

GW-028

**Reverse Osmosis Reject
Water
Discharge Fields
Investigation
Final Report – Revised (2)**

December 2015



Appendix C

Groundwater Sampling Logs

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

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

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

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

ARCADIS U.S.

WATER SAMPLE FIELD DATA SHEET

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

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

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

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

FIELD MEASUREMENTS

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

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

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

PURGING EQUIPMENT

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

SAMPLING EQUIPMENT

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

WELL INTEGRITY: Good New LOCK#: _____

REMARKS: _____

SIGNATURE: _____ Page ____ of ____

ARCADIS U.S.

WATER SAMPLE FIELD DATA SHEET

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

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

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

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

FIELD MEASUREMENTS

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

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

80% RECHARGE: _____ YES _____ NO ANALYSES: _____

ODOR: _____ SAMPLE VESSEL / PRESERVATIVE: _____

PURGING EQUIPMENT

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

Other: _____

Pump Depth: ≈ 25'

SAMPLING EQUIPMENT

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

Other: _____

WELL INTEGRITY: Brand New LOCK#: _____

REMARKS: _____

SIGNATURE: _____ Page ____ of ____

WATER SAMPLE FIELD DATA SHEET

DEPTH TO BOTTOM (feet) = 27.29

DEPTH TO WATER (feet) = 9.91

WATER COLUMN HEIGHT (feet) = 17.88

CASING VOLUME (gal) = 3.04

CALCULATED PURGE (gal) = _____

ACTUAL PURGE (gal) = _____

[illegible]

ODOR: _____ SAMPLE VESSEL / PRESERVATIVE: Multiple

Page of

ARCADIS U.S.

WATER SAMPLE FIELD DATA SHEET

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

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

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

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

FIELD MEASUREMENTS

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

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

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

ODOR: _____ SAMPLE VESSEL / PRESERVATIVE: Multiple

PURGING EQUIPMENT

SAMPLING EQUIPMENT

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

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

Other: _____

Other: _____

Pump Depth: _____

WELL INTEGRITY: Brand New LOCK#: _____

REMARKS: _____

SIGNATURE: _____

Page ____ of ____

ARCADIS U.S.

WATER SAMPLE FIELD DATA SHEET

PROJECT #: _____

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

SAMPLE I.D.: _____

LOCATION: Antesita, NM

QA SAMPLES: _____

DATE PURGED 2-5-13START (2400hr) 1345END (2400hr) 1415DATE SAMPLED 2-5-13SAMPLE TIME (2400hr) 1425SAMPLE TYPE: Groundwater ☒ x

Surface Water _____

Treatment Effluent _____

Other _____

CASING DIAMETER:

2" ☒

3" _____

4" _____

5" _____

6" _____

8" _____

Other _____

Casing Volume: (gallons per foot)

(0.17)

(0.38)

(0.67)

(1.02)

(1.50)

(2.60)

()

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

CALCULATED PURGE (gal) = _____

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

FIELD MEASUREMENTS

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

SAMPLE INFORMATION

SAMPLE DEPTH TO WATER: 3.74

SAMPLE TURBIDITY: _____

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

PURGING EQUIPMENT

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

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

Other: _____

Pump Depth: ≈ 20'

SAMPLING EQUIPMENT

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

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

Other: _____

WELL INTEGRITY: Brand New

LOCK#: _____

REMARKS: _____

SIGNATURE: _____

Page ____ of ____

ARCADIS U.S.

WATER SAMPLE FIELD DATA SHEET

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

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

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

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

FIELD MEASUREMENTS

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

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

80% RECHARGE: ☒ YES ☐ NO ANALYSES: _____

ODOR: No SAMPLE VESSEL / PRESERVATIVE: _____

PURGING EQUIPMENT

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

Other: _____

Pump Depth: ≈ 20'

SAMPLING EQUIPMENT

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

Other: _____

WELL INTEGRITY: Brand New LOCK#: _____

REMARKS: _____

SIGNATURE: _____

Page ____ of ____



Groundwater Sampling Form

Project No. _____

Well ID

MW-114

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Date 5/15/2013

Project Name/Location NAVATO/RO REJECT FIELDS

Weather SUNNY/WIND

Measuring Pt.
DescriptionScreen
Setting (ft-bmp)Casing
Diameter (in.) 2"Well Material ☒ PVC
SSStatic Water
Level (ft-bmp) 7.75

Total Depth (ft-bmp) 38.20

Water Column/
Gallons in Well

MP Elevation

Pump Intake (ft-bmp)

Purge Method: PERISTALTIC

Sample Method LOW FLOW

Pump On/Off 1207/1213

Volumes Purged ~2 gal

Centrifugal
Submersible
Other

Sample Time: Label 1312/1415

Replicate/
Code No.Start 1336
End 1415

Sampled by MYB

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged	pH	Cond. (µMhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance	
											Color	Odor
1212	5			~1/8	6.54	4.058		1.82	23.39	70.0		
1215	8											
1218	11											
1221	14											
1224	17											
1227	20											
PUMP DIES												
1317	5		7.76	~1/4	6.48	4.025	1.91	0.83	20.44	5.2	Clear	
1320	8		7.74	~1/2	6.50	4.042	1.59	0.86	19.93	15.6		
1323	11		7.74	~3/4	6.49	4.028	0.96	0.81	19.04	21.9		
1326	14		7.75	~1	6.50	4.030	1.55	0.73	19.94	26.5		
1329	17		7.74	~1 1/4	6.50	4.032	2.38	0.64	20.06	28.6		
1332	20		7.74	~1 1/2	6.51	4.026	0.78	0.69	20.13	33.5		
1335	23		7.74	~1 3/4	6.51	4.026	2.93	0.69	20.04	37.3		

Constituents Sampled

Container

Number

Preservative

☒ DISSOLVED METALS
☒ SVOCs
☒ TPH - GRO
☒ TPH - PROSOKO
☒ ANIONS / TDS (Chloride / Fluoride / Sulfate)
☒ CATIONIC (TOTAL) (Ammonia / Nitrate / Nitrite)
☒ Radium 226/228
☒ ANIONS (NITRATE/NITRITE)
☒ VOCs

500 mL plastic
 1L Amber
 40 mL VOA
 40 mL Amber
 1L plastic
 250 mL plastic
 1L plastic
 1L plastic
 40 mL VOA

4
 2
 3
 3
 1
 1
 21
 1
 3
 16

HNO₃
 —
 HCl
 —
 —
 NaOH
 HNO₃
 H₂SO₄
 HCl

Well Casing Volumes

Gallons/Foot 1" = 0.04 1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 6" = 1.47
 1.25" = 0.06 2" = 0.16 3" = 0.37 4" = 0.65

Well Information

Well Location: SOLEM REJECT Field
 Condition of Well: GOOD
 Well Completion: Flush Mount / Stick Up
 Well Locked at Arrival: Yes / No
 Well Locked at Departure: Yes / No
 Key Number To Well: _____

 GW Samp Form
 8/10/2012

ARCADIS Groundwater Sampling Form

Project No. _____ Well ID MW-119 Page 1 of 1
 Project Name/Location NAVAJO/RO REJECT FIELDS Date 5/15/13
 Measuring Pt. Description _____ Screen Setting (ft-bmp) _____ Casing Diameter (in.) 2" Weather SUNNY/WINDY
 Static Water Level (ft-bmp) 8.65-7.65 Total Depth (ft-bmp) 28.32 Water Column/ Gallons in Well _____ Well Material X PVC SS
 MP Elevation _____ Pump Intake (ft-bmp) _____ Purge Method: PURSUITE Sample Method LOW-FLOW
 Pump On/Off 1739/1845 Volumes Purged _____ Centrifugal _____ Submersible _____ Other _____
 Sample Time: Label 1810 Replicate/ _____
 Start 1806 Code No. _____
 End 1840 Sampled by MRS

