

AP – 110

**Beneficial
Use/Recycling
Requests**

2014

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, April 10, 2014 12:28 PM
To: Holder, Mike (Michael.Holder@hollyfrontier.com); Combs, Robert (Robert.Combs@hollyfrontier.com); Leking, Geoffrey R, EMNRD
Cc: Dawson, Scott, EMNRD; Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD
Subject: Lea/Lovington Refinery (AP-110) and Soil Reuse Requests

Mike and Robert:

Good afternoon. The New Mexico Oil Conservation Division has been receiving several soil reuse requests with Navajo Refining Company (NRC) utilizing various soil screening limits to conclude that soils removed from tanks, pits, etc. are ok to reuse on-site for berms, etc.

WQCC Regulations (see below) list water quality criteria in either ug/L or mg/L units and not soil media units. Therefore, has utilized various EPA, NMED, etc. SSLs to form the basis for on-site reuse of soil media with comparison against the SSLs. Arsenic typically does not meet the SSLs. OCD notices NRC uses a DAF of 20 on the above mentioned SSLs.

OCD has allowed a DAF of 20 when multiplied again the water criteria below to generate soil media criteria based on its water quality standards, but not a DAF applied to SSLs. In addition, anywhere there is the presence of toxic pollutants, reuse of soils may not be appropriate.

How can NRC meet OCD criteria for reuse? One method may be to separate good soil media from bad and sample the good (bad soil too if NRC wants to double check) soils for comparison against OCD's criteria below to receive approval for reuse.

I recommend that NRC schedule a telephone conference call to determine exactly what OCD requires for soil reuse. OCD understands the large volumes of soils that may be required to be disposed at approved and/or permitted OCD Facilities. However, the present rationale for NRC's proposed reuse of soil media requires further communication to derive an OCD protocol for what is acceptable for reuse at refineries.

Thank you.

WW. "toxic pollutant" means a water contaminant or combination of water contaminants in concentration(s) which, upon exposure, ingestion, or assimilation either directly from the environment or indirectly by ingestion through food chains, will unreasonably threaten to injure human health, or the health of animals or plants which are commonly hatched, bred, cultivated or protected for use by man for food or economic benefit; as used in this definition injuries to health include death, histopathologic change, clinical symptoms of disease, behavioral abnormalities, genetic mutation, physiological malfunctions or physical deformations in such organisms or their offspring; in order to be considered a toxic pollutant a contaminant must be one or a combination of the potential toxic pollutants listed below and be at a concentration shown by scientific information currently available to the public to have potential for causing one or more of the effects listed above; any water contaminant or combination of the water contaminants in the list below creating a lifetime risk of more than one cancer per 100,000 exposed persons is a toxic pollutant:

(1) acrolein

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- (2) acrylonitrile
- (3) aldrin
- (4) benzene
- (5) benzidine
- (6) carbon tetrachloride
- (7) chlordane
- (8) chlorinated benzenes
 - (a) monochlorobenzene
 - (b) hexachlorobenzene
 - (c) pentachlorobenzene
- (9) 1,2,4,5-tetrachlorobenzene
- (10) chlorinated ethanes
 - (a) 1,2-dichloroethane
 - (b) hexachloroethane
 - (c) 1,1,2,2-tetrachloroethane
 - (d) 1,1,1-trichloroethane
 - (e) 1,1,2-trichloroethane
- (11) chlorinated phenols
 - (a) 2,4-dichlorophenol
 - (b) 2,4,5-trichlorophenol
 - (c) 2,4,6-trichlorophenol
- (12) chloroalkyl ethers
 - (a) bis (2-chloroethyl) ether
 - (b) bis (2-chloroisopropyl) ether
 - (c) bis (chloromethyl) ether
- (13) chloroform
- (14) DDT
- (15) dichlorobenzene
- (16) dichlorobenzidine
- (17) 1,1-dichloroethylene
- (18) dichloropropenes
- (19) dieldrin
- (20) diphenylhydrazine
- (21) endosulfan
- (22) endrin
- (23) ethylbenzene
- (24) halomethanes
 - (a) bromodichloromethane
 - (b) bromomethane
 - (c) chloromethane
 - (d) dichlorodifluoromethane
 - (e) dichloromethane
 - (f) tribromomethane
 - (g) trichlorofluoromethane
- (25) heptachlor
- (26) hexachlorobutadiene
- (27) hexachlorocyclohexane (HCH)
 - (a) alpha-HCH
 - (b) beta-HCH
 - (c) gamma-HCH
 - (d) technical HCH
- (28) hexachlorocyclopentadiene
- (29) high explosives (HE)
 - (a) 2,4-dinitrotoluene (2,4,DNT)
 - (b) 2,6-dinitrotoluene (2,6,DNT)
 - (c) octrahydro-1,3,5,7-tetranitro-1,3,5,7 tetrazocine (HMX)

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- (d) hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)
- (e) 2,4,6-trinitrotoluene (TNT)
- (30) isophorone

- (31) methyl tertiary butyl ether
- (32) nitrobenzene
- (33) nitrophenols
 - (a) 2,4-dinitro-o-cresol
 - (b) dinitrophenols
- (34) nitrosamines
 - (a) N-nitrosodiethylamine
 - (b) N-nitrosodimethylamine
 - (c) N-nitrosodibutylamine
 - (d) N-nitrosodiphenylamine
 - (e) N-nitrosopyrrolidine
- (35) pentachlorophenol
- (36) perchlorate
- (37) phenol
- (38) phthalate esters
 - (a) dibutyl phthalate
 - (b) di-2-ethylhexyl phthalate
 - (c) diethyl phthalate
 - (d) dimethyl phthalate
- (39) polychlorinated biphenyls (PCB's)
- (40) polynuclear aromatic hydrocarbons (PAH)
 - (a) anthracene
 - (b) 3,4-benzofluoranthene
 - (c) benzo (k) fluoranthene
 - (d) fluoranthene
 - (e) fluorene
 - (f) phenanthrene
 - (g) pyrene
- (41) tetrachloroethylene
- (42) toluene
- (43) toxaphene
- (44) trichloroethylene
- (45) vinyl chloride
- (46) xylenes
 - (a) o-xylene
 - (b) m-xylene
 - (c) p-xylene
- (47) 1,1-dichloroethane
- (48) ethylene dibromide (EDB)
- (49) cis-1,2-dichloroethylene
- (50) trans-1,2-dichloroethylene
- (51) naphthalene
- (52) 1-methylnaphthalene
- (53) 2-methylnaphthalene
- (54) benzo-a-pyrene

20.6.2.3103 STANDARDS FOR GROUND WATER OF 10,000 mg/l TDS CONCENTRATION OR

LESS: The following standards are the allowable pH range and the maximum allowable concentration in ground water for the contaminants specified unless the existing condition exceeds the standard or unless otherwise provided in Subsection D of Section 20.6.2.3109 NMAC. Regardless of whether there is one contaminant or more than one contaminant present in ground water, when an existing pH or concentration of any water contaminant exceeds the standard specified in Subsection A, B, or C of this section, the existing pH or concentration shall be the allowable limit, provided that the discharge at such concentrations will not result in concentrations at any place of withdrawal for present or reasonably foreseeable future use in excess of the standards of this section. These standards shall apply to the dissolved portion of the contaminants specified with a definition of dissolved being that given in the publication "*methods for chemical analysis of water and waste of the U.S. environmental protection agency*," with the exception that standards for mercury, organic compounds and non-aqueous phase liquids shall apply to the total unfiltered concentrations of the contaminants.

A. Human Health Standards-Ground water shall meet the standards of Subsection A and B of this section unless otherwise provided. If more than one water contaminant affecting human health is present, the toxic

pollutant criteria as set forth in the definition of toxic pollutant in Section 20.6.2.1101 NMAC for the combination of contaminants, or the Human Health Standard of Subsection A of Section 20.6.2.3103 NMAC for each contaminant shall apply, whichever is more stringent. Non-aqueous phase liquid shall not be present floating atop of or immersed within ground water, as can be reasonably measured.

(1) Arsenic (As).....	0.1 mg/l
(2) Barium (Ba).....	1.0 mg/l
(3) Cadmium (Cd).....	0.01 mg/l
(4) Chromium (Cr).....	0.05 mg/l
(5) Cyanide (CN).....	0.2 mg/l
(6) Fluoride (F).....	1.6 mg/l
(7) Lead (Pb).....	0.05 mg/l
(8) Total Mercury (Hg).....	0.002 mg/l
(9) Nitrate (NO ₃ as N).....	10.0 mg/l
(10) Selenium (Se).....	0.05 mg/l
(11) Silver (Ag).....	0.05 mg/l
(12) Uranium (U).....	0.03 mg/l
(13) Radioactivity: Combined Radium-226 & Radium-228.....	30 pCi/l
(14) Benzene.....	0.01 mg/l
(15) Polychlorinated biphenyls (PCB's).....	0.001 mg/l
(16) Toluene.....	0.75 mg/l
(17) Carbon Tetrachloride.....	0.01 mg/l
(18) 1,2-dichloroethane (EDC)	0.01 mg/l
(19) 1,1-dichloroethylene (1,1-DCE)	0.005 mg/l
(20) 1,1,2,2-tetrachloroethylene (PCE)	0.02 mg/l
(21) 1,1,2-trichloroethylene (TCE)	0.1 mg/l
(22) ethylbenzene.....	0.75 mg/l
(23) total xylenes.....	0.62 mg/l
(24) methylene chloride.....	0.1 mg/l
(25) chloroform.....	0.1 mg/l
(26) 1,1-dichloroethane.....	0.025 mg/l
(27) ethylene dibromide (EDB)	0.0001 mg/l
(28) 1,1,1-trichloroethane.....	0.06 mg/l
(29) 1,1,2-trichloroethane.....	0.01 mg/l
(30) 1,1,2,2-tetrachloroethane.....	0.01 mg/l
(31) vinyl chloride.....	0.001 mg/l

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(32) PAHs: total naphthalene plus monomethylnaphthalenes.....	0.03 mg/l
(33) benzo-a-pyrene.....	0.0007 mg/l

B. Other Standards for Domestic Water Supply

(1) Chloride (Cl)	250.0 mg/l
(2) Copper (Cu)	1.0 mg/l
(3) Iron (Fe)	1.0 mg/l
(4) Manganese (Mn)	0.2 mg/l
(6) Phenols.....	0.005 mg/l
(7) Sulfate (SO ₄)	600.0 mg/l
(8) Total Dissolved Solids (TDS)	1000.0 mg/l
(9) Zinc (Zn)	10.0 mg/l
(10) pH.....	between 6 and 9

C. Standards for Irrigation Use - Ground water shall meet the standards of Subsection A, B, and C of this section unless otherwise provided.

(1) Aluminum (Al).....	5.0 mg/l
(2) Boron (B)	0.75 mg/l
(3) Cobalt (Co)	0.05 mg/l
(4) Molybdenum (Mo)	1.0 mg/l
(5) Nickel (Ni)	0.2 mg/l

[2-18-77, 1-29-82, 11-17-83, 3-3-86, 12-1-95; 20.6.2.3103 NMAC - Rn, 20 NMAC 6.2.III.3103, 1-15-01; A, 9-26-04]

[Note: For purposes of application of the amended numeric uranium standard to past and current water discharges (as of 9-26-04), the new standard will not become effective until June 1, 2007. For any new water discharges, the uranium standard is effective 9-26-04.]

Carl J. Chavez, CHMM

New Mexico Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Drive, Santa Fe, New Mexico 87505
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2014 FEB 25 A 11:34

February 24, 2014

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

Re: Fire Water Pond and Fire Water Pipeline Repair Soil Stockpile Characterization and Management, Navajo Refining Company, Lea Refinery, Lovington, New Mexico, AP-110

Dear Mr. Chavez:

On behalf of Navajo Refining Company (NRC), TRC Environmental Corporation (TRC) is submitting this letter to document the characterization and management of soil excavated and stockpiled during construction and repair activities at the NRC Lea Refinery (refinery) located near Lovington, Lea County, New Mexico.

Approximately 1,350 cubic-yards of soil was excavated and stockpiled during construction of the refinery fire water pond in 2011. The fire water pond is located along the eastern refinery boundary. Approximately 475 yards of soil was excavated and stockpiled during repair of a fire water pipeline in 2013. The damaged portion of the fire water pipeline is located near Tank T-1210. The fire water pond and damaged portion of the fire water pipeline are located far from the refinery process and product storage areas, as well as areas of known product releases. Neither stockpile is associated with drilling fluid, produced water, refinery effluent water, or other liquid oilfield waste. Therefore, we believe the excavated soil is a good candidate for reuse. Composite soil samples were collected from each stockpile on December 2, 2013, for characterization analysis to determine if the soil can be used at the refinery as fill material and/or to build and reinforce berms.

The composite samples were analyzed for metals, total petroleum hydrocarbons – gasoline range organics, diesel range organics, and motor oil range organics [TPH-(GRO/DRO/MRO)], volatile organic chemicals (VOCs), and chloride. The samples were additionally analyzed for semi-volatile organic chemicals (SVOCs) and arsenic by synthetic-precipitation leaching procedure (SPLP). The results of the laboratory analysis and recommendation for reuse are provided below.

ANALYTICAL RESULTS

Laboratory analytical results for the December 2013 composite soil samples are summarized in Table 1. The results were compared to the following: (1) 20 times the United States Environmental Protection Agency (USEPA) maximum toxicity characteristic leaching concentrations in accordance with 40 Code of Federal Regulations (CFR) 261.24; (2) the chemical-specific New Mexico Environment Department (NMED) Soil Screening Levels (SSLs); and (3) the New Mexico Oil Conservation District (NMOCD) Remedial Action Levels (RALs). The laboratory analytical results indicated the following:

- None of the concentrations exceeded 20 times the maximum toxicity characteristic waste concentrations.
- None of the concentrations exceeded the SSLs under the industrial/occupational or construction worker exposure scenarios.
- Only arsenic exceeded the SSL of 0.262 mg/kg for the leaching to groundwater pathway at concentrations of 4.11 milligrams per kilogram (mg/kg) in the fire water pond stockpile sample and 4.36 mg/kg in the fire water pipeline repair stockpile. The samples were additionally analyzed for SPLP arsenic to evaluate the leaching potential of arsenic. The arsenic SPLP results of 0.00881 milligrams per liter (mg/L) for the fire water pond stockpile and 0.0318 mg/L for the fire water pipeline repair stockpile are well below the Water Quality Control Commission (WQCC) human health groundwater standard of 0.10 mg/L.
- None of the concentrations exceeded the NMOCD RALs.

The laboratory analytical reports are provided in Attachment A.

RECOMMENDATION

The characterization analytical results indicate the soil excavated and stockpiled during construction of the refinery fire water pond and repair of the fire water pipeline is not a toxicity characteristic waste and does not pose a risk to human health under the leaching to groundwater pathway and industrial/occupational or construction worker exposure scenarios.

NRC requests that OCD provide a determination as to whether the soil excavated and stockpiled during construction of the refinery fire water pond and repair of the fire water pipeline is an oilfield waste. Pending such a determination, it is proposed that the soil remain at the refinery to be used as fill material and/or to build and reinforce berms.

Mr. Carl J. Chavez
February 24, 2014
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If you have any further questions, please do not hesitate to contact Robert Combs of NRC at (575) 746-5382, Bryan Gilbert of TRC at (512) 684-3104, or Julie Speer of TRC at (512) 684-3148.

Sincerely,



Bryan Gilbert, P.G.
Project Manager

Sincerely,



Julie Speer, E.I.T.
Associate Project Manager

Attachments:

Table 1 – Detected Analytical Results in Soil
Attachment A – Laboratory Analytical Report

cc: Glenn von Gonten, OCD, Santa Fe, New Mexico
Robert Combs, Navajo Refining Company, Artesia, New Mexico
Michael Holder, Navajo Refining Company, Artesia, New Mexico
Arsin Sahba, TRC, Austin, Texas

TABLE 1

Detected Analytical Results in Soil

**TABLE 1. DETECTED ANALYTICAL RESULTS IN SOIL
FIRE WATER POND AND WATER PIPELINE REPAIR SOIL STOCKPILES
NAVAJO REFINING COMPANY LEA REFINERY - LOVINGTON, NEW MEXICO**

		Total TPH	Mercury (mg/kg)	Arsenic (mg/kg)	SPLP Arsenic (mg/L)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)	Selenium (mg/kg)	Dichloro- methane (mg/kg)	Chloride (mg/kg)
NMED SSLs	Industrial/ Occupational	NA	73.6	17.7	NA	223000	897	1700000	800	5680	NA	NA
	Construction Worker	NA	13.6	53	NA	4350	277	465000	800	1550	NA	NA
	Leaching to Groundwater SSL - DAF of 20	NA	0.654	0.262	NA	6030	27.5	1.97E+09	NA	19.3	NA	NA
WQCC Human Health Groundwater Standard		NA	NA	NA	0.10	NA	NA	NA	NA	NA	NA	NA
NMOCD RALs		100	NA	NA	NA	NA	NA	NA	NA	NA	NA	500*
20X EPA TCLP		NA	4.0	100	NA	2000	20	100	100	20	NA	NA
Sample ID	Date											
Fire Water Pond Soil Pile	12/2/2013	87.1	0.0815	4.11	0.00881	138	0.127 J	11.6	6.84	0.727	0.0029 J	4.30 J
Leaking Water Line Soil Pile	12/2/2013	35.2	0.00523	4.36	0.0318	152	0.211 J	11.8	10.8	0.453	0.0020 J	4.27 J

Note:

RALs were selected based on a site depth to water of 105 feet bgs; potential water source within 1,000 feet, and potential private water source within 200 feet; and no surface water within 1,000 feet.

Remaining VOCs, SVOCs, and metals not detected and sample detections limits are below screening levels.

*Clean-up level for chloride previously recommended by OCD.

mg/kg - milligrams per kilogram.

mg/L - milligrams per liter.

SPLP - Synthetic precipitate leaching procedure.

WQCC - Water Quality Control Commission.

TPH - Total petroleum hydrocarbons.

NMOCD - New Mexico Oil Conservation Division.

RAL - Remediation Action Level based on a ranking score of "20".

20X EPA TCLP - Twenty times the Environmental Protection Agency's Toxicity Characteristic Leaching Potential maximum concentrations.

J - Analyte detected below quantitation limit.

Shaded cells exceed one or more SSLs or RAL.

Bold - Analyte detected above method detection limit.

Only detected COCs shown.

NA - Not applicable.

ATTACHMENT A

ALS Environmental Laboratory Report



ALS Environmental

11-Dec-2013

Robert Combs
Navajo Refining Company
PO Box 1490
Artesia, NM 88211-1490

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

Re: Leaking Water Line Soil Pile

Work Order: 1312110

Dear Robert,

ALS Environmental received 1 sample on 03-Dec-2013 09:11 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 24.

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

Sincerely,

Electronically approved by: Jumoke M. Lawal

Sonia West
Project Manager



Certificate No: T104704231-13-12



ALS Environmental

Date: 11-Dec-13

Client: Navajo Refining Company
Project: Leaking Water Line Soil Pile
Work Order: 1312110

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>
1312110-01	Leaking Water Line Soil Pile	Solid		12/2/2013 08:00	12/3/2013 09:11	☐

ALS Environmental

Date: 11-Dec-13

Client: Navajo Refining Company
Project: Leaking Water Line Soil Pile
Work Order: 1312110

Case Narrative

Batch 75170, TPH DRO/ORO 8015, Sample 1312185-02B: MS/MSD are for an unrelated sample.

Batch 76125, Total Metals 6020, Sample 1312112-01A: MS/MSD are for an unrelated sample.

Batch R158249, Volatile Organics 8260, Sample 1312172-05A: MS/MSD are for an unrelated sample.

