p> <p>H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.</p> <p>L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.</p> <p>Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:</p> <ul style="list-style-type: none"> - gasoline - JP-8 - diesel - mineral spirits - motor oil - Stoddard solvent - bunker C 						

ALS Environmental -- FC

Date: 3/4/2013 2:01:2

Client: ALS Environmental

QC BATCH REPORT

Work Order: 1302031

Project: 1302400

Batch ID: GS130205-2-1

Instrument ID: GAMMA

Method: Gamma Spectroscopy Results

LCS	Sample ID: GS130205-2A				Units: pCi/g		Analysis Date: 2/28/2013 15:34			
Client ID:	Run ID: GS130205-2A				Prep Date: 2/6/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	469 (+/- 55)	3	469.4		100	85-115				P,M3

LCS	Sample ID: GS130205-2				Units: pCi/g		Analysis Date: 2/28/2013 15:32			
Client ID:	Run ID: GS130205-2A				Prep Date: 2/6/2013			DF: NA		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Am-241	479 (+/- 58)	14	475.4		101	85-115				P
Co-60	205 (+/- 24)	1	205.2		99.9	85-115				P
Cs-137	180 (+/- 21)	1	173.7		103	85-115				P

MB	Sample ID: GS130205-2				Units: pCi/g		Analysis Date: 2/28/2013 15:32			
Client ID:	Run ID: GS130205-2A				Prep Date: 2/6/2013			DF: NA		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	ND	0.35								U
Ra-228	ND	0.47								U

The following samples were analyzed in this batch:

1302031-1	1302031-2	1302031-3
1302031-4	1302031-5	1302031-6

TECHNICAL BULLETIN ADDENDUM

The library used for analysis defines the gamma emission(s) to be used for analysis of each nuclide. If multiple gamma emissions are used for quantification, then a 'NET' quantification emission (or peak) must be defined in the library. This designation provides for the calculation of nuclide activity concentrations and detection limits in the case of non-presence of the nuclide. When the nuclide is not present, or the software is unable to resolve a peak at the library defined 'NET' energy, the software evaluates the 'NET' region of interest ('NET' peak energy +/- 2 keV) by performing a summation of the net counts above the background level. This 'NET' quantification can result in net negative, zero, or positive activity results, and is highly dependent on the spectral distribution in the region of interest of the 'NET' peak. In cases where only the 'NET' peak is found, and the software performs a net quantification, the nuclide result will be flagged with an 'NQ' qualifier on the final reports. This indicates that the nuclide is not detected or supported at any level above the reported MDC. Results are submitted without further qualification.

All nuclides specified in the library of analysis for gamma spectroscopy are evaluated for positive OR tentative identification on the following criteria:

- The individual abundances for the gamma emissions specified for each nuclide are summed to obtain a total nuclide abundance.
- From the total nuclide abundance, a positive identification criterion is set as 75% of this total nuclide abundance.
- For all nuclide peaks that are not net quantified, those peak abundances are summed. The total non-net quantified peak sum is compared to the calculated 75% abundance criterion. If this sum is greater than the 75% criterion, the nuclide is considered to be positively identified at the reported concentration. If the sum is less than the 75% criterion, the nuclide is tentatively identified at the reported concentration. These results will be flagged with a 'TI' qualifier on the final reports to indicate that the 75% abundance criterion was not met.



13-Feb-2013

Robert Combs
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 746-5382
Fax: (575) 746-5421

Re: RO Discharge Sampling

Work Order: **13011005**

Dear Robert,

ALS Environmental received 16 samples on 31-Jan-2013 09:10 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 50.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in black ink that reads "Sonia West".

Electronically approved by: Jumoke M. Lawal

Sonia West
Project Manager



Certificate No: T104704231-12-10

ADDRESS 10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 | PHONE (281) 530-5656 | FAX (281) 530-5887

DOV#T UR X S#K VD /#R U S#Sdu#h i#hch#DOV#T ur xs##D q#DOV#Dp i#hg#F rp s dq |

Environmental The ALS logo, a stylized blue triangle with a yellow flame.

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 13011005

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
13011005-01	MW-116 (1)	Soil		1/29/2013 16:05	1/31/2013 09:10	<input type="checkbox"/>
13011005-02	MW-116 (3)	Soil		1/29/2013 16:18	1/31/2013 09:10	<input type="checkbox"/>
13011005-03	MW-116 (5)	Soil		1/29/2013 16:32	1/31/2013 09:10	<input type="checkbox"/>
13011005-04	MW-116 (7)	Soil		1/30/2013 08:55	1/31/2013 09:10	<input type="checkbox"/>
13011005-05	MW-116 (9)	Soil		1/30/2013 08:55	1/31/2013 09:10	<input type="checkbox"/>
13011005-06	MW-116 (10)	Soil		1/30/2013 09:02	1/31/2013 09:10	<input type="checkbox"/>
13011005-07	MW-116 (11)	Soil		1/30/2013 09:05	1/31/2013 09:10	<input type="checkbox"/>
13011005-08	MW-116 (13)	Soil		1/30/2013 09:05	1/31/2013 09:10	<input type="checkbox"/>
13011005-09	MW-116 (15)	Soil		1/30/2013 09:10	1/31/2013 09:10	<input type="checkbox"/>
13011005-10	MW-116 (17)	Soil		1/30/2013 09:15	1/31/2013 09:10	<input type="checkbox"/>
13011005-11	MW-116 (19)	Soil		1/30/2013 09:15	1/31/2013 09:10	<input type="checkbox"/>
13011005-12	MW-116 (20)	Soil		1/30/2013 09:20	1/31/2013 09:10	<input type="checkbox"/>
13011005-13	MW-116 (21)	Soil		1/30/2013 09:30	1/31/2013 09:10	<input type="checkbox"/>
13011005-14	MW-116 (23)	Soil		1/30/2013 09:30	1/31/2013 09:10	<input type="checkbox"/>
13011005-15	MW-116 (25)	Soil		1/30/2013 09:35	1/31/2013 09:10	<input type="checkbox"/>
13011005-16	Trip Blank 011813-15	Water		1/29/2013	1/31/2013 09:10	<input type="checkbox"/>

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 13011005

Case Narrative

Your samples received for Radium 226 and Radium 228 are reported on ALS workorder 1302400.

Batch 67579, TPH DRO/ORO, Sample 1302018-01: MS/MSD is for an unrelated sample.

Batch 67523, Metals, Sample MW-116 (1): MS/MSD recoveries were outside the control limits for several analytes due to high concentration to the background sample. Results are flagged with an O as applicable. The associated LCS recoveries and MS/MSD RPD were within the control limits.

Batch 67523, Metals, Sample MW-116 (1): Duplicate RPD was outside the control limits for Boron and Sodium.

Batch 67656, Semivolatile Organics, Sample 1302140-04: MS/MSD is for an unrelated sample.

Batch 67656, Semivolatile Organics, Sample 1302140-04: MS/MSD RPD is for an unrelated sample.

Batch R141995, Volatile Organics, Sample 1301997-01: MS/MSD is for an unrelated sample.

Batch R142113, Volatile Organics, Sample 1302069-01: MS/MSD is for an unrelated sample.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116 (1)
Collection Date: 1/29/2013 04:05 PM

Work Order: 13011005
Lab ID: 13011005-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3541 / 2/5/13 Analyst: KMB							
TPH (Oil Range)	4.7		0.50	3.4	mg/Kg	1	2/6/2013 17:15
TPH (Diesel Range)	0.53	J	0.50	1.7	mg/Kg	1	2/6/2013 17:15
Surr: 2-Fluorobiphenyl	60.4			60-135	%REC	1	2/6/2013 17:15
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: KKP							
Gasoline Range Organics	U		0.020	0.050	mg/Kg	1	2/5/2013 18:23
Surr: 4-Bromofluorobenzene	89.6			70-130	%REC	1	2/5/2013 18:23
MERCURY - SW7471B Method: SW7471A Prep: SW7471A / 2/5/13 Analyst: OFO							
Mercury	8.10		0.28	3.48	µg/Kg	1	2/5/2013 16:47
METALS Method: SW6020 Prep: SW3050A / 2/4/13 Analyst: SKS							
Aluminum	14,600		17	82.6	mg/Kg	100	2/6/2013 14:59
Arsenic	4.38		0.083	0.413	mg/Kg	1	2/5/2013 15:17
Barium	130		0.066	0.413	mg/Kg	1	2/5/2013 15:17
Boron	7.77		2.3	4.13	mg/Kg	2	2/6/2013 12:45
Cadmium	0.407	J	0.041	0.413	mg/Kg	1	2/5/2013 15:17
Calcium	60,800		830	4,130	mg/Kg	100	2/6/2013 14:59
Chromium	14.0		0.074	0.413	mg/Kg	1	2/5/2013 15:17
Cobalt	5.52		0.058	0.413	mg/Kg	1	2/5/2013 15:17
Copper	11.1		0.083	0.413	mg/Kg	1	2/5/2013 15:17
Iron	10,100		8.3	41.3	mg/Kg	1	2/5/2013 15:17
Lead	14.7		0.041	0.413	mg/Kg	1	2/5/2013 15:17
Manganese	375		8.3	41.3	mg/Kg	100	2/6/2013 14:59
Molybdenum	0.585		0.12	0.413	mg/Kg	1	2/5/2013 15:17
Nickel	11.6		0.074	0.413	mg/Kg	1	2/5/2013 15:17
Potassium	3,770		21	82.6	mg/Kg	2	2/6/2013 12:45
Selenium	0.950		0.15	0.413	mg/Kg	1	2/5/2013 15:17
Silver	U		0.066	0.413	mg/Kg	1	2/5/2013 15:17
Sodium	135		18	82.6	mg/Kg	2	2/6/2013 12:45
Uranium	U		0.41	0.413	mg/Kg	1	2/5/2013 15:17
Zinc	37.3		0.21	0.413	mg/Kg	1	2/5/2013 15:17
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3541 / 2/7/13 Analyst: LG							
1-Methylnaphthalene	U		1.6	6.6	µg/Kg	1	2/7/2013 17:07
2-Methylnaphthalene	U		1.6	6.6	µg/Kg	1	2/7/2013 17:07
Benzo(a)pyrene	U		1.6	6.6	µg/Kg	1	2/7/2013 17:07
Naphthalene	U		1.6	6.6	µg/Kg	1	2/7/2013 17:07
Surr: 2,4,6-Tribromophenol	49.2			36-126	%REC	1	2/7/2013 17:07
Surr: 2-Fluorobiphenyl	57.2			43-125	%REC	1	2/7/2013 17:07

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116 (1)
Collection Date: 1/29/2013 04:05 PM

Work Order: 13011005
Lab ID: 13011005-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	49.1			37-125	%REC	1	2/7/2013 17:07
Surr: 4-Terphenyl-d14	70.1			32-125	%REC	1	2/7/2013 17:07
Surr: Nitrobenzene-d5	57.8			37-125	%REC	1	2/7/2013 17:07
Surr: Phenol-d6	53.0			40-125	%REC	1	2/7/2013 17:07
VOLATILES - SW8260C			Method: SW8260			Analyst: WLR	
1,1,1-Trichloroethane	U		1.7	5.0	µg/Kg	1	2/1/2013 13:18
1,1,2,2-Tetrachloroethane	U		0.50	5.0	µg/Kg	1	2/1/2013 13:18
1,1,2-Trichloroethane	U		2.0	5.0	µg/Kg	1	2/1/2013 13:18
1,1-Dichloroethane	U		0.50	5.0	µg/Kg	1	2/1/2013 13:18
1,1-Dichloroethene	U		1.5	5.0	µg/Kg	1	2/1/2013 13:18
1,2-Dibromoethane	U		0.70	5.0	µg/Kg	1	2/1/2013 13:18
1,2-Dichloroethane	U		0.60	5.0	µg/Kg	1	2/1/2013 13:18
Benzene	U		0.60	5.0	µg/Kg	1	2/1/2013 13:18
Carbon tetrachloride	U		1.2	5.0	µg/Kg	1	2/1/2013 13:18
Chloroform	U		1.8	5.0	µg/Kg	1	2/1/2013 13:18
Ethylbenzene	U		0.90	5.0	µg/Kg	1	2/1/2013 13:18
Methylene chloride	U		2.5	10	µg/Kg	1	2/1/2013 13:18
Tetrachloroethene	U		1.0	5.0	µg/Kg	1	2/1/2013 13:18
Toluene	U		0.70	5.0	µg/Kg	1	2/1/2013 13:18
Trichloroethene	U		1.6	5.0	µg/Kg	1	2/1/2013 13:18
Vinyl chloride	U		1.0	2.0	µg/Kg	1	2/1/2013 13:18
Xylenes, Total	U		2.6	15	µg/Kg	1	2/1/2013 13:18
Surr: 1,2-Dichloroethane-d4	92.3			70-128	%REC	1	2/1/2013 13:18
Surr: 4-Bromofluorobenzene	92.8			73-126	%REC	1	2/1/2013 13:18
Surr: Dibromofluoromethane	103			71-128	%REC	1	2/1/2013 13:18
Surr: Toluene-d8	95.7			73-127	%REC	1	2/1/2013 13:18
ANIONS - EPA 300.0 (1993)			Method: E300			Prep: E300 / 2/5/13	
Chloride	22.2		2.0	4.99	mg/Kg	1	2/5/2013 19:40
Fluoride	14.7		0.30	0.999	mg/Kg	1	2/5/2013 19:40
Nitrogen, Nitrate (As N)	2.63		0.30	0.999	mg/Kg	1	2/5/2013 19:40
Nitrogen, Nitrite (As N)	U		0.30	0.999	mg/Kg	1	2/5/2013 19:40
Sulfate	330		2.0	4.99	mg/Kg	1	2/5/2013 19:40
Surr: Selenate (surr)	85.4			85-115	%REC	1	2/5/2013 19:40
CYANIDE			Method: SW9014			Prep: SW9010C / 2/5/13	
Cyanide	U		0.58	1.94	mg/Kg	1	2/5/2013 16:30
MOISTURE			Method: SW3550			Analyst: KAH	
Percent Moisture	17.9		0.010	0.0100	wt%	1	2/1/2013 13:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116 (3)
Collection Date: 1/29/2013 04:18 PM