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged	pH	Cond. (µMhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°F)	Redox (mV)	Appearance	
											Color	Odor
1744	5		7.72	~1/4	6.05	4.449	8.73	7.93	13.71	80.5	Clear	—
1747	8		7.74	~1/2	6.26	4.431	2.54	7.37	14.54	81.5		
1750	11		7.69	~3/4	6.43	4.440	1.47	7.24	15.10	80.8		
1753	14		7.68	~1	6.46	4.444	2.42	7.50	15.42	81.7		
1756	17		7.68	~1 1/4	6.48	4.434	0.55	7.44	15.43	83.6		
1759	20		7.68	~1 1/2	6.47	4.444	0.46	7.64	15.10	85.7		
1802	23		7.68	~1 3/4	6.50	4.438	1.41	7.52	15.24	87.3		
1805	26		7.68	~2	6.50	4.436	2.77	7.65	15.15	88.4		

Constituents Sampled	Container	Number	Preservative
✓ DISSOLVED METALS	50 ML PLASTIC	1	HNO ₃
✓ SVOCs	12 AMBER	2	—
✓ TPH - GROSS	40 ML VOA	3	HCl
✓ TPH - DRO + DRO	40 ML AMBER	3	—
✓ ANIONS/TDS (CHLORIDE/FLUORIDE)	1 L PLASTIC	1	—
✓ CYANIDE (TOTAL)	250 ML PLASTIC	1	NaOH
✓ RADIUM 226/228	1 L PLASTIC	2	HNO ₃
✓ ANIONS (NITRATE/NITRITE)	1 L PLASTIC	1	H ₂ SO ₄
✓ VOCs	40 ML VOA	3	WEL

Well Casing Volumes				
Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
				6" = 1.47

Well Information

Well Location:	<u>NORM REJECT FIELDS</u>	Well Locked at Arrival:	<u>Yes</u> / No
Condition of Well:	<u>GOOD</u>	Well Locked at Departure:	<u>Yes</u> / No
Well Completion:	Flush Mount / <u>Slick Up</u>	Key Number To Well:	



 ARCADIS Groundwater Sampling Form

Well ID

MW-117

Page 1 of 1

Date 9/4/12
Weather Sunny / 10w90s

Project Name/Location NAVAJO / R. KESLEY FIELDS

Weather Sunny / 10W90S

Screen

Casing

Well Material ☒ PVC
☐ SS

Setting (ft-bmp)

Diameter (in.)

6.09

Total Depth (ft-bmp) 26.99

Water Column/

Level (ft-bmp)

Pump Intake (ft-bmp)

Purge Method: penetration

Sample Method *low flow*

Pump On/Off 0835/1011

Volumes Purged ~ 3 gal

Centrifugal

Submersible

Other

Sample Time: Label 0950

Replicate/

N/A

Sampled by Mrs

$$TWB = 0.2$$

Constituents Sampled	Container	Number	Preservative
RADIUM	1 L PLASTIC	2	HNO ₃
TOTAL DISSOLVED SOLIDS/ANIONS/pH	1 L PLASTIC	1	—
SEMIVOLATILES	1 L AMBER	2	—
CYANIDE	250 ML PLASTIC	1	NaOH
TPH DRO/DRO	40 ML VOA VIAL	3	—
GR ₀	40 ML VOA VIAL	3	HCl
VOLATILES	40 ML VOA VIAL	3	HCl
DISSOLVED METALS	500 ML PLASTIC	1	HNO ₃

Well Casing Volumes

 $6'' = 1.47$
$$4'' = 0.65$$

Well Information

Well Location: NORTH Rb Field

Well Locked at Arrival: Yes / No

Condition of Well: GOOD

Well Locked at Departure: ☒ Yes / ☐ No

Well Completion: Flush Mount / Stick Up

Key Number To Well: N/A

GW Samp Fr



Groundwater Sampling Form

Project No. _____

Well ID

MW-116

Page 1 of 1

Date

9/4/13

Project Name/Location

NAVAJO RO REJECT FIELDS

Weather

Sunny/low 90's

Measuring Pt.

Screen

Casing

Well Material

Description

Setting (ft-bmp)

Diameter (in.)

2"

☒ PVC
☐ SS

Static Water

Water Column/

Level (ft-bmp)

12.21

Total Depth (ft-bmp)

27.39

Gallons in Well

MP Elevation

Pump Intake (ft-bmp)

Purge Method: peristaltic

Sample

Pump On/Off

1426/1609

Volumes Purged

2 gal

Centrifugal

Submersible

Other

Method

low flow

Sample Time: Label

1520

Replicate/

Start

1510

Code No.

DUP-01

End

1609

Sampled by

ms

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged	pH	Cond. (µMhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance	
											Color	Odor
1430	4	~100	12.22	~1/4	7.10	3.763	0.53	6.85	20.43	32.6	Clear	none
1433	7	~95	12.21	<1/2	7.06	3.812	0.57	3.60	21.03	29.7		
1436	10	~95	12.21	<3/4	7.04	3.857	4.15	1.45	21.68	25.7		
1439	13	~95	12.22	3/4	7.01	3.963	4.91	0.71	22.76	21.5		
1442	16	~95	12.22	<1	6.99	3.883	3.36	0.67	21.19	22.7		
1445	19	~95	12.21	1	6.98	3.745	1.83	0.48	20.15	23.0		
1448	22	~95	12.21	<1 1/4	6.92	3.737	2.30	0.36	20.16	24.3		
1451	25	~95	12.21	1 1/4	6.92	3.759	2.29	0.30	20.54	21.2		
1454	28	~95	12.21	1 1/2	6.93	3.748	0.38	0.29	20.16	20.3		
1457	31	~95	12.21	1 1/2	6.93	3.764	1.92	0.26	20.46	18.4		
1500	34	~95	12.21	<2 1/4	6.94	3.801	0.68	0.25	21.04	17.5		
1503	37	~95	12.21	1 3/4	6.93	3.825	1.08	0.25	21.27	17.9		
1506	40	~95	12.21	<2	6.93	3.833	0.46	0.24	21.24	17.4		

Constituents Sampled

Container

Number

Preservative

RADIUM

1L PLASTIC

2

HNO₃

TOTAL DISSOLVED SOLIDS/ANIONS/PH

1L PLASTIC

1

—

SEMIVOLATILES

1L AMBER

2

—

CYANIDE

250 ML PLASTIC

1

NaOH

TPH DRO/RO

40 ML AMBER

3

—

GRO

40 ML VOA VIAL

3

HCL

VOLATILES

40 ML VOA VIAL

3

HCL

DISSOLVED METALS

500 ML PLASTIC

1

HNO₃

Well Casing Volumes

Gallons/Foot

1" = 0.04

1.5" = 0.09

2.5" = 0.26

3.5" = 0.50

6" = 1.47

1.25" = 0.06

2" = 0.16

3" = 0.37

4" = 0.65

Well Information

Well Location:

South RO Fields

Well Locked at Arrival:

Yes

No

Condition of Well:

good

Well Locked at Departure:

Yes

No

Well Completion:

Flush Mount

/

Stick Up

Key Number To Well:

N/A

GW Samp Form

6/30/2013



Groundwater Sampling Form

Page 1 of 1

MW-115

9/4/13

NAVAJO / Ro REJECT FIELDS

Summer 90's

70c

Setting (ft-bmp)

Diameter (in.)

X PVC
SS

8.73

Total Depth (ft-bmp)

Water Column/
Gallons in Well

MP Elevation

Pump Intake (ft-bmp)

Purge Method: penstamc

Sample

Pump On/Off

Volumes Purged

Centrifugal
Submersible
Other

Method

Sample Time:

Label	1710
Start	1704
End	1730

Replicate/

MA

Sampled by *MRB*

[illegible]

Constituents Sampled	Container	Number	Preservative
RADIUM	1 L PLASTIC	2	HNO ₃
TOTAL DISSOLVED SOLIDS	1 L PLASTIC	1	—
SEMIVOLATILES	1 L AMBER	2	—
CYANIDE	250 mL PLASTIC	1	NaOH
TPH DRO/ORO	40 mL AMBER	3	—
GRo	40 mL VOA VIAL	3	HCl
VOLATILES	40 mL VOA VIAL	3	HCl
DISSOLVED METALS	500 mL PLASTIC	1	HNO ₃

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Well Information

Well Location:	Southern Fields	Well Locked at Arrival:	Yes	/	No
Condition of Well:	good	Well Locked at Departure:	Yes	/	No
Well Completion:	Flush Mount / Stick Up	Key Number To Well:	NA		GW Samp Form