ALS Environmental

Date: 11-Dec-13

Client: Navajo Refining Company
Project: Leaking Water Line Soil Pile
Sample ID: Leaking Water Line Soil Pile
Collection Date: 12/2/2013 08:00 AM

Work Order: 1312110
Lab ID: 1312110-01
Matrix: SOLID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO - 8015C						
TPH (Diesel Range)	4.2		SW8015M	1.7 mg/Kg	1	Prep Date: 12/6/2013 Analyst: RPM
TPH (Motor Oil Range)	31			3.4 mg/Kg	1	12/9/2013 06:48 PM
Surr: 2-Fluorobiphenyl	65.3			60-135 %REC	1	12/9/2013 06:48 PM
GASOLINE RANGE ORGANICS - SW8015C						
Gasoline Range Organics	U		SW8015	0.050 mg/Kg	1	Analyst: DNR
Surr: 4-Bromofluorobenzene	101			70-130 %REC	1	12/9/2013 01:31 PM
MERCURY - SW7471B						
Mercury	5.23		SW7471A	3.35 µg/Kg	1	Prep Date: 12/4/2013 Analyst: OFO
METALS						
Arsenic	4.36		SW6020	0.440 mg/Kg	1	Prep Date: 12/5/2013 Analyst: JCJ
Barium	152			0.440 mg/Kg	1	12/5/2013 03:32 PM
Cadmium	0.211	J		0.440 mg/Kg	1	12/5/2013 03:32 PM
Chromium	11.8			0.440 mg/Kg	1	12/5/2013 03:32 PM
Lead	10.8			0.440 mg/Kg	1	12/5/2013 03:32 PM
Selenium	0.453			0.440 mg/Kg	1	12/5/2013 03:32 PM
Silver	U			0.440 mg/Kg	1	12/5/2013 03:32 PM
TCL VOLATILES - SW8260C						
1,1,1-Trichloroethane	U		SW8260	5.0 µg/Kg	1	Analyst: WLR
1,1,2,2-Tetrachloroethane	U			5.0 µg/Kg	1	12/6/2013 02:59 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	U			5.0 µg/Kg	1	12/6/2013 02:59 PM
1,1,2-Trichloroethane	U			5.0 µg/Kg	1	12/6/2013 02:59 PM
1,1-Dichloroethane	U			5.0 µg/Kg	1	12/6/2013 02:59 PM
1,1-Dichloroethene	U			5.0 µg/Kg	1	12/6/2013 02:59 PM
1,2,4-Trichlorobenzene	U			5.0 µg/Kg	1	12/6/2013 02:59 PM
1,2-Dibromo-3-chloropropane	U			5.0 µg/Kg	1	12/6/2013 02:59 PM
1,2-Dibromoethane	U			5.0 µg/Kg	1	12/6/2013 02:59 PM
1,2-Dichlorobenzene	U			5.0 µg/Kg	1	12/6/2013 02:59 PM
1,2-Dichloroethane	U			5.0 µg/Kg	1	12/6/2013 02:59 PM
1,2-Dichloropropane	U			5.0 µg/Kg	1	12/6/2013 02:59 PM
1,3-Dichlorobenzene	U			5.0 µg/Kg	1	12/6/2013 02:59 PM
1,4-Dichlorobenzene	U			5.0 µg/Kg	1	12/6/2013 02:59 PM
2-Butanone	U			10 µg/Kg	1	12/6/2013 02:59 PM
2-Hexanone	U			10 µg/Kg	1	12/6/2013 02:59 PM
4-Methyl-2-pentanone	U			10 µg/Kg	1	12/6/2013 02:59 PM
Acetone	U			20 µg/Kg	1	12/6/2013 02:59 PM
Benzene	U			5.0 µg/Kg	1	12/6/2013 02:59 PM
Bromodichloromethane	U			5.0 µg/Kg	1	12/6/2013 02:59 PM

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

ALS Environmental

Date: 11-Dec-13

Client: Navajo Refining Company
Project: Leaking Water Line Soil Pile
Sample ID: Leaking Water Line Soil Pile
Collection Date: 12/2/2013 08:00 AM

Work Order: 1312110
Lab ID: 1312110-01
Matrix: SOLID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Bromoform	U		5.0	µg/Kg	1	12/6/2013 02:59 PM
Bromomethane	U		10	µg/Kg	1	12/6/2013 02:59 PM
Carbon disulfide	U		10	µg/Kg	1	12/6/2013 02:59 PM
Carbon tetrachloride	U		5.0	µg/Kg	1	12/6/2013 02:59 PM
Chlorobenzene	U		5.0	µg/Kg	1	12/6/2013 02:59 PM
Chloroethane	U		10	µg/Kg	1	12/6/2013 02:59 PM
Chloroform	U		5.0	µg/Kg	1	12/6/2013 02:59 PM
Chloromethane	U		10	µg/Kg	1	12/6/2013 02:59 PM
cis-1,2-Dichloroethene	U		5.0	µg/Kg	1	12/6/2013 02:59 PM
cis-1,3-Dichloropropene	U		5.0	µg/Kg	1	12/6/2013 02:59 PM
Cyclohexane	U		5.0	µg/Kg	1	12/6/2013 02:59 PM
Dibromochloromethane	U		5.0	µg/Kg	1	12/6/2013 02:59 PM
Dichlorodifluoromethane	U		5.0	µg/Kg	1	12/6/2013 02:59 PM
Dichloromethane	2.0	J	10	µg/Kg	1	12/6/2013 02:59 PM
Ethylbenzene	U		5.0	µg/Kg	1	12/6/2013 02:59 PM
Isopropylbenzene	U		5.0	µg/Kg	1	12/6/2013 02:59 PM
m,p-Xylene	U		10	µg/Kg	1	12/6/2013 02:59 PM
Methyl acetate	U		5.0	µg/Kg	1	12/6/2013 02:59 PM
Methyl tert-butyl ether	U		5.0	µg/Kg	1	12/6/2013 02:59 PM
Methylcyclohexane	U		5.0	µg/Kg	1	12/6/2013 02:59 PM
o-Xylene	U		5.0	µg/Kg	1	12/6/2013 02:59 PM
Styrene	U		5.0	µg/Kg	1	12/6/2013 02:59 PM
Tetrachloroethene	U		5.0	µg/Kg	1	12/6/2013 02:59 PM
Toluene	U		5.0	µg/Kg	1	12/6/2013 02:59 PM
trans-1,2-Dichloroethene	U		5.0	µg/Kg	1	12/6/2013 02:59 PM
trans-1,3-Dichloropropene	U		5.0	µg/Kg	1	12/6/2013 02:59 PM
Trichloroethene	U		5.0	µg/Kg	1	12/6/2013 02:59 PM
Trichlorofluoromethane	U		5.0	µg/Kg	1	12/6/2013 02:59 PM
Vinyl chloride	U		2.0	µg/Kg	1	12/6/2013 02:59 PM
Xylenes, Total	U		15	µg/Kg	1	12/6/2013 02:59 PM
Surr: 1,2-Dichloroethane-d4	97.1		70-128	%REC	1	12/6/2013 02:59 PM
Surr: 4-Bromofluorobenzene	97.2		73-126	%REC	1	12/6/2013 02:59 PM
Surr: Dibromofluoromethane	99.6		71-128	%REC	1	12/6/2013 02:59 PM
Surr: Toluene-d8	98.6		73-127	%REC	1	12/6/2013 02:59 PM
ANIONS - EPA 300.0 (1993)			E300		Prep Date: 12/9/2013	Analyst: JKP
Chloride	4.27	J	5.00	mg/Kg	1	12/9/2013 01:42 PM

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

mpany
Soil Pile

DATES REPORT

Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
<u>rcury - SW7471B</u>				
Solid	12/2/2013 8:00:00 AM		12/4/2013 10:58 AM	12/4/2013 02:55 PM
<u>tals</u>				
Solid	12/2/2013 8:00:00 AM		12/5/2013 11:00 AM	12/5/2013 03:32 PM
<u>H DRO/ORO - 8015C</u>				
Solid	12/2/2013 8:00:00 AM		12/6/2013 01:06 PM	12/9/2013 06:48 PM
<u>ions - EPA 300.0 (1993)</u>				
Solid	12/2/2013 8:00:00 AM		12/9/2013 10:20 AM	12/9/2013 01:42 PM
<u>L Volatiles - SW8260C</u>				
Solid	12/2/2013 8:00:00 AM			12/6/2013 02:59 PM
<u>soline Range Organics - SW8015C</u>				
Solid	12/2/2013 8:00:00 AM			12/9/2013 01:31 PM

ALS Environmental

Date: 11-Dec-13

Client: Navajo Refining Company
Work Order: 1312110
Project: Leaking Water Line Soil Pile

QC BATCH REPORT

Batch ID: 75170		Instrument ID FID-7			Method: SW8015M					
MBLK		Sample ID: FBLKS1-131206-75170				Units: mg/Kg		Analysis Date: 12/9/2013 04:26 PM		
Client ID:		Run ID: FID-7_131206B				SeqNo: 3463346		Prep Date: 12/6/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
PH (Diesel Range)	U	1.7								
TPH (Motor Oil Range)	U	3.4								
Surr: 2-Fluorobiphenyl	2.393	0.10	3.33		0	71.9	60-135	0		

FLCS		Sample ID: FLCSS1-131206-75170				Units: mg/Kg		Analysis Date: 12/9/2013 04:50 PM		
Client ID:		Run ID: FID-7_131206B				SeqNo: 3463347		Prep Date: 12/6/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
PH (Diesel Range)	32.76	1.7	33.33		0	98.3	70-130			
PH (Motor Oil Range)	26.5	3.4	33.33		0	79.5	70-130			
Surr: 2-Fluorobiphenyl	2.847	0.10	3.33		0	85.5	60-135	0		

MS		Sample ID: 1312185-02BMS				Units: mg/Kg		Analysis Date: 12/9/2013 06:00 PM		
Client ID:		Run ID: FID-7_131206B				SeqNo: 3463349		Prep Date: 12/6/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	28.65	1.7	33.31	0.353	85	70-130				
PH (Motor Oil Range)	24.51	3.4	33.31	0.9063	70.9	70-130				
Surr: 2-Fluorobiphenyl	2.102	0.10	3.328		0	63.2	60-135	0		

MSD		Sample ID: 1312185-02BMSD				Units: mg/Kg		Analysis Date: 12/9/2013 06:24 PM		
Client ID:		Run ID: FID-7_131206B				SeqNo: 3463350		Prep Date: 12/6/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	36.88	1.7	33.3	0.353	110	70-130	28.65	25.1	30	
PH (Motor Oil Range)	30.37	3.4	33.3	0.9063	88.5	70-130	24.51	21.3	30	
Surr: 2-Fluorobiphenyl	3.143	0.10	3.327		0	94.5	60-135	2.102	39.7	30 R

The following samples were analyzed in this batch:

1312110-01A

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

Client: Navajo Refining Company
 Work Order: 1312110
 Project: Leaking Water Line Soil Pile

QC BATCH REPORT

Batch ID: R158313 Instrument ID FID-14 Method: SW8015

MBLK Sample ID: BLKW1-131209-R158313 Units: mg/Kg Analysis Date: 12/9/2013 12:58 PM

Client ID: Run ID: FID-14_131209A SeqNo: 3462392 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	0.09795	0.0050	0.1	0	98	70-130	0			

LCS Sample ID: BLCSW1-131209-R158313 Units: mg/Kg Analysis Date: 12/9/2013 12:41 PM

Client ID: Run ID: FID-14_131209A SeqNo: 3462391 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	0.9476	0.050	1	0	94.8	70-130				
Surr: 4-Bromofluorobenzene	0.1043	0.0050	0.1	0	104	70-130	0			

MS Sample ID: 1312185-01AMS Units: mg/Kg Analysis Date: 12/9/2013 02:27 PM

Client ID: Run ID: FID-14_131209A SeqNo: 3462396 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	0.9223	0.050	1	0	92.2	70-130				
Surr: 4-Bromofluorobenzene	0.1095	0.0050	0.1	0	109	70-130	0			

MSD Sample ID: 1312185-01AMSD Units: mg/Kg Analysis Date: 12/9/2013 02:43 PM

Client ID: Run ID: FID-14_131209A SeqNo: 3462397 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	0.9766	0.050	1	0	97.7	70-130	0.9223	5.71	30	
Surr: 4-Bromofluorobenzene	0.1036	0.0050	0.1	0	104	70-130	0.1095	5.46	30	

The following samples were analyzed in this batch:

1312110-01A

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

Client: Navajo Refining Company
 Work Order: 1312110
 Project: Leaking Water Line Soil Pile

QC BATCH REPORT

Batch ID: 75094 Instrument ID HG02 Method: SW7471A

ABLK Sample ID: GBLKS2-120413-75094 Units: µg/Kg Analysis Date: 12/4/2013 01:56 PM
 Client ID: Run ID: HG02_131204A SeqNo: 3457897 Prep Date: 12/4/2013 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	3.32								

GLCS Sample ID: GLCSS2-120413-75094 Units: µg/Kg Analysis Date: 12/4/2013 01:58 PM
 Client ID: Run ID: HG02_131204A SeqNo: 3457898 Prep Date: 12/4/2013 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	352	3.32	333.3	0	106	85-115				

BMS Sample ID: 13111335-09BMS Units: µg/Kg Analysis Date: 12/4/2013 02:04 PM
 Client ID: Run ID: HG02_131204A SeqNo: 3457901 Prep Date: 12/4/2013 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	325.7	3.43	343.5	1.862	94.3	85-115				

MSD Sample ID: 13111335-09BMSD Units: µg/Kg Analysis Date: 12/4/2013 02:06 PM
 Client ID: Run ID: HG02_131204A SeqNo: 3457902 Prep Date: 12/4/2013 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	388.4	3.42	342.5	1.862	113	85-115	325.7	17.6	20	

DUP Sample ID: 13111335-09BDUP Units: µg/Kg Analysis Date: 12/4/2013 02:02 PM
 Client ID: Run ID: HG02_131204A SeqNo: 3457900 Prep Date: 12/4/2013 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	1.719	3.43					1.862	0	20	J

The following samples were analyzed in this batch:

1312110-01A

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

Client: Navajo Refining Company
 Work Order: 1312110
 Project: Leaking Water Line Soil Pile

QC BATCH REPORT

Batch ID: 75125 Instrument ID ICP7500 Method: SW6020

MBLK Sample ID: MBLKS1-120513-75125 Units: mg/Kg Analysis Date: 12/5/2013 01:41 PM

Client ID: Run ID: ICP7500_131205A SeqNo: 3459691 Prep Date: 12/5/2013 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.500								
Barium	0.09047	0.500								J
Cadmium	U	0.500								
Chromium	U	0.500								
Lead	U	0.500								
Selenium	U	0.500								

LCS Sample ID: MLCSS1-120513-75125 Units: mg/Kg Analysis Date: 12/5/2013 01:46 PM

Client ID: Run ID: ICP7500_131205A SeqNo: 3459692 Prep Date: 12/5/2013 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	9.829	0.500	10	0	98.3	80-120				
Barium	10.39	0.500	10	0	104	80-120				
Cadmium	10.56	0.500	10	0	106	80-120				
Chromium	10.41	0.500	10	0	104	80-120				
Lead	10.2	0.500	10	0	102	80-120				
Selenium	9.788	0.500	10	0	97.9	80-120				

MS Sample ID: 1312112-01AMS Units: mg/Kg Analysis Date: 12/5/2013 03:47 PM

Client ID: Run ID: ICP7500_131205A SeqNo: 3459710 Prep Date: 12/5/2013 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	11.2	0.397	7.933	4.107	89.4	75-125				
Barium	142.7	0.397	7.933	138.4	53.9	75-125				SO
Cadmium	7.412	0.397	7.933	0.1265	91.8	75-125				
Chromium	21.59	0.397	7.933	11.57	126	75-125				S
Lead	13.7	0.397	7.933	6.841	86.5	75-125				
Selenium	7.522	0.397	7.933	0.7273	85.7	75-125				

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

Client: Navajo Refining Company
 Work Order: 1312110
 Project: Leaking Water Line Soil Pile

QC BATCH REPORT

Batch ID: 75125 Instrument ID ICP7500 Method: SW6020

MSD		Sample ID: 1312112-01AMSD				Units: mg/Kg		Analysis Date: 12/6/2013 01:16 PM		
Client ID:		Run ID: ICP7500_131206A				SeqNo: 3460284		Prep Date: 12/5/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	10.44	0.388	7.762	4.107	81.6	75-125	11.2	7.04	25	
Barium	141	0.388	7.762	138.4	33.4	75-125	142.7	1.19	25	SEO
Cadmium	7.139	0.388	7.762	0.1265	90.3	75-125	7.412	3.76	25	
Chromium	19.97	0.388	7.762	11.57	108	75-125	21.59	7.81	25	
Lead	13.48	0.388	7.762	6.841	85.6	75-125	13.7	1.6	25	
Selenium	6.607	0.388	7.762	0.7273	75.8	75-125	7.522	12.9	25	

ADUP		Sample ID: 1312112-01ADUP				Units: mg/Kg		Analysis Date: 12/5/2013 03:42 PM		
Client ID:		Run ID: ICP7500_131205A				SeqNo: 3459709		Prep Date: 12/5/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	3.917	0.370					4.107	4.72	25	
Barium	122.6	0.370					138.4	12.1	25	
Cadmium	0.1539	0.370					0.1265	0	25	J
Chromium	20.43	0.370					11.57	55.3	25	R
Lead	19.86	0.370					6.841	97.5	25	R
Selenium	0.6248	0.370					0.7273	15.2	25	

The following samples were analyzed in this batch:

1312110-01A

Client: Navajo Refining Company
 Work Order: 1312110
 Project: Leaking Water Line Soil Pile

QC BATCH REPORT

Batch ID: **R158249** Instrument ID **VOA5** Method: **SW8260**

MBLK Sample ID: **VBLKS1-120613-R158249** Units: **µg/Kg** Analysis Date: **12/6/2013 09:34 AM**

Client ID: Run ID: **VOA5_131206A** SeqNo: **3460928** 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-Trichlor-1,2,2-trifluoroethane	U	5.0								
1,1,2-Trichloroethane	U	5.0								
1,1-Dichloroethane	U	5.0								
1,1-Dichloroethene	U	5.0								
1,2,4-Trichlorobenzene	U	5.0								
1,2-Dibromo-3-chloropropane	U	5.0								
1,2-Dibromoethane	U	5.0								
1,2-Dichlorobenzene	U	5.0								
1,2-Dichloroethane	U	5.0								
1,2-Dichloropropane	U	5.0								
1,3-Dichlorobenzene	U	5.0								
1,4-Dichlorobenzene	U	5.0								
2-Butanone	U	10								
2-Hexanone	U	10								
4-Methyl-2-pentanone	U	10								
Acetone	U	20								
Benzene	U	5.0								
Bromodichloromethane	U	5.0								
Bromoform	U	5.0								
Bromomethane	U	10								
Carbon disulfide	U	10								
Carbon tetrachloride	U	5.0								
Chlorobenzene	U	5.0								
Chloroethane	U	10								
Chloroform	U	5.0								
Chloromethane	U	10								
cis-1,2-Dichloroethene	U	5.0								
cis-1,3-Dichloropropene	U	5.0								
Cyclohexane	U	5.0								
Dibromochloromethane	U	5.0								
Dichlorodifluoromethane	U	5.0								
Dichloromethane	U	10								
Ethylbenzene	U	5.0								
Isopropylbenzene	U	5.0								
m,p-Xylene	U	10								
Methyl acetate	U	5.0								

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

Client: Navajo Refining Company
 Work Order: 1312110
 Project: Leaking Water Line Soil Pile

QC BATCH REPORT

Batch ID: R158249		Instrument ID VOA5		Method: SW8260				
Methyl tert-butyl ether	U	5.0						
Methylcyclohexane	U	5.0						
o-Xylene	U	5.0						
Styrene	U	5.0						
Tetrachloroethene	U	5.0						
Toluene	U	5.0						
trans-1,2-Dichloroethene	U	5.0						
trans-1,3-Dichloropropene	U	5.0						
Trichloroethene	U	5.0						
Trichlorofluoromethane	U	5.0						
Vinyl chloride	U	2.0						
Xylenes, Total	U	10						
Surr: 1,2-Dichloroethane-d4	48.95	0	50	0	97.9	70-128	0	
Surr: 4-Bromofluorobenzene	49.16	0	50	0	98.3	73-126	0	
Surr: Dibromofluoromethane	48.94	0	50	0	97.9	71-128	0	
Surr: Toluene-d8	50.31	0	50	0	101	73-127	0	

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

Client: Navajo Refining Company
 Work Order: 1312110
 Project: Leaking Water Line Soil Pile

QC BATCH REPORT

Batch ID: R158249 Instrument ID VOA5 Method: SW8260

LCS Sample ID: VLCSS1-120613-R158249 Units: µg/Kg Analysis Date: 12/6/2013 08:48 AM

Client ID: Run ID: VOA5_131206A SeqNo: 3460927 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	47.68	5.0	50	0	95.4	79-124				
1,1,2,2-Tetrachloroethane	50.02	5.0	50	0	100	75-123				
1,1,2-Trichlor-1,2,2-trifluoroethane	47.52	5.0	50	0	95	79-125				
1,1,2-Trichloroethane	49.88	5.0	50	0	99.8	79-120				
1,1-Dichloroethane	50.9	5.0	50	0	102	75-124				
1,1-Dichloroethene	47.11	5.0	50	0	94.2	80-122				
1,2,4-Trichlorobenzene	52.23	5.0	50	0	104	74-128				
1,2-Dibromo-3-chloropropane	50.72	5.0	50	0	101	66-129				
1,2-Dibromoethane	50.48	5.0	50	0	101	70-120				
1,2-Dichlorobenzene	50.48	5.0	50	0	101	75-120				
1,2-Dichloroethane	51.13	5.0	50	0	102	73-121				
1,2-Dichloropropane	49.98	5.0	50	0	100	76-120				
1,3-Dichlorobenzene	51.06	5.0	50	0	102	70-125				
1,4-Dichlorobenzene	50.56	5.0	50	0	101	77-120				
2-Butanone	99.94	10	100	0	99.9	65-130				
2-Hexanone	104.9	10	100	0	105	65-133				
4-Methyl-2-pentanone	108.2	10	100	0	108	69-130				
Acetone	104.3	20	100	0	104	53-142				
Benzene	51.11	5.0	50	0	102	79-120				
Bromodichloromethane	49.93	5.0	50	0	99.9	79-121				
Bromoform	51.05	5.0	50	0	102	74-122				
Bromomethane	46.99	10	50	0	94	68-131				
Carbon disulfide	95.01	10	100	0	95	80-124				
Carbon tetrachloride	47.65	5.0	50	0	95.3	74-126				
Chlorobenzene	51.6	5.0	50	0	103	79-120				
Chloroethane	47.72	10	50	0	95.4	76-126				
Chloroform	49.92	5.0	50	0	99.8	78-120				
Chloromethane	50.08	10	50	0	100	69-129				
cis-1,2-Dichloroethene	49.74	5.0	50	0	99.5	80-120				
cis-1,3-Dichloropropene	49.93	5.0	50	0	99.9	77-123				
Cyclohexane	47.6	5.0	50	0	95.2	74-126				
Dibromochloromethane	51.78	5.0	50	0	104	78-122				
Dichlorodifluoromethane	43.22	5.0	50	0	86.4	57-140				
Dichloromethane	43.52	10	50	0	87	62-130				
Ethylbenzene	54.6	5.0	50	0	109	80-122				
Isopropylbenzene	50.63	5.0	50	0	101	72-127				
m,p-Xylene	106.1	10	100	0	106	79-122				
Methyl acetate	43.77	5.0	50	0	87.5	69-123				

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

Client: Navajo Refining Company
 Work Order: 1312110
 Project: Leaking Water Line Soil Pile