Work Order: 13011005
Lab ID: 13011005-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	19.1		0.010	0.0100	wt%	1	2/1/2013 13:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116 (5)
Collection Date: 1/29/2013 04:32 PM

Work Order: 13011005
Lab ID: 13011005-03
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
Method: SW7471A				Prep: SW7471A / 2/5/13		Analyst: OFO	
Mercury	6.77		0.29	3.59	µg/Kg	1	2/5/2013 16:49
METALS							
Method: SW6020				Prep: SW3050A / 2/4/13		Analyst: SKS	
Aluminum	9,770		15	76.4	mg/Kg	100	2/6/2013 15:08
Arsenic	3.65		0.076	0.382	mg/Kg	1	2/5/2013 16:13
Barium	155		6.1	38.2	mg/Kg	100	2/6/2013 15:08
Boron	7.48		2.1	3.82	mg/Kg	2	2/6/2013 12:59
Cadmium	0.156	J	0.038	0.382	mg/Kg	1	2/5/2013 16:13
Calcium	122,000		760	3,820	mg/Kg	100	2/6/2013 15:08
Chromium	8.46		0.069	0.382	mg/Kg	1	2/5/2013 16:13
Cobalt	2.94		0.053	0.382	mg/Kg	1	2/5/2013 16:13
Copper	4.05		0.076	0.382	mg/Kg	1	2/5/2013 16:13
Iron	6,240		7.6	38.2	mg/Kg	1	2/5/2013 16:13
Lead	4.47		0.038	0.382	mg/Kg	1	2/5/2013 16:13
Manganese	163		7.6	38.2	mg/Kg	100	2/6/2013 15:08
Molybdenum	0.485		0.11	0.382	mg/Kg	1	2/5/2013 16:13
Nickel	6.19		0.069	0.382	mg/Kg	1	2/5/2013 16:13
Potassium	2,130		9.9	38.2	mg/Kg	1	2/5/2013 16:13
Selenium	0.485		0.14	0.382	mg/Kg	1	2/5/2013 16:13
Silver	U		0.061	0.382	mg/Kg	1	2/5/2013 16:13
Sodium	156		8.4	38.2	mg/Kg	1	2/5/2013 16:13
Uranium	0.523		0.38	0.382	mg/Kg	1	2/5/2013 16:13
Zinc	19.0		0.19	0.382	mg/Kg	1	2/5/2013 16:13
ANIONS - EPA 300.0 (1993)							
Method: E300				Prep: E300 / 2/5/13		Analyst: JKP	
Chloride	29.8		2.0	4.96	mg/Kg	1	2/5/2013 19:54
Fluoride	4.51		0.30	0.992	mg/Kg	1	2/5/2013 19:54
Nitrogen, Nitrate (As N)	U		0.30	0.992	mg/Kg	1	2/5/2013 19:54
Nitrogen, Nitrite (As N)	U		0.30	0.992	mg/Kg	1	2/5/2013 19:54
Sulfate	234		2.0	4.96	mg/Kg	1	2/5/2013 19:54
Surr: Selenate (surr)	87.5			85-115	%REC	1	2/5/2013 19:54
CYANIDE							
Method: SW9014				Prep: SW9010C / 2/4/13		Analyst: EDG	
Cyanide	U		0.54	1.80	mg/Kg	1	2/4/2013 13:30
MOISTURE							
Method: SW3550				Analyst: KAH			
Percent Moisture	16.1		0.010	0.0100	wt%	1	2/1/2013 13:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116 (7)
Collection Date: 1/30/2013 08:55 AM

Work Order: 13011005
Lab ID: 13011005-04
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	16.0		0.010	0.0100	wt%	1	2/1/2013 13:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116 (9)
Collection Date: 1/30/2013 08:55 AM

Work Order: 13011005
Lab ID: 13011005-05
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	16.2		0.010	0.0100	wt%	1	2/1/2013 13:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116 (10)
Collection Date: 1/30/2013 09:02 AM

Work Order: 13011005
Lab ID: 13011005-06
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
			Method: SW7471A		Prep: SW7471A / 2/5/13		Analyst: OFO
Mercury	7.74		0.27	3.36	µg/Kg	1	2/5/2013 16:51
METALS							
			Method: SW6020		Prep: SW3050A / 2/4/13		Analyst: SKS
Aluminum	7,550		17	86.4	mg/Kg	100	2/6/2013 15:11
Arsenic	2.48		0.086	0.432	mg/Kg	1	2/5/2013 16:15
Barium	43.5		0.069	0.432	mg/Kg	1	2/5/2013 16:15
Boron	9.23	J	6.0	10.8	mg/Kg	5	2/6/2013 13:02
Cadmium	0.114	J	0.043	0.432	mg/Kg	1	2/5/2013 16:15
Calcium	166,000		860	4,320	mg/Kg	100	2/6/2013 15:11
Chromium	6.73		0.078	0.432	mg/Kg	1	2/5/2013 16:15
Cobalt	2.58		0.060	0.432	mg/Kg	1	2/5/2013 16:15
Copper	2.97		0.086	0.432	mg/Kg	1	2/5/2013 16:15
Iron	4,720		8.6	43.2	mg/Kg	1	2/5/2013 16:15
Lead	3.63		0.043	0.432	mg/Kg	1	2/5/2013 16:15
Manganese	139		0.086	0.432	mg/Kg	1	2/5/2013 16:15
Molybdenum	0.331	J	0.13	0.432	mg/Kg	1	2/5/2013 16:15
Nickel	4.51		0.078	0.432	mg/Kg	1	2/5/2013 16:15
Potassium	1,620		11	43.2	mg/Kg	1	2/5/2013 16:15
Selenium	0.353	J	0.16	0.432	mg/Kg	1	2/5/2013 16:15
Silver	U		0.069	0.432	mg/Kg	1	2/5/2013 16:15
Sodium	121		9.5	43.2	mg/Kg	1	2/5/2013 16:15
Uranium	0.450		0.43	0.432	mg/Kg	1	2/5/2013 16:15
Zinc	14.2		0.22	0.432	mg/Kg	1	2/5/2013 16:15
ANIONS - EPA 300.0 (1993)							
			Method: E300		Prep: E300 / 2/5/13		Analyst: JKP
Chloride	8.03		2.0	4.98	mg/Kg	1	2/5/2013 20:09
Fluoride	5.76		0.30	0.995	mg/Kg	1	2/5/2013 20:09
Nitrogen, Nitrate (As N)	0.896	J	0.30	0.995	mg/Kg	1	2/5/2013 20:09
Nitrogen, Nitrite (As N)	U		0.30	0.995	mg/Kg	1	2/5/2013 20:09
Sulfate	82.1		2.0	4.98	mg/Kg	1	2/5/2013 20:09
Surr: Selenate (surr)	90.2			85-115	%REC	1	2/5/2013 20:09
CYANIDE							
			Method: SW9014		Prep: SW9010C / 2/5/13		Analyst: EDG
Cyanide	U		0.59	1.96	mg/Kg	1	2/5/2013 16:30
MOISTURE							
			Method: SW3550		Analyst: KAH		
Percent Moisture	16.4		0.010	0.0100	wt%	1	2/1/2013 13:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116 (11)
Collection Date: 1/30/2013 09:05 AM

Work Order: 13011005
Lab ID: 13011005-07
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	23.0		0.010	0.0100	wt%	1	2/1/2013 13:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116 (13)
Collection Date: 1/30/2013 09:05 AM

Work Order: 13011005
Lab ID: 13011005-08
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	28.5		0.010	0.0100	wt%	1	2/1/2013 13:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116 (15)
Collection Date: 1/30/2013 09:10 AM

Work Order: 13011005
Lab ID: 13011005-09
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
Method: SW7471A				Prep: SW7471A / 2/5/13		Analyst: OFO	
Mercury	0.647	J	0.29	3.59	µg/Kg	1	2/5/2013 16:53
METALS							
Method: SW6020				Prep: SW3050A / 2/4/13		Analyst: SKS	
Aluminum	3,970		18	89.6	mg/Kg	100	2/6/2013 15:13
Arsenic	2.83		0.090	0.448	mg/Kg	1	2/5/2013 16:17
Barium	19.0		0.072	0.448	mg/Kg	1	2/5/2013 16:17
Boron	6.99	J	6.3	11.2	mg/Kg	5	2/6/2013 13:04
Cadmium	0.102	J	0.045	0.448	mg/Kg	1	2/5/2013 16:17
Calcium	216,000		900	4,480	mg/Kg	100	2/6/2013 15:13
Chromium	3.86		0.081	0.448	mg/Kg	1	2/5/2013 16:17
Cobalt	2.70		0.063	0.448	mg/Kg	1	2/5/2013 16:17
Copper	2.53		0.090	0.448	mg/Kg	1	2/5/2013 16:17
Iron	2,880		9.0	44.8	mg/Kg	1	2/5/2013 16:17
Lead	2.03		0.045	0.448	mg/Kg	1	2/5/2013 16:17
Manganese	351		9.0	44.8	mg/Kg	100	2/6/2013 15:13
Molybdenum	0.645		0.13	0.448	mg/Kg	1	2/5/2013 16:17
Nickel	5.57		0.081	0.448	mg/Kg	1	2/5/2013 16:17
Potassium	956		12	44.8	mg/Kg	1	2/5/2013 16:17
Selenium	0.252	J	0.16	0.448	mg/Kg	1	2/5/2013 16:17
Silver	U		0.072	0.448	mg/Kg	1	2/5/2013 16:17
Sodium	108		9.9	44.8	mg/Kg	1	2/5/2013 16:17
Uranium	U		0.45	0.448	mg/Kg	1	2/5/2013 16:17
Zinc	7.87		0.22	0.448	mg/Kg	1	2/5/2013 16:17
ANIONS - EPA 300.0 (1993)							
Method: E300				Prep: E300 / 2/5/13		Analyst: JKP	
Chloride	31.6		2.0	4.92	mg/Kg	1	2/5/2013 20:23
Fluoride	8.70		0.30	0.984	mg/Kg	1	2/5/2013 20:23
Nitrogen, Nitrate (As N)	U		0.30	0.984	mg/Kg	1	2/5/2013 20:23
Nitrogen, Nitrite (As N)	U		0.30	0.984	mg/Kg	1	2/5/2013 20:23
Sulfate	891		2.0	4.92	mg/Kg	1	2/5/2013 20:23
Surr: Selenate (surr)	87.2			85-115	%REC	1	2/5/2013 20:23
CYANIDE							
Method: SW9014				Prep: SW9010C / 2/5/13		Analyst: EDG	
Cyanide	U		0.55	1.82	mg/Kg	1	2/5/2013 16:30
MOISTURE							
Method: SW3550				Analyst: KAH			
Percent Moisture	15.3		0.010	0.0100	wt%	1	2/1/2013 13:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116 (17)
Collection Date: 1/30/2013 09:15 AM

Work Order: 13011005
Lab ID: 13011005-10
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	20.5		0.010	0.0100	wt%	1	2/1/2013 13:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116 (19)
Collection Date: 1/30/2013 09:15 AM

Work Order: 13011005
Lab ID: 13011005-11
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	24.0		0.010	0.0100	wt%	1	2/1/2013 13:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116 (20)
Collection Date: 1/30/2013 09:20 AM

Work Order: 13011005
Lab ID: 13011005-12
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY - SW7471B							
Method: SW7471A				Prep: SW7471A / 2/5/13		Analyst: OFO	
Mercury	8.29		0.28	3.44	µg/Kg	1	2/5/2013 16:55
METALS							
Method: SW6020				Prep: SW3050A / 2/4/13		Analyst: SKS	
Aluminum	8,370		18	92.0	mg/Kg	100	2/6/2013 15:15
Arsenic	6.28		0.092	0.460	mg/Kg	1	2/5/2013 16:20
Barium	19.9		0.074	0.460	mg/Kg	1	2/5/2013 16:20
Boron	4.74		2.6	4.60	mg/Kg	2	2/6/2013 13:07
Cadmium	0.283	J	0.046	0.460	mg/Kg	1	2/5/2013 16:20
Calcium	104,000		920	4,600	mg/Kg	100	2/6/2013 15:15
Chromium	7.41		0.083	0.460	mg/Kg	1	2/5/2013 16:20
Cobalt	2.95		0.064	0.460	mg/Kg	1	2/5/2013 16:20
Copper	4.92		0.092	0.460	mg/Kg	1	2/5/2013 16:20
Iron	7,120		9.2	46.0	mg/Kg	1	2/5/2013 16:20
Lead	7.08		0.046	0.460	mg/Kg	1	2/5/2013 16:20
Manganese	251		9.2	46.0	mg/Kg	100	2/6/2013 15:15
Molybdenum	0.837		0.14	0.460	mg/Kg	1	2/5/2013 16:20
Nickel	7.79		0.083	0.460	mg/Kg	1	2/5/2013 16:20
Potassium	1,280		12	46.0	mg/Kg	1	2/5/2013 16:20
Selenium	0.512		0.17	0.460	mg/Kg	1	2/5/2013 16:20
Silver	U		0.074	0.460	mg/Kg	1	2/5/2013 16:20
Sodium	142		10	46.0	mg/Kg	1	2/5/2013 16:20
Uranium	U		0.46	0.460	mg/Kg	1	2/5/2013 16:20
Zinc	19.8		0.23	0.460	mg/Kg	1	2/5/2013 16:20
ANIONS - EPA 300.0 (1993)							
Method: E300				Prep: E300 / 2/5/13		Analyst: JKP	
Chloride	33.3		2.0	4.99	mg/Kg	1	2/5/2013 20:38
Fluoride	3.92		0.30	0.997	mg/Kg	1	2/5/2013 20:38
Nitrogen, Nitrate (As N)	U		0.30	0.997	mg/Kg	1	2/5/2013 20:38
Nitrogen, Nitrite (As N)	U		0.30	0.997	mg/Kg	1	2/5/2013 20:38
Sulfate	310		2.0	4.99	mg/Kg	1	2/5/2013 20:38
Surr: Selenate (surr)	85.3			85-115	%REC	1	2/5/2013 20:38
CYANIDE							
Method: SW9014				Prep: SW9010C / 2/5/13		Analyst: EDG	
Cyanide	U		0.59	1.96	mg/Kg	1	2/5/2013 16:30
MOISTURE							
Method: SW3550				Analyst: KAH			
Percent Moisture	19.2		0.010	0.0100	wt%	1	2/1/2013 13:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116 (21)
Collection Date: 1/30/2013 09:30 AM