Groundwater Sampling Form

Page 1 of 1Project No. _____ Well ID MW-114Date 9/5/13Project Name/Location NAVAJO / RO REJECT FIELDSWeather SUNNY / 10-90'sMeasuring Pt. T06 Screen Setting (ft-bmp) _____ Casing Diameter (in.) 2"Well Material X PVC
SSStatic Water Level (ft-bmp) 9.44 Total Depth (ft-bmp) 37.94 Water Column/ Gallons in Well _____MP Elevation _____ Pump Intake (ft-bmp) _____ Purge Method: peristalticSample Method LOW FLOWPump On/Off 827/0950 Volumes Purged ~2.25 Centrifugal _____
Submersible _____
Other _____Sample Time: Label 0930 Replicate/ Code No. NA
Start 0915
End 0940Sampled by MB

Time	Minutes Elapsed	Rate (gpm) (ML/min)	Depth to Water (ft)	Gallons Purged	pH	Cond. (µMhos) (MS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance	
											Color	Odor
0832	5	~200	9.40	1 1/4	6.96	3.157	0.12	1.23	22.73	76.2	Clear	None
0835	8	~150	9.46	1 1/2	6.89	3.164	0.05	0.90	23.10	66.9		
0840	13	~150	9.46	~1/2	6.81	3.165	0.39	0.79	23.12	54.1		
0843	16	~150	9.46	1 3/4	6.79	3.161	1.55	0.78	23.06	52.0		
0846	19	~150	9.47	<1	6.78	3.161	0.56	0.74	23.06	48.6		
0849	22	~150	9.40	~1 1/4	6.77	3.154	0.35	0.68	22.90	46.1		
0852	25	~150	9.45	1 1/2	6.76	3.156	0.34	0.59	22.96	44.2		
0855	28	~150	9.45	4 1/2	6.75	3.165	0.36	0.43	23.05	42.5		
0858	31	~150	9.45	1 1/2	6.75	3.168	0.39	0.37	22.95	41.2		
0901	34	~150	9.48	1 3/4	6.73	3.327	1.25	0.31	23.01	40.4		
0904	37	~150	9.45	1 3/4	6.74	3.400	0.41	0.29	23.17	40.7		
0907	40	~150	9.45	1 3/4	6.74	3.422	1.96	0.28	23.09	41.2		
0910	43	~150	9.45	2	6.74	3.426	1.94	0.25	23.05	41.9		
0913	46	~150	9.45	2 1/4	6.74	3.432	2.41	0.25	23.25	42.5		

Constituents Sampled	Container	Number	Preservative
<u>RADIUM</u>	<u>1 L PLASTIC</u>	<u>2</u>	<u>HNO₃</u>
<u>TOTAL DISSOLVED SOLIDS/ANIONS/pH</u>	<u>1 L PLASTIC</u>	<u>1</u>	<u>—</u>
<u>SEMIVOLATILES</u>	<u>1 L AMBER</u>	<u>2</u>	<u>—</u>
<u>CYANIDE</u>	<u>250 ML PLASTIC</u>	<u>1</u>	<u>NaOH</u>
<u>TPH DRG/ORO</u>	<u>40 ML AMBER</u>	<u>3</u>	<u>—</u>
<u>GRO</u>	<u>40 ML AVOA VIAL</u>	<u>3</u>	<u>HCL</u>
<u>VOLATILES</u>	<u>40 ML VOA VIAL</u>	<u>3</u>	<u>HCL</u>
<u>DISSOLVED METALS</u>	<u>500 ML PLASTIC</u>	<u>1</u>	<u>HNO₃</u>
		<u>10</u>	

Well Casing Volumes

Gallons/Foot 1" = 0.04 1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 6" = 1.47
 1.25" = 0.06 2" = 0.16 3" = 0.37 4" = 0.65

Well Information

Well Location: <u>South RO Fields</u>	Well Locked at Arrival: <u>Yes</u> / <u>No</u>
Condition of Well: <u>good</u>	Well Locked at Departure: <u>Yes</u> / <u>No</u>
Well Completion: <u>Flush Mount</u> / <u>Stick Up</u>	Key Number To Well: <u>NA</u>



 ARCADIS Groundwater Sampling Form

HO Reject

MW-116

Page 1 of 1

11/20/13

Navajo

✓ 100%

PVC

SS

9.90

Total Depth (ft-bmp)

Gallons in Well

Pump Intake (ft-bmp)

Purge Method: Peristaltic

Low Flow

1555

Volumes Purged

Centrifugal

Submersible

Other

Label

Replicate/

Start

Code No.

End

Sampled by

by E. Bergesser

[illegible][illegible]

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Well Information

Well Locked at Arrival:

Yes / No

Well Locked at Departure:

Yes / No

Flush Mount / Stick Up

Key Number To Well:

GW Samp Form

7/6/07/2/55



 ARCADIS Groundwater Sampling Form

Page 1 of 1

Date 11/20/13

Weather Sunny

Measuring Pt.	Screen
Description _____	Setting (ft-bmp)

Static Water Level (ft-bmp) 10.05 Total Depth (ft-bmp) 27.55

MP Elevation _____ Pump Intake (ft-bmp) _____ Purge Method: Peristaltic

Pump On/Off 1340 Volumes Purged 221 Centrifugal
Submersible

Sample Time: Label 1430 Replicate/ 0
Start _____ Code No. _____
End _____

[illegible][illegible]

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Well Information

Well Location: _____ Well Locked at Arrival: Yes / No

Condition of Well:	Well Locked at Departure:	Yes	/	No
--------------------	---------------------------	-----	---	----

Well Completion: ☐ Flush Mount ☐ / ☐ Stick Up

Key Number To Well: _____ GW Samp For _____

GW Samp For



Groundwater Sampling Form

Project No. MW-119

Well ID Ro Reject

Page 1 of 1

Date 11/20/13

Project Name/Location Navajo

Weather Sunny

Measuring Pt.	Screen
Description	Setting (ft-bmp)

Casing
Diameter (in.) _____

Well Material  PVC
SS

Static Water Level (ft-bmp) 10.96 ~~10.0~~ EB Total Depth (ft-bmp) 28.52

Water Column/
Gallons in Well

MP Elevation _____ Pump Intake (ft-bmp) _____

Purge Method: Peristaltic

Sample Method Low Flow

Pump On/Off 0930 Volumes Purged 22 gal

Centrifugal _____
Submersible _____
Other _____

Sample Time: Label 1024 Replicate/
Start _____ Code No. _____
End _____

Sampled by E. Bergersen

[illegible]

Constituents Sampled

Container

Number

Preservative

Well Casing Volumes

Gallons/Foot 1" = 0.04
 1.25" = 0.06

1.5" = 0.09
2" = 0.16

$$2.5'' = 0.26$$
$$3'' = 0.37$$

3.5" = 0.50
4" = 0.65

$$6'' = 1.47$$

Well Information

Well Location: _____

Well Locked at Arrival: Yes / No

Condition of Well: _____

Well Locked at Departure:	Yes	/	No
---------------------------	-----	---	----

Well Completion: ☐ Flush Mount ☐ / ☐ Stick Up

Key Number To Well:

GW Samp Form



Appendix D

Groundwater Analytical Data



18-Feb-2013

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

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

Re: RO Discharge Sampling

Work Order: **1302138**

Dear Robert,

ALS Environmental received 6 samples on 05-Feb-2013 09:15 AM for the analyses presented in the following report.

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

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

The total number of pages in this report is 47.

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

Sincerely,

A handwritten signature in cursive script that reads "Sonia West".

Electronically approved by: Luke F. Hernandez

Sonia West
Project Manager



Certificate No: T104704231-12-10

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

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Environmental

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RIGHT SOLUTIONS RIGHT PARTNER

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 1302138

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1302138-01	RO Discharge	Water		2/3/2013 09:30	2/5/2013 09:15	☐
1302138-02	MW-117	Water		2/3/2013 10:00	2/5/2013 09:15	☐
1302138-03	MW-114	Water		2/3/2013 11:30	2/5/2013 09:15	☐
1302138-04	MW-115	Water		2/3/2013 12:30	2/5/2013 09:15	☐
1302138-05	Trip Blank 011813-74	Water		2/3/2013	2/5/2013 09:15	☐
1302138-06	Trip Blank 011813-50	Water		2/3/2013	2/5/2013 09:15	☐

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 1302138

Case Narrative

Sample received outside method holding time for Nitrate & Nitrite. Nitrate & Nitrite has a 48 hour holding time. The samples were received as the holding times expired. Sample results are flagged with an "H" qualifier.