QC BATCH REPORT

Batch ID: R158249		Instrument ID VOA5		Method: SW8260			
Methyl tert-butyl ether	51.4	5.0	50	0	103	76-121	
Methylcyclohexane	48.58	5.0	50	0	97.2	77-126	
o-Xylene	52.66	5.0	50	0	105	80-123	
Styrene	52	5.0	50	0	104	78-124	
Tetrachloroethene	55.48	5.0	50	0	111	73-129	
Toluene	52.52	5.0	50	0	105	79-120	
trans-1,2-Dichloroethene	51.57	5.0	50	0	103	79-122	
trans-1,3-Dichloropropene	50.32	5.0	50	0	101	77-120	
Trichloroethene	49.45	5.0	50	0	98.9	80-121	
Trichlorofluoromethane	47.7	5.0	50	0	95.4	75-126	
Vinyl chloride	46.79	2.0	50	0	93.6	76-126	
Xylenes, Total	158.7	10	150	0	106	80-120	
Surr: 1,2-Dichloroethane-d4	48.7	0	50	0	97.4	70-128	0
Surr: 4-Bromofluorobenzene	49.46	0	50	0	98.9	73-126	0
Surr: Dibromofluoromethane	49.15	0	50	0	98.3	71-128	0
Surr: Toluene-d8	50.59	0	50	0	101	73-127	0

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

Client: Navajo Refining Company
 Work Order: 1312110
 Project: Leaking Water Line Soil Pile

QC BATCH REPORT

Batch ID: **R158249** Instrument ID **VOA5** Method: **SW8260**

MS Sample ID: **1312172-05AMS** Units: **µg/Kg** Analysis Date: **12/6/2013 11:53 AM**
 Client ID: Run ID: **VOA5_131206A** SeqNo: **3460934** 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	46.69	5.0	50	0	93.4	79-124				
1,1,2,2-Tetrachloroethane	50.24	5.0	50	0	100	75-123				
1,1,2-Trichlor-1,2,2-trifluoroethane	46.09	5.0	50	0	92.2	79-125				
1,1,2-Trichloroethane	46.25	5.0	50	0	92.5	79-120				
1,1-Dichloroethane	50.03	5.0	50	0	100	75-124				
1,1-Dichloroethene	47.48	5.0	50	0	95	80-122				
1,2,4-Trichlorobenzene	30.99	5.0	50	0	62	74-128				S
1,2-Dibromo-3-chloropropane	35.3	5.0	50	0	70.6	66-129				
1,2-Dibromoethane	45.76	5.0	50	0	91.5	70-120				
1,2-Dichlorobenzene	43.47	5.0	50	0	86.9	75-120				
1,2-Dichloroethane	47.9	5.0	50	0	95.8	73-121				
1,2-Dichloropropane	46.29	5.0	50	0	92.6	76-120				
1,3-Dichlorobenzene	44.98	5.0	50	0	90	70-125				
1,4-Dichlorobenzene	44.4	5.0	50	0	88.8	77-120				
2-Butanone	82.11	10	100	0	82.1	65-130				
2-Hexanone	89.55	10	100	0	89.5	65-133				
4-Methyl-2-pentanone	123.9	10	100	0	124	69-130				
Acetone	139	20	100	0	139	53-142				
Benzene	49.52	5.0	50	0	99	79-120				
Bromodichloromethane	46.2	5.0	50	0	92.4	79-121				
Bromoform	43.94	5.0	50	0	87.9	74-122				
Bromomethane	50.53	10	50	0	101	68-131				
Carbon disulfide	93.77	10	100	0	93.8	80-124				
Carbon tetrachloride	44.43	5.0	50	0	88.9	74-126				
Chlorobenzene	46.94	5.0	50	0	93.9	79-120				
Chloroethane	49.16	10	50	0	98.3	76-126				
Chloroform	48.65	5.0	50	0	97.3	78-120				
Chloromethane	49.75	10	50	0	99.5	69-129				
cis-1,2-Dichloroethene	48.29	5.0	50	0	96.6	80-120				
cis-1,3-Dichloropropene	45.7	5.0	50	0	91.4	77-123				
Cyclohexane	43.93	5.0	50	0	87.9	74-126				
Dibromochloromethane	47.25	5.0	50	0	94.5	78-122				
Dichlorodifluoromethane	44.89	5.0	50	0	89.8	57-140				
Dichloromethane	42.71	10	50	0	85.4	62-130				
Ethylbenzene	50.33	5.0	50	0	101	80-122				
Isopropylbenzene	44.15	5.0	50	0	88.3	72-127				
m,p-Xylene	95.58	10	100	0	95.6	79-122				
Methyl acetate	52.4	5.0	50	0	105	69-123				

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

Client: Navajo Refining Company
 Work Order: 1312110
 Project: Leaking Water Line Soil Pile

QC BATCH REPORT

Batch ID: R158249	Instrument ID VOA5		Method: SW8260				
Methyl tert-butyl ether	45.65	5.0	50	0	91.3	76-121	
Methylcyclohexane	39.57	5.0	50	0	79.1	77-126	
o-Xylene	47.27	5.0	50	0	94.5	80-123	
Styrene	45.47	5.0	50	0	90.9	78-124	
Tetrachloroethene	43.32	5.0	50	0	86.6	73-129	
Toluene	49.82	5.0	50	0	99.6	79-120	
trans-1,2-Dichloroethene	51.19	5.0	50	0	102	79-122	
trans-1,3-Dichloropropene	44.68	5.0	50	0	89.4	77-120	
Trichloroethene	46.68	5.0	50	0	93.4	80-121	
Trichlorofluoromethane	47.72	5.0	50	0	95.4	75-126	
Vinyl chloride	46.97	2.0	50	0	93.9	76-126	
Xylenes, Total	142.8	10	150	0	95.2	80-120	
Surr: 1,2-Dichloroethane-d4	48.21	0	50	0	96.4	70-128	0
Surr: 4-Bromofluorobenzene	46.55	0	50	0	93.1	73-126	0
Surr: Dibromofluoromethane	48.83	0	50	0	97.7	71-128	0
Surr: Toluene-d8	51.04	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: 1312110
 Project: Leaking Water Line Soil Pile

QC BATCH REPORT

Batch ID: R158249 Instrument ID VOA5 Method: SW8260

MSD		Sample ID: 1312172-05AMSD			Units: µg/Kg			Analysis Date: 12/6/2013 12:16 PM		
Client ID:		Run ID: VOA5_131206A			SeqNo: 3460935			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	51.15	5.0	49.5	0	103	79-124	46.69	9.11	30	
1,1,2,2-Tetrachloroethane	54.13	5.0	49.5	0	109	75-123	50.24	7.46	30	
1,1,2-Trichlor-1,2,2-trifluoroethane	48.27	5.0	49.5	0	97.5	79-125	46.09	4.62	30	
1,1,2-Trichloroethane	49.34	5.0	49.5	0	99.7	79-120	46.25	6.47	30	
1,1-Dichloroethane	54.69	5.0	49.5	0	110	75-124	50.03	8.88	30	
1,1-Dichloroethene	52.67	5.0	49.5	0	106	80-122	47.48	10.4	30	
1,2,4-Trichlorobenzene	34.67	5.0	49.5	0	70	74-128	30.99	11.2	30	S
1,2-Dibromo-3-chloropropane	38.65	5.0	49.5	0	78.1	66-129	35.3	9.06	30	
1,2-Dibromoethane	49.37	5.0	49.5	0	99.7	70-120	45.76	7.58	30	
1,2-Dichlorobenzene	46.87	5.0	49.5	0	94.7	75-120	43.47	7.52	30	
1,2-Dichloroethane	50.06	5.0	49.5	0	101	73-121	47.9	4.41	30	
1,2-Dichloropropane	50.82	5.0	49.5	0	103	76-120	46.29	9.33	30	
1,3-Dichlorobenzene	47.6	5.0	49.5	0	96.2	70-125	44.98	5.67	30	
1,4-Dichlorobenzene	47.63	5.0	49.5	0	96.2	77-120	44.4	7.01	30	
2-Butanone	85.16	9.9	99	0	86	65-130	82.11	3.65	30	
2-Hexanone	91.09	9.9	99	0	92	65-133	89.55	1.71	30	
4-Methyl-2-pentanone	125.8	9.9	99	0	127	69-130	123.9	1.53	30	
Acetone	145.8	20	99	0	147	53-142	139	4.74	30	S
Benzene	53.52	5.0	49.5	0	108	79-120	49.52	7.77	30	
Bromodichloromethane	51.26	5.0	49.5	0	104	79-121	46.2	10.4	30	
Bromoform	48	5.0	49.5	0	97	74-122	43.94	8.82	30	
Bromomethane	60.7	9.9	49.5	0	123	68-131	50.53	18.3	30	
Carbon disulfide	100.7	9.9	99	0	102	80-124	93.77	7.13	30	
Carbon tetrachloride	48.46	5.0	49.5	0	97.9	74-126	44.43	8.68	30	
Chlorobenzene	49.85	5.0	49.5	0	101	79-120	46.94	6.01	30	
Chloroethane	55.36	9.9	49.5	0	112	76-126	49.16	11.9	30	
Chloroform	54.23	5.0	49.5	0	110	78-120	48.65	10.9	30	
Chloromethane	55.43	9.9	49.5	0	112	69-129	49.75	10.8	30	
cis-1,2-Dichloroethene	55.03	5.0	49.5	0	111	80-120	48.29	13	30	
cis-1,3-Dichloropropene	51.18	5.0	49.5	0	103	77-123	45.7	11.3	30	
Cyclohexane	46.34	5.0	49.5	0	93.6	74-126	43.93	5.33	30	
Dibromochloromethane	51.46	5.0	49.5	0	104	78-122	47.25	8.53	30	
Dichlorodifluoromethane	47.04	5.0	49.5	0	95	57-140	44.89	4.69	30	
Dichloromethane	47.85	9.9	49.5	0	96.7	62-130	42.71	11.3	30	
Ethylbenzene	51.59	5.0	49.5	0	104	80-122	50.33	2.46	30	
Isopropylbenzene	45.97	5.0	49.5	0	92.9	72-127	44.15	4.04	30	
m,p-Xylene	100.4	9.9	99	0	101	79-122	95.58	4.88	30	
Methyl acetate	44.05	5.0	49.5	0	89	69-123	52.4	17.3	30	

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

Client: Navajo Refining Company
 Work Order: 1312110
 Project: Leaking Water Line Soil Pile

QC BATCH REPORT

Batch ID: R158249		Instrument ID VOA5		Method: SW8260						
Methyl tert-butyl ether	53.22	5.0	49.5	0	108	76-121	45.65	15.3	30	
Methylcyclohexane	42.65	5.0	49.5	0	86.2	77-126	39.57	7.5	30	
o-Xylene	50.16	5.0	49.5	0	101	80-123	47.27	5.93	30	
Styrene	48.71	5.0	49.5	0	98.4	78-124	45.47	6.9	30	
Tetrachloroethene	45.52	5.0	49.5	0	92	73-129	43.32	4.96	30	
Toluene	52.7	5.0	49.5	0	106	79-120	49.82	5.61	30	
trans-1,2-Dichloroethene	56.91	5.0	49.5	0	115	79-122	51.19	10.6	30	
trans-1,3-Dichloropropene	48.69	5.0	49.5	0	98.4	77-120	44.68	8.6	30	
Trichloroethene	48.79	5.0	49.5	0	98.6	80-121	46.68	4.41	30	
Trichlorofluoromethane	51.22	5.0	49.5	0	103	75-126	47.72	7.08	30	
Vinyl chloride	52.59	2.0	49.5	0	106	76-126	46.97	11.3	30	
Xylenes, Total	150.5	9.9	148.5	0	101	79-123	142.8	5.23	30	
Surr: 1,2-Dichloroethane-d4	49.47	0	49.5	0	99.9	70-128	48.21	2.58	30	
Surr: 4-Bromofluorobenzene	46.17	0	49.5	0	93.3	73-126	46.55	0.813	30	
Surr: Dibromofluoromethane	49.96	0	49.5	0	101	71-128	48.83	2.31	30	
Surr: Toluene-d8	50.01	0	49.5	0	101	73-127	51.04	2.04	30	

The following samples were analyzed in this batch:

1312110-01A

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

Client: Navajo Refining Company
Work Order: 1312110
Project: Leaking Water Line Soil Pile

QC BATCH REPORT

Batch ID: **75209** Instrument ID **ICS2100** Method: **E300** (**Dissolve**)

MBLK Sample ID: **WBLKS1-75209** Units: **mg/Kg** Analysis Date: **12/9/2013 12:03 PM**

Client ID: Run ID: **ICS2100_131209A** SeqNo: **3462137** Prep Date: **12/9/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	5.00								

LCS Sample ID: **WLCSS1-75209** Units: **mg/Kg** Analysis Date: **12/9/2013 12:18 PM**

Client ID: Run ID: **ICS2100_131209A** SeqNo: **3462139** Prep Date: **12/9/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	195.5	5.00	200	0	97.7	90-110				

MS Sample ID: **1312110-01AMS** Units: **mg/Kg** Analysis Date: **12/9/2013 01:57 PM**

Client ID: **Leaking Water Line Soil Pile** Run ID: **ICS2100_131209A** SeqNo: **3462143** Prep Date: **12/9/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	104.9	4.99	99.75	4.27	101	75-125				

MSD Sample ID: **1312110-01AMSD** Units: **mg/Kg** Analysis Date: **12/9/2013 02:12 PM**

Client ID: **Leaking Water Line Soil Pile** Run ID: **ICS2100_131209A** SeqNo: **3462144** Prep Date: **12/9/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	104.5	4.98	99.51	4.27	101	75-125	104.9	0.403	20	

The following samples were analyzed in this batch:

1312110-01A

ALS Environmental

Date: 11-Dec-13

Client: Navajo Refining Company
Project: Leaking Water Line Soil Pile
WorkOrder: 1312110

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

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**

Date/Time Received: **03-Dec-13 09:11**

Work Order: **1312110**

Received by: **NDR**

Checklist completed by Robert D. Harris
eSignature

04-Dec-13

Date

Reviewed by: Sania Wist
eSignature

05-Dec-13

Date

Matrices: **solid**

Carrier name: **FedEx**

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):	<u>2.1c/2.1c c/u</u> <u>IR1</u>		
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	<u>12/4/13 10:45</u>		
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:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



ALS Laboratory Group
10450 Stancliff Rd, #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

1312110

NAVAJO REFINING: Navajo Refining Company

Project: Leaking Water Line Soil Pile



ALS Project Manager: Sonia West

Customer Information			Project Information				Parameter/Method Request for Analysis												
Purchase Order		Project Name	Leaking Water Line Soil Pile				A TPH GRO DRO												
Work Order		Project Number					B VOC												
Company Name	Navajo Refining Company		Bill To Company	Navajo Refining Company				C Metals											
Send Report To	Robert Combs, Bryan Gilbert, Julie Speer		Invoice Attn:	Robert Combs				D Chloride											
Address	P. O. Box 159		Address	501 East Main				E											
City/State/Zip	Artesia, New Mexico 88211-0159		City/State/Zip	Artesia, New Mexico 88210				F											
Phone	(575) 748-3311		Phone	(575) 748-3311				G											
Fax	(575) 746-5451		Fax	(575) 746-5451				H											
e-Mail Address	Robert.Combs@hollyfrontier.com		e-Mail Address	Robert.Combs@hollyfrontier.com				I											
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold		
1	Leaking Water Line Soil Pile	12/2/13	8:00	Solid	Chill	1	X	X	X	X									
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Sampler(s): Please Print & Sign Andres Sandoval		Shipment Method: FedEx		Required Turnaround Time: ☐ STD 10 Wk Days ☒ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour				Results Due Date:		
Relinquished by:	Date: 12/2/13	Time: 8:00 am	Received by:		Notes:					
Relinquished by:	Date:	Time:	Received by (Laboratory): NA 12.2.13 9.11		Cooler Temp.		QC Package: (Check Box Below)			
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		2/1		Level II: Standard QC		TRRP-Checklist	
						Level III: Std QC + Raw Data		TRRP Level IV		
						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 Laboratory Group.

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1342110

 ALS Environmental 10450 Stancliff Rd., Suite 210 Houston, Texas 77099 Tel. +1 281 530 5666 Fax. +1 281 530 5887	CUSTODY SEAL		Seal Broken By: <i>MM</i>
	<i>2/2/13</i> Time: <i>8:30</i> <i>CS Sanderson</i> <i>BC</i>		Date: <i>2/3/13</i>
	Date: <i>1</i>	Name: <i>1</i>	Company: <i>1</i>

This portion can be removed for Recipient's records.

12-2-13 FedEx Tracking Number **898958939017**

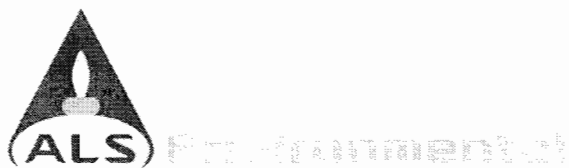
Order's Name *CATHY TRUETT* Phone *573 396-5821*

Company *NAVAJO REFINING CO (LEA)*

Address *7406 S MAIN ST*

LOVINGTON State *NM* ZIP *88360*

or Internal Billing Reference *3 soil samples*



31-Dec-2013

Robert Combs
Navajo Refining Company
PO Box 1490
Artesia, NM 88211-1490

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

Re: Leaking Water Line Soil Pile

Work Order: 1312518

Dear Robert,

ALS Environmental received 1 sample on 02-Dec-2013 09:11 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 19.

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

Sincerely,

Electronically approved by: Dayna.Fisher

Sonia West
Project Manager



Certificate No: T104704231-13-12

Client: Navajo Refining Company
Project: Leaking Water Line Soil Pile
Work Order: 1312518

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>
1312518-01	Leaking Water Line Soil Pile	Solid	1312110-01	12/2/2013 08:00	12/2/2013 09:11	☐

ALS Environmental

Date: 31-Dec-13

Client: Navajo Refining Company
Project: Leaking Water Line Soil Pile
Work Order: 1312518

Case Narrative

This report contains additional analyses per your request on December 12, 2013 via e-mail. The laboratory analyzed your sample Leaking Water Line Soil Pile for SPLP Arsenic and Total Semivolatiles. The sample was originally reported as ALS Workorder Number 1312110.

Batch 7536, Semivolatile Organics 8270, Sample 1312437-03B: MS/MSD are for an unrelated sample

ALS Environmental

Date: 31-Dec-13

Client: Navajo Refining Company
Project: Leaking Water Line Soil Pile
Sample ID: Leaking Water Line Soil Pile
Collection Date: 12/2/2013 08:00 AM

Work Order: 1312518
Lab ID: 1312518-01
Matrix: SOLID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SPLP METALS						
Arsenic	0.0318		SW6020 0.0100	mg/L	Prep Date: 12/16/2013 1	Analyst: ALR 12/17/2013 10:38 PM
SEMIVOLATILES - SW8270D						
1,1'-Biphenyl	U		170	µg/Kg	Prep Date: 12/13/2013 1	Analyst: JLJ 12/16/2013 07:46 PM
2,4,5-Trichlorophenol	U		170	µg/Kg	1	12/16/2013 07:46 PM
2,4,6-Trichlorophenol	U		170	µg/Kg	1	12/16/2013 07:46 PM
2,4-Dichlorophenol	U		170	µg/Kg	1	12/16/2013 07:46 PM
2,4-Dimethylphenol	U		170	µg/Kg	1	12/16/2013 07:46 PM
2,4-Dinitrophenol	U		170	µg/Kg	1	12/16/2013 07:46 PM
2,4-Dinitrotoluene	U		170	µg/Kg	1	12/16/2013 07:46 PM
2,6-Dinitrotoluene	U		170	µg/Kg	1	12/16/2013 07:46 PM
2-Chloronaphthalene	U		170	µg/Kg	1	12/16/2013 07:46 PM
2-Chlorophenol	U		170	µg/Kg	1	12/16/2013 07:46 PM
2-Methylnaphthalene	U		170	µg/Kg	1	12/16/2013 07:46 PM
2-Methylphenol	U		170	µg/Kg	1	12/16/2013 07:46 PM
2-Nitroaniline	U		170	µg/Kg	1	12/16/2013 07:46 PM
2-Nitrophenol	U		170	µg/Kg	1	12/16/2013 07:46 PM
3&4-Methylphenol	U		170	µg/Kg	1	12/16/2013 07:46 PM
3,3'-Dichlorobenzidine	U		170	µg/Kg	1	12/16/2013 07:46 PM
3-Nitroaniline	U		170	µg/Kg	1	12/16/2013 07:46 PM
4,6-Dinitro-2-methylphenol	U		170	µg/Kg	1	12/16/2013 07:46 PM
4-Bromophenyl phenyl ether	U		170	µg/Kg	1	12/16/2013 07:46 PM
4-Chloro-3-methylphenol	U		170	µg/Kg	1	12/16/2013 07:46 PM
4-Chloroaniline	U		170	µg/Kg	1	12/16/2013 07:46 PM
4-Chlorophenyl phenyl ether	U		170	µg/Kg	1	12/16/2013 07:46 PM
4-Nitroaniline	U		170	µg/Kg	1	12/16/2013 07:46 PM
4-Nitrophenol	U		170	µg/Kg	1	12/16/2013 07:46 PM
Acenaphthene	U		170	µg/Kg	1	12/16/2013 07:46 PM
Acenaphthylene	U		170	µg/Kg	1	12/16/2013 07:46 PM
Acetophenone	U		170	µg/Kg	1	12/16/2013 07:46 PM
Anthracene	U		170	µg/Kg	1	12/16/2013 07:46 PM
Atrazine	U		170	µg/Kg	1	12/16/2013 07:46 PM
Benz(a)anthracene	U		170	µg/Kg	1	12/16/2013 07:46 PM
Benzaldehyde	U		170	µg/Kg	1	12/16/2013 07:46 PM
Benzo(a)pyrene	U		170	µg/Kg	1	12/16/2013 07:46 PM
Benzo(b)fluoranthene	U		170	µg/Kg	1	12/16/2013 07:46 PM
Benzo(g,h,i)perylene	U		170	µg/Kg	1	12/16/2013 07:46 PM
Benzo(k)fluoranthene	U		170	µg/Kg	1	12/16/2013 07:46 PM
Bis(2-chloroethoxy)methane	U		170	µg/Kg	1	12/16/2013 07:46 PM

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

ALS Environmental

Date: 31-Dec-13

Client: Navajo Refining Company
Project: Leaking Water Line Soil Pile
Sample ID: Leaking Water Line Soil Pile
Collection Date: 12/2/2013 08:00 AM