Work Order: 13011005
Lab ID: 13011005-13
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	22.9		0.010	0.0100	wt%	1	2/1/2013 13:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116 (23)
Collection Date: 1/30/2013 09:30 AM

Work Order: 13011005
Lab ID: 13011005-14
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE	Method: SW3550						Analyst: KAH
Percent Moisture	23.5		0.010	0.0100	wt%	1	2/1/2013 13:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116 (25)
Collection Date: 1/30/2013 09:35 AM

Work Order: 13011005
Lab ID: 13011005-15
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3541 / 2/5/13 Analyst: KMB							
TPH (Oil Range)	U		0.50	3.4	mg/Kg	1	2/6/2013 14:17
TPH (Diesel Range)	U		0.50	1.7	mg/Kg	1	2/6/2013 14:17
Surr: 2-Fluorobiphenyl	61.6			60-135	%REC	1	2/6/2013 14:17
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: KKP							
Gasoline Range Organics	U		0.020	0.050	mg/Kg	1	2/5/2013 18:42
Surr: 4-Bromofluorobenzene	90.8			70-130	%REC	1	2/5/2013 18:42
MERCURY - SW7471B Method: SW7471A Prep: SW7471A / 2/5/13 Analyst: OFO							
Mercury	0.757	J	0.28	3.43	µg/Kg	1	2/5/2013 16:57
METALS Method: SW6020 Prep: SW3050A / 2/4/13 Analyst: SKS							
Aluminum	7,960		16	81.8	mg/Kg	100	2/6/2013 15:28
Arsenic	3.22		0.082	0.409	mg/Kg	1	2/5/2013 16:22
Barium	181		6.5	40.9	mg/Kg	100	2/6/2013 15:28
Boron	7.57		2.3	4.09	mg/Kg	2	2/6/2013 13:14
Cadmium	0.205	J	0.041	0.409	mg/Kg	1	2/5/2013 16:22
Calcium	76,500		820	4,090	mg/Kg	100	2/6/2013 15:28
Chromium	6.81		0.074	0.409	mg/Kg	1	2/5/2013 16:22
Cobalt	2.49		0.057	0.409	mg/Kg	1	2/5/2013 16:22
Copper	4.45		0.082	0.409	mg/Kg	1	2/5/2013 16:22
Iron	5,710		8.2	40.9	mg/Kg	1	2/5/2013 16:22
Lead	5.57		0.041	0.409	mg/Kg	1	2/5/2013 16:22
Manganese	169		8.2	40.9	mg/Kg	100	2/6/2013 15:28
Molybdenum	0.381	J	0.12	0.409	mg/Kg	1	2/5/2013 16:22
Nickel	6.75		0.074	0.409	mg/Kg	1	2/5/2013 16:22
Potassium	1,700		11	40.9	mg/Kg	1	2/5/2013 16:22
Selenium	0.433		0.15	0.409	mg/Kg	1	2/5/2013 16:22
Silver	U		0.065	0.409	mg/Kg	1	2/5/2013 16:22
Sodium	120		9.0	40.9	mg/Kg	1	2/5/2013 16:22
Uranium	U		0.41	0.409	mg/Kg	1	2/5/2013 16:22
Zinc	17.8		0.20	0.409	mg/Kg	1	2/5/2013 16:22
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3541 / 2/7/13 Analyst: LG							
1-Methylnaphthalene	U		1.6	6.6	µg/Kg	1	2/7/2013 17:28
2-Methylnaphthalene	U		1.6	6.6	µg/Kg	1	2/7/2013 17:28
Benzo(a)pyrene	U		1.6	6.6	µg/Kg	1	2/7/2013 17:28
Naphthalene	U		1.6	6.6	µg/Kg	1	2/7/2013 17:28
Surr: 2,4,6-Tribromophenol	69.5			36-126	%REC	1	2/7/2013 17:28
Surr: 2-Fluorobiphenyl	81.4			43-125	%REC	1	2/7/2013 17:28

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116 (25)
Collection Date: 1/30/2013 09:35 AM

Work Order: 13011005
Lab ID: 13011005-15
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	70.7			37-125	%REC	1	2/7/2013 17:28
Surr: 4-Terphenyl-d14	98.5			32-125	%REC	1	2/7/2013 17:28
Surr: Nitrobenzene-d5	81.0			37-125	%REC	1	2/7/2013 17:28
Surr: Phenol-d6	75.6			40-125	%REC	1	2/7/2013 17:28
VOLATILES - SW8260C			Method: SW8260			Analyst: WLR	
1,1,1-Trichloroethane	U		1.7	5.0	µg/Kg	1	2/1/2013 13:41
1,1,2,2-Tetrachloroethane	U		0.50	5.0	µg/Kg	1	2/1/2013 13:41
1,1,2-Trichloroethane	U		2.0	5.0	µg/Kg	1	2/1/2013 13:41
1,1-Dichloroethane	U		0.50	5.0	µg/Kg	1	2/1/2013 13:41
1,1-Dichloroethene	U		1.5	5.0	µg/Kg	1	2/1/2013 13:41
1,2-Dibromoethane	U		0.70	5.0	µg/Kg	1	2/1/2013 13:41
1,2-Dichloroethane	U		0.60	5.0	µg/Kg	1	2/1/2013 13:41
Benzene	U		0.60	5.0	µg/Kg	1	2/1/2013 13:41
Carbon tetrachloride	U		1.2	5.0	µg/Kg	1	2/1/2013 13:41
Chloroform	U		1.8	5.0	µg/Kg	1	2/1/2013 13:41
Ethylbenzene	U		0.90	5.0	µg/Kg	1	2/1/2013 13:41
Methylene chloride	U		2.5	10	µg/Kg	1	2/1/2013 13:41
Tetrachloroethene	U		1.0	5.0	µg/Kg	1	2/1/2013 13:41
Toluene	U		0.70	5.0	µg/Kg	1	2/1/2013 13:41
Trichloroethene	U		1.6	5.0	µg/Kg	1	2/1/2013 13:41
Vinyl chloride	U		1.0	2.0	µg/Kg	1	2/1/2013 13:41
Xylenes, Total	U		2.6	15	µg/Kg	1	2/1/2013 13:41
Surr: 1,2-Dichloroethane-d4	88.4			70-128	%REC	1	2/1/2013 13:41
Surr: 4-Bromofluorobenzene	91.1			73-126	%REC	1	2/1/2013 13:41
Surr: Dibromofluoromethane	98.1			71-128	%REC	1	2/1/2013 13:41
Surr: Toluene-d8	103			73-127	%REC	1	2/1/2013 13:41
ANIONS - EPA 300.0 (1993)			Method: E300			Prep: E300 / 2/5/13	
Chloride	47.6		2.0	5.00	mg/Kg	1	2/5/2013 20:53
Fluoride	1.91		0.30	1.00	mg/Kg	1	2/5/2013 20:53
Nitrogen, Nitrate (As N)	U		0.30	1.00	mg/Kg	1	2/5/2013 20:53
Nitrogen, Nitrite (As N)	U		0.30	1.00	mg/Kg	1	2/5/2013 20:53
Sulfate	254		2.0	5.00	mg/Kg	1	2/5/2013 20:53
Surr: Selenate (surr)	86.3			85-115	%REC	1	2/5/2013 20:53
CYANIDE			Method: SW9014			Prep: SW9010C / 2/5/13	
Cyanide	U		0.57	1.90	mg/Kg	1	2/5/2013 16:30
MOISTURE			Method: SW3550			Analyst: KAH	
Percent Moisture	23.2		0.010	0.0100	wt%	1	2/1/2013 13:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: Trip Blank 011813-15
Collection Date: 1/29/2013

Work Order: 13011005
Lab ID: 13011005-16
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/4/2013 12:29
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	2/4/2013 12:29
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/4/2013 12:29
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/4/2013 12:29
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	2/4/2013 12:29
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	2/4/2013 12:29
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/4/2013 12:29
Benzene	U		0.00020	0.0010	mg/L	1	2/4/2013 12:29
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	2/4/2013 12:29
Chloroform	U		0.00030	0.0010	mg/L	1	2/4/2013 12:29
Ethylbenzene	U		0.00030	0.0010	mg/L	1	2/4/2013 12:29
Methylene chloride	U		0.00040	0.0020	mg/L	1	2/4/2013 12:29
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	2/4/2013 12:29
Toluene	U		0.00030	0.0010	mg/L	1	2/4/2013 12:29
Trichloroethene	U		0.00020	0.0010	mg/L	1	2/4/2013 12:29
Vinyl chloride	U		0.00040	0.0010	mg/L	1	2/4/2013 12:29
Xylenes, Total	U		0.00030	0.0010	mg/L	1	2/4/2013 12:29
Surr: 1,2-Dichloroethane-d4	91.7			71-125	%REC	1	2/4/2013 12:29
Surr: 4-Bromofluorobenzene	96.9			70-125	%REC	1	2/4/2013 12:29
Surr: Dibromofluoromethane	101			74-125	%REC	1	2/4/2013 12:29
Surr: Toluene-d8	98.0			78-123	%REC	1	2/4/2013 12:29

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 13-Feb-13

Client: Navajo Refining Company
Work Order: 13011005
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67579** Instrument ID **FID-7** Method: **SW8015M**

MBLK	Sample ID: FBLKS1-130205-67579				Units: mg/Kg		Analysis Date: 2/6/2013 11:56 AM			
Client ID:	Run ID: FID-7_130206A				SeqNo: 3104153		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Oil Range)	U	3.4								
TPH (Diesel Range)	U	1.7								
<i>Surr: 2-Fluorobiphenyl</i>	2.092	0.10	3.33	0	62.8	60-135	0			

LCS	Sample ID: FLCSS1-130205-67579				Units: mg/Kg		Analysis Date: 2/6/2013 12:19 PM			
Client ID:	Run ID: FID-7_130206A				SeqNo: 3104154		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Oil Range)	27.05	3.4	33.33	0	81.2	70-130	0			
TPH (Diesel Range)	35.72	1.7	33.33	0	107	70-130	0			
<i>Surr: 2-Fluorobiphenyl</i>	2.536	0.10	3.33	0	76.2	60-135	0			

MS	Sample ID: 1302018-01BMS				Units: mg/Kg		Analysis Date: 2/6/2013 01:06 PM			
Client ID:	Run ID: FID-7_130206A				SeqNo: 3104156		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Oil Range)	229.1	3.4	33.23	219.8	28.1	70-130	0			SEO
TPH (Diesel Range)	80.52	1.7	33.23	75.45	15.3	70-130	0			SE
<i>Surr: 2-Fluorobiphenyl</i>	2.284	0.10	3.32	0	68.8	60-135	0			

MSD	Sample ID: 1302018-01BMSD				Units: mg/Kg		Analysis Date: 2/6/2013 01:29 PM			
Client ID:	Run ID: FID-7_130206A				SeqNo: 3104157		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Oil Range)	207.2	3.4	33.24	219.8	-37.7	70-130	229.1	10	30	SEO
TPH (Diesel Range)	76.56	1.7	33.24	75.45	3.32	70-130	80.52	5.05	30	SE
<i>Surr: 2-Fluorobiphenyl</i>	2.311	0.10	3.321	0	69.6	60-135	2.284	1.17	30	

The following samples were analyzed in this batch:

13011005-01D	13011005-15D
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13011005
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142225** Instrument ID **FID-9** Method: **SW8015**

MBLK Sample ID: **GBLKS-130205-R142225** Units: **mg/Kg** Analysis Date: **2/5/2013 01:02 PM**

Client ID: Run ID: **FID-9_130205A** SeqNo: **3103619** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	U	0.050								
<i>Surr: 4-Bromofluorobenzene</i>	0.08374	0.0050	0.1	0	83.7	70-130	0			

LCS Sample ID: **GLCSS-130205-R142225** Units: **mg/Kg** Analysis Date: **2/5/2013 12:25 PM**

Client ID: Run ID: **FID-9_130205A** SeqNo: **3103613** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.942	0.050	1	0	94.2	70-130	0			
<i>Surr: 4-Bromofluorobenzene</i>	0.09701	0.0050	0.1	0	97	70-130	0			

LCSD Sample ID: **GLCSDS-130205-R142225** Units: **mg/Kg** Analysis Date: **2/5/2013 12:44 PM**

Client ID: Run ID: **FID-9_130205A** SeqNo: **3103616** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.9525	0.050	1	0	95.2	70-130	0.942	1.11	30	
<i>Surr: 4-Bromofluorobenzene</i>	0.09686	0.0050	0.1	0	96.9	70-130	0.09701	0.146	30	

MS Sample ID: **1302018-04ZMS** Units: **mg/Kg** Analysis Date: **2/5/2013 04:11 PM**

Client ID: Run ID: **FID-9_130205A** SeqNo: **3103628** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.8005	0.050	1	0	80	70-130	0			
<i>Surr: 4-Bromofluorobenzene</i>	0.08728	0.0050	0.1	0	87.3	70-130	0			

MSD Sample ID: **1302018-04ZMSD** Units: **mg/Kg** Analysis Date: **2/5/2013 04:30 PM**

Client ID: Run ID: **FID-9_130205A** SeqNo: **3103632** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.8125	0.050	1	0	81.2	70-130	0.8005	1.49	30	
<i>Surr: 4-Bromofluorobenzene</i>	0.08872	0.0050	0.1	0	88.7	70-130	0.08728	1.64	30	

The following samples were analyzed in this batch:

13011005-01B	13011005-15B
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13011005
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67523** Instrument ID **ICPMS05** Method: **SW6020**

MBLK Sample ID: **MBLKS1-020113-67523** Units: **mg/Kg** Analysis Date: **2/5/2013 03:05 PM**