Your samples received for Radium 226 and Radium 228 are reported on ALS workorder 1302192.

Batch 67619, Dissolved Metals 6020, Sample RO Discharge (1302138-01E: The MS/MSD recoveries were above the control limits for Calcium and Sodium due to high concentration to the background sample. Results are flagged with an O. The associated LCS recoveries and MS/MSD RPD were within the control limits.

Batch 67639, Dissolved Metals 6020, Sample 1302162-02D: MS/MSD is for an unrelated sample.

Batch R142615, Anions 300.0, Sample 1302189-01G: MS/MSD is for an unrelated sample.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO Discharge
Collection Date: 2/3/2013 09:30 AM

Work Order: 1302138
Lab ID: 1302138-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3511 / 2/8/13 Analyst: KMB							
TPH (Diesel Range)	U		0.021	0.052	mg/L	1	2/11/2013 15:36
TPH (Oil Range)	0.17		0.042	0.10	mg/L	1	2/11/2013 15:36
Surr: 2-Fluorobiphenyl	107			60-135	%REC	1	2/11/2013 15:36
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Prep: SW3511 / 2/8/13 Analyst: KKP							
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	2/7/2013 18:47
Surr: 4-Bromofluorobenzene	105			70-130	%REC	1	2/7/2013 18:47
DISSOLVED MERCURY Method: SW7470 Prep: SW7470 / 2/7/13 Analyst: OFO							
Mercury	U		0.000042	0.000200	mg/L	1	2/7/2013 18:08
DISSOLVED METALS Method: SW6020 Prep: SW3010A / 2/6/13 Analyst: ALR							
Aluminum	0.00668	J	0.0040	0.0100	mg/L	1	2/8/2013 00:48
Arsenic	0.00494	J	0.0013	0.00500	mg/L	1	2/8/2013 00:48
Barium	0.0628		0.00090	0.00500	mg/L	1	2/8/2013 00:48
Boron	0.143		0.040	0.100	mg/L	2	2/12/2013 14:09
Cadmium	U		0.00080	0.00200	mg/L	1	2/8/2013 00:48
Calcium	625		4.3	25.0	mg/L	50	2/8/2013 13:17
Chromium	U		0.0012	0.00500	mg/L	1	2/8/2013 00:48
Cobalt	U		0.00080	0.00500	mg/L	1	2/8/2013 00:48
Copper	0.00177	J	0.0015	0.00500	mg/L	1	2/8/2013 00:48
Iron	U		0.078	0.200	mg/L	1	2/8/2013 00:48
Lead	U		0.00070	0.00500	mg/L	1	2/8/2013 00:48
Manganese	U		0.0025	0.00500	mg/L	1	2/8/2013 00:48
Molybdenum	0.0125		0.0015	0.00500	mg/L	1	2/8/2013 00:48
Nickel	0.00264	J	0.0012	0.00500	mg/L	1	2/8/2013 00:48
Potassium	4.41		0.084	0.200	mg/L	1	2/8/2013 00:48
Selenium	0.0130		0.0010	0.00500	mg/L	1	2/8/2013 00:48
Silver	U		0.00080	0.00500	mg/L	1	2/8/2013 00:48
Sodium	65.4		0.085	0.200	mg/L	1	2/8/2013 00:48
Uranium	0.00601		0.0050	0.00500	mg/L	1	2/8/2013 00:48
Zinc	0.0132		0.0025	0.00500	mg/L	1	2/8/2013 00:48
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3510 / 2/7/13 Analyst: LG							
1-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 15:33
2-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 15:33
Benzo(a)pyrene	U		0.000050	0.00020	mg/L	1	2/8/2013 15:33
Naphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 15:33
Surr: 2,4,6-Tribromophenol	69.5			34-129	%REC	1	2/8/2013 15:33
Surr: 2-Fluorobiphenyl	69.7			40-125	%REC	1	2/8/2013 15:33

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

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO Discharge
Collection Date: 2/3/2013 09:30 AM

Work Order: 1302138
Lab ID: 1302138-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	64.5			20-120	%REC	1	2/8/2013 15:33
Surr: 4-Terphenyl-d14	102			40-135	%REC	1	2/8/2013 15:33
Surr: Nitrobenzene-d5	69.1			41-120	%REC	1	2/8/2013 15:33
Surr: Phenol-d6	65.7			20-120	%REC	1	2/8/2013 15:33

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 15:50
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	2/6/2013 15:50
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 15:50
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 15:50
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	2/6/2013 15:50
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	2/6/2013 15:50
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 15:50
Benzene	U		0.00020	0.0010	mg/L	1	2/6/2013 15:50
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	2/6/2013 15:50
Chloroform	U		0.00030	0.0010	mg/L	1	2/6/2013 15:50
Ethylbenzene	U		0.00030	0.0010	mg/L	1	2/6/2013 15:50
Methylene chloride	U		0.00040	0.0020	mg/L	1	2/6/2013 15:50
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	2/6/2013 15:50
Toluene	U		0.00030	0.0010	mg/L	1	2/6/2013 15:50
Trichloroethene	U		0.00020	0.0010	mg/L	1	2/6/2013 15:50
Vinyl chloride	U		0.00040	0.0010	mg/L	1	2/6/2013 15:50
Xylenes, Total	U		0.00030	0.0010	mg/L	1	2/6/2013 15:50
Surr: 1,2-Dichloroethane-d4	88.0			71-125	%REC	1	2/6/2013 15:50
Surr: 4-Bromofluorobenzene	94.6			70-125	%REC	1	2/6/2013 15:50
Surr: Dibromofluoromethane	96.7			74-125	%REC	1	2/6/2013 15:50
Surr: Toluene-d8	97.9			78-123	%REC	1	2/6/2013 15:50

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	67.5		0.20	0.500	mg/L	1	2/6/2013 15:36
Fluoride	3.32		0.050	0.100	mg/L	1	2/6/2013 15:36
Nitrogen, Nitrate (As N)	3.22	H	0.030	0.100	mg/L	1	2/6/2013 15:36
Nitrogen, Nitrite (As N)	U	H	0.030	0.100	mg/L	1	2/6/2013 15:36
Sulfate	1,690		10	25.0	mg/L	50	2/12/2013 19:01
Surr: Selenate (surr)	89.0			85-115	%REC	1	2/6/2013 15:36
Surr: Selenate (surr)	91.7			85-115	%REC	50	2/12/2013 19:01

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	U		0.0040	0.0200	mg/L	1	2/11/2013 10:05

TOTAL DISSOLVED SOLIDS			Method: M2540C			Analyst: KAH	
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Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO Discharge
Collection Date: 2/3/2013 09:30 AM

Work Order: 1302138
Lab ID: 1302138-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Total Dissolved Solids (Residue, Filterable)	3,150		5.0	10.0	mg/L	1	2/7/2013 10:10

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

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117
Collection Date: 2/3/2013 10:00 AM