Work Order: 1312518
Lab ID: 1312518-01
Matrix: SOLID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Bis(2-chloroethyl)ether	U		170	µg/Kg	1	12/16/2013 07:46 PM
Bis(2-chloroisopropyl)ether	U		170	µg/Kg	1	12/16/2013 07:46 PM
Bis(2-ethylhexyl)phthalate	U		170	µg/Kg	1	12/16/2013 07:46 PM
Butyl benzyl phthalate	U		170	µg/Kg	1	12/16/2013 07:46 PM
Caprolactam	U		170	µg/Kg	1	12/16/2013 07:46 PM
Carbazole	U		170	µg/Kg	1	12/16/2013 07:46 PM
Chrysene	U		170	µg/Kg	1	12/16/2013 07:46 PM
Dibenz(a,h)anthracene	U		170	µg/Kg	1	12/16/2013 07:46 PM
Dibenzofuran	U		170	µg/Kg	1	12/16/2013 07:46 PM
Diethyl phthalate	U		170	µg/Kg	1	12/16/2013 07:46 PM
Dimethyl phthalate	U		170	µg/Kg	1	12/16/2013 07:46 PM
Di-n-butyl phthalate	U		170	µg/Kg	1	12/16/2013 07:46 PM
Di-n-octyl phthalate	U		170	µg/Kg	1	12/16/2013 07:46 PM
Fluoranthene	U		170	µg/Kg	1	12/16/2013 07:46 PM
Fluorene	U		170	µg/Kg	1	12/16/2013 07:46 PM
Hexachlorobenzene	U		170	µg/Kg	1	12/16/2013 07:46 PM
Hexachlorobutadiene	U		170	µg/Kg	1	12/16/2013 07:46 PM
Hexachlorocyclopentadiene	U		170	µg/Kg	1	12/16/2013 07:46 PM
Hexachloroethane	U		170	µg/Kg	1	12/16/2013 07:46 PM
Indeno(1,2,3-cd)pyrene	U		170	µg/Kg	1	12/16/2013 07:46 PM
Isophorone	U		170	µg/Kg	1	12/16/2013 07:46 PM
Naphthalene	U		170	µg/Kg	1	12/16/2013 07:46 PM
Nitrobenzene	U		170	µg/Kg	1	12/16/2013 07:46 PM
N-Nitrosodi-n-propylamine	U		170	µg/Kg	1	12/16/2013 07:46 PM
N-Nitrosodiphenylamine	U		170	µg/Kg	1	12/16/2013 07:46 PM
Pentachlorophenol	U		170	µg/Kg	1	12/16/2013 07:46 PM
Phenanthrene	U		170	µg/Kg	1	12/16/2013 07:46 PM
Phenol	U		170	µg/Kg	1	12/16/2013 07:46 PM
Pyrene	U		170	µg/Kg	1	12/16/2013 07:46 PM
Surr: 2,4,6-Tribromophenol	92.5		36-126	%REC	1	12/16/2013 07:46 PM
Surr: 2-Fluorobiphenyl	80.0		43-125	%REC	1	12/16/2013 07:46 PM
Surr: 2-Fluorophenol	85.5		37-125	%REC	1	12/16/2013 07:46 PM
Surr: 4-Terphenyl-d14	102		32-125	%REC	1	12/16/2013 07:46 PM
Surr: Nitrobenzene-d5	98.7		37-125	%REC	1	12/16/2013 07:46 PM
Surr: Phenol-d6	114		40-125	%REC	1	12/16/2013 07:46 PM

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

Company
Soil Pile

DATES REPORT

Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
<u>Nonvolatiles - SW8270D</u>				
Solid	12/2/2013 8:00:00 AM		12/13/2013 08:28 AM	12/16/2013 07:46 PM
<u>P Metals</u>				
Solid	12/2/2013 8:00:00 AM	12/14/2013 8:00:00 AM	12/16/2013 10:00 AM	12/17/2013 10:38 PM

Client: Navajo Refining Company
 Work Order: 1312518
 Project: Leaking Water Line Soil Pile

QC BATCH REPORT

Batch ID: 75375 Instrument ID ICP7500 Method: SW6020

MBLK Sample ID: MBLKP1-121313-75375 Units: mg/L Analysis Date: 12/17/2013 10:14 PM

Client ID: Run ID: ICP7500_131217A SeqNo: 3472911 Prep Date: 12/16/2013 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.00500								

MBLK Sample ID: MBLKW4-121613-75375 Units: mg/L Analysis Date: 12/17/2013 10:28 PM

Client ID: Run ID: ICP7500_131217A SeqNo: 3472915 Prep Date: 12/16/2013 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.00500								

MLCS Sample ID: MLC4-121613-75375 Units: mg/L Analysis Date: 12/17/2013 10:33 PM

Client ID: Run ID: ICP7500_131217A SeqNo: 3472916 Prep Date: 12/16/2013 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05115	0.00500	0.05		0	102	80-120			

MS Sample ID: 1312519-01AMS Units: mg/L Analysis Date: 12/17/2013 10:58 PM

Client ID: Run ID: ICP7500_131217A SeqNo: 3472921 Prep Date: 12/16/2013 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.06078	0.00500	0.05	0.008814	104	75-125				

MSD Sample ID: 1312519-01AMSD Units: mg/L Analysis Date: 12/17/2013 11:03 PM

Client ID: Run ID: ICP7500_131217A SeqNo: 3472922 Prep Date: 12/16/2013 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05851	0.00500	0.05	0.008814	99.4	75-125	0.06078	3.81	25	

DUP Sample ID: 1312519-01ADUP Units: mg/L Analysis Date: 12/17/2013 10:48 PM

Client ID: Run ID: ICP7500_131217A SeqNo: 3472919 Prep Date: 12/16/2013 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.008779	0.00500					0.008814	0.398	20	

The following samples were analyzed in this batch:

1312518-01A

Client: Navajo Refining Company
 Work Order: 1312518
 Project: Leaking Water Line Soil Pile

QC BATCH REPORT

Batch ID: 75336 Instrument ID SV-5 Method: SW8270

MBLK Sample ID: SBLKS1-131213-75336 Units: µg/Kg Analysis Date: 12/16/2013 11:57 AM
 Client ID: Run ID: SV-5_131216B SeqNo: 3470309 Prep Date: 12/13/2013 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	U	170								
2,4,5-Trichlorophenol	U	170								
2,4,6-Trichlorophenol	U	170								
2,4-Dichlorophenol	U	170								
2,4-Dimethylphenol	U	170								
2,4-Dinitrophenol	U	170								
2,4-Dinitrotoluene	U	170								
2,6-Dinitrotoluene	U	170								
2-Chloronaphthalene	U	170								
2-Chlorophenol	U	170								
2-Methylnaphthalene	U	170								
2-Methylphenol	U	170								
2-Nitroaniline	U	170								
2-Nitrophenol	U	170								
3&4-Methylphenol	U	170								
3,3'-Dichlorobenzidine	U	170								
3-Nitroaniline	U	170								
4,6-Dinitro-2-methylphenol	U	170								
4-Bromophenyl phenyl ether	U	170								
4-Chloro-3-methylphenol	U	170								
4-Chloroaniline	U	170								
4-Chlorophenyl phenyl ether	U	170								
4-Nitroaniline	U	170								
4-Nitrophenol	U	170								
Acenaphthene	U	170								
Acenaphthylene	U	170								
Acetophenone	U	170								
Anthracene	U	170								
Atrazine	U	170								
Benz(a)anthracene	U	170								
Benzaldehyde	U	170								
Benzo(a)pyrene	U	170								
Benzo(b)fluoranthene	U	170								
Benzo(g,h,i)perylene	U	170								
Benzo(k)fluoranthene	U	170								
Bis(2-chloroethoxy)methane	U	170								
Bis(2-chloroethyl)ether	U	170								
Bis(2-chloroisopropyl)ether	U	170								

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

Client: Navajo Refining Company
 Work Order: 1312518
 Project: Leaking Water Line Soil Pile

QC BATCH REPORT

Batch ID: 75336		Instrument ID SV-5		Method: SW8270				
Bis(2-ethylhexyl)phthalate	U	170						
Butyl benzyl phthalate	U	170						
Caprolactam	U	170						
Carbazole	U	170						
Chrysene	U	170						
Dibenz(a,h)anthracene	U	170						
Dibenzofuran	U	170						
Diethyl phthalate	U	170						
Dimethyl phthalate	U	170						
Di-n-butyl phthalate	U	170						
Di-n-octyl phthalate	U	170						
Fluoranthene	U	170						
Fluorene	U	170						
Hexachlorobenzene	U	170						
Hexachlorobutadiene	U	170						
Hexachlorocyclopentadiene	U	170						
Hexachloroethane	U	170						
Indeno(1,2,3-cd)pyrene	U	170						
Isoophorone	U	170						
Naphthalene	U	170						
Nitrobenzene	U	170						
N,N-Dinitrosodi-n-propylamine	U	170						
N-Nitrosodiphenylamine	U	170						
Orthachlorophenol	U	170						
Phenanthrene	U	170						
Phenol	U	170						
Pyrene	U	170						
Surr: 2,4,6-Tribromophenol	2962	170	3333	0	88.9	36-126	0	
Surr: 2-Fluorobiphenyl	3151	170	3333	0	94.5	43-125	0	
Surr: 2-Fluorophenol	3733	170	3333	0	112	37-125	0	
Surr: 4-Terphenyl-d14	3493	170	3333	0	105	32-125	0	
Surr: Nitrobenzene-d5	3815	170	3333	0	114	37-125	0	
Surr: Phenol-d6	3841	170	3333	0	115	40-125	0	

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

Client: Navajo Refining Company
 Work Order: 1312518
 Project: Leaking Water Line Soil Pile

QC BATCH REPORT

Batch ID: 75336 Instrument ID SV-5 Method: SW8270

LCS Sample ID: SLCSS1-131213-75336 Units: µg/Kg Analysis Date: 12/16/2013 12:19 PM
 Client ID: Run ID: SV-5_131216B SeqNo: 3470310 Prep Date: 12/13/2013 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	1552	170	1667	0	93.1	55-120				
2,4,5-Trichlorophenol	2485	170	3333	0	74.5	55-120				
2,4,6-Trichlorophenol	2809	170	3333	0	84.3	55-120				
2,4-Dichlorophenol	2589	170	3333	0	77.7	55-120				
2,4-Dimethylphenol	2710	170	3333	0	81.3	55-125				
2,4-Dinitrophenol	3977	170	3333	0	119	40-125				
2,4-Dinitrotoluene	1526	170	1667	0	91.6	55-125				
2,6-Dinitrotoluene	1474	170	1667	0	88.4	55-120				
2-Chloronaphthalene	1568	170	1667	0	94.1	55-145				
2-Chlorophenol	2734	170	3333	0	82	55-120				
2-Methylnaphthalene	1439	170	1667	0	86.4	55-120				
2-Methylphenol	2473	170	3333	0	74.2	55-120				
2-Nitroaniline	1869	170	1667	0	112	55-130				
2-Nitrophenol	2739	170	3333	0	82.2	55-120				
3&4-Methylphenol	4076	170	5000	0	81.5	55-120				
3,3'-Dichlorobenzidine	1507	170	1667	0	90.4	32-125				
3-Nitroaniline	1040	170	1667	0	62.4	43-120				
4,6-Dinitro-2-methylphenol	3473	170	3333	0	104	50-130				
4-Bromophenyl phenyl ether	1549	170	1667	0	92.9	55-120				
4-Chloro-3-methylphenol	2775	170	3333	0	83.2	55-120				
4-Chloroaniline	758.9	170	1667	0	45.5	30-120				
4-Chlorophenyl phenyl ether	1387	170	1667	0	83.2	55-120				
4-Nitroaniline	1355	170	1667	0	81.3	55-120				
4-Nitrophenol	3807	170	3333	0	114	50-130				
Acenaphthene	1490	170	1667	0	89.4	55-120				
Acenaphthylene	1455	170	1667	0	87.3	55-120				
Acetophenone	1568	170	1667	0	94.1	54-120				
Anthracene	1558	170	1667	0	93.5	55-120				
Atrazine	1802	170	1667	0	108	55-130				
Benz(a)anthracene	1627	170	1667	0	97.6	55-125				
Benzaldehyde	1621	170	1667	0	97.2	20-132				
Benzo(a)pyrene	1584	170	1667	0	95	55-120				
Benzo(b)fluoranthene	1673	170	1667	0	100	55-125				
Benzo(g,h,i)perylene	1516	170	1667	0	90.9	55-120				
Benzo(k)fluoranthene	1488	170	1667	0	89.3	55-130				
Bis(2-chloroethoxy)methane	1543	170	1667	0	92.6	55-120				
Bis(2-chloroethyl)ether	1689	170	1667	0	101	55-120				
Bis(2-chloroisopropyl)ether	1331	170	1667	0	79.9	55-120				

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

Client: Navajo Refining Company
 Work Order: 1312518
 Project: Leaking Water Line Soil Pile

QC BATCH REPORT

Batch ID: 75336	Instrument ID SV-5		Method: SW8270				
Bis(2-ethylhexyl)phthalate	1797	170	1667	0	108	55-125	
Butyl benzyl phthalate	1778	170	1667	0	107	55-125	
Caprolactam	1592	170	1667	0	95.5	55-140	
Carbazole	1621	170	1667	0	97.3	55-120	
Chrysene	1494	170	1667	0	89.6	55-125	
Dibenz(a,h)anthracene	1472	170	1667	0	88.3	55-120	
Dibenzofuran	1421	170	1667	0	85.3	55-120	
Diethyl phthalate	1573	170	1667	0	94.4	55-120	
Dimethyl phthalate	1430	170	1667	0	85.8	55-120	
Di-n-butyl phthalate	1727	170	1667	0	104	55-125	
Di-n-octyl phthalate	1798	170	1667	0	108	55-130	
Fluoranthene	1591	170	1667	0	95.5	55-125	
Fluorene	1468	170	1667	0	88.1	55-120	
Hexachlorobenzene	1561	170	1667	0	93.7	55-120	
Hexachlorobutadiene	1338	170	1667	0	80.3	55-120	
Hexachlorocyclopentadiene	1452	170	1667	0	87.1	50-120	
Hexachloroethane	1454	170	1667	0	87.2	55-120	
Indeno(1,2,3-cd)pyrene	1623	170	1667	0	97.4	55-125	
Isophorone	1570	170	1667	0	94.2	55-120	
Naphthalene	1443	170	1667	0	86.6	55-120	
Nitrobenzene	1680	170	1667	0	101	55-120	
N-Nitrosodi-n-propylamine	1392	170	1667	0	83.5	55-120	
N-Nitrosodiphenylamine	1630	170	1667	0	97.8	55-120	
Pentachlorophenol	3252	170	3333	0	97.6	50-135	
Phenanthrene	1619	170	1667	0	97.1	55-120	
Phenol	3212	170	3333	0	96.4	50-120	
Pyrene	1690	170	1667	0	101	55-125	
Surr: 2,4,6-Tribromophenol	3196	170	3333	0	95.9	36-126	0
Surr: 2-Fluorobiphenyl	2599	170	3333	0	78	43-125	0
Surr: 2-Fluorophenol	3378	170	3333	0	101	37-125	0
Surr: 4-Terphenyl-d14	3474	170	3333	0	104	32-125	0
Surr: Nitrobenzene-d5	3496	170	3333	0	105	37-125	0
Surr: Phenol-d6	3493	170	3333	0	105	40-125	0

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

Client: Navajo Refining Company
 Work Order: 1312518
 Project: Leaking Water Line Soil Pile

QC BATCH REPORT

Batch ID: 75336 Instrument ID SV-5 Method: SW8270

MS		Sample ID: 1312437-03BMS		Units: µg/Kg		Analysis Date: 12/16/2013 01:04 PM				
Client ID:		Run ID: SV-5_131216B		SeqNo: 3470312		Prep Date: 12/13/2013		DF: 10		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	2742	1,700	1662	0	165	55-120				S
2,4,5-Trichlorophenol	3028	1,700	3323	0	91.1	55-120				
2,4,6-Trichlorophenol	3996	1,700	3323	0	120	55-120				S
2,4-Dichlorophenol	3086	1,700	3323	0	92.8	55-120				
2,4-Dimethylphenol	3130	1,700	3323	0	94.2	55-125				
2,4-Dinitrophenol	1099	1,700	3323	0	33.1	40-125				JS
2,4-Dinitrotoluene	3953	1,700	1662	0	238	55-125				S
2,6-Dinitrotoluene	2226	1,700	1662	0	134	55-120				S
2-Chloronaphthalene	1747	1,700	1662	0	105	55-145				
2-Chlorophenol	2697	1,700	3323	0	81.1	55-120				
2-Methylnaphthalene	2806	1,700	1662	1362	86.9	55-120				
2-Methylphenol	2935	1,700	3323	0	88.3	55-120				
2-Nitroaniline	2734	1,700	1662	0	165	55-130				S
2-Nitrophenol	3110	1,700	3323	0	93.6	55-120				
3&4-Methylphenol	4580	1,700	4985	0	91.9	55-120				
3,3'-Dichlorobenzidine	1329	1,700	1662	0	80	32-125				J
3-Nitroaniline	1689	1,700	1662	0	102	43-120				J
4,6-Dinitro-2-methylphenol	1755	1,700	3323	0	52.8	50-130				
4-Bromophenyl phenyl ether	1496	1,700	1662	0	90	55-120				J
4-Chloro-3-methylphenol	2818	1,700	3323	0	84.8	55-120				
4-Chloroaniline	768.2	1,700	1662	0	46.2	30-120				J
4-Chlorophenyl phenyl ether	1452	1,700	1662	0	87.4	55-120				J
4-Nitroaniline	1348	1,700	1662	0	81.1	55-120				J
4-Nitrophenol	4818	1,700	3323	0	145	50-130				S
Acenaphthene	2296	1,700	1662	0	138	55-120				S
Acenaphthylene	1968	1,700	1662	0	118	55-120				
Acetophenone	2276	1,700	1662	0	137	54-120				S
Anthracene	2224	1,700	1662	649.7	94.7	55-120				
Atrazine	2773	1,700	1662	0	167	55-130				S
Benz(a)anthracene	3036	1,700	1662	1257	107	55-125				
Benzaldehyde	1827	1,700	1662	0	110	20-132				
Benzo(a)pyrene	2538	1,700	1662	1061	88.9	55-120				
Benzo(b)fluoranthene	2046	1,700	1662	0	123	55-125				
Benzo(g,h,i)perylene	2114	1,700	1662	787.6	79.8	55-120				
Benzo(k)fluoranthene	1482	1,700	1662	674.4	48.6	55-130				JS
Bis(2-chloroethoxy)methane	1763	1,700	1662	0	106	55-120				
Bis(2-chloroethyl)ether	1422	1,700	1662	0	85.6	55-120				J
Bis(2-chloroisopropyl)ether	1576	1,700	1662	0	94.9	55-120				J

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

Client: Navajo Refining Company
 Work Order: 1312518
 Project: Leaking Water Line Soil Pile

QC BATCH REPORT

Batch ID: 75336	Instrument ID SV-5		Method: SW8270					
Bis(2-ethylhexyl)phthalate	2180	1,700	1662	0	131	55-125		S
Butyl benzyl phthalate	1836	1,700	1662	0	111	55-125		
Caprolactam	18460	1,700	1662	0	1110	55-140		S
Carbazole	1801	1,700	1662	0	108	55-120		
Chrysene	4107	1,700	1662	2561	93.1	55-125		
Dibenz(a,h)anthracene	1406	1,700	1662	0	84.6	55-120		J
Dibenzofuran	4916	1,700	1662	3292	97.7	55-120		
Diethyl phthalate	1920	1,700	1662	0	116	55-120		
Dimethyl phthalate	1508	1,700	1662	0	90.8	55-120		J
Di-n-butyl phthalate	1823	1,700	1662	0	110	55-125		
Di-n-octyl phthalate	1732	1,700	1662	0	104	55-130		
Fluoranthene	2281	1,700	1662	792.6	89.6	55-125		
Fluorene	3397	1,700	1662	2053	80.9	55-120		
Hexachlorobenzene	1546	1,700	1662	0	93.1	55-120		J
Hexachlorobutadiene	1360	1,700	1662	0	81.9	55-120		J
Hexachlorocyclopentadiene	U	1,700	1662	0	0	50-120		S
Hexachloroethane	2435	1,700	1662	0	147	55-120		S
Indeno(1,2,3-cd)pyrene	1521	1,700	1662	0	91.5	55-125		J
Isophorone	2311	1,700	1662	0	139	55-120		S
Naphthalene	2155	1,700	1662	0	130	55-120		S
Nitrobenzene	1930	1,700	1662	0	116	55-120		
N,N-Dinitrosodi-n-propylamine	1976	1,700	1662	0	119	55-120		
N-Nitrosodiphenylamine	1446	1,700	1662	0	87	55-120		J
Pentachlorophenol	2267	1,700	3323	0	68.2	50-135		
Phenanthrene	7457	1,700	1662	5059	144	55-120		S
Phenol	3329	1,700	3323	0	100	50-120		
Pyrene	5063	1,700	1662	3685	82.9	55-125		
Surr: 2,4,6-Tribromophenol	2968	1,700	3323	0	89.3	36-126	0	
Surr: 2-Fluorobiphenyl	3294	1,700	3323	0	99.1	43-125	0	
Surr: 2-Fluorophenol	3141	1,700	3323	0	94.5	37-125	0	
Surr: 4-Terphenyl-d14	3657	1,700	3323	0	110	32-125	0	
Surr: Nitrobenzene-d5	3766	1,700	3323	0	113	37-125	0	
Surr: Phenol-d6	3663	1,700	3323	0	110	40-125	0	

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

Client: Navajo Refining Company
 Work Order: 1312518
 Project: Leaking Water Line Soil Pile

QC BATCH REPORT

Batch ID: 75336 Instrument ID SV-5 Method: SW8270

MSD Sample ID: 1312437-03BMSD Units: µg/Kg Analysis Date: 12/16/2013 01:26 PM
 Client ID: Run ID: SV-5_131216B SeqNo: 3470313 Prep Date: 12/13/2013 DF: 10