Client ID: Run ID: **ICPMS05_130205A** SeqNo: **3102200** Prep Date: **2/4/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.4165	1.0								J
Arsenic	U	0.50								
Barium	U	0.50								
Cadmium	U	0.50								
Calcium	U	50								
Chromium	U	0.50								
Cobalt	U	0.50								
Copper	U	0.50								
Iron	U	50								
Lead	U	0.50								
Manganese	U	0.50								
Molybdenum	U	0.50								
Nickel	U	0.50								
Potassium	U	50								
Selenium	U	0.50								
Silver	U	0.50								
Uranium	U	0.50								
Zinc	U	0.50								

MBLK Sample ID: **MBLKS1-020113-67523** Units: **mg/Kg** Analysis Date: **2/6/2013 12:35 PM**

Client ID: Run ID: **ICPMS05_130206A** SeqNo: **3103603** Prep Date: **2/4/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	U	2.5								
Sodium	U	50								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13011005
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67523** Instrument ID **ICPMS05** Method: **SW6020**

LCS Sample ID: **MLCSS1-020113-67523** Units: **mg/Kg** Analysis Date: **2/5/2013 03:08 PM**

Client ID: Run ID: **ICPMS05_130205A** SeqNo: **3102201** Prep Date: **2/4/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	10.68	1.0	10	0	107	80-120	0			
Arsenic	9.673	0.50	10	0	96.7	80-120	0			
Barium	10.35	0.50	10	0	104	80-120	0			
Cadmium	9.748	0.50	10	0	97.5	80-120	0			
Calcium	992.3	50	1000	0	99.2	80-120	0			
Chromium	9.832	0.50	10	0	98.3	80-120	0			
Cobalt	9.927	0.50	10	0	99.3	80-120	0			
Copper	10.12	0.50	10	0	101	80-120	0			
Iron	974.8	50	1000	0	97.5	80-120	0			
Lead	9.786	0.50	10	0	97.9	80-120	0			
Manganese	9.681	0.50	10	0	96.8	80-120	0			
Molybdenum	9.985	0.50	10	0	99.8	80-120	0			
Nickel	9.83	0.50	10	0	98.3	80-120	0			
Potassium	956.7	50	1000	0	95.7	80-120	0			
Selenium	9.813	0.50	10	0	98.1	80-120	0			
Silver	10.22	0.50	10	0	102	80-120	0			
Uranium	9.429	0.50	10	0	94.3	80-120	0			
Zinc	9.937	0.50	10	0	99.4	80-120	0			

LCS Sample ID: **MLCSS1-020113-67523** Units: **mg/Kg** Analysis Date: **2/6/2013 12:38 PM**

Client ID: Run ID: **ICPMS05_130206A** SeqNo: **3103604** Prep Date: **2/4/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	47.92	2.5	50	0	95.8	80-120	0			
Sodium	981.7	50	1000	0	98.2	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13011005
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67523** Instrument ID **ICPMS05** Method: **SW6020**

MS		Sample ID: 13011005-01DMS				Units: mg/Kg		Analysis Date: 2/5/2013 03:22 PM		
Client ID: MW-116 (1)		Run ID: ICPMS05_130205A				SeqNo: 3102207		Prep Date: 2/4/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	13710	0.84	8.429	12570	13500	75-125	0			SEO
Arsenic	11.71	0.42	8.429	4.385	86.9	75-125	0			
Barium	138.7	0.42	8.429	129.6	107	75-125	0			O
Cadmium	8.001	0.42	8.429	0.4065	90.1	75-125	0			
Calcium	57470	42	842.9	57640	-19.7	75-125	0			SEO
Chromium	22.67	0.42	8.429	14.02	103	75-125	0			
Cobalt	13.02	0.42	8.429	5.519	89	75-125	0			
Copper	18.8	0.42	8.429	11.12	91.1	75-125	0			
Iron	11500	42	842.9	10120	164	75-125	0			SO
Lead	22.81	0.42	8.429	14.66	96.6	75-125	0			
Manganese	381.8	0.42	8.429	383.5	-20	75-125	0			SEO
Molybdenum	6.315	0.42	8.429	0.5853	68	75-125	0			S
Nickel	19.09	0.42	8.429	11.62	88.6	75-125	0			
Selenium	7.95	0.42	8.429	0.9501	83	75-125	0			
Silver	8.085	0.42	8.429	0.05106	95.3	75-125	0			
Uranium	8.095	0.42	8.429	0.408	91.2	75-125	0			
Zinc	46.05	0.42	8.429	37.34	103	75-125	0			O

MS		Sample ID: 13011005-01DMS				Units: mg/Kg		Analysis Date: 2/6/2013 12:50 PM		
Client ID: MW-116 (1)		Run ID: ICPMS05_130206A				SeqNo: 3103618		Prep Date: 2/4/2013		DF: 2
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	39.78	4.2	42.14	60.18	-48.4	75-125	0			S
Potassium	4808	84	842.9	3553	149	75-125	0			SO
Sodium	914.3	84	842.9	168.4	88.5	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13011005
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67523** Instrument ID **ICPMS05** Method: **SW6020**

MSD Sample ID: **13011005-01DMSD** Units: **mg/Kg** Analysis Date: **2/5/2013 03:25 PM**
 Client ID: **MW-116 (1)** Run ID: **ICPMS05_130205A** SeqNo: **3102208** Prep Date: **2/4/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	12110	0.80	7.956	12570	-5790	75-125	13710	12.4	25	SEO
Arsenic	11.34	0.40	7.956	4.385	87.4	75-125	11.71	3.25	25	
Barium	134	0.40	7.956	129.6	54.7	75-125	138.7	3.43	25	SO
Cadmium	7.562	0.40	7.956	0.4065	89.9	75-125	8.001	5.64	25	
Calcium	52910	40	795.6	57640	-594	75-125	57470	8.27	25	SEO
Chromium	20.95	0.40	7.956	14.02	87.1	75-125	22.67	7.88	25	
Cobalt	12.38	0.40	7.956	5.519	86.3	75-125	13.02	5.05	25	
Copper	17.82	0.40	7.956	11.12	84.3	75-125	18.8	5.32	25	
Iron	10370	40	795.6	10120	31.2	75-125	11500	10.3	25	SO
Lead	22.24	0.40	7.956	14.66	95.2	75-125	22.81	2.51	25	
Manganese	389.4	0.40	7.956	383.5	74	75-125	381.8	1.96	25	SEO
Molybdenum	5.373	0.40	7.956	0.5853	60.2	75-125	6.315	16.1	25	S
Nickel	18.17	0.40	7.956	11.62	82.4	75-125	19.09	4.89	25	
Selenium	7.14	0.40	7.956	0.9501	77.8	75-125	7.95	10.7	25	
Silver	7.509	0.40	7.956	0.05106	93.7	75-125	8.085	7.4	25	
Uranium	7.518	0.40	7.956	0.408	89.4	75-125	8.095	7.39	25	
Zinc	44.04	0.40	7.956	37.34	84.2	75-125	46.05	4.46	25	O

MSD Sample ID: **13011005-01DMSD** Units: **mg/Kg** Analysis Date: **2/6/2013 12:52 PM**
 Client ID: **MW-116 (1)** Run ID: **ICPMS05_130206A** SeqNo: **3103621** Prep Date: **2/4/2013** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	37.07	4.0	39.78	60.18	-58.1	75-125	39.78	7.06	25	S
Potassium	4552	80	795.6	3553	126	75-125	4808	5.48	25	SO
Sodium	855.4	80	795.6	168.4	86.4	75-125	914.3	6.65	25	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13011005
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67523** Instrument ID **ICPMS05** Method: **SW6020**

DUP		Sample ID: 13011005-01DDUP		Units: mg/Kg		Analysis Date: 2/5/2013 03:20 PM				
Client ID: MW-116 (1)		Run ID: ICPMS05_130205A		SeqNo: 3102206		Prep Date: 2/4/2013		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	4.109	0.42	0	0	0	0-0	4.385	6.5	25	
Barium	122.9	0.42	0	0	0	0-0	129.6	5.34	25	
Cadmium	0.3587	0.42	0	0	0	0-0	0.4065	0	25	J
Chromium	13.06	0.42	0	0	0	0-0	14.02	7.09	25	
Cobalt	5.04	0.42	0	0	0	0-0	5.519	9.08	25	
Copper	10.23	0.42	0	0	0	0-0	11.12	8.3	25	
Iron	9434	42	0	0	0	0-0	10120	7.01	25	
Lead	14.13	0.42	0	0	0	0-0	14.66	3.72	25	
Molybdenum	0.5423	0.42	0	0	0	0-0	0.5853	7.63	25	
Nickel	10.65	0.42	0	0	0	0-0	11.62	8.76	25	
Selenium	0.8324	0.42	0	0	0	0-0	0.9501	13.2	25	
Silver	U	0.42	0	0	0	0-0	0.05106	0	25	
Uranium	U	0.42	0	0	0		0.408	0	25	
Zinc	34.3	0.42	0	0	0	0-0	37.34	8.48	25	

DUP		Sample ID: 13011005-01DDUP		Units: mg/Kg		Analysis Date: 2/6/2013 12:47 PM				
Client ID: MW-116 (1)		Run ID: ICPMS05_130206A		SeqNo: 3103614		Prep Date: 2/4/2013		DF: 2		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	6.159	4.2	0	0	0	0-0	60.18	163	25	R
Potassium	3479	83	0	0	0	0-0	3553	2.09	25	
Sodium	122.9	83	0	0	0	0-0	168.4	31.2	25	R

DUP		Sample ID: 13011005-01DDUP		Units: mg/Kg		Analysis Date: 2/6/2013 03:01 PM				
Client ID: MW-116 (1)		Run ID: ICPMS05_130206A		SeqNo: 3103960		Prep Date: 2/4/2013		DF: 100		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	13720	83	0	0	0	0-0	14570	6.05	25	
Calcium	56380	4,200	0	0	0	0-0	60800	7.55	25	
Manganese	355.2	42	0	0	0	0-0	374.9	5.4	25	

The following samples were analyzed in this batch:

13011005-01D	13011005-03D	13011005-06D
13011005-09D	13011005-12D	13011005-15D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13011005
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67585** Instrument ID **HG02** Method: **SW7471A**

MBLK Sample ID: **GBLKS1-020513-67585** Units: **µg/Kg** Analysis Date: **2/5/2013 04:01 PM**

Client ID: Run ID: **HG02_130205A** SeqNo: **3102354** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	3.3								

LCS Sample ID: **GLCSS1-020513-67585** Units: **µg/Kg** Analysis Date: **2/5/2013 04:03 PM**

Client ID: Run ID: **HG02_130205A** SeqNo: **3102355** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	332.7	3.3	333.3	0	99.8	85-115	0			

MS Sample ID: **1301997-01DMS** Units: **µg/Kg** Analysis Date: **2/5/2013 04:09 PM**

Client ID: Run ID: **HG02_130205A** SeqNo: **3102358** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	376.9	3.5	354.9	14.76	102	85-115	0			

MSD Sample ID: **1301997-01DMSD** Units: **µg/Kg** Analysis Date: **2/5/2013 04:11 PM**

Client ID: Run ID: **HG02_130205A** SeqNo: **3102359** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	375.1	3.5	354.5	14.76	102	85-115	376.9	0.484	20	

DUP Sample ID: **1301997-01DDUP** Units: **µg/Kg** Analysis Date: **2/5/2013 04:07 PM**

Client ID: Run ID: **HG02_130205A** SeqNo: **3102357** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	15.21	3.6	0	0	0		14.76	3.04	20	

The following samples were analyzed in this batch:

13011005-01D	13011005-03D	13011005-06D
13011005-09D	13011005-12D	13011005-15D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13011005
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67656** Instrument ID **SV-6** Method: **SW8270**

MBLK Sample ID: **SBLKS2-130207-67656** Units: **µg/Kg** Analysis Date: **2/7/2013 04:24 PM**

Client ID: Run ID: **SV-6_130207A** SeqNo: **3106635** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	U	6.6								
2-Methylnaphthalene	U	6.6								
Benzo(a)pyrene	U	6.6								
Naphthalene	U	6.6								
<i>Surr: 2,4,6-Tribromophenol</i>	104.3	6.6	166.7	0	62.6	36-126	0			
<i>Surr: 2-Fluorobiphenyl</i>	132.1	6.6	166.7	0	79.2	43-125	0			
<i>Surr: 2-Fluorophenol</i>	126.1	6.6	166.7	0	75.7	37-125	0			
<i>Surr: 4-Terphenyl-d14</i>	166.2	6.6	166.7	0	99.7	32-125	0			
<i>Surr: Nitrobenzene-d5</i>	134.1	6.6	166.7	0	80.4	37-125	0			
<i>Surr: Phenol-d6</i>	130.7	6.6	166.7	0	78.4	40-125	0			

LCS Sample ID: **SLCSS2-130207-67656** Units: **µg/Kg** Analysis Date: **2/7/2013 04:45 PM**

Client ID: Run ID: **SV-6_130207A** SeqNo: **3106636** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	131.8	6.6	166.7	0	79.1	50-120	0			
2-Methylnaphthalene	133.3	6.6	166.7	0	80	50-120	0			
Benzo(a)pyrene	148.1	6.6	166.7	0	88.8	50-130	0			
Naphthalene	128.1	6.6	166.7	0	76.9	50-125	0			
<i>Surr: 2,4,6-Tribromophenol</i>	125.4	6.6	166.7	0	75.2	36-126	0			
<i>Surr: 2-Fluorobiphenyl</i>	128.4	6.6	166.7	0	77	43-125	0			
<i>Surr: 2-Fluorophenol</i>	122.2	6.6	166.7	0	73.3	37-125	0			
<i>Surr: 4-Terphenyl-d14</i>	159.7	6.6	166.7	0	95.8	32-125	0			
<i>Surr: Nitrobenzene-d5</i>	126.5	6.6	166.7	0	75.9	37-125	0			
<i>Surr: Phenol-d6</i>	122.6	6.6	166.7	0	73.5	40-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13011005
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67656** Instrument ID **SV-6** Method: **SW8270**