Work Order: 1302138
Lab ID: 1302138-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO		Method: SW8015M		Prep: SW3511 / 2/8/13		Analyst: KMB	
TPH (Diesel Range)	U		0.021	0.052	mg/L	1	2/11/2013 15:57
TPH (Oil Range)	U		0.042	0.10	mg/L	1	2/11/2013 15:57
Surr: 2-Fluorobiphenyl	113			60-135	%REC	1	2/11/2013 15:57
GASOLINE RANGE ORGANICS - SW8015C		Method: SW8015		Prep: SW7470 / 2/7/13		Analyst: KKP	
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	2/7/2013 19:05
Surr: 4-Bromofluorobenzene	103			70-130	%REC	1	2/7/2013 19:05
DISSOLVED MERCURY		Method: SW7470		Prep: SW7470 / 2/7/13		Analyst: OFO	
Mercury	U		0.000042	0.000200	mg/L	1	2/7/2013 18:10
DISSOLVED METALS		Method: SW6020		Prep: SW3010A / 2/6/13		Analyst: ALR	
Aluminum	0.0289		0.0040	0.0100	mg/L	1	2/8/2013 01:59
Arsenic	0.00498	J	0.0013	0.00500	mg/L	1	2/8/2013 16:25
Barium	0.0235		0.00090	0.00500	mg/L	1	2/8/2013 01:59
Boron	0.207		0.040	0.100	mg/L	2	2/12/2013 14:11
Cadmium	U		0.00080	0.00200	mg/L	1	2/8/2013 01:59
Calcium	568		0.86	5.00	mg/L	10	2/8/2013 16:45
Chromium	U		0.0012	0.00500	mg/L	1	2/8/2013 16:25
Cobalt	0.00256	J	0.00080	0.00500	mg/L	1	2/8/2013 16:25
Copper	0.0141		0.0015	0.00500	mg/L	1	2/8/2013 16:25
Iron	U		0.078	0.200	mg/L	1	2/8/2013 16:25
Lead	U		0.00070	0.00500	mg/L	1	2/8/2013 16:25
Manganese	0.108		0.0025	0.00500	mg/L	1	2/8/2013 16:25
Molybdenum	0.0112		0.0015	0.00500	mg/L	1	2/8/2013 01:59
Nickel	0.00413	J	0.0012	0.00500	mg/L	1	2/8/2013 16:25
Potassium	6.92		0.084	0.200	mg/L	1	2/8/2013 01:59
Selenium	0.00427	J	0.0010	0.00500	mg/L	1	2/8/2013 16:25
Silver	U		0.00080	0.00500	mg/L	1	2/8/2013 01:59
Sodium	176		0.085	0.200	mg/L	1	2/8/2013 01:59
Uranium	0.0263		0.0050	0.00500	mg/L	1	2/8/2013 01:59
Zinc	0.0123		0.0025	0.00500	mg/L	1	2/8/2013 16:25
LOW-LEVEL SEMIVOLATILES		Method: SW8270		Prep: SW3510 / 2/7/13		Analyst: LG	
1-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 15:53
2-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 15:53
Benzo(a)pyrene	U		0.000050	0.00020	mg/L	1	2/8/2013 15:53
Naphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 15:53
Surr: 2,4,6-Tribromophenol	71.7			34-129	%REC	1	2/8/2013 15:53
Surr: 2-Fluorobiphenyl	67.2			40-125	%REC	1	2/8/2013 15:53

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

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117
Collection Date: 2/3/2013 10:00 AM

Work Order: 1302138
Lab ID: 1302138-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	51.4			20-120	%REC	1	2/8/2013 15:53
Surr: 4-Terphenyl-d14	102			40-135	%REC	1	2/8/2013 15:53
Surr: Nitrobenzene-d5	70.1			41-120	%REC	1	2/8/2013 15:53
Surr: Phenol-d6	55.3			20-120	%REC	1	2/8/2013 15:53

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 16:14
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	2/6/2013 16:14
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 16:14
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 16:14
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	2/6/2013 16:14
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	2/6/2013 16:14
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 16:14
Benzene	U		0.00020	0.0010	mg/L	1	2/6/2013 16:14
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	2/6/2013 16:14
Chloroform	U		0.00030	0.0010	mg/L	1	2/6/2013 16:14
Ethylbenzene	U		0.00030	0.0010	mg/L	1	2/6/2013 16:14
Methylene chloride	U		0.00040	0.0020	mg/L	1	2/6/2013 16:14
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	2/6/2013 16:14
Toluene	U		0.00030	0.0010	mg/L	1	2/6/2013 16:14
Trichloroethene	U		0.00020	0.0010	mg/L	1	2/6/2013 16:14
Vinyl chloride	U		0.00040	0.0010	mg/L	1	2/6/2013 16:14
Xylenes, Total	U		0.00030	0.0010	mg/L	1	2/6/2013 16:14
Surr: 1,2-Dichloroethane-d4	89.3			71-125	%REC	1	2/6/2013 16:14
Surr: 4-Bromofluorobenzene	97.7			70-125	%REC	1	2/6/2013 16:14
Surr: Dibromofluoromethane	95.1			74-125	%REC	1	2/6/2013 16:14
Surr: Toluene-d8	99.5			78-123	%REC	1	2/6/2013 16:14

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	154		10	25.0	mg/L	50	2/12/2013 19:15
Fluoride	2.73		0.050	0.100	mg/L	1	2/6/2013 15:50
Nitrogen, Nitrate (As N)	U	H	0.030	0.100	mg/L	1	2/6/2013 15:50
Nitrogen, Nitrite (As N)	U	H	0.030	0.100	mg/L	1	2/6/2013 15:50
Sulfate	2,310		10	25.0	mg/L	50	2/12/2013 19:15
Surr: Selenate (surr)	90.6			85-115	%REC	1	2/6/2013 15:50
Surr: Selenate (surr)	99.0			85-115	%REC	50	2/12/2013 19:15

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	U		0.0040	0.0200	mg/L	1	2/11/2013 10:05

TOTAL DISSOLVED SOLIDS			Method: M2540C			Analyst: KAH	
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Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117
Collection Date: 2/3/2013 10:00 AM

Work Order: 1302138
Lab ID: 1302138-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Total Dissolved Solids (Residue, Filterable)	3,910		5.0	10.0	mg/L	1	2/7/2013 10:10

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

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114
Collection Date: 2/3/2013 11:30 AM

Work Order: 1302138
Lab ID: 1302138-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO		Method: SW8015M		Prep: SW3511 / 2/8/13		Analyst: KMB	
TPH (Diesel Range)	U		0.021	0.052	mg/L	1	2/11/2013 16:19
TPH (Oil Range)	U		0.042	0.10	mg/L	1	2/11/2013 16:19
Surr: 2-Fluorobiphenyl	90.9			60-135	%REC	1	2/11/2013 16:19
GASOLINE RANGE ORGANICS - SW8015C		Method: SW8015		Prep: SW7470 / 2/7/13		Analyst: KKP	
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	2/7/2013 19:23
Surr: 4-Bromofluorobenzene	102			70-130	%REC	1	2/7/2013 19:23
DISSOLVED MERCURY		Method: SW7470		Prep: SW7470 / 2/7/13		Analyst: OFO	
Mercury	U		0.000042	0.000200	mg/L	1	2/7/2013 18:12
DISSOLVED METALS		Method: SW6020		Prep: SW3010A / 2/6/13		Analyst: ALR	
Aluminum	0.0265		0.0040	0.0100	mg/L	1	2/8/2013 02:04
Arsenic	0.00561		0.0013	0.00500	mg/L	1	2/8/2013 16:30
Barium	0.0204		0.00090	0.00500	mg/L	1	2/8/2013 02:04
Boron	0.139		0.040	0.100	mg/L	2	2/12/2013 14:13
Cadmium	U		0.00080	0.00200	mg/L	1	2/8/2013 02:04
Calcium	600		0.86	5.00	mg/L	10	2/8/2013 16:50
Chromium	U		0.0012	0.00500	mg/L	1	2/8/2013 16:30
Cobalt	0.00738		0.00080	0.00500	mg/L	1	2/8/2013 16:30
Copper	U		0.0015	0.00500	mg/L	1	2/8/2013 16:30
Iron	U		0.078	0.200	mg/L	1	2/8/2013 16:30
Lead	U		0.00070	0.00500	mg/L	1	2/8/2013 16:30
Manganese	1.51		0.0025	0.00500	mg/L	1	2/8/2013 16:30
Molybdenum	0.0103		0.0015	0.00500	mg/L	1	2/8/2013 02:04
Nickel	0.00651		0.0012	0.00500	mg/L	1	2/8/2013 16:30
Potassium	2.86		0.084	0.200	mg/L	1	2/8/2013 02:04
Selenium	0.00222	J	0.0010	0.00500	mg/L	1	2/8/2013 16:30
Silver	U		0.00080	0.00500	mg/L	1	2/8/2013 02:04
Sodium	146		0.085	0.200	mg/L	1	2/8/2013 02:04
Uranium	0.0156		0.0050	0.00500	mg/L	1	2/8/2013 02:04
Zinc	0.00343	J	0.0025	0.00500	mg/L	1	2/8/2013 16:30
LOW-LEVEL SEMIVOLATILES		Method: SW8270		Prep: SW3510 / 2/7/13		Analyst: LG	
1-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 16:13
2-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 16:13
Benzo(a)pyrene	U		0.000050	0.00020	mg/L	1	2/8/2013 16:13
Naphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 16:13
Surr: 2,4,6-Tribromophenol	58.9			34-129	%REC	1	2/8/2013 16:13
Surr: 2-Fluorobiphenyl	63.3			40-125	%REC	1	2/8/2013 16:13