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	2944	1,700	1661	0	177	55-120	2742	7.1	30	S
2,4,5-Trichlorophenol	2869	1,700	3322	0	86.4	55-120	3028	5.39	30	
2,4,6-Trichlorophenol	3519	1,700	3322	0	106	55-120	3996	12.7	30	
2,4-Dichlorophenol	3119	1,700	3322	0	93.9	55-120	3086	1.08	30	
2,4-Dimethylphenol	3111	1,700	3322	0	93.6	55-125	3130	0.604	30	
2,4-Dinitrophenol	1074	1,700	3322	0	32.3	40-125	1099	0	30	JS
2,4-Dinitrotoluene	4764	1,700	1661	0	287	55-125	3953	18.6	30	S
2,6-Dinitrotoluene	2200	1,700	1661	0	132	55-120	2226	1.18	30	S
2-Chloronaphthalene	1696	1,700	1661	0	102	55-145	1747	0	30	J
2-Chlorophenol	2837	1,700	3322	0	85.4	55-120	2697	5.07	30	
2-Methylnaphthalene	3146	1,700	1661	1362	107	55-120	2806	11.4	30	
2-Methylphenol	2955	1,700	3322	0	89	55-120	2935	0.707	30	
2-Nitroaniline	3311	1,700	1661	0	199	55-130	2734	19.1	30	S
2-Nitrophenol	3114	1,700	3322	0	93.7	55-120	3110	0.11	30	
3&4-Methylphenol	4590	1,700	4983	0	92.1	55-120	4580	0.212	30	
3,3'-Dichlorobenzidine	1557	1,700	1661	0	93.7	32-125	1329	0	30	J
3-Nitroaniline	1056	1,700	1661	0	63.6	43-120	1689	0	30	J
4,6-Dinitro-2-methylphenol	2117	1,700	3322	0	63.7	50-130	1755	18.7	30	
4-Bromophenyl phenyl ether	1502	1,700	1661	0	90.4	55-120	1496	0	30	J
4-Chloro-3-methylphenol	2952	1,700	3322	0	88.9	55-120	2818	4.65	30	
4-Chloroaniline	744.6	1,700	1661	0	44.8	30-120	768.2	0	30	J
4-Chlorophenyl phenyl ether	1674	1,700	1661	0	101	55-120	1452	0	30	J
4-Nitroaniline	1806	1,700	1661	0	109	55-120	1348	29	30	
4-Nitrophenol	5398	1,700	3322	0	162	50-130	4818	11.3	30	S
Acenaphthene	2262	1,700	1661	0	136	55-120	2296	1.47	30	S
Acenaphthylene	1973	1,700	1661	0	119	55-120	1968	0.218	30	
Acetophenone	2265	1,700	1661	0	136	54-120	2276	0.48	30	S
Anthracene	2483	1,700	1661	649.7	110	55-120	2224	11	30	
Atrazine	2499	1,700	1661	0	150	55-130	2773	10.4	30	S
Benz(a)anthracene	3700	1,700	1661	1257	147	55-125	3036	19.7	30	S
Benzaldehyde	1831	1,700	1661	0	110	20-132	1827	0.197	30	
Benzo(a)pyrene	3216	1,700	1661	1061	130	55-120	2538	23.6	30	S
Benzo(b)fluoranthene	2382	1,700	1661	0	143	55-125	2046	15.2	30	S
Benzo(g,h,i)perylene	2590	1,700	1661	787.6	108	55-120	2114	20.2	30	
Benzo(k)fluoranthene	1513	1,700	1661	674.4	50.5	55-130	1482	0	30	JS
Bis(2-chloroethoxy)methane	1779	1,700	1661	0	107	55-120	1763	0.887	30	
Bis(2-chloroethyl)ether	1496	1,700	1661	0	90.1	55-120	1422	0	30	J
Bis(2-chloroisopropyl)ether	1587	1,700	1661	0	95.5	55-120	1576	0	30	J

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

Client: Navajo Refining Company
 Work Order: 1312518
 Project: Leaking Water Line Soil Pile

QC BATCH REPORT

Batch ID: 75336	Instrument ID SV-5		Method: SW8270							
3is(2-ethylhexyl)phthalate	3794	1,700	1661	0	228	55-125	2180	54	30	SR
3utyl benzyl phthalate	1996	1,700	1661	0	120	55-125	1836	8.31	30	
Caprolactam	16500	1,700	1661	0	993	55-140	18460	11.2	30	S
Carbazole	1864	1,700	1661	0	112	55-120	1801	3.39	30	
Chrysene	5290	1,700	1661	2561	164	55-125	4107	25.2	30	S
Dibenz(a,h)anthracene	1975	1,700	1661	0	119	55-120	1406	33.7	30	R
Dibenzofuran	4765	1,700	1661	3292	88.7	55-120	4916	3.13	30	
Diethyl phthalate	1848	1,700	1661	0	111	55-120	1920	3.82	30	
Dimethyl phthalate	1690	1,700	1661	0	102	55-120	1508	0	30	J
Di-n-butyl phthalate	1935	1,700	1661	0	117	55-125	1823	6	30	
Di-n-octyl phthalate	2067	1,700	1661	0	124	55-130	1732	17.6	30	
Fluoranthene	2971	1,700	1661	792.6	131	55-125	2281	26.3	30	S
Fluorene	3582	1,700	1661	2053	92	55-120	3397	5.29	30	
Hexachlorobenzene	1540	1,700	1661	0	92.7	55-120	1546	0	30	J
Hexachlorobutadiene	1397	1,700	1661	0	84.1	55-120	1360	0	30	J
Hexachlorocyclopentadiene	U	1,700	1661	0	0	50-120	0	0	30	S
Hexachloroethane	2439	1,700	1661	0	147	55-120	2435	0.147	30	S
Indeno(1,2,3-cd)pyrene	1823	1,700	1661	0	110	55-125	1521	18.1	30	
Sophorone	2315	1,700	1661	0	139	55-120	2311	0.153	30	S
Naphthalene	2158	1,700	1661	0	130	55-120	2155	0.117	30	S
Nitrobenzene	1931	1,700	1661	0	116	55-120	1930	0.0468	30	
N,N-Dinitrosodi-n-propylamine	2067	1,700	1661	0	124	55-120	1976	4.53	30	S
N-Nitrosodiphenylamine	1692	1,700	1661	0	102	55-120	1446	0	30	J
Pentachlorophenol	2375	1,700	3322	0	71.5	50-135	2267	4.62	30	
Phenanthrene	8966	1,700	1661	5059	235	55-120	7457	18.4	30	S
Phenol	3261	1,700	3322	0	98.2	50-120	3329	2.06	30	
Pyrene	7269	1,700	1661	3685	216	55-125	5063	35.8	30	SR
Surr: 2,4,6-Tribromophenol	3102	1,700	3322	0	93.4	36-126	2968	4.42	30	
Surr: 2-Fluorobiphenyl	3344	1,700	3322	0	101	43-125	3294	1.49	30	
Surr: 2-Fluorophenol	3238	1,700	3322	0	97.5	37-125	3141	3.02	30	
Surr: 4-Terphenyl-d14	3381	1,700	3322	0	102	32-125	3657	7.85	30	
Surr: Nitrobenzene-d5	3972	1,700	3322	0	120	37-125	3766	5.31	30	
Surr: Phenol-d6	3507	1,700	3322	0	106	40-125	3663	4.37	30	

The following samples were analyzed in this batch:

1312518-01A

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

Client: Navajo Refining Company
Project: Leaking Water Line Soil Pile
WorkOrder: 1312518

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/L	Milligrams per Liter

Sample Receipt Checklist

Client Name: NAVAJO REFINING

Date/Time Received: 02-Dec-13 09:11

Work Order: 1312518

Received by: JBA

Checklist completed by Johanna B. Allen
eSignature

13-Dec-13
Date

Reviewed by: _____
eSignature Date

Matrices:

Carrier name: ALS.HS

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):			
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:			
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: Re-log of 1312110

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



ALS Laboratory Group
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

1312518

NAVAJO REFINING: Navajo Refining Company

Project: Leaking Water Line Soil Pile



ALS Project Manager: Sonia West

Customer Information		Project Information					Parameter/Method Request for Analysis											
Purchase Order		Project Name	Leaking Water Line Soil Pile				A	TPH GRO DRO										
Work Order		Project Number					B	VOC										
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company				C	Metals										
Send Report To	Robert Combs, Bryan Gilbert, Julie Speer	Invoice Attn	Robert Combs				D	Chloride										
Address	P. O. Box 159	Address	501 East Main				E											
City/State/Zip	Artesia, New Mexico 88211-0159	City/State/Zip	Artesia, New Mexico 88210				F											
Phone	(575) 748-3311	Phone	(575) 748-3311				G											
Fax	(575) 746-5451	Fax	(575) 746-5451				H											
e-Mail Address	Robert.Combs@hollyfrontier.com	e-Mail Address	Robert.Combs@hollyfrontier.com				I											
J																		
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold	
1	Leaking Water Line Soil Pile	12/2/13	8:00	Solid	Chill	1	X	X	X	X								
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
Sampler(s): Please Print & Sign		Shipment Method:		Required Turnaround Time:				Results Due Date:										
Andres Sandval		FedEx		☐ STD 10 Wk Days ☒ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour														
Relinquished by:		Date: 12/2/13	Time: 8:00 am	Received by:			Notes:											
Relinquished by:		Date:	Time:	Received by (Laboratory):			Cooler Temp. QC Package: (Check Box Below)											
Logged by (Laboratory):		Date:	Time:	Checked by (Laboratory):			Level II: Standard QC TRRP-Checklist											
							Level III: Std QC + Raw Data TRRP Level IV											
							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 Laboratory Group.

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1342110

 ALS Environmental 10450 Standliff Rd., Suite 210 Houston, Texas 77099 Tel. +1 281 530 5656 Fax. +1 281 530 5887	CUSTODY SEAL		Seal Broken By: <i>NA</i>
	<i>2/2/13</i> Time: <i>8:30</i> <i>CS Sandoval</i> <i>BC</i>	Date: Name: Company:	<i>W/3/3</i>

This portion can be removed for Recipient's records.

12-2-13 FedEx Tracking Number *898958939017*

Order's Name *CATHY TRUETT* Phone *573 396-5821*

Company *NAVAJO REFINING CO (LEA)*

Address *7406 S MAIN ST*

LOVINGTON State *NM* ZIP *88260*

or Internal Billing Reference *35016 Samples*



11-Dec-2013

Robert Combs
Navajo Refining Company
PO Box 1490
Artesia, NM 88211-1490

Tel: (575) 746-5382

Fax: (575) 746-5421

Re: Fire Water Pond Soil Pile

Work Order: 1312112

Dear Robert,

ALS Environmental received 1 sample on 03-Dec-2013 09:11 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 24.

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

Sincerely,

Electronically approved by: Jumoke M. Lawal

Sonia West
Project Manager



Certificate No: T104704231-13-12

Client: Navajo Refining Company
Project: Fire Water Pond Soil Pile
Work Order: 1312112

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>
1312112-01	Fire Water Pond Soil Pile	Solid		12/2/2013 08:00	12/3/2013 09:11	☐

ALS Environmental

Date: 11-Dec-13

Client: Navajo Refining Company
Project: Fire Water Pond Soil Pile
Work Order: 1312112

Case Narrative

Batch 75170, TPH DRO/ORO 8015, Sample 1312185-02B: MS/MSD are for an unrelated sample.

Batch 76125, Total Metals 6020, Sample Fire Water Pond Soil Pile (1312112-01A): MS/MSD recoveries were outside of the control limits due to matrix interference.

Batch R158249, Volatile Organics 8260, Sample 1312172-05A: MS/MSD are for an unrelated sample.

ALS Environmental

Date: 11-Dec-13

Client: Navajo Refining Company
Project: Fire Water Pond Soil Pile
Sample ID: Fire Water Pond Soil Pile
Collection Date: 12/2/2013 08:00 AM

Work Order: 1312112
Lab ID: 1312112-01
Matrix: SOLID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO - 8015C						
TPH (Diesel Range)	8.1		SW8015M 3.4	mg/Kg	2	Prep Date: 12/6/2013 Analyst: RPM 12/10/2013 10:18 AM
TPH (Motor Oil Range)	79		6.8	mg/Kg	2	12/10/2013 10:18 AM
Surr: 2-Fluorobiphenyl	71.8		60-135	%REC	2	12/10/2013 10:18 AM
GASOLINE RANGE ORGANICS - SW8015C						
Gasoline Range Organics	U		SW8015 0.050	mg/Kg	1	Analyst: DNR 12/9/2013 01:47 PM
Surr: 4-Bromofluorobenzene	99.9		70-130	%REC	1	12/9/2013 01:47 PM
MERCURY - SW7471B						
Mercury	81.5		SW7471A 3.42	µg/Kg	1	Prep Date: 12/4/2013 Analyst: OFO 12/4/2013 02:57 PM
METALS						
Arsenic	4.11		SW6020 0.454	mg/Kg	1	Prep Date: 12/5/2013 Analyst: JCJ 12/5/2013 03:37 PM
Barium	138		0.454	mg/Kg	1	12/5/2013 03:37 PM
Cadmium	0.127	J	0.454	mg/Kg	1	12/5/2013 03:37 PM
Chromium	11.6		0.454	mg/Kg	1	12/5/2013 03:37 PM
Lead	6.84		0.454	mg/Kg	1	12/5/2013 03:37 PM
Selenium	0.727		0.454	mg/Kg	1	12/5/2013 03:37 PM
Silver	U		0.454	mg/Kg	1	12/5/2013 03:37 PM
TCL VOLATILES - SW8260C						
1,1,1-Trichloroethane	U		SW8260 5.0	µg/Kg	1	Analyst: WLR 12/6/2013 03:22 PM
1,1,2,2-Tetrachloroethane	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
1,1,2-Trichlor-1,2,2-trifluoroethane	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
1,1,2-Trichloroethane	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
1,1-Dichloroethane	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
1,1-Dichloroethene	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
1,2,4-Trichlorobenzene	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
1,2-Dibromo-3-chloropropane	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
1,2-Dibromoethane	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
1,2-Dichlorobenzene	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
1,2-Dichloroethane	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
1,2-Dichloropropane	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
1,3-Dichlorobenzene	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
1,4-Dichlorobenzene	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
2-Butanone	U		10	µg/Kg	1	12/6/2013 03:22 PM
2-Hexanone	U		10	µg/Kg	1	12/6/2013 03:22 PM
4-Methyl-2-pentanone	U		10	µg/Kg	1	12/6/2013 03:22 PM
Acetone	U		20	µg/Kg	1	12/6/2013 03:22 PM
Benzene	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
Bromodichloromethane	U		5.0	µg/Kg	1	12/6/2013 03:22 PM

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

ALS Environmental

Date: 11-Dec-13

Client: Navajo Refining Company

Project: Fire Water Pond Soil Pile

Work Order: 1312112

Sample ID: Fire Water Pond Soil Pile

Lab ID: 1312112-01

Collection Date: 12/2/2013 08:00 AM

Matrix: SOLID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Bromoform	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
Bromomethane	U		10	µg/Kg	1	12/6/2013 03:22 PM
Carbon disulfide	U		10	µg/Kg	1	12/6/2013 03:22 PM
Carbon tetrachloride	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
Chlorobenzene	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
Chloroethane	U		10	µg/Kg	1	12/6/2013 03:22 PM
Chloroform	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
Chloromethane	U		10	µg/Kg	1	12/6/2013 03:22 PM
cis-1,2-Dichloroethene	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
cis-1,3-Dichloropropene	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
Cyclohexane	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
Dibromochloromethane	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
Dichlorodifluoromethane	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
Dichloromethane	2.9	J	10	µg/Kg	1	12/6/2013 03:22 PM
Ethylbenzene	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
Isopropylbenzene	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
m,p-Xylene	U		10	µg/Kg	1	12/6/2013 03:22 PM
Methyl acetate	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
Methyl tert-butyl ether	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
Methylcyclohexane	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
o-Xylene	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
Styrene	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
Tetrachloroethene	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
Toluene	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
trans-1,2-Dichloroethene	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
trans-1,3-Dichloropropene	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
Trichloroethene	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
Trichlorofluoromethane	U		5.0	µg/Kg	1	12/6/2013 03:22 PM
Vinyl chloride	U		2.0	µg/Kg	1	12/6/2013 03:22 PM
Xylenes, Total	U		15	µg/Kg	1	12/6/2013 03:22 PM
Surr: 1,2-Dichloroethane-d4	91.7		70-128	%REC	1	12/6/2013 03:22 PM
Surr: 4-Bromofluorobenzene	95.2		73-126	%REC	1	12/6/2013 03:22 PM
Surr: Dibromofluoromethane	99.6		71-128	%REC	1	12/6/2013 03:22 PM
Surr: Toluene-d8	102		73-127	%REC	1	12/6/2013 03:22 PM
ANIONS - EPA 300.0 (1993)			E300		Prep Date: 12/9/2013	Analyst: JKP
Chloride	4.30	J	4.99	mg/Kg	1	12/9/2013 02:26 PM

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

Company
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DATES REPORT

Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
<u>Mercury - SW7471B</u>				
Solid	12/2/2013 8:00:00 AM		12/4/2013 10:58 AM	12/4/2013 02:57 PM
<u>Volatiles</u>				
Solid	12/2/2013 8:00:00 AM		12/5/2013 11:00 AM	12/5/2013 03:37 PM
<u>Heavy DRO/ORO - 8015C</u>				
Solid	12/2/2013 8:00:00 AM		12/6/2013 01:06 PM	12/10/2013 10:18 AM
<u>Heavy Metals - EPA 300.0 (1993)</u>				
Solid	12/2/2013 8:00:00 AM		12/9/2013 10:20 AM	12/9/2013 02:26 PM
<u>Low Volatiles - SW8260C</u>				
Solid	12/2/2013 8:00:00 AM			12/6/2013 03:22 PM
<u>Semivolatile Range Organics - SW8015C</u>				
Solid	12/2/2013 8:00:00 AM			12/9/2013 01:47 PM

ALS Environmental

Date: 11-Dec-13

Client: Navajo Refining Company
Work Order: 1312112
Project: Fire Water Pond Soil Pile

QC BATCH REPORT

Batch ID: 75170 Instrument ID FID-7 Method: SW8015M

MBLK Sample ID: FBLKS1-131206-75170 Units: mg/Kg Analysis Date: 12/9/2013 04:26 PM

Client ID: Run ID: FID-7_131206B SeqNo: 3463346 Prep Date: 12/6/2013 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	U	1.7								
TPH (Motor Oil Range)	U	3.4								
Surr: 2-Fluorobiphenyl	2.393	0.10	3.33	0	71.9	60-135	0			

LCS Sample ID: FLCSS1-131206-75170 Units: mg/Kg Analysis Date: 12/9/2013 04:50 PM

Client ID: Run ID: FID-7_131206B SeqNo: 3463347 Prep Date: 12/6/2013 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	32.76	1.7	33.33	0	98.3	70-130				
TPH (Motor Oil Range)	26.5	3.4	33.33	0	79.5	70-130				
Surr: 2-Fluorobiphenyl	2.847	0.10	3.33	0	85.5	60-135	0			

MS Sample ID: 1312185-02BMS Units: mg/Kg Analysis Date: 12/9/2013 06:00 PM

Client ID: Run ID: FID-7_131206B SeqNo: 3463349 Prep Date: 12/6/2013 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	28.65	1.7	33.31	0.353	85	70-130				
TPH (Motor Oil Range)	24.51	3.4	33.31	0.9063	70.9	70-130				
Surr: 2-Fluorobiphenyl	2.102	0.10	3.328	0	63.2	60-135	0			

MSD Sample ID: 1312185-02BMSD Units: mg/Kg Analysis Date: 12/9/2013 06:24 PM

Client ID: Run ID: FID-7_131206B SeqNo: 3463350 Prep Date: 12/6/2013 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	36.88	1.7	33.3	0.353	110	70-130	28.65	25.1	30	
TPH (Motor Oil Range)	30.37	3.4	33.3	0.9063	88.5	70-130	24.51	21.3	30	
Surr: 2-Fluorobiphenyl	3.143	0.10	3.327	0	94.5	60-135	2.102	39.7	30	R

The following samples were analyzed in this batch:

1312112-01A

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

Client: Navajo Refining Company
 Work Order: 1312112
 Project: Fire Water Pond Soil Pile

QC BATCH REPORT

Batch ID: **R158313** Instrument ID **FID-14** Method: **SW8015**

MBLK Sample ID: **BLKW1-131209-R158313** Units: **mg/Kg** Analysis Date: **12/9/2013 12:58 PM**

Client ID: Run ID: **FID-14_131209A** SeqNo: **3462392** 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	0.09795	0.0050	0.1	0	98	70-130	0			

LCS Sample ID: **BLCSW1-131209-R158313** Units: **mg/Kg** Analysis Date: **12/9/2013 12:41 PM**

Client ID: Run ID: **FID-14_131209A** SeqNo: **3462391** 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	0.9476	0.050	1	0	94.8	70-130				
Surr: 4-Bromofluorobenzene	0.1043	0.0050	0.1	0	104	70-130	0			

MS Sample ID: **1312185-01AMS** Units: **mg/Kg** Analysis Date: **12/9/2013 02:27 PM**

Client ID: Run ID: **FID-14_131209A** SeqNo: **3462396** 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	0.9223	0.050	1	0	92.2	70-130				
Surr: 4-Bromofluorobenzene	0.1095	0.0050	0.1	0	109	70-130	0			

MSD Sample ID: **1312185-01AMSD** Units: **mg/Kg** Analysis Date: **12/9/2013 02:43 PM**

Client ID: Run ID: **FID-14_131209A** SeqNo: **3462397** 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	0.9766	0.050	1	0	97.7	70-130	0.9223	5.71	30	
Surr: 4-Bromofluorobenzene	0.1036	0.0050	0.1	0	104	70-130	0.1095	5.46	30	

The following samples were analyzed in this batch:

1312112-01A

Client: Navajo Refining Company
 Work Order: 1312112
 Project: Fire Water Pond Soil Pile