MS		Sample ID: 1302140-04DMS				Units: µg/Kg		Analysis Date: 2/7/2013 07:35 PM		
Client ID:		Run ID: SV-6_130207A				SeqNo: 3106643		Prep Date: 2/7/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	129.4	6.6	166.5	6.178	74	50-120	0			
2-Methylnaphthalene	107.7	6.6	166.5	6.039	61	50-120	0			
Benzo(a)pyrene	224.3	6.6	166.5	160.5	38.3	50-130	0			S
Naphthalene	102.2	6.6	166.5	5.73	57.9	50-125	0			
<i>Surr: 2,4,6-Tribromophenol</i>	91.94	6.6	166.5	0	55.2	36-126	0			
<i>Surr: 2-Fluorobiphenyl</i>	106.7	6.6	166.5	0	64.1	43-125	0			
<i>Surr: 2-Fluorophenol</i>	91.1	6.6	166.5	0	54.7	37-125	0			
<i>Surr: 4-Terphenyl-d14</i>	124.5	6.6	166.5	0	74.8	32-125	0			
<i>Surr: Nitrobenzene-d5</i>	105.2	6.6	166.5	0	63.2	37-125	0			
<i>Surr: Phenol-d6</i>	85.27	6.6	166.5	0	51.2	40-125	0			

MSD		Sample ID: 1302140-04DMSD				Units: µg/Kg		Analysis Date: 2/7/2013 07:56 PM		
Client ID:		Run ID: SV-6_130207A				SeqNo: 3106644		Prep Date: 2/7/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	183.4	6.6	166.4	6.178	106	50-120	129.4	34.5	30	R
2-Methylnaphthalene	143.5	6.6	166.4	6.039	82.6	50-120	107.7	28.5	30	
Benzo(a)pyrene	307.6	6.6	166.4	160.5	88.4	50-130	224.3	31.3	30	R
Naphthalene	132.9	6.6	166.4	5.73	76.4	50-125	102.2	26.1	30	
<i>Surr: 2,4,6-Tribromophenol</i>	101.8	6.6	166.4	0	61.2	36-126	91.94	10.2	30	
<i>Surr: 2-Fluorobiphenyl</i>	123.6	6.6	166.4	0	74.2	43-125	106.7	14.6	30	
<i>Surr: 2-Fluorophenol</i>	108.3	6.6	166.4	0	65.1	37-125	91.1	17.3	30	
<i>Surr: 4-Terphenyl-d14</i>	150.5	6.6	166.4	0	90.4	32-125	124.5	18.9	30	
<i>Surr: Nitrobenzene-d5</i>	124.3	6.6	166.4	0	74.7	37-125	105.2	16.7	30	
<i>Surr: Phenol-d6</i>	101.4	6.6	166.4	0	60.9	40-125	85.27	17.3	30	

The following samples were analyzed in this batch:

13011005-01D	13011005-15D
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13011005
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R141995** Instrument ID **VOA5** Method: **SW8260**

MBLK Sample ID: **VBLKS1-020113-R141995** Units: **µg/Kg** Analysis Date: **2/1/2013 09:52 AM**

Client ID: Run ID: **VOA5_130201A** SeqNo: **3098471** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	5.0								
1,1,2,2-Tetrachloroethane	U	5.0								
1,1,2-Trichloroethane	U	5.0								
1,1-Dichloroethane	U	5.0								
1,1-Dichloroethene	U	5.0								
1,2-Dibromoethane	U	5.0								
1,2-Dichloroethane	U	5.0								
Benzene	U	5.0								
Carbon tetrachloride	U	5.0								
Chloroform	U	5.0								
Ethylbenzene	U	5.0								
Methylene chloride	U	10								
Tetrachloroethene	U	5.0								
Toluene	U	5.0								
Trichloroethene	U	5.0								
Vinyl chloride	U	2.0								
Xylenes, Total	U	15								
<i>Surr: 1,2-Dichloroethane-d4</i>	42.8	0	50	0	85.6	70-128	0			
<i>Surr: 4-Bromofluorobenzene</i>	46.86	0	50	0	93.7	73-126	0			
<i>Surr: Dibromofluoromethane</i>	48.11	0	50	0	96.2	71-128	0			
<i>Surr: Toluene-d8</i>	44.78	0	50	0	89.6	73-127	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13011005
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R141995** Instrument ID **VOA5** Method: **SW8260**

LCS		Sample ID: VLCSS1-020113-R141995				Units: µg/Kg		Analysis Date: 2/1/2013 08:43 AM		
Client ID:		Run ID: VOA5_130201A				SeqNo: 3098470		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	53.98	5.0	50	0	108	79-124	0			
1,1,2,2-Tetrachloroethane	53.32	5.0	50	0	107	75-123	0			
1,1,2-Trichloroethane	55.87	5.0	50	0	112	79-120	0			
1,1-Dichloroethane	52.6	5.0	50	0	105	75-124	0			
1,1-Dichloroethene	55.13	5.0	50	0	110	80-122	0			
1,2-Dibromoethane	57.09	5.0	50	0	114	79-120	0			
1,2-Dichloroethane	52.14	5.0	50	0	104	73-121	0			
Benzene	50.57	5.0	50	0	101	79-120	0			
Carbon tetrachloride	45.29	5.0	50	0	90.6	74-126	0			
Chloroform	55.04	5.0	50	0	110	78-120	0			
Ethylbenzene	54.99	5.0	50	0	110	80-122	0			
Methylene chloride	51.62	10	50	0	103	70-123	0			
Tetrachloroethene	47.09	5.0	50	0	94.2	80-121	0			
Toluene	49.54	5.0	50	0	99.1	79-120	0			
Trichloroethene	52.16	5.0	50	0	104	80-121	0			
Vinyl chloride	61.5	2.0	50	0	123	76-126	0			
Xylenes, Total	150.9	15	150	0	101	80-120	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	51.49	0	50	0	103	70-128	0			
<i>Surr: 4-Bromofluorobenzene</i>	47.86	0	50	0	95.7	73-126	0			
<i>Surr: Dibromofluoromethane</i>	51.61	0	50	0	103	71-128	0			
<i>Surr: Toluene-d8</i>	43.85	0	50	0	87.7	73-127	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13011005
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R141995** Instrument ID **VOA5** Method: **SW8260**

MS	Sample ID: 1301997-01AMS				Units: µg/Kg		Analysis Date: 2/1/2013 11:46 AM			
Client ID:		Run ID: VOA5_130201A			SeqNo: 3098546		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.53	5.0	50	0	103	79-124	0			
1,1,2,2-Tetrachloroethane	45.86	5.0	50	0	91.7	75-123	0			
1,1,2-Trichloroethane	56	5.0	50	0	112	79-120	0			
1,1-Dichloroethane	49.56	5.0	50	0	99.1	75-124	0			
1,1-Dichloroethene	54.01	5.0	50	0	108	80-122	0			
1,2-Dibromoethane	49.35	5.0	50	0	98.7	79-120	0			
1,2-Dichloroethane	51.25	5.0	50	0	103	73-121	0			
Benzene	52.11	5.0	50	0	104	79-120	0			
Carbon tetrachloride	46.06	5.0	50	0	92.1	74-126	0			
Chloroform	48.72	5.0	50	0	97.4	78-120	0			
Ethylbenzene	50.85	5.0	50	0	102	80-122	0			
Methylene chloride	48.37	10	50	0	96.7	70-123	0			
Tetrachloroethene	43.7	5.0	50	0	87.4	80-121	0			
Toluene	53.36	5.0	50	0	107	79-120	0			
Trichloroethene	51.31	5.0	50	0	103	80-121	0			
Vinyl chloride	55.22	2.0	50	0	110	76-126	0			
Xylenes, Total	146.8	15	150	0	97.9	80-120	0			
Surr: 1,2-Dichloroethane-d4	49.29	0	50	0	98.6	70-128	0			
Surr: 4-Bromofluorobenzene	49	0	50	0	98	73-126	0			
Surr: Dibromofluoromethane	49.78	0	50	0	99.6	71-128	0			
Surr: Toluene-d8	51.55	0	50	0	103	73-127	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13011005
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R141995** Instrument ID **VOA5** Method: **SW8260**

MSD		Sample ID: 1301997-01AMSD				Units: µg/Kg		Analysis Date: 2/1/2013 12:09 PM			
Client ID:		Run ID: VOA5_130201A				SeqNo: 3098547		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
1,1,1-Trichloroethane	54.79	5.0	50	0	110	79-124	51.53	6.13	30		
1,1,2,2-Tetrachloroethane	44.09	5.0	50	0	88.2	75-123	45.86	3.93	30		
1,1,2-Trichloroethane	54.9	5.0	50	0	110	79-120	56	1.98	30		
1,1-Dichloroethane	51.87	5.0	50	0	104	75-124	49.56	4.56	30		
1,1-Dichloroethene	52.81	5.0	50	0	106	80-122	54.01	2.24	30		
1,2-Dibromoethane	48.8	5.0	50	0	97.6	79-120	49.35	1.12	30		
1,2-Dichloroethane	46.29	5.0	50	0	92.6	73-121	51.25	10.2	30		
Benzene	51.81	5.0	50	0	104	79-120	52.11	0.568	30		
Carbon tetrachloride	47.75	5.0	50	0	95.5	74-126	46.06	3.61	30		
Chloroform	53.56	5.0	50	0	107	78-120	48.72	9.45	30		
Ethylbenzene	55.58	5.0	50	0	111	80-122	50.85	8.9	30		
Methylene chloride	53.37	10	50	0	107	70-123	48.37	9.82	30		
Tetrachloroethene	45.21	5.0	50	0	90.4	80-121	43.7	3.39	30		
Toluene	61.14	5.0	50	0	122	79-120	53.36	13.6	30	S	
Trichloroethene	51.76	5.0	50	0	104	80-121	51.31	0.863	30		
Vinyl chloride	58.35	2.0	50	0	117	76-126	55.22	5.51	30		
Xylenes, Total	157.7	15	150	0	105	80-120	146.8	7.13	30		
Surr: 1,2-Dichloroethane-d4	48.55	0	50	0	97.1	70-128	49.29	1.51	30		
Surr: 4-Bromofluorobenzene	46.51	0	50	0	93	73-126	49	5.21	30		
Surr: Dibromofluoromethane	48.96	0	50	0	97.9	71-128	49.78	1.67	30		
Surr: Toluene-d8	55.55	0	50	0	111	73-127	51.55	7.47	30		

The following samples were analyzed in this batch:

13011005-01A	13011005-15A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13011005
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142113** Instrument ID **VOA4** Method: **SW8260**

MBLK Sample ID: **VBLKW-130204-R142113** Units: **µg/L** Analysis Date: **2/4/2013 11:16 AM**

Client ID: Run ID: **VOA4_130204A** SeqNo: **3100918** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichloroethane	U	1.0								
Benzene	U	1.0								
Carbon tetrachloride	U	1.0								
Chloroform	U	1.0								
Ethylbenzene	U	1.0								
Methylene chloride	U	2.0								
Tetrachloroethene	U	1.0								
Toluene	U	1.0								
Trichloroethene	U	1.0								
Vinyl chloride	U	1.0								
Xylenes, Total	U	1.0								
<i>Surr: 1,2-Dichloroethane-d4</i>	43.85	1.0	50	0	87.7	71-125	0			
<i>Surr: 4-Bromofluorobenzene</i>	49.08	1.0	50	0	98.2	70-125	0			
<i>Surr: Dibromofluoromethane</i>	48.08	1.0	50	0	96.2	74-125	0			
<i>Surr: Toluene-d8</i>	48.41	1.0	50	0	96.8	78-123	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13011005
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142113** Instrument ID **VOA4** Method: **SW8260**

LCS		Sample ID: VLCSW-130204-R142113				Units: µg/L		Analysis Date: 2/4/2013 10:03 AM		
Client ID:		Run ID: VOA4_130204A				SeqNo: 3100916		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	54.47	1.0	50	0	109	80-120	0			
1,1,2,2-Tetrachloroethane	46.02	1.0	50	0	92	74-123	0			
1,1,2-Trichloroethane	48.93	1.0	50	0	97.9	80-120	0			
1,1-Dichloroethane	46.62	1.0	50	0	93.2	80-120	0			
1,1-Dichloroethene	53.04	1.0	50	0	106	80-120	0			
1,2-Dibromoethane	53.39	1.0	50	0	107	80-120	0			
1,2-Dichloroethane	49.07	1.0	50	0	98.1	79-120	0			
Benzene	48.6	1.0	50	0	97.2	80-120	0			
Carbon tetrachloride	58.54	1.0	50	0	117	79-120	0			
Chloroform	46.57	1.0	50	0	93.1	80-120	0			
Ethylbenzene	48.8	1.0	50	0	97.6	80-120	0			
Methylene chloride	47.71	2.0	50	0	95.4	75-125	0			
Tetrachloroethene	53.4	1.0	50	0	107	80-120	0			
Toluene	48.37	1.0	50	0	96.7	80-121	0			
Trichloroethene	53.7	1.0	50	0	107	80-120	0			
Vinyl chloride	48.96	1.0	50	0	97.9	75-125	0			
Xylenes, Total	142.5	1.0	150	0	95	80-124	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	44.17	1.0	50	0	88.3	71-125	0			
<i>Surr: 4-Bromofluorobenzene</i>	52.31	1.0	50	0	105	70-125	0			
<i>Surr: Dibromofluoromethane</i>	49.72	1.0	50	0	99.4	74-125	0			
<i>Surr: Toluene-d8</i>	48.59	1.0	50	0	97.2	78-123	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13011005
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142113** Instrument ID **VOA4** Method: **SW8260**