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

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114
Collection Date: 2/3/2013 11:30 AM

Work Order: 1302138
Lab ID: 1302138-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	60.4			20-120	%REC	1	2/8/2013 16:13
Surr: 4-Terphenyl-d14	92.1			40-135	%REC	1	2/8/2013 16:13
Surr: Nitrobenzene-d5	67.1			41-120	%REC	1	2/8/2013 16:13
Surr: Phenol-d6	61.6			20-120	%REC	1	2/8/2013 16:13

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 16:38
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	2/6/2013 16:38
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 16:38
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 16:38
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	2/6/2013 16:38
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	2/6/2013 16:38
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 16:38
Benzene	U		0.00020	0.0010	mg/L	1	2/6/2013 16:38
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	2/6/2013 16:38
Chloroform	U		0.00030	0.0010	mg/L	1	2/6/2013 16:38
Ethylbenzene	U		0.00030	0.0010	mg/L	1	2/6/2013 16:38
Methylene chloride	U		0.00040	0.0020	mg/L	1	2/6/2013 16:38
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	2/6/2013 16:38
Toluene	U		0.00030	0.0010	mg/L	1	2/6/2013 16:38
Trichloroethene	U		0.00020	0.0010	mg/L	1	2/6/2013 16:38
Vinyl chloride	U		0.00040	0.0010	mg/L	1	2/6/2013 16:38
Xylenes, Total	U		0.00030	0.0010	mg/L	1	2/6/2013 16:38
Surr: 1,2-Dichloroethane-d4	87.5			71-125	%REC	1	2/6/2013 16:38
Surr: 4-Bromofluorobenzene	95.7			70-125	%REC	1	2/6/2013 16:38
Surr: Dibromofluoromethane	95.2			74-125	%REC	1	2/6/2013 16:38
Surr: Toluene-d8	97.5			78-123	%REC	1	2/6/2013 16:38

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	158		10	25.0	mg/L	50	2/12/2013 19:30
Fluoride	1.76		0.050	0.100	mg/L	1	2/6/2013 16:05
Nitrogen, Nitrate (As N)	1.43	H	0.030	0.100	mg/L	1	2/6/2013 16:05
Nitrogen, Nitrite (As N)	U	H	0.030	0.100	mg/L	1	2/6/2013 16:05
Sulfate	2,200		10	25.0	mg/L	50	2/12/2013 19:30
Surr: Selenate (surr)	89.1			85-115	%REC	1	2/6/2013 16:05
Surr: Selenate (surr)	91.3			85-115	%REC	50	2/12/2013 19:30

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	U		0.0040	0.0200	mg/L	1	2/11/2013 10:05

TOTAL DISSOLVED SOLIDS			Method: M2540C			Analyst: KAH	
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Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114
Collection Date: 2/3/2013 11:30 AM

Work Order: 1302138
Lab ID: 1302138-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Total Dissolved Solids (Residue, Filterable)	3,760		5.0	10.0	mg/L	1	2/7/2013 10:10

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

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-115
Collection Date: 2/3/2013 12:30 PM

Work Order: 1302138
Lab ID: 1302138-04
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3511 / 2/8/13 Analyst: KMB							
TPH (Diesel Range)	U		0.021	0.051	mg/L	1	2/11/2013 16:41
TPH (Oil Range)	U		0.041	0.10	mg/L	1	2/11/2013 16:41
Surr: 2-Fluorobiphenyl	114			60-135	%REC	1	2/11/2013 16:41
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Prep: SW3511 / 2/8/13 Analyst: KKP							
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	2/7/2013 19:41
Surr: 4-Bromofluorobenzene	101			70-130	%REC	1	2/7/2013 19:41
DISSOLVED MERCURY Method: SW7470 Prep: SW7470 / 2/7/13 Analyst: OFO							
Mercury	U		0.000042	0.000200	mg/L	1	2/7/2013 18:14
DISSOLVED METALS Method: SW6020 Prep: SW3010A / 2/6/13 Analyst: ALR							
Aluminum	0.00888	J	0.0040	0.0100	mg/L	1	2/8/2013 02:09
Arsenic	0.00499	J	0.0013	0.00500	mg/L	1	2/8/2013 19:53
Barium	0.0309		0.00090	0.00500	mg/L	1	2/8/2013 02:09
Boron	0.865		0.20	0.500	mg/L	10	2/12/2013 14:28
Cadmium	U		0.00080	0.00200	mg/L	1	2/8/2013 02:09
Calcium	518		0.86	5.00	mg/L	10	2/8/2013 16:55
Chromium	U		0.0012	0.00500	mg/L	1	2/8/2013 19:53
Cobalt	0.00290	J	0.00080	0.00500	mg/L	1	2/8/2013 19:53
Copper	0.00704		0.0015	0.00500	mg/L	1	2/8/2013 19:53
Iron	U		0.078	0.200	mg/L	1	2/8/2013 19:53
Lead	U		0.00070	0.00500	mg/L	1	2/8/2013 02:09
Manganese	0.255		0.0025	0.00500	mg/L	1	2/8/2013 19:53
Molybdenum	0.00877		0.0015	0.00500	mg/L	1	2/8/2013 02:09
Nickel	0.00483	J	0.0012	0.00500	mg/L	1	2/8/2013 19:53
Potassium	1.78		0.084	0.200	mg/L	1	2/8/2013 02:09
Selenium	0.00810		0.0010	0.00500	mg/L	1	2/8/2013 19:53
Silver	U		0.00080	0.00500	mg/L	1	2/8/2013 02:09
Sodium	199		0.85	2.00	mg/L	10	2/8/2013 16:55
Uranium	0.0843		0.0050	0.00500	mg/L	1	2/8/2013 02:09
Zinc	0.00973		0.0025	0.00500	mg/L	1	2/8/2013 19:53
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3510 / 2/7/13 Analyst: LG							
1-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 16:32
2-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 16:32
Benzo(a)pyrene	U		0.000050	0.00020	mg/L	1	2/8/2013 16:32
Naphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 16:32
Surr: 2,4,6-Tribromophenol	73.4			34-129	%REC	1	2/8/2013 16:32
Surr: 2-Fluorobiphenyl	67.9			40-125	%REC	1	2/8/2013 16:32

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

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-115
Collection Date: 2/3/2013 12:30 PM

Work Order: 1302138
Lab ID: 1302138-04
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	59.8			20-120	%REC	1	2/8/2013 16:32
Surr: 4-Terphenyl-d14	102			40-135	%REC	1	2/8/2013 16:32
Surr: Nitrobenzene-d5	70.7			41-120	%REC	1	2/8/2013 16:32
Surr: Phenol-d6	55.2			20-120	%REC	1	2/8/2013 16:32

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:02
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	2/6/2013 17:02
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:02
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:02
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	2/6/2013 17:02
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:02
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:02
Benzene	U		0.00020	0.0010	mg/L	1	2/6/2013 17:02
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	2/6/2013 17:02
Chloroform	U		0.00030	0.0010	mg/L	1	2/6/2013 17:02
Ethylbenzene	U		0.00030	0.0010	mg/L	1	2/6/2013 17:02
Methylene chloride	U		0.00040	0.0020	mg/L	1	2/6/2013 17:02
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	2/6/2013 17:02
Toluene	U		0.00030	0.0010	mg/L	1	2/6/2013 17:02
Trichloroethene	U		0.00020	0.0010	mg/L	1	2/6/2013 17:02
Vinyl chloride	U		0.00040	0.0010	mg/L	1	2/6/2013 17:02
Xylenes, Total	U		0.00030	0.0010	mg/L	1	2/6/2013 17:02
Surr: 1,2-Dichloroethane-d4	89.7			71-125	%REC	1	2/6/2013 17:02
Surr: 4-Bromofluorobenzene	99.2			70-125	%REC	1	2/6/2013 17:02
Surr: Dibromofluoromethane	97.1			74-125	%REC	1	2/6/2013 17:02
Surr: Toluene-d8	101			78-123	%REC	1	2/6/2013 17:02