QC BATCH REPORT

Batch ID: 75094 Instrument ID HG02 Method: SW7471A

WBLK	Sample ID: GBLKS2-120413-75094					Units: µg/Kg		Analysis Date: 12/4/2013 01:56 PM		
Client ID:	Run ID: HG02_131204A				SeqNo: 3457897		Prep Date: 12/4/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	3.32								

CS	Sample ID: GLCSS2-120413-75094					Units: µg/Kg		Analysis Date: 12/4/2013 01:58 PM		
Client ID:	Run ID: HG02_131204A				SeqNo: 3457898		Prep Date: 12/4/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
*Mercury	352	3.32	333.3	0	106	85-115				

MS	Sample ID: 13111335-09BMS				Units: µg/Kg		Analysis Date: 12/4/2013 02:04 PM			
Client ID:	Run ID: HG02_131204A				SeqNo: 3457901		Prep Date: 12/4/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	325.7	3.43	343.5	1.862	94.3	85-115				

MSD	Sample ID: 13111335-09BMSD				Units: µg/Kg		Analysis Date: 12/4/2013 02:06 PM			
Client ID:	Run ID: HG02_131204A				SeqNo: 3457902		Prep Date: 12/4/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	388.4	3.42	342.5	1.862	113	85-115	325.7	17.6	20	

DUP	Sample ID: 13111335-09BDUP				Units: µg/Kg		Analysis Date: 12/4/2013 02:02 PM			
Client ID:	Run ID: HG02_131204A				SeqNo: 3457900		Prep Date: 12/4/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	1.719	3.43					1.862	0	20	J

The following samples were analyzed in this batch:

1312112-01A

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

Client: Navajo Refining Company
Work Order: 1312112
Project: Fire Water Pond Soil Pile

QC BATCH REPORT

Batch ID: **75125** Instrument ID **ICP7500** Method: **SW6020**

MBLK Sample ID: **MBLKS1-120513-75125** Units: **mg/Kg** Analysis Date: **12/5/2013 01:41 PM**
 Client ID: Run ID: **ICP7500_131205A** SeqNo: **3459691** Prep Date: **12/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.500								
Barium	0.09047	0.500								J
Cadmium	U	0.500								
Chromium	U	0.500								
Lead	U	0.500								
Selenium	U	0.500								

LCS Sample ID: **MLCSS1-120513-75125** Units: **mg/Kg** Analysis Date: **12/5/2013 01:46 PM**
 Client ID: Run ID: **ICP7500_131205A** SeqNo: **3459692** Prep Date: **12/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	9.829	0.500	10	0	98.3	80-120				
Barium	10.39	0.500	10	0	104	80-120				
Cadmium	10.56	0.500	10	0	106	80-120				
Chromium	10.41	0.500	10	0	104	80-120				
Lead	10.2	0.500	10	0	102	80-120				
Selenium	9.788	0.500	10	0	97.9	80-120				

MS Sample ID: **1312112-01AMS** Units: **mg/Kg** Analysis Date: **12/5/2013 03:47 PM**
 Client ID: **Fire Water Pond Soil Pile** Run ID: **ICP7500_131205A** SeqNo: **3459710** Prep Date: **12/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	11.2	0.397	7.933	4.107	89.4	75-125				
Barium	142.7	0.397	7.933	138.4	53.9	75-125				SO
Cadmium	7.412	0.397	7.933	0.1265	91.8	75-125				
Chromium	21.59	0.397	7.933	11.57	126	75-125				S
Lead	13.7	0.397	7.933	6.841	86.5	75-125				
Selenium	7.522	0.397	7.933	0.7273	85.7	75-125				

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

Client: Navajo Refining Company
 Work Order: 1312112
 Project: Fire Water Pond Soil Pile

QC BATCH REPORT

Batch ID: 75125 Instrument ID ICP7500 Method: SW6020

MSD		Sample ID: 1312112-01AMSD		Units: mg/Kg		Analysis Date: 12/6/2013 01:16 PM				
Client ID: Fire Water Pond Soil Pile		Run ID: ICP7500_131206A		SeqNo: 3460284		Prep Date: 12/5/2013		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	10.44	0.388	7.762	4.107	81.6	75-125	11.2	7.04	25	
Barium	141	0.388	7.762	138.4	33.4	75-125	142.7	1.19	25	SEO
Cadmium	7.139	0.388	7.762	0.1265	90.3	75-125	7.412	3.76	25	
Chromium	19.97	0.388	7.762	11.57	108	75-125	21.59	7.81	25	
Lead	13.48	0.388	7.762	6.841	85.6	75-125	13.7	1.6	25	
Selenium	6.607	0.388	7.762	0.7273	75.8	75-125	7.522	12.9	25	

DUP		Sample ID: 1312112-01ADUP		Units: mg/Kg		Analysis Date: 12/5/2013 03:42 PM				
Client ID: Fire Water Pond Soil Pile		Run ID: ICP7500_131205A		SeqNo: 3459709		Prep Date: 12/5/2013		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	3.917	0.370					4.107	4.72	25	
Barium	122.6	0.370					138.4	12.1	25	
Cadmium	0.1539	0.370					0.1265	0	25	J
Chromium	20.43	0.370					11.57	55.3	25	R
Lead	19.86	0.370					6.841	97.5	25	R
Selenium	0.6248	0.370					0.7273	15.2	25	

The following samples were analyzed in this batch:

1312112-01A

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

Client: Navajo Refining Company
 Work Order: 1312112
 Project: Fire Water Pond Soil Pile

QC BATCH REPORT

Batch ID: R158249 Instrument ID VOA5 Method: SW8260

MBLK Sample ID: VBLKS1-120613-R158249 Units: µg/Kg Analysis Date: 12/6/2013 09:34 AM

Client ID: Run ID: VOA5_131206A SeqNo: 3460928 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-Trichloro-1,2,2-trifluoroethane	U	5.0								
1,1,2-Trichloroethane	U	5.0								
1,1-Dichloroethane	U	5.0								
1,1-Dichloroethene	U	5.0								
1,2,4-Trichlorobenzene	U	5.0								
1,2-Dibromo-3-chloropropane	U	5.0								
1,2-Dibromoethane	U	5.0								
1,2-Dichlorobenzene	U	5.0								
1,2-Dichloroethane	U	5.0								
1,2-Dichloropropane	U	5.0								
1,3-Dichlorobenzene	U	5.0								
1,4-Dichlorobenzene	U	5.0								
2-Butanone	U	10								
2-Hexanone	U	10								
4-Methyl-2-pentanone	U	10								
Acetone	U	20								
Benzene	U	5.0								
Bromodichloromethane	U	5.0								
Bromoform	U	5.0								
Bromomethane	U	10								
Carbon disulfide	U	10								
Carbon tetrachloride	U	5.0								
Chlorobenzene	U	5.0								
Chloroethane	U	10								
Chloroform	U	5.0								
Chloromethane	U	10								
cis-1,2-Dichloroethene	U	5.0								
cis-1,3-Dichloropropene	U	5.0								
Cyclohexane	U	5.0								
Dibromochloromethane	U	5.0								
Dichlorodifluoromethane	U	5.0								
Dichloromethane	U	10								
Ethylbenzene	U	5.0								
Isopropylbenzene	U	5.0								
m,p-Xylene	U	10								
Methyl acetate	U	5.0								

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

Client: Navajo Refining Company
 Work Order: 1312112
 Project: Fire Water Pond Soil Pile

QC BATCH REPORT

Batch ID: R158249		Instrument ID VOA5		Method: SW8260				
Methyl tert-butyl ether	U	5.0						
Methylcyclohexane	U	5.0						
o-Xylene	U	5.0						
Styrene	U	5.0						
Tetrachloroethene	U	5.0						
Toluene	U	5.0						
trans-1,2-Dichloroethene	U	5.0						
trans-1,3-Dichloropropene	U	5.0						
Trichloroethene	U	5.0						
Trichlorofluoromethane	U	5.0						
Vinyl chloride	U	2.0						
Xylenes, Total	U	10						
Surr: 1,2-Dichloroethane-d4	48.95	0	50	0	97.9	70-128	0	
Surr: 4-Bromofluorobenzene	49.16	0	50	0	98.3	73-126	0	
Surr: Dibromofluoromethane	48.94	0	50	0	97.9	71-128	0	
Surr: Toluene-d8	50.31	0	50	0	101	73-127	0	

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

Client: Navajo Refining Company
 Work Order: 1312112
 Project: Fire Water Pond Soil Pile

QC BATCH REPORT

Batch ID: **R158249** Instrument ID **VOA5** Method: **SW8260**

LCS Sample ID: **VLCSS1-120613-R158249** Units: **µg/Kg** Analysis Date: **12/6/2013 08:48 AM**

Client ID: Run ID: **VOA5_131206A** SeqNo: **3460927** 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	47.68	5.0	50	0	95.4	79-124				
1,1,2,2-Tetrachloroethane	50.02	5.0	50	0	100	75-123				
1,1,2-Trichloro-1,2,2-trifluoroethane	47.52	5.0	50	0	95	79-125				
1,1,2-Trichloroethane	49.88	5.0	50	0	99.8	79-120				
1,1-Dichloroethane	50.9	5.0	50	0	102	75-124				
1,1-Dichloroethene	47.11	5.0	50	0	94.2	80-122				
1,2,4-Trichlorobenzene	52.23	5.0	50	0	104	74-128				
1,2-Dibromo-3-chloropropane	50.72	5.0	50	0	101	66-129				
1,2-Dibromoethane	50.48	5.0	50	0	101	70-120				
1,2-Dichlorobenzene	50.48	5.0	50	0	101	75-120				
1,2-Dichloroethane	51.13	5.0	50	0	102	73-121				
1,2-Dichloropropane	49.98	5.0	50	0	100	76-120				
1,3-Dichlorobenzene	51.06	5.0	50	0	102	70-125				
1,4-Dichlorobenzene	50.56	5.0	50	0	101	77-120				
2-Butanone	99.94	10	100	0	99.9	65-130				
2-Hexanone	104.9	10	100	0	105	65-133				
4-Methyl-2-pentanone	108.2	10	100	0	108	69-130				
Acetone	104.3	20	100	0	104	53-142				
Benzene	51.11	5.0	50	0	102	79-120				
Bromodichloromethane	49.93	5.0	50	0	99.9	79-121				
Bromoform	51.05	5.0	50	0	102	74-122				
Bromomethane	46.99	10	50	0	94	68-131				
Carbon disulfide	95.01	10	100	0	95	80-124				
Carbon tetrachloride	47.65	5.0	50	0	95.3	74-126				
Chlorobenzene	51.6	5.0	50	0	103	79-120				
Chloroethane	47.72	10	50	0	95.4	76-126				
Chloroform	49.92	5.0	50	0	99.8	78-120				
Chloromethane	50.08	10	50	0	100	69-129				
cis-1,2-Dichloroethene	49.74	5.0	50	0	99.5	80-120				
cis-1,3-Dichloropropene	49.93	5.0	50	0	99.9	77-123				
Cyclohexane	47.6	5.0	50	0	95.2	74-126				
Dibromochloromethane	51.78	5.0	50	0	104	78-122				
Dichlorodifluoromethane	43.22	5.0	50	0	86.4	57-140				
Dichloromethane	43.52	10	50	0	87	62-130				
Ethylbenzene	54.6	5.0	50	0	109	80-122				
Isopropylbenzene	50.63	5.0	50	0	101	72-127				
m,p-Xylene	106.1	10	100	0	106	79-122				
Methyl acetate	43.77	5.0	50	0	87.5	69-123				

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

Client: Navajo Refining Company
 Work Order: 1312112
 Project: Fire Water Pond Soil Pile

QC BATCH REPORT

Batch ID: R158249		Instrument ID VOA5		Method: SW8260			
Methyl tert-butyl ether	51.4	5.0	50	0	103	76-121	
Methylcyclohexane	48.58	5.0	50	0	97.2	77-126	
o-Xylene	52.66	5.0	50	0	105	80-123	
Styrene	52	5.0	50	0	104	78-124	
Tetrachloroethene	55.48	5.0	50	0	111	73-129	
Toluene	52.52	5.0	50	0	105	79-120	
trans-1,2-Dichloroethene	51.57	5.0	50	0	103	79-122	
trans-1,3-Dichloropropene	50.32	5.0	50	0	101	77-120	
Trichloroethene	49.45	5.0	50	0	98.9	80-121	
Trichlorofluoromethane	47.7	5.0	50	0	95.4	75-126	
Vinyl chloride	46.79	2.0	50	0	93.6	76-126	
Xylenes, Total	158.7	10	150	0	106	80-120	
Surr: 1,2-Dichloroethane-d4	48.7	0	50	0	97.4	70-128	0
Surr: 4-Bromofluorobenzene	49.46	0	50	0	98.9	73-126	0
Surr: Dibromofluoromethane	49.15	0	50	0	98.3	71-128	0
Surr: Toluene-d8	50.59	0	50	0	101	73-127	0

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

Client: Navajo Refining Company
 Work Order: 1312112
 Project: Fire Water Pond Soil Pile

QC BATCH REPORT

Batch ID: R158249 Instrument ID VOA5 Method: SW8260

MS		Sample ID: 1312172-05AMS		Units: µg/Kg		Analysis Date: 12/6/2013 11:53 AM				
Client ID:		Run ID: VOA5_131206A		SeqNo: 3460934		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	46.69	5.0	50	0	93.4	79-124				
1,1,2,2-Tetrachloroethane	50.24	5.0	50	0	100	75-123				
1,1,2-Trichloro-1,2,2-trifluoroethane	46.09	5.0	50	0	92.2	79-125				
1,1,2-Trichloroethane	46.25	5.0	50	0	92.5	79-120				
1,1-Dichloroethane	50.03	5.0	50	0	100	75-124				
1,1-Dichloroethene	47.48	5.0	50	0	95	80-122				
1,2,4-Trichlorobenzene	30.99	5.0	50	0	62	74-128				S
1,2-Dibromo-3-chloropropane	35.3	5.0	50	0	70.6	66-129				
1,2-Dibromoethane	45.76	5.0	50	0	91.5	70-120				
1,2-Dichlorobenzene	43.47	5.0	50	0	86.9	75-120				
1,2-Dichloroethane	47.9	5.0	50	0	95.8	73-121				
1,2-Dichloropropane	46.29	5.0	50	0	92.6	76-120				
1,3-Dichlorobenzene	44.98	5.0	50	0	90	70-125				
1,4-Dichlorobenzene	44.4	5.0	50	0	88.8	77-120				
2-Butanone	82.11	10	100	0	82.1	65-130				
2-Hexanone	89.55	10	100	0	89.5	65-133				
4-Methyl-2-pentanone	123.9	10	100	0	124	69-130				
Acetone	139	20	100	0	139	53-142				
Benzene	49.52	5.0	50	0	99	79-120				
Bromodichloromethane	46.2	5.0	50	0	92.4	79-121				
Bromoform	43.94	5.0	50	0	87.9	74-122				
Bromomethane	50.53	10	50	0	101	68-131				
Carbon disulfide	93.77	10	100	0	93.8	80-124				
Carbon tetrachloride	44.43	5.0	50	0	88.9	74-126				
Chlorobenzene	46.94	5.0	50	0	93.9	79-120				
Chloroethane	49.16	10	50	0	98.3	76-126				
Chloroform	48.65	5.0	50	0	97.3	78-120				
Chloromethane	49.75	10	50	0	99.5	69-129				
cis-1,2-Dichloroethene	48.29	5.0	50	0	96.6	80-120				
cis-1,3-Dichloropropene	45.7	5.0	50	0	91.4	77-123				
Cyclohexane	43.93	5.0	50	0	87.9	74-126				
Dibromochloromethane	47.25	5.0	50	0	94.5	78-122				
Dichlorodifluoromethane	44.89	5.0	50	0	89.8	57-140				
Dichloromethane	42.71	10	50	0	85.4	62-130				
Ethylbenzene	50.33	5.0	50	0	101	80-122				
Isopropylbenzene	44.15	5.0	50	0	88.3	72-127				
m,p-Xylene	95.58	10	100	0	95.6	79-122				
Methyl acetate	52.4	5.0	50	0	105	69-123				

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

Client: Navajo Refining Company
 Work Order: 1312112
 Project: Fire Water Pond Soil Pile

QC BATCH REPORT

Batch ID: R158249	Instrument ID VOA5		Method: SW8260				
Methyl tert-butyl ether	45.65	5.0	50	0	91.3	76-121	
Methylcyclohexane	39.57	5.0	50	0	79.1	77-126	
o-Xylene	47.27	5.0	50	0	94.5	80-123	
Styrene	45.47	5.0	50	0	90.9	78-124	
Tetrachloroethene	43.32	5.0	50	0	86.6	73-129	
Toluene	49.82	5.0	50	0	99.6	79-120	
trans-1,2-Dichloroethene	51.19	5.0	50	0	102	79-122	
trans-1,3-Dichloropropene	44.68	5.0	50	0	89.4	77-120	
Trichloroethene	46.68	5.0	50	0	93.4	80-121	
Trichlorofluoromethane	47.72	5.0	50	0	95.4	75-126	
Vinyl chloride	46.97	2.0	50	0	93.9	76-126	
Aromatics, Total	142.8	10	150	0	95.2	80-120	
Surr: 1,2-Dichloroethane-d4	48.21	0	50	0	96.4	70-128	0
Surr: 4-Bromofluorobenzene	46.55	0	50	0	93.1	73-126	0
Surr: Dibromofluoromethane	48.83	0	50	0	97.7	71-128	0
Surr: Toluene-d8	51.04	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: 1312112
 Project: Fire Water Pond Soil Pile

QC BATCH REPORT

Batch ID: R158249 Instrument ID VOA5 Method: SW8260

MSD Sample ID: 1312172-05AMSD Units: µg/Kg Analysis Date: 12/6/2013 12:16 PM

Client ID: Run ID: VOA5_131206A SeqNo: 3460935 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	51.15	5.0	49.5	0	103	79-124	46.69	9.11	30	
1,1,2,2-Tetrachloroethane	54.13	5.0	49.5	0	109	75-123	50.24	7.46	30	
1,1,2-Trichloro-1,2,2-trifluoroethane	48.27	5.0	49.5	0	97.5	79-125	46.09	4.62	30	
1,1,2-Trichloroethane	49.34	5.0	49.5	0	99.7	79-120	46.25	6.47	30	
1,1-Dichloroethane	54.69	5.0	49.5	0	110	75-124	50.03	8.88	30	
1,1-Dichloroethene	52.67	5.0	49.5	0	106	80-122	47.48	10.4	30	
1,2,4-Trichlorobenzene	34.67	5.0	49.5	0	70	74-128	30.99	11.2	30	S
1,2-Dibromo-3-chloropropane	38.65	5.0	49.5	0	78.1	66-129	35.3	9.06	30	
1,2-Dibromoethane	49.37	5.0	49.5	0	99.7	70-120	45.76	7.58	30	
1,2-Dichlorobenzene	46.87	5.0	49.5	0	94.7	75-120	43.47	7.52	30	
1,2-Dichloroethane	50.06	5.0	49.5	0	101	73-121	47.9	4.41	30	
1,2-Dichloropropane	50.82	5.0	49.5	0	103	76-120	46.29	9.33	30	
1,3-Dichlorobenzene	47.6	5.0	49.5	0	96.2	70-125	44.98	5.67	30	
1,4-Dichlorobenzene	47.63	5.0	49.5	0	96.2	77-120	44.4	7.01	30	
2-Butanone	85.16	9.9	99	0	86	65-130	82.11	3.65	30	
2-Hexanone	91.09	9.9	99	0	92	65-133	89.55	1.71	30	
4-Methyl-2-pentanone	125.8	9.9	99	0	127	69-130	123.9	1.53	30	
Acetone	145.8	20	99	0	147	53-142	139	4.74	30	S
Benzene	53.52	5.0	49.5	0	108	79-120	49.52	7.77	30	
Bromodichloromethane	51.26	5.0	49.5	0	104	79-121	46.2	10.4	30	
Bromoform	48	5.0	49.5	0	97	74-122	43.94	8.82	30	
Bromomethane	60.7	9.9	49.5	0	123	68-131	50.53	18.3	30	
Carbon disulfide	100.7	9.9	99	0	102	80-124	93.77	7.13	30	
Carbon tetrachloride	48.46	5.0	49.5	0	97.9	74-126	44.43	8.68	30	
Chlorobenzene	49.85	5.0	49.5	0	101	79-120	46.94	6.01	30	
Chloroethane	55.36	9.9	49.5	0	112	76-126	49.16	11.9	30	
Chloroform	54.23	5.0	49.5	0	110	78-120	48.65	10.9	30	
Chloromethane	55.43	9.9	49.5	0	112	69-129	49.75	10.8	30	
cis-1,2-Dichloroethene	55.03	5.0	49.5	0	111	80-120	48.29	13	30	
cis-1,3-Dichloropropene	51.18	5.0	49.5	0	103	77-123	45.7	11.3	30	
Cyclohexane	46.34	5.0	49.5	0	93.6	74-126	43.93	5.33	30	
Dibromochloromethane	51.46	5.0	49.5	0	104	78-122	47.25	8.53	30	
Dichlorodifluoromethane	47.04	5.0	49.5	0	95	57-140	44.89	4.69	30	
Dichloromethane	47.85	9.9	49.5	0	96.7	62-130	42.71	11.3	30	
Ethylbenzene	51.59	5.0	49.5	0	104	80-122	50.33	2.46	30	
Isopropylbenzene	45.97	5.0	49.5	0	92.9	72-127	44.15	4.04	30	
m,p-Xylene	100.4	9.9	99	0	101	79-122	95.58	4.88	30	
Methyl acetate	44.05	5.0	49.5	0	89	69-123	52.4	17.3	30	

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

Client: Navajo Refining Company
 Work Order: 1312112
 Project: Fire Water Pond Soil Pile