LCSD		Sample ID: VLCS DW-130204-R142113				Units: µg/L		Analysis Date: 2/4/2013 10:27 AM		
Client ID:		Run ID: VOA4_130204A				SeqNo: 3100917		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.78	1.0	50	0	104	80-120	54.47	5.06	20	
1,1,2,2-Tetrachloroethane	46.55	1.0	50	0	93.1	74-123	46.02	1.14	20	
1,1,2-Trichloroethane	48.97	1.0	50	0	97.9	80-120	48.93	0.0875	20	
1,1-Dichloroethane	44.74	1.0	50	0	89.5	80-120	46.62	4.11	20	
1,1-Dichloroethene	51.9	1.0	50	0	104	80-120	53.04	2.16	20	
1,2-Dibromoethane	53.91	1.0	50	0	108	80-120	53.39	0.979	20	
1,2-Dichloroethane	48.06	1.0	50	0	96.1	79-120	49.07	2.09	20	
Benzene	47	1.0	50	0	94	80-120	48.6	3.35	20	
Carbon tetrachloride	56.1	1.0	50	0	112	79-120	58.54	4.26	20	
Chloroform	45.18	1.0	50	0	90.4	80-120	46.57	3.02	20	
Ethylbenzene	46.79	1.0	50	0	93.6	80-120	48.8	4.2	20	
Methylene chloride	46.38	2.0	50	0	92.8	75-125	47.71	2.83	20	
Tetrachloroethene	50.41	1.0	50	0	101	80-120	53.4	5.75	20	
Toluene	46.08	1.0	50	0	92.2	80-121	48.37	4.84	20	
Trichloroethene	52.04	1.0	50	0	104	80-120	53.7	3.14	20	
Vinyl chloride	46.66	1.0	50	0	93.3	75-125	48.96	4.81	20	
Xylenes, Total	138	1.0	150	0	92	80-124	142.5	3.19	20	
<i>Surr: 1,2-Dichloroethane-d4</i>	43.85	1.0	50	0	87.7	71-125	44.17	0.739	20	
<i>Surr: 4-Bromofluorobenzene</i>	51.57	1.0	50	0	103	70-125	52.31	1.41	20	
<i>Surr: Dibromofluoromethane</i>	48.7	1.0	50	0	97.4	74-125	49.72	2.09	20	
<i>Surr: Toluene-d8</i>	48.27	1.0	50	0	96.5	78-123	48.59	0.661	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13011005
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142113** Instrument ID **VOA4** Method: **SW8260**

MS		Sample ID: 1302069-01AMS				Units: µg/L		Analysis Date: 2/4/2013 01:41 PM		
Client ID:		Run ID: VOA4_130204A				SeqNo: 3100924		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	56.87	1.0	50	0	114	80-120	0			
1,1,2,2-Tetrachloroethane	45.23	1.0	50	0	90.5	74-123	0			
1,1,2-Trichloroethane	50.26	1.0	50	0	101	80-120	0			
1,1-Dichloroethane	48.56	1.0	50	0	97.1	80-120	0			
1,1-Dichloroethene	57.49	1.0	50	0	115	80-120	0			
1,2-Dibromoethane	53.79	1.0	50	0	108	80-120	0			
1,2-Dichloroethane	50.8	1.0	50	0	102	79-120	0			
Benzene	51.17	1.0	50	0	102	80-120	0			
Carbon tetrachloride	61.34	1.0	50	0	123	79-120	0			S
Chloroform	49.2	1.0	50	0	98.4	80-120	0			
Ethylbenzene	50.6	1.0	50	0	101	80-120	0			
Methylene chloride	49.13	2.0	50	0	98.3	75-125	0			
Tetrachloroethene	55.78	1.0	50	0	112	80-120	0			
Toluene	49.91	1.0	50	0	99.8	80-121	0			
Trichloroethene	57.43	1.0	50	0	115	80-120	0			
Vinyl chloride	53.66	1.0	50	0	107	75-125	0			
Xylenes, Total	148.5	1.0	150	0	99	80-124	0			
Surr: 1,2-Dichloroethane-d4	44.59	1.0	50	0	89.2	71-125	0			
Surr: 4-Bromofluorobenzene	50.99	1.0	50	0	102	70-125	0			
Surr: Dibromofluoromethane	49.65	1.0	50	0	99.3	74-125	0			
Surr: Toluene-d8	48.21	1.0	50	0	96.4	78-123	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13011005
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142113** Instrument ID **VOA4** Method: **SW8260**

MSD				Sample ID: 1302069-01AMSD			Units: µg/L		Analysis Date: 2/4/2013 02:06 PM		
Client ID:		Run ID: VOA4_130204A			SeqNo: 3100925		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
1,1,1-Trichloroethane	59.48	1.0	50	0	119	80-120	56.87	4.49	20		
1,1,2,2-Tetrachloroethane	47.09	1.0	50	0	94.2	74-123	45.23	4.04	20		
1,1,2-Trichloroethane	51.43	1.0	50	0	103	80-120	50.26	2.29	20		
1,1-Dichloroethane	50.19	1.0	50	0	100	80-120	48.56	3.31	20		
1,1-Dichloroethene	60.32	1.0	50	0	121	80-120	57.49	4.82	20	S	
1,2-Dibromoethane	56.01	1.0	50	0	112	80-120	53.79	4.04	20		
1,2-Dichloroethane	52.53	1.0	50	0	105	79-120	50.8	3.34	20		
Benzene	52.17	1.0	50	0	104	80-120	51.17	1.94	20		
Carbon tetrachloride	63.38	1.0	50	0	127	79-120	61.34	3.27	20	S	
Chloroform	50.81	1.0	50	0	102	80-120	49.2	3.21	20		
Ethylbenzene	51.95	1.0	50	0	104	80-120	50.6	2.63	20		
Methylene chloride	51.27	2.0	50	0	103	75-125	49.13	4.28	20		
Tetrachloroethene	57.11	1.0	50	0	114	80-120	55.78	2.36	20		
Toluene	50.87	1.0	50	0	102	80-121	49.91	1.91	20		
Trichloroethene	58.72	1.0	50	0	117	80-120	57.43	2.21	20		
Vinyl chloride	54.84	1.0	50	0	110	75-125	53.66	2.17	20		
Xylenes, Total	151	1.0	150	0	101	80-124	148.5	1.7	20		
Surr: 1,2-Dichloroethane-d4	44.99	1.0	50	0	90	71-125	44.59	0.903	20		
Surr: 4-Bromofluorobenzene	50.73	1.0	50	0	101	70-125	50.99	0.509	20		
Surr: Dibromofluoromethane	50.29	1.0	50	0	101	74-125	49.65	1.28	20		
Surr: Toluene-d8	48.15	1.0	50	0	96.3	78-123	48.21	0.13	20		

The following samples were analyzed in this batch:

13011005-16A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13011005
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67564** Instrument ID **UV-2450** Method: **SW9014** (**Dissolve**)

MBLK Sample ID: **WBLKS1-020413-67564** Units: **mg/Kg** Analysis Date: **2/4/2013 01:30 PM**

Client ID: Run ID: **UV-2450_130204B** SeqNo: **3100816** Prep Date: **2/4/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	U	2.0								

LCS Sample ID: **WLCSS1-020413-67564** Units: **mg/Kg** Analysis Date: **2/4/2013 01:30 PM**

Client ID: Run ID: **UV-2450_130204B** SeqNo: **3100817** Prep Date: **2/4/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	8.45	2.0	10	0	84.5	80-120	0			

LCSD Sample ID: **WLCSDS1-020413-67564** Units: **mg/Kg** Analysis Date: **2/4/2013 01:30 PM**

Client ID: Run ID: **UV-2450_130204B** SeqNo: **3100821** Prep Date: **2/4/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	8.55	2.0	10	0	85.5	80-120	8.45	1.18	30	

MS Sample ID: **13011005-03DMS** Units: **mg/Kg** Analysis Date: **2/4/2013 01:30 PM**

Client ID: **MW-116 (5)** Run ID: **UV-2450_130204B** SeqNo: **3100819** Prep Date: **2/4/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	8.837	1.8	9.064	0.3149	94	75-125	0			

The following samples were analyzed in this batch:

13011005-03D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13011005
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67583** Instrument ID **UV-2450** Method: **SW9014** **(Dissolve)**

MBLK	Sample ID: WBLKS1-020513-67583				Units: mg/Kg		Analysis Date: 2/5/2013 04:30 PM			
Client ID:	Run ID: UV-2450_130205C				SeqNo: 3103414		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	U	2.0								

LCS	Sample ID: WLCSS1-020513-67583				Units: mg/Kg		Analysis Date: 2/5/2013 04:30 PM			
Client ID:	Run ID: UV-2450_130205C				SeqNo: 3103415		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	9.05	2.0	10	0	90.5	80-120	0			

LCSD	Sample ID: WLCSDS1-020513-67583				Units: mg/Kg		Analysis Date: 2/5/2013 04:30 PM			
Client ID:	Run ID: UV-2450_130205C				SeqNo: 3103437		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	8.9	2.0	10	0	89	80-120	9.05	1.67	30	

MS	Sample ID: 1301997-09DMS				Units: mg/Kg		Analysis Date: 2/5/2013 04:30 PM			
Client ID:	Run ID: UV-2450_130205C				SeqNo: 3103436		Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	9.495	1.9	9.308	0.09611	101	75-125	0			

The following samples were analyzed in this batch:

13011005-01D	13011005-06C	13011005-06D
13011005-09D	13011005-12D	13011005-15D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13011005
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67633** Instrument ID **ICS2100** Method: **E300** (Dissolve)

MBLK	Sample ID: WBLKS1-67633			Units: mg/Kg			Analysis Date: 2/5/2013 07:11 PM			
Client ID:	Run ID: ICS2100_130205C			SeqNo: 3103858			Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	5.0								
Fluoride	0.64	1.0								J
Nitrogen, Nitrate (As N)	U	1.0								
Nitrogen, Nitrite (As N)	U	1.0								
Sulfate	U	5.0								
<i>Surr: Selenate (surr)</i>	45.24	1.0	50	0	90.5	85-115	0			

LCS	Sample ID: WLCSS1-67633			Units: mg/Kg			Analysis Date: 2/5/2013 07:25 PM			
Client ID:	Run ID: ICS2100_130205C			SeqNo: 3103859			Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	219.8	5.0	200	0	110	90-110	0			
Fluoride	37.72	1.0	40	0	94.3	90-110	0			
Nitrogen, Nitrate (As N)	43.14	1.0	40	0	108	90-110	0			
Nitrogen, Nitrite (As N)	43.82	1.0	40	0	110	90-110	0			
Sulfate	208.7	5.0	200	0	104	90-110	0			
<i>Surr: Selenate (surr)</i>	47.79	1.0	50	0	95.6	85-115	0			

MS	Sample ID: 1302026-21DMS			Units: mg/Kg			Analysis Date: 2/6/2013 01:29 AM			
Client ID:	Run ID: ICS2100_130205C			SeqNo: 3103884			Prep Date: 2/5/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	126.4	5.0	98.97	16.2	111	75-125	0			
Fluoride	20.19	0.99	19.79	2.638	88.7	75-125	0			
Nitrogen, Nitrate (As N)	20.76	0.99	19.79	0	105	75-125	0			
Nitrogen, Nitrite (As N)	21.36	0.99	19.79	0	108	75-125	0			
Sulfate	319.3	5.0	98.97	213.5	107	75-125	0			
<i>Surr: Selenate (surr)</i>	42.66	0.99	49.48	0	86.2	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13011005
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67633** Instrument ID **ICS2100** Method: **E300** **(Dissolve)**

MSD Sample ID: **1302026-21DMSD** Units: **mg/Kg** Analysis Date: **2/6/2013 01:43 AM**

Client ID: Run ID: **ICS2100_130205C** SeqNo: **3103885** Prep Date: **2/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	124.6	4.9	98.65	16.2	110	75-125	126.4	1.49	20	
Fluoride	19.9	0.99	19.73	2.638	87.5	75-125	20.19	1.45	20	
Nitrogen, Nitrate (As N)	20.57	0.99	19.73	0	104	75-125	20.76	0.942	20	
Nitrogen, Nitrite (As N)	20.98	0.99	19.73	0	106	75-125	21.36	1.77	20	
Sulfate	315.2	4.9	98.65	213.5	103	75-125	319.3	1.29	20	
<i>Surr: Selenate (surr)</i>	42	0.99	49.33	0	85.1	80-120	42.66	1.58	20	

The following samples were analyzed in this batch:

13011005-01D	13011005-03D	13011005-06D
13011005-09D	13011005-12D	13011005-15D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13011005
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142103** Instrument ID **Balance1** Method: **SW3550** **(Dissolve)**

DUP Sample ID: **13011005-15DDUP** Units: **wt%** Analysis Date: **2/1/2013 01:00 PM**
Client ID: **MW-116 (25)** Run ID: **BALANCE1_130201B** SeqNo: **3100807** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Percent Moisture	23.71	0.010	0	0	0	0-0	23.23	2.05	20	

The following samples were analyzed in this batch:

13011005-01D	13011005-02A	13011005-03D
13011005-04A	13011005-05A	13011005-06D
13011005-07A	13011005-08A	13011005-09D
13011005-10A	13011005-11A	13011005-12D
13011005-13A	13011005-14A	13011005-15D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Project: RO Discharge Sampling
WorkOrder: 13011005

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
µg/Kg	Micrograms per Kilogram
mg/Kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
wt%	

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**Date/Time Received: **31-Jan-13 09:10**Work Order: **13011005**Received by: **RDH**Checklist completed by Johanna B. Allen
eSignature

31-Jan-13

Date

Reviewed by: Patricia L. Lynch
eSignature

01-Feb-13

Date

Matrices: soil/waterCarrier name: FedEx Priority Overnight

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>1.4 C/uc</u> <u>IR 1</u>		
Cooler(s)/Kit(s):	<u>4028</u>		
Date/Time sample(s) sent to storage:	<u>1/31/13 14:30</u>		
Water - VOA vials have zero headspace?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted by:	<u>-</u>		
Login Notes:	<u>Trip blank received, but not on COC. Ra-226/228 & cyanide not on COC. Incorrect metals list on COC.</u>		

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



Chain of Custody Form

Page 1 of 2

COC ID: 41210

- ☐ Cincinnati, OH
+1 513 733 5336
- ☐ Everett, WA
+1 425 356 2600
- ☐ Fort Collins, CO
+1 970 490 1511

13011005

NAVAJO REFINING: Navajo Refining Company

Project: RO Discharge Sampling



ALS Project Manager:

Customer Information			Project Information				Parameter/Method Request for Analysis												
Purchase Order		Project Name	RO Discharge/Sampling				A	VOC (8260) NW GW List											
Work Order		Project Number	128823				B	GRO (8015M)											
Company Name	Navajo Refining	Bill To Company	Navajo Refining Co				C	DRO (8015M)											
Send Report To	Robert Camba	Invoice Attn.	Robert Camba				D	ORO (8015M)											
Address	501 East Main	Address	501 East Main				E	LL SVOC (8270) NW GW List											
City/State/Zip	Artesia, NM	City/State/Zip	Artesia, NM				F	Total Metals (6020/7000) RCRA 8											
Phone		Phone	575-748-6733				G	Dissolved Metals (6020/7000) RCRA 8											
Fax		Fax	575-746-5421				H	TDS											
e-Mail Address		e-Mail Address					I	Moisture											
							J												
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold		
1	MW-116 (1)	1/29/13	1605	Soil	-	5	X	X	X	X	X	X	X		X				
2	MW-116 (3)	1/29/13	1618			1									X				
3	MW-116 (5)	1/29/13	1632			5	X	X	X	X	X	X	X		X				
4	MW-116 (7)	1/30/13	0855			1									X				
5	MW-116 (9)	1/30/13	0855			1									X				
6	MW-116 (10)	1/30/13	0902			5	X	X	X	X	X	X	X		X				
7	MW-116 (11)	1/30/13	0905			1									X				
8	MW-116 (13)	1/30/13	0905			1									X				
9	MW-116 (15)	1/30/13	0910			5	X	X	X	X	X	X	X		X				
10	MW-116 (17)	1/30/13	0915			1									X				
Sampler(s): Please Print & Sign			Shipment Method:			Required Turnaround Time:			Other			Results Due Date:							
<i>Eric Bergersen</i>						<input checked="" type="checkbox"/> STD 10 Wk Days <input type="checkbox"/> 5 Wk Days <input type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour													
Relinquished by:		Date:	Time:	Received by:		Notes:													
<i>Eric Bergersen</i>		1/30/13	1300	<i>ASR</i>		10 Day TAT, Dissolved Metals Field Filtered													
Relinquished by:		Date:	Time:	Received by (Laboratory):		QC Package: (Check Box Below)													
				<i>ASR</i>		<input checked="" type="checkbox"/> Level II: Standard QC													
Logged by (Laboratory):		Date:	Time:	Checked by (Laboratory):		<input type="checkbox"/> Level III: Std QC + Raw Data													
						<input type="checkbox"/> Level IV: SW846 CLP-Like													
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035						Other:													

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

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Chain of Custody Form

Page 2 of 2

COC ID: **41190**

☐ Cincinnati, OH
+1 513 733 5336
☐ Everett, WA
+1 425 356 2600
☐ Fort Collins, CO
+1 970 490 1511

☐ Holland, MI
+1 616 399 6070
☐ Houston, TX
+1 281 530 5656
☐ Middletown, PA
+1 717 944 5541

☐ Salt Lake City, UT
+1 801 266 7700
☐ Spring City, PA
+1 610 948 4903
☐ York, PA
+1 717 505 5280

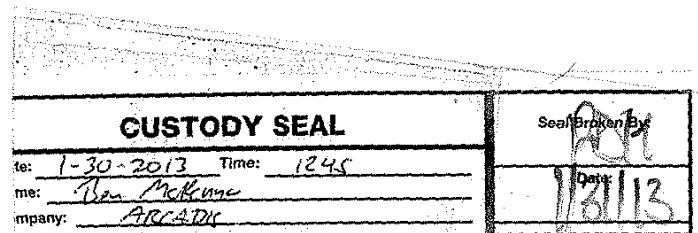
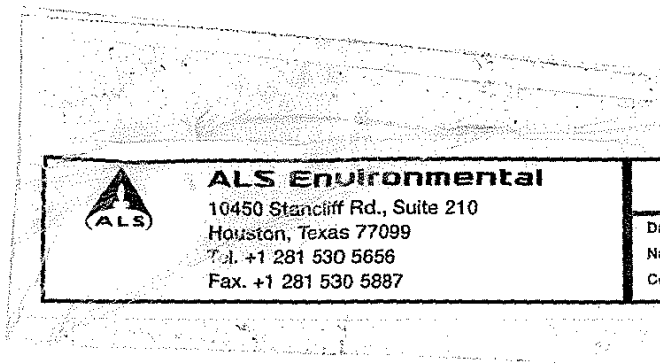
ALS Project Manager:

Work Order #: **13011095**

Customer Information			Project Information				Parameter/Method Request for Analysis													
Purchase Order		Project Name	RO Discharge/Sampling				A	VOC (8260) NM GW List												
Work Order		Project Number	128823				B	GRO (8015M)												
Company Name	Navajo Refining	Bill To Company	Navajo Refining Co				C	DRO (8015M)												
Send Report To	Robert Combs	Invoice Attn.	Robert Combs				D	ORO (8015M)												
Address	501 East Main	Address	501 East Main				E	LL SVOC (8270) NM GW List												
City/State/Zip	Artesia, NM	City/State/Zip	Artesia, NM				F	Total Metals (6020/7000) RCRA 8												
Phone		Phone	575-748-6733				G	Dissolved Metals (6020/7000) RCRA 8												
Fax		Fax	575-746-5421				H	TDS												
e-Mail Address		e-Mail Address					I	Moisture												
J																				
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold			
1	MW-116 (19)	1/30/13	0925	Soil	-	1										X				
2	MW-116 (20)	1	0920	1	1	5	X	X	X	X	X	X	X			X				
3	MW-116 (21)																	X		
4	MW-116 (23)																	X		
5	MW-116 (25)																	X		
6																				
7																				
8																				
9																				
10																				
Sampler(s): Please Print & Sign			Shipment Method:		Required Turnaround Time:				Other				Results Due Date:							
<i>Eric Bergersen</i>					<input checked="" type="checkbox"/> STD 10 Wk Days <input type="checkbox"/> 5 Wk Days <input type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour															
Relinquished by:		Date:	Time:	Received by:		Notes:														
<i>Eric Bergersen</i>		1/30/13	1300	<i>ASR</i>		10 Day TAT, Dissolved Metals Field Filtered														
Relinquished by:		Date:	Time:	Received by (Laboratory):		QC Package: (Check Box Below)														
				<i>ASR</i>		<input checked="" type="checkbox"/> Level II: Standard QC														
Logged by (Laboratory):		Date:	Time:	Checked by (Laboratory):		<input type="checkbox"/> Level III: Std QC + Raw Data														
						<input type="checkbox"/> Level IV: SW846 CLP-Like														
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035						Other: _____														

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

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Appendix D

Data Validation Reports

DATA VALIDATION CHECKLIST**NAVAJO REFINING RO Discharge Sampling**

ARCADIS, Inc.
2929 Briarpark Dr.
Suite 300
Houston, TX 77042
Tel. (713) 953-4800

Sample Team:	ARCADIS
Sample Matrix:	Soil
Analytical Laboratory:	ALS Environmental
Laboratory Work Order No.:	1301997
Lab Project Manager:	Sonia West
Analyses:	VOCs, SVOCs, TPH, Metals, Mercury, Cyanide, and Anions
QA Reporting Level:	ARCADIS, Level II

Environmental
Project:
Navajo Refinery

Project Number:
TX001027.0002

Analytical data were evaluated in accordance with applicable USEPA SW-846 method requirements, "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (October 1999), "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" (July 2002), analytical method control criteria, the analytical laboratory Quality Assurance Control Limits, and professional judgment. National Functional Guidelines were used primarily to determine applicable qualification.

The data verification was performed at a Level II and included review of data package completeness, laboratory control samples and method blanks, matrix spike precision and accuracy, surrogate recoveries, and holding time compliance. Laboratory calculations were not verified. Only QA/QC results and analytical data associated with analytes/compounds of interest were reviewed for this validation. Field sampling documentation was not reviewed as a component of this validation.

Only QA/QC results and analytical data associated with analytes/compounds of interest were reviewed for this validation.

ANALYTICAL DATA PACKAGE DOCUMENTATION

The following samples were included in this data validation:

SDG Number	Sample ID	Sample Date	Parent Sample
1301997	MW -115 (1)	1/29/2013	
1301997	MW -115 (3)	1/29/2013	
1301997	MW- 115 (5)	1/29/2013	
1301997	MW -115 (7)	1/29/2013	
1301997	MW- 115 (9)	1/29/2013	
1301997	MW- 115 (10)	1/29/2013	
1301997	MW -115 (11)	1/29/2013	
1301997	MW -115 (13)	1/29/2013	
1301997	MW- 115 (15)	1/29/2013	
1301997	MW -115 (17)	1/29/2013	
1301997	MW -115 (19)	1/29/2013	
1301997	MW -115 (20)	1/29/2013	
1301997	MW -115 (21)	1/29/2013	
1301997	MW- 115 (23)	1/29/2013	
1301997	MW-115 (25)	1/29/2013	
1301997	Trip Blank 011813-29	1/29/2013	

I. VOLATILE COMPOUNDS

ITEMS REVIEWED	REPORTED/ REVIEWED		EXCEPTIONS NOTED		GENERAL COMMENTS NOTED		ITEM NOT REQUIRED
	NO	YES	NO	YES	NO	YES	
1. Holding times		X	X		X		
2. Reporting limits		X	X		X		
3. Blanks							
A. Method Blanks		X	X		X		
B. Equipment Blanks	X						X
C. Trip Blanks		X	X		X		
4. Laboratory control sample (LCS) (%R)		X	X		X		
5. Laboratory control sample duplicate (LCSD) (%R)		X	X		X		
6. LCS/LCSD (RPD)		X	X		X		
7. Matrix spike (MS) (%R)		X	X		X		
8. Matrix spike duplicate (MSD) (%R)		X		X		X	
9. MS/MSD (RPD)		X	X		X		
10. Surrogate Recoveries (%R)		X	X		X		
11. Field Duplicate Comparison (RPD)	X						X

COMMENTS: The samples were analyzed for Volatiles by Method 8260. Performance was acceptable, with the following exceptions and notes.

- 7-9. Sample MW -115 (1) was used as the MS/MSD. The recovery for toluene was greater than the control limit in the MSD. Since toluene was not detected, qualification is not required.

II. METALS

ITEMS REVIEWED	REPORTED/ REVIEWED		EXCEPTIONS NOTED		GENERAL COMMENTS NOTED		ITEM NOT REQUIRED
	NO	YES	NO	YES	YES	NO	
1. Holding times		X	X			X	
2. Reporting limits		X	X			X	
3. Blanks							
A. Method Blanks		X		X	X		
B. Field Blanks	X						X
C. Equipment Blank	X						X
4. Laboratory control sample (LCS) (%R)		X	X			X	
5. LCSD (% R)	X						X
6. LCS/LCSD (RPD)	X						X
7. Matrix spike (MS) (%R)		X	X		X		
8. MSD (%R)		X	X		X		
9. MS/MSD (RPD)		X	X		X		
10. Lab Duplicate (RPD)		X	X		X		
11. Field Duplicate (RPD)	X						X

COMMENTS: The samples were analyzed for metals by Methods 6020 and 7471A. Performance was acceptable, with the following exceptions and notes.

- 3A. Aluminum was detected in the associated method blank. The associated sample results were greater than five times the method blank concentration. No qualification of the sample results was required.
- 7-9. Sample MW -115 (1) was used as the MS/MSD for the mercury. The recoveries and RPD were acceptable.
- 10. Sample MW -115 (1) was used as the laboratory duplicate for mercury. The RPD was acceptable.

III. SEMIVOLATILE ORGANIC COMPOUNDS

ITEMS REVIEWED	REPORTED/ REVIEWED		EXCEPTIONS NOTED		GENERAL COMMENTS NOTED		ITEM NOT REQUIRED
	NO	YES	NO	YES	NO	YES	
1. Holding times		X	X		X		
2. Reporting limits		X	X		X		
3. Blanks							
A. Method Blanks		X	X		X		
B. Field Blanks	X						X
C. Equipment Blank	X						X
4. Surrogate Recovery		X	X		X		
5. Laboratory control sample (LCS) (%R)		X	X		X		
6. LCSD (% R)	X						X
7. LCS/LCSD (RPD)	X						X
8. Matrix spike (MS) (%R)	X						X
9. MSD (%R)	X						X
10. MS/MSD (RPD)	X						X
11. Field Duplicate (RPD)	X						X

COMMENTS: The samples were analyzed for SVOCs by Method 8270. Performance was acceptable, with the following exceptions and notes.

IV. TOTAL PETROLEUM HYDROCARBONS

ITEMS REVIEWED	REPORTED/ REVIEWED		EXCEPTIONS NOTED		GENERAL COMMENTS NOTED		ITEM NOT REQUIRED
	NO	YES	NO	YES	NO	YES	
1. Holding times		X	X		X		
2. Reporting limits		X	X		X		
3. Blanks							
A. Method Blanks		X	X		X		
B. Field Blanks	X						X
C. Equipment Blank	X						X
4. Surrogate Recovery		X	X		X		
5. Laboratory control sample (LCS) (%R)		X	X		X		
6. LCSD (% R)	X						X
7. LCS/LCSD (RPD)	X						X
8. Matrix spike (MS) (%R)	X						X
9. MSD (%R)	X						X
10. MS/MSD (RPD)	X						X
11. Field Duplicate (RPD)	X						X

COMMENTS: The samples were analyzed for TPH by Method 8015. Performance was acceptable, with the following exceptions and notes.

V. CYANIDE

ITEMS REVIEWED	REPORTED/ REVIEWED		EXCEPTIONS NOTED		GENERAL COMMENTS NOTED		ITEM NOT REQUIRED
	NO	YES	NO	YES	YES	NO	
1. Holding times		X	X			X	
2. Reporting limits		X	X			X	
3. Blanks							
A. Method Blanks		X		X	X		
B. Field Blanks	X						X
C. Equipment Blank	X						X
4. Laboratory control sample (LCS) (%R)		X	X			X	
5. LCSD (% R)		X	X			X	
6. LCS/LCSD (RPD)		X	X			X	
7. Matrix spike (MS) (%R)		X	X		X		
8. MSD (%R)		X	X			X	
9. MS/MSD (RPD)		X	X			X	
10. Lab Duplicate (RPD)		X	X			X	

COMMENTS: The samples were analyzed for cyanide by Method 9014. Performance was acceptable, with the following exceptions and notes.