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	422		10	25.0	mg/L	50	2/12/2013 19:44
Fluoride	1.10		0.050	0.100	mg/L	1	2/6/2013 16:20
Nitrogen, Nitrate (As N)	0.821	H	0.030	0.100	mg/L	1	2/6/2013 16:20
Nitrogen, Nitrite (As N)	0.141	H	0.030	0.100	mg/L	1	2/6/2013 16:20
Sulfate	2,790		10	25.0	mg/L	50	2/12/2013 19:44
Surr: Selenate (surr)	89.1			85-115	%REC	1	2/6/2013 16:20
Surr: Selenate (surr)	93.1			85-115	%REC	50	2/12/2013 19:44

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	U		0.0040	0.0200	mg/L	1	2/11/2013 10:05

TOTAL DISSOLVED SOLIDS			Method: M2540C			Analyst: KAH	
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Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-115
Collection Date: 2/3/2013 12:30 PM

Work Order: 1302138
Lab ID: 1302138-04
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Total Dissolved Solids (Residue, Filterable)	4,960		5.0	10.0	mg/L	1	2/7/2013 10:10

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

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: Trip Blank 011813-74
Collection Date: 2/3/2013

Work Order: 1302138
Lab ID: 1302138-05
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:27
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	2/6/2013 17:27
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:27
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:27
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	2/6/2013 17:27
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:27
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:27
Benzene	U		0.00020	0.0010	mg/L	1	2/6/2013 17:27
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	2/6/2013 17:27
Chloroform	U		0.00030	0.0010	mg/L	1	2/6/2013 17:27
Ethylbenzene	U		0.00030	0.0010	mg/L	1	2/6/2013 17:27
Methylene chloride	U		0.00040	0.0020	mg/L	1	2/6/2013 17:27
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	2/6/2013 17:27
Toluene	U		0.00030	0.0010	mg/L	1	2/6/2013 17:27
Trichloroethene	U		0.00020	0.0010	mg/L	1	2/6/2013 17:27
Vinyl chloride	U		0.00040	0.0010	mg/L	1	2/6/2013 17:27
Xylenes, Total	U		0.00030	0.0010	mg/L	1	2/6/2013 17:27
Surr: 1,2-Dichloroethane-d4	88.7			71-125	%REC	1	2/6/2013 17:27
Surr: 4-Bromofluorobenzene	95.0			70-125	%REC	1	2/6/2013 17:27
Surr: Dibromofluoromethane	96.7			74-125	%REC	1	2/6/2013 17:27
Surr: Toluene-d8	97.7			78-123	%REC	1	2/6/2013 17:27

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

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: Trip Blank 011813-50
Collection Date: 2/3/2013

Work Order: 1302138
Lab ID: 1302138-06
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:51
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	2/6/2013 17:51
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:51
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:51
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	2/6/2013 17:51
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:51
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/6/2013 17:51
Benzene	U		0.00020	0.0010	mg/L	1	2/6/2013 17:51
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	2/6/2013 17:51
Chloroform	U		0.00030	0.0010	mg/L	1	2/6/2013 17:51
Ethylbenzene	U		0.00030	0.0010	mg/L	1	2/6/2013 17:51
Methylene chloride	U		0.00040	0.0020	mg/L	1	2/6/2013 17:51
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	2/6/2013 17:51
Toluene	U		0.00030	0.0010	mg/L	1	2/6/2013 17:51
Trichloroethene	U		0.00020	0.0010	mg/L	1	2/6/2013 17:51
Vinyl chloride	U		0.00040	0.0010	mg/L	1	2/6/2013 17:51
Xylenes, Total	U		0.00030	0.0010	mg/L	1	2/6/2013 17:51
Surr: 1,2-Dichloroethane-d4	89.6			71-125	%REC	1	2/6/2013 17:51
Surr: 4-Bromofluorobenzene	96.6			70-125	%REC	1	2/6/2013 17:51
Surr: Dibromofluoromethane	96.1			74-125	%REC	1	2/6/2013 17:51
Surr: Toluene-d8	99.9			78-123	%REC	1	2/6/2013 17:51

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

ALS Environmental

Date: 18-Feb-13

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67710** Instrument ID **FID-16** Method: **SW8015M**

MBLK	Sample ID: LBLKW-130208-67710				Units: mg/L		Analysis Date: 2/11/2013 02:30 PM			
Client ID:	Run ID: FID-16_130211B				SeqNo: 3110036		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	U	0.050								
TPH (Oil Range)	U	0.10								
<i>Surr: 2-Fluorobiphenyl</i>	0.06355	0.0050	0.06061	0	105	60-135	0			

LCS	Sample ID: LLCSW-130208-67710				Units: mg/L		Analysis Date: 2/11/2013 02:52 PM			
Client ID:	Run ID: FID-16_130211B				SeqNo: 3110037		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.5399	0.050	0.6061	0	89.1	70-130	0			
TPH (Oil Range)	0.5571	0.10	0.6061	0	91.9	70-130	0			
<i>Surr: 2-Fluorobiphenyl</i>	0.0583	0.0050	0.06061	0	96.2	60-135	0			

LCSD	Sample ID: LLCSDW-130208-67710				Units: mg/L		Analysis Date: 2/11/2013 03:14 PM			
Client ID:	Run ID: FID-16_130211B				SeqNo: 3110038		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.5053	0.050	0.6061	0	83.4	70-130	0.5399	6.61	20	
TPH (Oil Range)	0.494	0.10	0.6061	0	81.5	70-130	0.5571	12	20	
<i>Surr: 2-Fluorobiphenyl</i>	0.05676	0.0050	0.06061	0	93.7	60-135	0.0583	2.68	20	

The following samples were analyzed in this batch:

1302138-01C	1302138-02C	1302138-03C
1302138-04C		

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

QC Page: 1 of 24

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142594** Instrument ID **FID-9** Method: **SW8015**

MBLK	Sample ID: GBLKW-130207-R142594				Units: mg/L		Analysis Date: 2/7/2013 06:29 PM			
Client ID:	Run ID: FID-9_130207A				SeqNo: 3110011		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	U	0.050								
Surr: 4-Bromofluorobenzene	0.1043	0.0050	0.1	0	104	70-130	0			

LCS	Sample ID: GLCSW-130207-R142594				Units: mg/L		Analysis Date: 2/7/2013 05:35 PM			
Client ID:	Run ID: FID-9_130207A				SeqNo: 3110006		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.8877	0.050	1	0	88.8	70-130	0			
Surr: 4-Bromofluorobenzene	0.1154	0.0050	0.1	0	115	70-130	0			

LCSD	Sample ID: GLCSDW-130207-R142594				Units: mg/L		Analysis Date: 2/7/2013 05:53 PM			
Client ID:	Run ID: FID-9_130207A				SeqNo: 3110009		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.8879	0.050	1	0	88.8	70-130	0.8877	0.014	30	
Surr: 4-Bromofluorobenzene	0.1121	0.0050	0.1	0	112	70-130	0.1154	2.93	30	

MS	Sample ID: 1302138-04BMS				Units: mg/L		Analysis Date: 2/7/2013 10:23 PM			
Client ID: MW-115	Run ID: FID-9_130207A				SeqNo: 3110033		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.7588	0.050	1	0	75.9	70-130	0			
Surr: 4-Bromofluorobenzene	0.1017	0.0050	0.1	0	102	70-130	0			

MSD	Sample ID: 1302138-04BMSD				Units: mg/L		Analysis Date: 2/7/2013 10:41 PM			
Client ID: MW-115	Run ID: FID-9_130207A				SeqNo: 3110034		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.7506	0.050	1	0	75.1	70-130	0.7588	1.08	30	
Surr: 4-Bromofluorobenzene	0.1015	0.0050	0.1	0	101	70-130	0.1017	0.216	30	

The following samples were analyzed in this batch:

1302138-01B	1302138-02B	1302138-03B
1302138-04B		

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

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67619** Instrument ID **ICP7500** Method: **SW6020** **(Dissolve)**