QC BATCH REPORT

Batch ID: R158249	Instrument ID VOA5		Method: SW8260						
Methyl tert-butyl ether	53.22	5.0	49.5	0	108	76-121	45.65	15.3	30
Methylcyclohexane	42.65	5.0	49.5	0	86.2	77-126	39.57	7.5	30
o-Xylene	50.16	5.0	49.5	0	101	80-123	47.27	5.93	30
Styrene	48.71	5.0	49.5	0	98.4	78-124	45.47	6.9	30
Tetrachloroethene	45.52	5.0	49.5	0	92	73-129	43.32	4.96	30
Toluene	52.7	5.0	49.5	0	106	79-120	49.82	5.61	30
trans-1,2-Dichloroethene	56.91	5.0	49.5	0	115	79-122	51.19	10.6	30
trans-1,3-Dichloropropene	48.69	5.0	49.5	0	98.4	77-120	44.68	8.6	30
Trichloroethene	48.79	5.0	49.5	0	98.6	80-121	46.68	4.41	30
Trichlorofluoromethane	51.22	5.0	49.5	0	103	75-126	47.72	7.08	30
Vinyl chloride	52.59	2.0	49.5	0	106	76-126	46.97	11.3	30
Aromatics, Total	150.5	9.9	148.5	0	101	79-123	142.8	5.23	30
Surr: 1,2-Dichloroethane-d4	49.47	0	49.5	0	99.9	70-128	48.21	2.58	30
Surr: 4-Bromofluorobenzene	46.17	0	49.5	0	93.3	73-126	46.55	0.813	30
Surr: Dibromofluoromethane	49.96	0	49.5	0	101	71-128	48.83	2.31	30
Surr: Toluene-d8	50.01	0	49.5	0	101	73-127	51.04	2.04	30

The following samples were analyzed in this batch:

1312112-01A

Client: Navajo Refining Company
Work Order: 1312112
Project: Fire Water Pond Soil Pile

QC BATCH REPORT

Batch ID: **75209** Instrument ID: **ICS2100** Method: **E300** (Dissolve)

MBLK Sample ID: **WBLKS1-75209** Units: **mg/Kg** Analysis Date: **12/9/2013 12:03 PM**

Client ID: Run ID: **ICS2100_131209A** SeqNo: **3462137** Prep Date: **12/9/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	5.00								

LCS Sample ID: **WLCSS1-75209** Units: **mg/Kg** Analysis Date: **12/9/2013 12:18 PM**

Client ID: Run ID: **ICS2100_131209A** SeqNo: **3462139** Prep Date: **12/9/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	195.5	5.00	200	0	97.7	90-110				

MS Sample ID: **1312110-01AMS** Units: **mg/Kg** Analysis Date: **12/9/2013 01:57 PM**

Client ID: Run ID: **ICS2100_131209A** SeqNo: **3462143** Prep Date: **12/9/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	104.9	4.99	99.75	4.27	101	75-125				

MSD Sample ID: **1312110-01AMSD** Units: **mg/Kg** Analysis Date: **12/9/2013 02:12 PM**

Client ID: Run ID: **ICS2100_131209A** SeqNo: **3462144** Prep Date: **12/9/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	104.5	4.98	99.51	4.27	101	75-125	104.9	0.403	20	

The following samples were analyzed in this batch:

1312112-01A

Client: Navajo Refining Company
Project: Fire Water Pond Soil Pile
WorkOrder: 1312112

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

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**

Date/Time Received: **03-Dec-13 09:11**

Work Order: **1312112**

Received by: **NDR**

Checklist completed by Robert D. Harris
eSignature

04-Dec-13
Date

Reviewed by: _____
eSignature

Date

Matrices: **solid**

Carrier name: **sw73012**

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):	<u>2.1c/2.1c c/u</u>		<u>IR1</u>
Cooler(s)/Kit(s):	_____		
Date/Time sample(s) sent to storage:	<u>12/4/13 11:15</u>		
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:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



ALS Laboratory Group
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

1312112

NAVAJO REFINING: Navajo Refining Company

Project: Fire Water Pond Soil Pile



ALS Project Manager: Sonia West

Customer Information		Project Information					Parameter/Method Request for Analysis												
Purchase Order		Project Name	Fire Water Pond Soil Pile				A	TPH GRO DRO											
Work Order		Project Number					B	VOC											
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company				C	Metals											
Send Report To	Robert Combs, Bryan Gilbert, Julie Speer	Invoice Attn	Robert Combs				D	Chloride											
Address	P. O. Box 159	Address	501 East Main				E												
							F												
City/State/Zip	Artesia, New Mexico 88211-0159	City/State/Zip	Artesia, New Mexico 88210				G												
Phone	(575) 748-3311	Phone	(575) 748-3311				H												
Fax	(575) 746-5451	Fax	(575) 746-5451				I												
e-Mail Address	Robert.Combs@hollyfrontier.com	e-Mail Address	Robert.Combs@hollyfrontier.com				J												
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold		
1	Fire Water Pond Soil Pile	12/2/13	8:00	Solid	Chill	1	X	X	X	X									
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Sampler(s): Please Print & Sign Andres Sandoval		Shipment Method: FedEx		Required Turnaround Time: ☐ STD 10 Wk Days ☒ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour			Results Due Date:	
Relinquished by:	Date: 12/2/13	Time: 8:00 am	Received by:		Notes:			
Relinquished by:	Date:	Time:	Received by (Laboratory): NR 12.3.13 9.11		Cooler Temp.	QC Package: (Check Box Below)		
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory): NR		2.1	☐ Level II: Standard QC		TRRP-Checklist
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NAOH 5-NA2S2O3 6-NAHSO4 7-Other 8-4 degrees C 9-5035					☐ Level III: Std QC + Raw Data			TRRP Level IV
					☐ Level IV: SW846 CLP-Like			
					Other:			

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

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1312112

 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:
	2/2/13	Time: 8:30	nm
	CS Sandover		6/3/13
	AC		
	Date:		
	Name:		
	Company:		

* This portion can be removed for Recipient's records.

12-2-13 FedEx Tracking Number 898958939017

Order's Name CATHY TRUETT Phone 575 296-5821

Company NAVAJO REFINING CO (LEA)

Address 7406 S MAIN ST

LOVINGTON State NM ZIP 88260

Our Internal Billing Reference 3 SOIL SAMPLES



ALS Environmental

31-Dec-2013

Robert Combs
Navajo Refining Company
PO Box 1490
Artesia, NM 88211-1490

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

Re: Fire Water Pond Soil Pile

Work Order: 1312519

Dear Robert,

ALS Environmental received 1 sample on 03-Dec-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 19.

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

Sincerely,

Electronically approved by: Dayna.Fisher

Sonia West
Project Manager



Certificate No: T104704231-13-12

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

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www.alsglobal.com

RIGHT SOLUTIONS. BETTER PARTNER.

Client: Navajo Refining Company
Project: Fire Water Pond Soil Pile
Work Order: 1312519

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>
1312519-01	Fire Water Pond Soil Pile	Solid	1312112-01	12/2/2013 08:00	12/3/2013 09:11	☐

ALS Environmental

Date: 31-Dec-13

Client: Navajo Refining Company

Project: Fire Water Pond Soil Pile

Work Order: 1312519

Case Narrative

This report contains additional analyses per your request on December 12, 2013 via e-mail. The laboratory analyzed your sample Fire Water Pond Soil Pile for SPLP Arsenic and Total Semivolatiles. The sample was originally reported as ALS Workorder Number 1312112.

Batch 75336, Semivolatile Organics 8270, Sample 1312437-03B: MS/MSD are for an unrelated sample.

ALS Environmental

Date: 31-Dec-13

Client: Navajo Refining Company
Project: Fire Water Pond Soil Pile
Sample ID: Fire Water Pond Soil Pile
Collection Date: 12/2/2013 08:00 AM

Work Order: 1312519
Lab ID: 1312519-01
Matrix: SOLID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SPLP METALS						
Arsenic	0.00881		SW6020 0.00500	mg/L	Prep Date: 12/16/2013 1	Analyst: ALR 12/17/2013 10:43 PM
SEMIVOLATILES - SW8270D						
1,1'-Biphenyl	U		SW8270 170	µg/Kg	Prep Date: 12/13/2013 1	Analyst: JLJ 12/16/2013 08:08 PM
2,4,5-Trichlorophenol	U		170	µg/Kg	1	12/16/2013 08:08 PM
2,4,6-Trichlorophenol	U		170	µg/Kg	1	12/16/2013 08:08 PM
2,4-Dichlorophenol	U		170	µg/Kg	1	12/16/2013 08:08 PM
2,4-Dimethylphenol	U		170	µg/Kg	1	12/16/2013 08:08 PM
2,4-Dinitrophenol	U		170	µg/Kg	1	12/16/2013 08:08 PM
2,4-Dinitrotoluene	U		170	µg/Kg	1	12/16/2013 08:08 PM
2,6-Dinitrotoluene	U		170	µg/Kg	1	12/16/2013 08:08 PM
2-Chloronaphthalene	U		170	µg/Kg	1	12/16/2013 08:08 PM
2-Chlorophenol	U		170	µg/Kg	1	12/16/2013 08:08 PM
2-Methylnaphthalene	U		170	µg/Kg	1	12/16/2013 08:08 PM
2-Methylphenol	U		170	µg/Kg	1	12/16/2013 08:08 PM
2-Nitroaniline	U		170	µg/Kg	1	12/16/2013 08:08 PM
2-Nitrophenol	U		170	µg/Kg	1	12/16/2013 08:08 PM
3&4-Methylphenol	U		170	µg/Kg	1	12/16/2013 08:08 PM
3,3'-Dichlorobenzidine	U		170	µg/Kg	1	12/16/2013 08:08 PM
3-Nitroaniline	U		170	µg/Kg	1	12/16/2013 08:08 PM
4,6-Dinitro-2-methylphenol	U		170	µg/Kg	1	12/16/2013 08:08 PM
4-Bromophenyl phenyl ether	U		170	µg/Kg	1	12/16/2013 08:08 PM
4-Chloro-3-methylphenol	U		170	µg/Kg	1	12/16/2013 08:08 PM
4-Chloroaniline	U		170	µg/Kg	1	12/16/2013 08:08 PM
4-Chlorophenyl phenyl ether	U		170	µg/Kg	1	12/16/2013 08:08 PM
4-Nitroaniline	U		170	µg/Kg	1	12/16/2013 08:08 PM
4-Nitrophenol	U		170	µg/Kg	1	12/16/2013 08:08 PM
Acenaphthene	U		170	µg/Kg	1	12/16/2013 08:08 PM
Acenaphthylene	U		170	µg/Kg	1	12/16/2013 08:08 PM
Acetophenone	U		170	µg/Kg	1	12/16/2013 08:08 PM
Anthracene	U		170	µg/Kg	1	12/16/2013 08:08 PM
Atrazine	U		170	µg/Kg	1	12/16/2013 08:08 PM
Benz(a)anthracene	U		170	µg/Kg	1	12/16/2013 08:08 PM
Benzaldehyde	U		170	µg/Kg	1	12/16/2013 08:08 PM
Benzo(a)pyrene	U		170	µg/Kg	1	12/16/2013 08:08 PM
Benzo(b)fluoranthene	U		170	µg/Kg	1	12/16/2013 08:08 PM
Benzo(g,h,i)perylene	U		170	µg/Kg	1	12/16/2013 08:08 PM
Benzo(k)fluoranthene	U		170	µg/Kg	1	12/16/2013 08:08 PM
Bis(2-chloroethoxy)methane	U		170	µg/Kg	1	12/16/2013 08:08 PM

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

ALS Environmental

Date: 31-Dec-13

Client: Navajo Refining Company

Project: Fire Water Pond Soil Pile

Work Order: 1312519

Sample ID: Fire Water Pond Soil Pile

Lab ID: 1312519-01

Collection Date: 12/2/2013 08:00 AM

Matrix: SOLID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Bis(2-chloroethyl)ether	U		170	µg/Kg	1	12/16/2013 08:08 PM
Bis(2-chloroisopropyl)ether	U		170	µg/Kg	1	12/16/2013 08:08 PM
Bis(2-ethylhexyl)phthalate	U		170	µg/Kg	1	12/16/2013 08:08 PM
Butyl benzyl phthalate	U		170	µg/Kg	1	12/16/2013 08:08 PM
Caprolactam	U		170	µg/Kg	1	12/16/2013 08:08 PM
Carbazole	U		170	µg/Kg	1	12/16/2013 08:08 PM
Chrysene	U		170	µg/Kg	1	12/16/2013 08:08 PM
Dibenz(a,h)anthracene	U		170	µg/Kg	1	12/16/2013 08:08 PM
Dibenzofuran	U		170	µg/Kg	1	12/16/2013 08:08 PM
Diethyl phthalate	U		170	µg/Kg	1	12/16/2013 08:08 PM
Dimethyl phthalate	U		170	µg/Kg	1	12/16/2013 08:08 PM
Di-n-butyl phthalate	U		170	µg/Kg	1	12/16/2013 08:08 PM
Di-n-octyl phthalate	U		170	µg/Kg	1	12/16/2013 08:08 PM
Fluoranthene	U		170	µg/Kg	1	12/16/2013 08:08 PM
Fluorene	U		170	µg/Kg	1	12/16/2013 08:08 PM
Hexachlorobenzene	U		170	µg/Kg	1	12/16/2013 08:08 PM
Hexachlorobutadiene	U		170	µg/Kg	1	12/16/2013 08:08 PM
Hexachlorocyclopentadiene	U		170	µg/Kg	1	12/16/2013 08:08 PM
Hexachloroethane	U		170	µg/Kg	1	12/16/2013 08:08 PM
Indeno(1,2,3-cd)pyrene	U		170	µg/Kg	1	12/16/2013 08:08 PM
Isophorone	U		170	µg/Kg	1	12/16/2013 08:08 PM
Naphthalene	U		170	µg/Kg	1	12/16/2013 08:08 PM
Nitrobenzene	U		170	µg/Kg	1	12/16/2013 08:08 PM
N-Nitrosodi-n-propylamine	U		170	µg/Kg	1	12/16/2013 08:08 PM
N-Nitrosodiphenylamine	U		170	µg/Kg	1	12/16/2013 08:08 PM
Pentachlorophenol	U		170	µg/Kg	1	12/16/2013 08:08 PM
Phenanthrene	U		170	µg/Kg	1	12/16/2013 08:08 PM
Phenol	U		170	µg/Kg	1	12/16/2013 08:08 PM
Pyrene	U		170	µg/Kg	1	12/16/2013 08:08 PM
Surr: 2,4,6-Tribromophenol	80.0		36-126	%REC	1	12/16/2013 08:08 PM
Surr: 2-Fluorobiphenyl	66.9		43-125	%REC	1	12/16/2013 08:08 PM
Surr: 2-Fluorophenol	70.7		37-125	%REC	1	12/16/2013 08:08 PM
Surr: 4-Terphenyl-d14	85.9		32-125	%REC	1	12/16/2013 08:08 PM
Surr: Nitrobenzene-d5	75.7		37-125	%REC	1	12/16/2013 08:08 PM
Surr: Phenol-d6	97.8		40-125	%REC	1	12/16/2013 08:08 PM

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

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DATES REPORT

Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
<u>nivolatiles - SW8270D</u>				
Solid	12/2/2013 8:00:00 AM		12/13/2013 08:28 AM	12/16/2013 08:08 PM
<u>P Metals</u>				
Solid	12/2/2013 8:00:00 AM	12/14/2013 8:00:00 AM	12/16/2013 10:00 AM	12/17/2013 10:43 PM

Client: Navajo Refining Company
Work Order: 1312519
Project: Fire Water Pond Soil Pile

QC BATCH REPORT

Batch ID: **75375** Instrument ID **ICP7500** Method: **SW6020**

MBLK	Sample ID: MBLKP1-121313-75375				Units: mg/L		Analysis Date: 12/17/2013 10:14 PM			
Client ID:	Run ID: ICP7500_131217A				SeqNo: 3472911		Prep Date: 12/16/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.00500								

MBLK	Sample ID: MBLKW4-121613-75375				Units: mg/L		Analysis Date: 12/17/2013 10:28 PM			
Client ID:	Run ID: ICP7500_131217A				SeqNo: 3472915		Prep Date: 12/16/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.00500								

_CS		Sample ID: MLCSW4-121613-75375				Units: mg/L		Analysis Date: 12/17/2013 10:33 PM		
Client ID:		Run ID: ICP7500_131217A				SeqNo: 3472916		Prep Date: 12/16/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05115	0.00500	0.05	0	102	80-120				

MS				Sample ID: 1312519-01AMS			Units: mg/L		Analysis Date: 12/17/2013 10:58 PM		
Client ID: Fire Water Pond Soil Pile				Run ID: ICP7500_131217A			SeqNo: 3472921		Prep Date: 12/16/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	0.06078	0.00500	0.05	0.008814	104	75-125					

MSD	Sample ID: 1312519-01AMSD				Units: mg/L		Analysis Date: 12/17/2013 11:03 PM			
Client ID: Fire Water Pond Soil Pile			Run ID: ICP7500_131217A		SeqNo: 3472922		Prep Date: 12/16/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05851	0.00500	0.05	0.008814	99.4	75-125	0.06078	3.81	25	

JUP				Sample ID: 1312519-01ADUP			Units: mg/L		Analysis Date: 12/17/2013 10:48 PM		
Client ID: Fire Water Pond Soil Pile				Run ID: ICP7500_131217A			SeqNo: 3472919		Prep Date: 12/16/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	0.008779	0.00500					0.008814	0.398	20		

The following samples were analyzed in this batch:

1312519-01A

Client: Navajo Refining Company
 Work Order: 1312519
 Project: Fire Water Pond Soil Pile

QC BATCH REPORT

Batch ID: 75336 Instrument ID SV-5 Method: SW8270

MBLK Sample ID: SBLKS1-131213-75336 Units: µg/Kg Analysis Date: 12/16/2013 11:57 AM

Client ID: Run ID: SV-5_131216B SeqNo: 3470309 Prep Date: 12/13/2013 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	U	170								
2,4,5-Trichlorophenol	U	170								
2,4,6-Trichlorophenol	U	170								
2,4-Dichlorophenol	U	170								
2,4-Dimethylphenol	U	170								
2,4-Dinitrophenol	U	170								
2,4-Dinitrotoluene	U	170								
2,6-Dinitrotoluene	U	170								
2-Chloronaphthalene	U	170								
2-Chlorophenol	U	170								
2-Methylnaphthalene	U	170								
2-Methylphenol	U	170								
2-Nitroaniline	U	170								
2-Nitrophenol	U	170								
3&4-Methylphenol	U	170								
3,3'-Dichlorobenzidine	U	170								
3-Nitroaniline	U	170								
4,6-Dinitro-2-methylphenol	U	170								
4-Bromophenyl phenyl ether	U	170								
4-Chloro-3-methylphenol	U	170								
4-Chloroaniline	U	170								
4-Chlorophenyl phenyl ether	U	170								
4-Nitroaniline	U	170								
4-Nitrophenol	U	170								
Acenaphthene	U	170								
Acenaphthylene	U	170								
Acetophenone	U	170								
Anthracene	U	170								
Atrazine	U	170								
Benz(a)anthracene	U	170								
Benzaldehyde	U	170								
Benzo(a)pyrene	U	170								
Benzo(b)fluoranthene	U	170								
Benzo(g,h,i)perylene	U	170								
Benzo(k)fluoranthene	U	170								
Bis(2-chloroethoxy)methane	U	170								
Bis(2-chloroethyl)ether	U	170								
Bis(2-chloroisopropyl)ether	U	170								

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

Client: Navajo Refining Company
 Work Order: 1312519
 Project: Fire Water Pond Soil Pile

QC BATCH REPORT

Batch ID: 75336	Instrument ID SV-5	Method: SW8270						
Bis(2-ethylhexyl)phthalate	U	170						
Butyl benzyl phthalate	U	170						
Caprolactam	U	170						
Carbazole	U	170						
Chrysene	U	170						
Dibenz(a,h)anthracene	U	170						
Dibenzofuran	U	170						
Diethyl phthalate	U	170						
Dimethyl phthalate	U	170						
Di-n-butyl phthalate	U	170						
Di-n-octyl phthalate	U	170						
Fluoranthene	U	170						
Fluorene	U	170						
Hexachlorobenzene	U	170						
Hexachlorobutadiene	U	170						
Hexachlorocyclopentadiene	U	170						
Hexachloroethane	U	170						
Indeno(1,2,3-cd)pyrene	U	170						
Isophorone	U	170						
Naphthalene	U	170						
Nitrobenzene	U	170						
N-Nitrosodi-n-propylamine	U	170						
N-Nitrosodiphenylamine	U	170						
pentachlorophenol	U	170						
Phenanthrene	U	170						
Phenol	U	170						
Pyrene	U	170						
Surr: 2,4,6-Tribromophenol	2962	170	3333	0	88.9	36-126	0	
Surr: 2-Fluorobiphenyl	3151	170	3333	0	94.5	43-125	0	
Surr: 2-Fluorophenol	3733	170	3333	0	112	37-125	0	
Surr: 4-Terphenyl-d14	3493	170	3333	0	105	32-125	0	
Surr: Nitrobenzene-d5	3815	170	3333	0	114	37-125	0	
Surr: Phenol-d6	3841	170	3333	0	115	40-125	0	

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

Client: Navajo Refining Company
 Work Order: 1312519
 Project: Fire Water Pond Soil Pile

QC BATCH REPORT

Batch ID: **75336** Instrument ID **SV-5** Method: **SW8270**

LCS Sample ID: **SLCSS1-131213-75336** Units: **µg/Kg** Analysis Date: **12/16/2013 12:19 PM**