- Sample MW -115 (15) was used as the MS analysis for the cyanide. The recovery was acceptable.

VI. ANIONS

ITEMS REVIEWED	REPORTED/ REVIEWED		EXCEPTIONS NOTED		GENERAL COMMENTS NOTED		ITEM NOT REQUIRED
	NO	YES	NO	YES	YES	NO	
1. Holding times		X	X			X	
2. Reporting limits		X	X			X	
3. Blanks							
A. Method Blanks		X		X	X		
B. Field Blanks	X						X
C. Equipment Blank	X						X
4. Laboratory control sample (LCS) (%R)		X		X		X	
5. LCSD (% R)	X						X
6. LCS/LCSD (RPD)	X						X
7. Matrix spike (MS) (%R)	X						X
8. MSD (%R)	X						X
9. MS/MSD (RPD)	X						X
10. Lab Duplicate (RPD)	X						X

COMMENTS: The samples were analyzed for chloride, fluoride, nitrate, nitrite, and sulfate by EPA Method 300.0. Performance was acceptable, with the following exceptions and notes.

- 3A. Fluoride was detected in the associated method blank. The associated sample results were greater than five times the method blank concentration except for sample location MW-115 (25). Sample location MW-115 (25) was qualified as not detected for fluoride. See the attached qualification summary for details of the qualification.

Qualifier Definitions:

J – Result is considered to be estimated at the value reported.

UJ – Result is considered not detected but estimated due to QC deficiencies.

UB – Non-detect at the Reporting Limit (RL) or at the concentration reported if greater than the RL due to associated blank contamination.

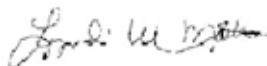
R – Result is qualified as unusable, data point is rejected.

Explanation/Notes:

Sample ID	Parameter	Result	Units	Qualifier	Reason
MW-115 (25)	Fluoride	3.55	mg/kg	UB	Blank Contamination

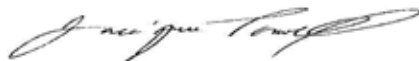
VALIDATION PERFORMED BY: Lyndi Mott

SIGNATURE:



DATE: March 4, 2013

PEER REVIEW:



DATE: March 12, 2013

DATA VALIDATION CHECKLIST**NAVAJO REFINING RO Discharge Sampling**

ARCADIS, Inc.
2929 Briarpark Dr.
Suite 300
Houston, TX 77042
Tel. (713) 953-4800

Sample Team:	ARCADIS
Sample Matrix:	Water
Analytical Laboratory:	ALS Environmental
Laboratory Work Order No.:	1301989
Lab Project Manager:	Sonia West
Analyses:	VOCs, SVOCs, TPH, Metals, Mercury, Cyanide, and Anions
QA Reporting Level:	ARCADIS, Level II

Environmental
Project:
Navajo Refinery

Project Number:
TX001027.0002

Analytical data were evaluated in accordance with applicable USEPA SW-846 method requirements, "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (October 1999), "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" (July 2002), analytical method control criteria, the analytical laboratory Quality Assurance Control Limits, and professional judgment. National Functional Guidelines were used primarily to determine applicable qualification.

The data verification was performed at a Level II and included review of data package completeness, laboratory control samples and method blanks, matrix spike precision and accuracy, surrogate recoveries, and holding time compliance. Laboratory calculations were not verified. Only QA/QC results and analytical data associated with analytes/compounds of interest were reviewed for this validation. Field sampling documentation was not reviewed as a component of this validation.

Only QA/QC results and analytical data associated with analytes/compounds of interest were reviewed for this validation.

ANALYTICAL DATA PACKAGE DOCUMENTATION

The following samples were included in this data validation:

SDG Number	Sample ID	Sample Date	Parent Sample
1302189	MW-116	2/3/2013	
1302189	MW-119	2/5/2013	
1302189	MW-118	2/5/2013	
1302189	TRIP BLANK 011813-71	2/5/2013	
1302189	TRIP BLANK 011813-30	2/5/2013	

I. VOLATILE COMPOUNDS

ITEMS REVIEWED	REPORTED/ REVIEWED		EXCEPTIONS NOTED		GENERAL COMMENTS NOTED		ITEM NOT REQUIRED
	NO	YES	NO	YES	NO	YES	
1. Holding times		X	X		X		
2. Reporting limits		X	X		X		
3. Blanks							
A. Method Blanks		X	X		X		
B. Equipment Blanks	X						X
C. Trip Blanks		X	X		X		
4. Laboratory control sample (LCS) (%R)		X	X		X		
5. Laboratory control sample duplicate (LCSD) (%R)		X	X		X		
6. LCS/LCSD (RPD)		X	X		X		
7. Matrix spike (MS) (%R)	X						X
8. Matrix spike duplicate (MSD) (%R)	X						X
9. MS/MSD (RPD)	X						X
10. Surrogate Recoveries (%R)		X	X		X		
11. Field Duplicate Comparison (RPD)	X						X

COMMENTS: The samples were analyzed for Volatiles by Method 8260. Performance was acceptable, with the following exceptions and notes.

II. METALS

ITEMS REVIEWED	REPORTED/ REVIEWED		EXCEPTIONS NOTED		GENERAL COMMENTS NOTED		ITEM NOT REQUIRED
	NO	YES	NO	YES	YES	NO	
1. Holding times		X	X			X	
2. Reporting limits		X	X			X	
3. Blanks							
A. Method Blanks		X		X	X		
B. Field Blanks	X						X
C. Equipment Blank	X						X
4. Laboratory control sample (LCS) (%R)		X	X			X	
5. LCSD (% R)	X						X
6. LCS/LCSD (RPD)	X						X
7. Matrix spike (MS) (%R)	X						X
8. MSD (%R)	X						X
9. MS/MSD (RPD)	X						X
10. Lab Duplicate (RPD)	X						X
11. Field Duplicate (RPD)	X						X

COMMENTS: The samples were analyzed for metals by Methods 6020 and 7471A. Performance was acceptable, with the following exceptions and notes.

- 3A. Aluminum was detected in the associated method blank. The associated field sample results were less than five times the method blank concentration. The field sample results for aluminum were qualified as non-detect at the Reporting Limit (RL), or at the detected sample concentration when greater than the RL. See the attached qualification summary for details of the qualifications.
- 3A. Calcium was detected in the associated method blank. The associated field sample calcium results were greater than five times the blank value; therefore, qualification of the data was not warranted.
- 3A. Zinc was detected in the associated method blank. The result for sample location MW-116 was less than five times the method blank concentration. The zinc result for this sample was qualified as non-detect at the RL. Sample locations MW-119 and MW-118 were either non-detect or greater than five times the method blank concentration, and did not require qualification. See the attached qualification summary for details of the qualifications.

III. SEMIVOLATILE ORGANIC COMPOUNDS

ITEMS REVIEWED	REPORTED/ REVIEWED		EXCEPTIONS NOTED		GENERAL COMMENTS NOTED		ITEM NOT REQUIRED
	NO	YES	NO	YES	NO	YES	
1. Holding times		X	X		X		
2. Reporting limits		X	X		X		
3. Blanks							
A. Method Blanks		X	X		X		
B. Field Blanks	X						X
C. Equipment Blank	X						X
4. Surrogate Recovery		X	X		X		
5. Laboratory control sample (LCS) (%R)		X	X		X		
6. LCSD (% R)		X	X		X		
7. LCS/LCSD (RPD)		X	X		X		
8. Matrix spike (MS) (%R)	X						X
9. MSD (%R)	X						X
10. MS/MSD (RPD)	X						X
11. Field Duplicate (RPD)	X						X

COMMENTS: The samples were analyzed for SVOCs by Method 8270. Performance was acceptable, with the following exceptions and notes.

IV. TOTAL PETROLEUM HYDROCARBONS

ITEMS REVIEWED	REPORTED/ REVIEWED		EXCEPTIONS NOTED		GENERAL COMMENTS NOTED		ITEM NOT REQUIRED
	NO	YES	NO	YES	NO	YES	
1. Holding times		X	X		X		
2. Reporting limits		X	X		X		
3. Blanks							
A. Method Blanks		X	X		X		
B. Field Blanks	X						X
C. Equipment Blank	X						X
4. Surrogate Recovery		X	X		X		
5. Laboratory control sample (LCS) (%R)		X	X		X		
6. LCSD (% R)		X	X		X		
7. LCS/LCSD (RPD)		X	X		X		
8. Matrix spike (MS) (%R)	X						X
9. MSD (%R)	X						X
10. MS/MSD (RPD)	X						X
11. Field Duplicate (RPD)	X						X

COMMENTS: The samples were analyzed for TPH by Method 8015. Performance was acceptable, with the following exceptions and notes.

V. CYANIDE

ITEMS REVIEWED	REPORTED/ REVIEWED		EXCEPTIONS NOTED		GENERAL COMMENTS NOTED		ITEM NOT REQUIRED
	NO	YES	NO	YES	YES	NO	
1. Holding times		X	X			X	
2. Reporting limits		X	X			X	
3. Blanks							
A. Method Blanks		X		X	X		
B. Field Blanks	X						X
C. Equipment Blank	X						X
4. Laboratory control sample (LCS) (%R)		X	X			X	
5. LCSD (% R)		X	X			X	
6. LCS/LCSD (RPD)		X	X			X	
7. Matrix spike (MS) (%R)	X						X
8. MSD (%R)	X						X
9. MS/MSD (RPD)	X						X
10. Lab Duplicate (RPD)	X						X

COMMENTS: The samples were analyzed for cyanide by Standard Methods 4500CN E&G. Performance was acceptable, with the following exceptions and notes.

VI. ANIONS

ITEMS REVIEWED	REPORTED/ REVIEWED		EXCEPTIONS NOTED		GENERAL COMMENTS NOTED		ITEM NOT REQUIRED
	NO	YES	NO	YES	YES	NO	
1. Holding times		X		X	X		
2. Reporting limits		X	X			X	
3. Blanks							
A. Method Blanks		X	X	X		X	
B. Field Blanks	X						X
C. Equipment Blank	X						X
4. Laboratory control sample (LCS) (%R)		X		X		X	
5. LCSD (% R)	X						X
6. LCS/LCSD (RPD)	X						X
7. Matrix spike (MS) (%R)		X		X		X	
8. MSD (%R)		X		X		X	
9. MS/MSD (RPD)		X	X		X		
10. Lab Duplicate (RPD)	X						X

COMMENTS: The samples were analyzed for chloride, fluoride, nitrate, nitrite, and sulfate by EPA Method 300.0. Performance was acceptable, with the following exceptions and notes.

1. Sample location MW-116 was received by the laboratory beyond the 48 hour hold time for nitrate and nitrite. The laboratory contacted the client, and the lab was authorized to proceed with the analysis. The nitrate and nitrite analysis was performed 9 days from collection, which is greater than twice the holding time. The nitrate result should be considered estimated. The nitrite result was non-detect and is rejected. See the attached qualification summary for details of the qualifications.
- 3A. Nitrate was detected in the method blank associated with the analysis of sample location MW-116. The associated sample result was greater than five times the method blank concentration therefore, qualification of the data was not required.
- 7-8. Sample MW-116 was used as the MS/MSD for fluoride, nitrate and nitrite. The recovery of fluoride was less than the control limit in the MS and the MSD. The fluoride result for sample location MW-116 was qualified as estimated. See the attached qualification summary for details of the qualifications.

VII. TOTAL DISSOLVED SOLIDS (TDS)

ITEMS REVIEWED	REPORTED/ REVIEWED		EXCEPTIONS NOTED		GENERAL COMMENTS NOTED		ITEM NOT REQUIRED
	NO	YES	NO	YES	YES	NO	
1. Holding times		X	X			X	
2. Reporting limits		X	X			X	
3. Blanks							
A. Method Blanks		X		X	X		
B. Field Blanks	X						X
C. Equipment Blank	X						X
4. Laboratory control sample (LCS) (%R)		X		X		X	
5. LCSD (% R)	X						X
6. LCS/LCSD (RPD)	X						X
7. Matrix spike (MS) (%R)	X						X
8. MSD (%R)	X						X
9. MS/MSD (RPD)	X						X
10. Lab Duplicate (RPD)		X		X		X	

COMMENTS: The samples were analyzed for chloride, fluoride, nitrate, nitrite, and sulfate by EPA Method 300.0. Performance was acceptable, with the following exceptions and notes.

- Sample MW-116 was used as the laboratory duplicate for TDS. The RPD was acceptable.

Qualifier Definitions:

J – Result is considered to be estimated at the value reported.

UJ – Result is considered not detected but estimated due to QC deficiencies.

UB – Non-detect at the Reporting Limit (RL) or at the concentration reported if greater than the RL due to associated blank contamination.

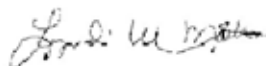
R – Result is qualified as unusable, data point is rejected.

Explanation/Notes:

Sample ID	Parameter	Result	Units	Qualifier	Reason
MW-116	Nitrate	1.37	mg/L	J	Holding Time
	Nitrite	0.1 U	mg/L	R	Holding Time
	Aluminum	0.01	mg/L	UB	Blank contamination
	Zinc	0.005	mg/L	UB	Blank contamination
	Fluoride	1.31	mg/L	J	MS/MSD % Recovery
MW-119	Aluminum	0.01	mg/L	UB	Blank contamination
MW-118	Aluminum	0.0146	mg/L	UB	Blank contamination

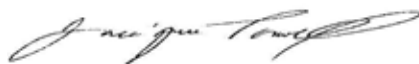
VALIDATION PERFORMED BY: Lyndi Mott

SIGNATURE:



DATE: March 6, 2013

PEER REVIEW:



DATE: March 12, 2013