Client ID: Run ID: **SV-5_131216B** SeqNo: **3470310** Prep Date: **12/13/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	1552	170	1667	0	93.1	55-120				
2,4,5-Trichlorophenol	2485	170	3333	0	74.5	55-120				
2,4,6-Trichlorophenol	2809	170	3333	0	84.3	55-120				
2,4-Dichlorophenol	2589	170	3333	0	77.7	55-120				
2,4-Dimethylphenol	2710	170	3333	0	81.3	55-125				
2,4-Dinitrophenol	3977	170	3333	0	119	40-125				
2,4-Dinitrotoluene	1526	170	1667	0	91.6	55-125				
2,6-Dinitrotoluene	1474	170	1667	0	88.4	55-120				
2-Chloronaphthalene	1568	170	1667	0	94.1	55-145				
2-Chlorophenol	2734	170	3333	0	82	55-120				
2-Methylnaphthalene	1439	170	1667	0	86.4	55-120				
2-Methylphenol	2473	170	3333	0	74.2	55-120				
2-Nitroaniline	1869	170	1667	0	112	55-130				
2-Nitrophenol	2739	170	3333	0	82.2	55-120				
3&4-Methylphenol	4076	170	5000	0	81.5	55-120				
3,3'-Dichlorobenzidine	1507	170	1667	0	90.4	32-125				
3-Nitroaniline	1040	170	1667	0	62.4	43-120				
4,6-Dinitro-2-methylphenol	3473	170	3333	0	104	50-130				
4-Bromophenyl phenyl ether	1549	170	1667	0	92.9	55-120				
4-Chloro-3-methylphenol	2775	170	3333	0	83.2	55-120				
4-Chloroaniline	758.9	170	1667	0	45.5	30-120				
4-Chlorophenyl phenyl ether	1387	170	1667	0	83.2	55-120				
4-Nitroaniline	1355	170	1667	0	81.3	55-120				
4-Nitrophenol	3807	170	3333	0	114	50-130				
Acenaphthene	1490	170	1667	0	89.4	55-120				
Acenaphthylene	1455	170	1667	0	87.3	55-120				
Acetophenone	1568	170	1667	0	94.1	54-120				
Anthracene	1558	170	1667	0	93.5	55-120				
Atrazine	1802	170	1667	0	108	55-130				
Benz(a)anthracene	1627	170	1667	0	97.6	55-125				
Benzaldehyde	1621	170	1667	0	97.2	20-132				
Benzo(a)pyrene	1584	170	1667	0	95	55-120				
Benzo(b)fluoranthene	1673	170	1667	0	100	55-125				
Benzo(g,h,i)perylene	1516	170	1667	0	90.9	55-120				
Benzo(k)fluoranthene	1488	170	1667	0	89.3	55-130				
Bis(2-chloroethoxy)methane	1543	170	1667	0	92.6	55-120				
Bis(2-chloroethyl)ether	1689	170	1667	0	101	55-120				
Bis(2-chloroisopropyl)ether	1331	170	1667	0	79.9	55-120				

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

Client: Navajo Refining Company
 Work Order: 1312519
 Project: Fire Water Pond Soil Pile

QC BATCH REPORT

Batch ID: 75336	Instrument ID SV-5		Method: SW8270				
Diis(2-ethylhexyl)phthalate	1797	170	1667	0	108	55-125	
n-Butyl benzyl phthalate	1778	170	1667	0	107	55-125	
Caprolactam	1592	170	1667	0	95.5	55-140	
Carbazole	1621	170	1667	0	97.3	55-120	
Chrysene	1494	170	1667	0	89.6	55-125	
Dibenz(a,h)anthracene	1472	170	1667	0	88.3	55-120	
Dibenzofuran	1421	170	1667	0	85.3	55-120	
Diethyl phthalate	1573	170	1667	0	94.4	55-120	
Dimethyl phthalate	1430	170	1667	0	85.8	55-120	
Di-n-butyl phthalate	1727	170	1667	0	104	55-125	
Di-n-octyl phthalate	1798	170	1667	0	108	55-130	
Fluoranthene	1591	170	1667	0	95.5	55-125	
Fluorene	1468	170	1667	0	88.1	55-120	
Hexachlorobenzene	1561	170	1667	0	93.7	55-120	
Hexachlorobutadiene	1338	170	1667	0	80.3	55-120	
Hexachlorocyclopentadiene	1452	170	1667	0	87.1	50-120	
Hexachloroethane	1454	170	1667	0	87.2	55-120	
Indeno(1,2,3-cd)pyrene	1623	170	1667	0	97.4	55-125	
Isothorone	1570	170	1667	0	94.2	55-120	
Naphthalene	1443	170	1667	0	86.6	55-120	
Nitrobenzene	1680	170	1667	0	101	55-120	
N,N-Dinitrosodi-n-propylamine	1392	170	1667	0	83.5	55-120	
N-Nitrosodiphenylamine	1630	170	1667	0	97.8	55-120	
Pentachlorophenol	3252	170	3333	0	97.6	50-135	
Phenanthrene	1619	170	1667	0	97.1	55-120	
Phenol	3212	170	3333	0	96.4	50-120	
Pyrene	1690	170	1667	0	101	55-125	
Surr: 2,4,6-Tribromophenol	3196	170	3333	0	95.9	36-126	0
Surr: 2-Fluorobiphenyl	2599	170	3333	0	78	43-125	0
Surr: 2-Fluorophenol	3378	170	3333	0	101	37-125	0
Surr: 4-Terphenyl-d14	3474	170	3333	0	104	32-125	0
Surr: Nitrobenzene-d5	3496	170	3333	0	105	37-125	0
Surr: Phenol-d6	3493	170	3333	0	105	40-125	0

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

Client: Navajo Refining Company
 Work Order: 1312519
 Project: Fire Water Pond Soil Pile

QC BATCH REPORT

Batch ID: 75336 Instrument ID SV-5 Method: SW8270

MS Sample ID: 1312437-03BMS Units: µg/Kg Analysis Date: 12/16/2013 01:04 PM
 Client ID: Run ID: SV-5_131216B SeqNo: 3470312 Prep Date: 12/13/2013 DF: 10

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	2742	1,700	1662	0	165	55-120				S
2,4,5-Trichlorophenol	3028	1,700	3323	0	91.1	55-120				
2,4,6-Trichlorophenol	3996	1,700	3323	0	120	55-120				S
2,4-Dichlorophenol	3086	1,700	3323	0	92.8	55-120				
2,4-Dimethylphenol	3130	1,700	3323	0	94.2	55-125				
2,4-Dinitrophenol	1099	1,700	3323	0	33.1	40-125				JS
2,4-Dinitrotoluene	3953	1,700	1662	0	238	55-125				S
2,6-Dinitrotoluene	2226	1,700	1662	0	134	55-120				S
2-Chloronaphthalene	1747	1,700	1662	0	105	55-145				
2-Chlorophenol	2697	1,700	3323	0	81.1	55-120				
2-Methylnaphthalene	2806	1,700	1662	1362	86.9	55-120				
2-Methylphenol	2935	1,700	3323	0	88.3	55-120				
2-Nitroaniline	2734	1,700	1662	0	165	55-130				S
2-Nitrophenol	3110	1,700	3323	0	93.6	55-120				
3&4-Methylphenol	4580	1,700	4985	0	91.9	55-120				
3,3'-Dichlorobenzidine	1329	1,700	1662	0	80	32-125				J
3-Nitroaniline	1689	1,700	1662	0	102	43-120				J
4,6-Dinitro-2-methylphenol	1755	1,700	3323	0	52.8	50-130				
4-Bromophenyl phenyl ether	1496	1,700	1662	0	90	55-120				J
4-Chloro-3-methylphenol	2818	1,700	3323	0	84.8	55-120				
4-Chloroaniline	768.2	1,700	1662	0	46.2	30-120				J
4-Chlorophenyl phenyl ether	1452	1,700	1662	0	87.4	55-120				J
4-Nitroaniline	1348	1,700	1662	0	81.1	55-120				J
4-Nitrophenol	4818	1,700	3323	0	145	50-130				S
Acenaphthene	2296	1,700	1662	0	138	55-120				S
Acenaphthylene	1968	1,700	1662	0	118	55-120				
Acetophenone	2276	1,700	1662	0	137	54-120				S
Anthracene	2224	1,700	1662	649.7	94.7	55-120				
Atrazine	2773	1,700	1662	0	167	55-130				S
Benz(a)anthracene	3036	1,700	1662	1257	107	55-125				
Benzaldehyde	1827	1,700	1662	0	110	20-132				
Benzo(a)pyrene	2538	1,700	1662	1061	88.9	55-120				
Benzo(b)fluoranthene	2046	1,700	1662	0	123	55-125				
Benzo(g,h,i)perylene	2114	1,700	1662	787.6	79.8	55-120				
Benzo(k)fluoranthene	1482	1,700	1662	674.4	48.6	55-130				JS
Bis(2-chloroethoxy)methane	1763	1,700	1662	0	106	55-120				
Bis(2-chloroethyl)ether	1422	1,700	1662	0	85.6	55-120				J
Bis(2-chloroisopropyl)ether	1576	1,700	1662	0	94.9	55-120				J

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

Client: Navajo Refining Company
 Work Order: 1312519
 Project: Fire Water Pond Soil Pile

QC BATCH REPORT

Batch ID: 75336	Instrument ID SV-5		Method: SW8270					
Bis(2-ethylhexyl)phthalate	2180	1,700	1662	0	131	55-125		S
Butyl benzyl phthalate	1836	1,700	1662	0	111	55-125		
Caprolactam	18460	1,700	1662	0	1110	55-140		S
Carbazole	1801	1,700	1662	0	108	55-120		
Chrysene	4107	1,700	1662	2561	93.1	55-125		
Dibenz(a,h)anthracene	1406	1,700	1662	0	84.6	55-120		J
Dibenzofuran	4916	1,700	1662	3292	97.7	55-120		
Diethyl phthalate	1920	1,700	1662	0	116	55-120		
Dimethyl phthalate	1508	1,700	1662	0	90.8	55-120		J
Di-n-butyl phthalate	1823	1,700	1662	0	110	55-125		
Di-n-octyl phthalate	1732	1,700	1662	0	104	55-130		
Fluoranthene	2281	1,700	1662	792.6	89.6	55-125		
Fluorene	3397	1,700	1662	2053	80.9	55-120		
Hexachlorobenzene	1546	1,700	1662	0	93.1	55-120		J
Hexachlorobutadiene	1360	1,700	1662	0	81.9	55-120		J
Hexachlorocyclopentadiene	U	1,700	1662	0	0	50-120		S
Hexachloroethane	2435	1,700	1662	0	147	55-120		S
Indeno(1,2,3-cd)pyrene	1521	1,700	1662	0	91.5	55-125		J
Isochlorone	2311	1,700	1662	0	139	55-120		S
Naphthalene	2155	1,700	1662	0	130	55-120		S
Nitrobenzene	1930	1,700	1662	0	116	55-120		
N,N-Nitrosodi-n-propylamine	1976	1,700	1662	0	119	55-120		
N-Nitrosodiphenylamine	1446	1,700	1662	0	87	55-120		J
Octachlorophenol	2267	1,700	3323	0	68.2	50-135		
Phenanthrene	7457	1,700	1662	5059	144	55-120		S
Phenol	3329	1,700	3323	0	100	50-120		
Pyrene	5063	1,700	1662	3685	82.9	55-125		
Surr: 2,4,6-Tribromophenol	2968	1,700	3323	0	89.3	36-126	0	
Surr: 2-Fluorobiphenyl	3294	1,700	3323	0	99.1	43-125	0	
Surr: 2-Fluorophenol	3141	1,700	3323	0	94.5	37-125	0	
Surr: 4-Terphenyl-d14	3657	1,700	3323	0	110	32-125	0	
Surr: Nitrobenzene-d5	3766	1,700	3323	0	113	37-125	0	
Surr: Phenol-d6	3663	1,700	3323	0	110	40-125	0	

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

Client: Navajo Refining Company
 Work Order: 1312519
 Project: Fire Water Pond Soil Pile

QC BATCH REPORT

Batch ID: 75336 Instrument ID SV-5 Method: SW8270

MSD Sample ID: 1312437-03BMSD Units: µg/Kg Analysis Date: 12/16/2013 01:26 PM
 Client ID: Run ID: SV-5_131216B SeqNo: 3470313 Prep Date: 12/13/2013 DF: 10

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	2944	1,700	1661	0	177	55-120	2742	7.1	30	S
2,4,5-Trichlorophenol	2869	1,700	3322	0	86.4	55-120	3028	5.39	30	
2,4,6-Trichlorophenol	3519	1,700	3322	0	106	55-120	3996	12.7	30	
2,4-Dichlorophenol	3119	1,700	3322	0	93.9	55-120	3086	1.08	30	
2,4-Dimethylphenol	3111	1,700	3322	0	93.6	55-125	3130	0.604	30	
2,4-Dinitrophenol	1074	1,700	3322	0	32.3	40-125	1099	0	30	JS
2,4-Dinitrotoluene	4764	1,700	1661	0	287	55-125	3953	18.6	30	S
2,6-Dinitrotoluene	2200	1,700	1661	0	132	55-120	2226	1.18	30	S
2-Chloronaphthalene	1696	1,700	1661	0	102	55-145	1747	0	30	J
2-Chlorophenol	2837	1,700	3322	0	85.4	55-120	2697	5.07	30	
2-Methylnaphthalene	3146	1,700	1661	1362	107	55-120	2806	11.4	30	
2-Methylphenol	2955	1,700	3322	0	89	55-120	2935	0.707	30	
2-Nitroaniline	3311	1,700	1661	0	199	55-130	2734	19.1	30	S
2-Nitrophenol	3114	1,700	3322	0	93.7	55-120	3110	0.11	30	
3&4-Methylphenol	4590	1,700	4983	0	92.1	55-120	4580	0.212	30	
3,3'-Dichlorobenzidine	1557	1,700	1661	0	93.7	32-125	1329	0	30	J
3-Nitroaniline	1056	1,700	1661	0	63.6	43-120	1689	0	30	J
4,6-Dinitro-2-methylphenol	2117	1,700	3322	0	63.7	50-130	1755	18.7	30	
4-Bromophenyl phenyl ether	1502	1,700	1661	0	90.4	55-120	1496	0	30	J
4-Chloro-3-methylphenol	2952	1,700	3322	0	88.9	55-120	2818	4.65	30	
4-Chloroaniline	744.6	1,700	1661	0	44.8	30-120	768.2	0	30	J
4-Chlorophenyl phenyl ether	1674	1,700	1661	0	101	55-120	1452	0	30	J
4-Nitroaniline	1806	1,700	1661	0	109	55-120	1348	29	30	
4-Nitrophenol	5398	1,700	3322	0	162	50-130	4818	11.3	30	S
Acenaphthene	2262	1,700	1661	0	136	55-120	2296	1.47	30	S
Acenaphthylene	1973	1,700	1661	0	119	55-120	1968	0.218	30	
Acetophenone	2265	1,700	1661	0	136	54-120	2276	0.48	30	S
Anthracene	2483	1,700	1661	649.7	110	55-120	2224	11	30	
Atrazine	2499	1,700	1661	0	150	55-130	2773	10.4	30	S
Benz(a)anthracene	3700	1,700	1661	1257	147	55-125	3036	19.7	30	S
Benzaldehyde	1831	1,700	1661	0	110	20-132	1827	0.197	30	
Benzo(a)pyrene	3216	1,700	1661	1061	130	55-120	2538	23.6	30	S
Benzo(b)fluoranthene	2382	1,700	1661	0	143	55-125	2046	15.2	30	S
Benzo(g,h,i)perylene	2590	1,700	1661	787.6	108	55-120	2114	20.2	30	
Benzo(k)fluoranthene	1513	1,700	1661	674.4	50.5	55-130	1482	0	30	JS
Bis(2-chloroethoxy)methane	1779	1,700	1661	0	107	55-120	1763	0.887	30	
Bis(2-chloroethyl)ether	1496	1,700	1661	0	90.1	55-120	1422	0	30	J
Bis(2-chloroisopropyl)ether	1587	1,700	1661	0	95.5	55-120	1576	0	30	J

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

Client: Navajo Refining Company
 Work Order: 1312519
 Project: Fire Water Pond Soil Pile

QC BATCH REPORT

Batch ID: 75336	Instrument ID SV-5		Method: SW8270							
Bis(2-ethylhexyl)phthalate	3794	1,700	1661	0	228	55-125	2180	54	30	SR
Butyl benzyl phthalate	1996	1,700	1661	0	120	55-125	1836	8.31	30	
Caprolactam	16500	1,700	1661	0	993	55-140	18460	11.2	30	S
Carbazole	1864	1,700	1661	0	112	55-120	1801	3.39	30	
Chrysene	5290	1,700	1661	2561	164	55-125	4107	25.2	30	S
Dibenz(a,h)anthracene	1975	1,700	1661	0	119	55-120	1406	33.7	30	R
Dibenzofuran	4765	1,700	1661	3292	88.7	55-120	4916	3.13	30	
Diethyl phthalate	1848	1,700	1661	0	111	55-120	1920	3.82	30	
Dimethyl phthalate	1690	1,700	1661	0	102	55-120	1508	0	30	J
Di-n-butyl phthalate	1935	1,700	1661	0	117	55-125	1823	6	30	
Di-n-octyl phthalate	2067	1,700	1661	0	124	55-130	1732	17.6	30	
Fluoranthene	2971	1,700	1661	792.6	131	55-125	2281	26.3	30	S
Fluorene	3582	1,700	1661	2053	92	55-120	3397	5.29	30	
Hexachlorobenzene	1540	1,700	1661	0	92.7	55-120	1546	0	30	J
Hexachlorobutadiene	1397	1,700	1661	0	84.1	55-120	1360	0	30	J
Hexachlorocyclopentadiene	U	1,700	1661	0	0	50-120	0	0	30	S
Hexachloroethane	2439	1,700	1661	0	147	55-120	2435	0.147	30	S
Indeno(1,2,3-cd)pyrene	1823	1,700	1661	0	110	55-125	1521	18.1	30	
Isochlorophene	2315	1,700	1661	0	139	55-120	2311	0.153	30	S
Naphthalene	2158	1,700	1661	0	130	55-120	2155	0.117	30	S
Nitrobenzene	1931	1,700	1661	0	116	55-120	1930	0.0468	30	
N-Nitrosodi-n-propylamine	2067	1,700	1661	0	124	55-120	1976	4.53	30	S
N-Nitrosodiphenylamine	1692	1,700	1661	0	102	55-120	1446	0	30	J
Pentachlorophenol	2375	1,700	3322	0	71.5	50-135	2267	4.62	30	
Phenanthrene	8966	1,700	1661	5059	235	55-120	7457	18.4	30	S
Phenol	3261	1,700	3322	0	98.2	50-120	3329	2.06	30	
Pyrene	7269	1,700	1661	3685	216	55-125	5063	35.8	30	SR
Surr: 2,4,6-Tribromophenol	3102	1,700	3322	0	93.4	36-126	2968	4.42	30	
Surr: 2-Fluorobiphenyl	3344	1,700	3322	0	101	43-125	3294	1.49	30	
Surr: 2-Fluorophenol	3238	1,700	3322	0	97.5	37-125	3141	3.02	30	
Surr: 4-Terphenyl-d14	3381	1,700	3322	0	102	32-125	3657	7.85	30	
Surr: Nitrobenzene-d5	3972	1,700	3322	0	120	37-125	3766	5.31	30	
Surr: Phenol-d6	3507	1,700	3322	0	106	40-125	3663	4.37	30	

The following samples were analyzed in this batch:

1312519-01A

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

Client: Navajo Refining Company
Project: Fire Water Pond Soil Pile
WorkOrder: 1312519

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/L	Milligrams per Liter

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**

Date/Time Received: **03-Dec-13 00:00**

Work Order: **1312519**

Received by: **JBA**

Checklist completed by *Jahnnie B. Allen*
eSignature

13-Dec-13
Date

Reviewed by:

eSignature

Date

Matrices:

Carrier name: **ALS.HS**

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):

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage:

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: **Re-log of 1312112**

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



ALS Laboratory Group
10450 Stanchiff Rd, #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

1312519

NAVAJO REFINING: Navajo Refining Company

Project: Fire Water Pond Soil Pile



Customer Information		Project Information					Parameter/Method Request for Analysis												
Purchase Order		Project Name	Fire Water Pond Soil Pile					A	TPH GRO DRO										
Work Order		Project Number						B	VOC										
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company					C	Metals										
Send Report To	Robert Combs, Bryan Gilbert, Julie Speer	Invoice Attn	Robert Combs					D	Chloride										
Address	P. O. Box 159	Address	501 East Main					E											
City/State/Zip	Artesia, New Mexico 88211-0159	City/State/Zip	Artesia, New Mexico 88210					F											
Phone	(575) 748-3311	Phone	(575) 748-3311					G											
Fax	(575) 746-5451	Fax	(575) 746-5451					H											
e-Mail Address	Robert.Combs@hollyfrontier.com	e-Mail Address	Robert.Combs@hollyfrontier.com					I											
J																			
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold		
1	Fire Water Pond Soil Pile	12/2/13	8:00	Solid	Chill	1	X	X	X	X									
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
Sampler(s): Please Print & Sign		Shipment Method:		Required Turnaround Time:				Results Due Date:											
Andres Sandoval		FedEx		☐ STD 10 Wk Days ☒ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour															
Relinquished by:		Date:	Time:	Received by:		Notes:													
Relinquished by:		Date:	Time:	Received by (Laboratory):		Cooler Temp	QC Package: (Check Box Below)												
Relinquished by:		Date:	Time:	Received by (Laboratory):			☐ Level III: Standard QC ☐ TRRP-Checklist												
Relinquished by:		Date:	Time:	Received by (Laboratory):			☐ Level III: Std QC + Raw Data ☐ TRRP Level IV												
Relinquished by:		Date:	Time:	Received by (Laboratory):			☐ Level IV: SW846 CLP-Like												
Relinquished by:		Date:	Time:	Received by (Laboratory):			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 Laboratory Group.

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1312112

 ALS Environmental 10450 Standliff Rd., Suite 210 Houston, Texas 77099 Tel. +1 281 530 5856 Fax. +1 281 530 5887	CUSTODY SEAL		Seal Broken By: <i>NA</i>
	Date: <i>2/2/13</i> Time: <i>8:30</i> Name: <i>JS Sandomi</i> Company: <i>AC</i>	Date: <i>2/3/13</i>	

This portion can be removed for Recipient's records.

12-2-13 FedEx Tracking Number **898958939017**

Sender's Name **CATHY TRUETT** Phone **875 396-3821**

Company **NAVAJO REFINING CO (LEA)**

Address **7406 S MAIN ST**

LOVINGTON

State **ND** ZIP **58260**

or Internal Billing Reference

3501C Sample