MBLK	Sample ID: MBLKW3-020613-67619			Units: mg/L			Analysis Date: 2/8/2013 12:38 AM			
Client ID:	Run ID: ICP7500_130207A			SeqNo: 3106113		Prep Date: 2/6/2013		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.004993	0.010								J
Arsenic	U	0.0050								
Barium	U	0.0050								
Cadmium	U	0.0020								
Calcium	U	0.50								
Chromium	U	0.0050								
Cobalt	U	0.0050								
Copper	U	0.0050								
Iron	U	0.20								
Lead	U	0.0050								
Manganese	U	0.0050								
Molybdenum	U	0.0050								
Nickel	U	0.0050								
Potassium	U	0.20								
Selenium	0.00238	0.0050								J
Silver	U	0.0050								
Sodium	U	0.20								
Uranium	U	0.0050								
Zinc	U	0.0050								

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

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67619** Instrument ID **ICP7500** Method: **SW6020** **(Dissolve)**

LCS Sample ID: **MLCSW3-020613-67619** Units: **mg/L** Analysis Date: **2/8/2013 12:43 AM**

Client ID: Run ID: **ICP7500_130207A** SeqNo: **3106114** Prep Date: **2/6/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1092	0.010	0.1	0	109	80-120	0			
Arsenic	0.05204	0.0050	0.05	0	104	80-120	0			
Barium	0.05274	0.0050	0.05	0	105	80-120	0			
Cadmium	0.05136	0.0020	0.05	0	103	80-120	0			
Calcium	5.163	0.50	5	0	103	80-120	0			
Chromium	0.05159	0.0050	0.05	0	103	80-120	0			
Cobalt	0.05069	0.0050	0.05	0	101	80-120	0			
Copper	0.05284	0.0050	0.05	0	106	80-120	0			
Iron	5.018	0.20	5	0	100	80-120	0			
Lead	0.05071	0.0050	0.05	0	101	80-120	0			
Manganese	0.05048	0.0050	0.05	0	101	80-120	0			
Molybdenum	0.04933	0.0050	0.05	0	98.7	80-120	0			
Nickel	0.05065	0.0050	0.05	0	101	80-120	0			
Potassium	5.216	0.20	5	0	104	80-120	0			
Selenium	0.05348	0.0050	0.05	0	107	80-120	0			
Silver	0.05061	0.0050	0.05	0	101	80-120	0			
Sodium	5.159	0.20	5	0	103	80-120	0			
Uranium	0.1015	0.0050	0.1	0	102	80-120	0			
Zinc	0.05422	0.0050	0.05	0	108	80-120	0			

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

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67619** Instrument ID **ICP7500** Method: **SW6020** (Dissolve)

MS Sample ID: **1302138-01EMS** Units: **mg/L** Analysis Date: **2/8/2013 01:03 AM**

Client ID: **RO Discharge** Run ID: **ICP7500_130207A** SeqNo: **3106118** Prep Date: **2/6/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1175	0.010	0.1	0.006684	111	75-125	0			
Arsenic	0.06218	0.0050	0.05	0.004935	114	75-125	0			
Barium	0.1161	0.0050	0.05	0.06275	107	75-125	0			
Cadmium	0.05003	0.0020	0.05	0.0001626	99.7	75-125	0			
Calcium	754	0.50	5	726.2	556	75-125	0			SEO
Chromium	0.05429	0.0050	0.05	0.0009708	107	75-125	0			
Cobalt	0.05008	0.0050	0.05	0.0005107	99.1	75-125	0			
Copper	0.05121	0.0050	0.05	0.001766	98.9	75-125	0			
Iron	5.098	0.20	5	0.05082	101	75-125	0			
Lead	0.05237	0.0050	0.05	0.0006516	103	75-125	0			
Manganese	0.05229	0.0050	0.05	0.001463	102	75-125	0			
Molybdenum	0.06607	0.0050	0.05	0.01252	107	75-125	0			
Nickel	0.05158	0.0050	0.05	0.002642	97.9	75-125	0			
Potassium	10.31	0.20	5	4.407	118	75-125	0			
Selenium	0.07267	0.0050	0.05	0.01304	119	75-125	0			
Silver	0.04765	0.0050	0.05	-0.00009242	95.5	75-125	0			
Sodium	73.65	0.20	5	65.44	164	75-125	0			SO
Uranium	0.1166	0.0050	0.1	0.006008	111	75-125	0			
Zinc	0.06257	0.0050	0.05	0.01316	98.8	75-125	0			

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

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67619** Instrument ID **ICP7500** Method: **SW6020** **(Dissolve)**

MSD		Sample ID: 1302138-01EMSD				Units: mg/L		Analysis Date: 2/8/2013 01:08 AM		
Client ID: RO Discharge		Run ID: ICP7500_130207A				SeqNo: 3106119		Prep Date: 2/6/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1166	0.010	0.1	0.006684	110	75-125	0.1175	0.769	25	
Arsenic	0.06119	0.0050	0.05	0.004935	113	75-125	0.06218	1.6	25	
Barium	0.1173	0.0050	0.05	0.06275	109	75-125	0.1161	1.03	25	
Cadmium	0.05093	0.0020	0.05	0.0001626	102	75-125	0.05003	1.78	25	
Calcium	743.7	0.50	5	726.2	350	75-125	754	1.38	25	SEO
Chromium	0.05277	0.0050	0.05	0.0009708	104	75-125	0.05429	2.84	25	
Cobalt	0.04949	0.0050	0.05	0.0005107	98	75-125	0.05008	1.19	25	
Copper	0.04946	0.0050	0.05	0.001766	95.4	75-125	0.05121	3.48	25	
Iron	5.027	0.20	5	0.05082	99.5	75-125	5.098	1.4	25	
Lead	0.05236	0.0050	0.05	0.0006516	103	75-125	0.05237	0.0191	25	
Manganese	0.05087	0.0050	0.05	0.001463	98.8	75-125	0.05229	2.75	25	
Molybdenum	0.06545	0.0050	0.05	0.01252	106	75-125	0.06607	0.943	25	
Nickel	0.05066	0.0050	0.05	0.002642	96	75-125	0.05158	1.8	25	
Potassium	10.09	0.20	5	4.407	114	75-125	10.31	2.16	25	
Selenium	0.07481	0.0050	0.05	0.01304	124	75-125	0.07267	2.9	25	
Silver	0.04757	0.0050	0.05	-0.00009242	95.3	75-125	0.04765	0.168	25	
Sodium	72.71	0.20	5	65.44	145	75-125	73.65	1.28	25	SO
Uranium	0.1171	0.0050	0.1	0.006008	111	75-125	0.1166	0.428	25	
Zinc	0.06015	0.0050	0.05	0.01316	94	75-125	0.06257	3.94	25	

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

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67619** Instrument ID **ICP7500** Method: **SW6020** **(Dissolve)**

DUP Sample ID: **1302138-01EDUP** Units: **mg/L** Analysis Date: **2/8/2013 12:53 AM**
 Client ID: **RO Discharge** Run ID: **ICP7500_130207A** SeqNo: **3106116** Prep Date: **2/6/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.006071	0.010	0	0	0	0-0	0.006684	0	25	J
Arsenic	0.005444	0.0050	0	0	0	0-0	0.004935	9.81	25	
Barium	0.06235	0.0050	0	0	0	0-0	0.06275	0.639	25	
Cadmium	U	0.0020	0	0	0	0-0	0.0001626	0	25	
Chromium	U	0.0050	0	0	0	0-0	0.0009708	0	25	
Cobalt	U	0.0050	0	0	0	0-0	0.0005107	0	25	
Copper	0.001881	0.0050	0	0	0	0-0	0.001766	0	25	J
Iron	U	0.20	0	0	0	0-0	0.05082	0	25	
Lead	U	0.0050	0	0	0	0-0	0.0006516	0	25	
Manganese	U	0.0050	0	0	0	0-0	0.001463	0	25	
Molybdenum	0.01297	0.0050	0	0	0	0-0	0.01252	3.53	25	
Nickel	0.002802	0.0050	0	0	0	0-0	0.002642	0	25	J
Potassium	4.498	0.20	0	0	0	0-0	4.407	2.04	25	
Selenium	0.01234	0.0050	0	0	0	0-0	0.01304	5.52	25	
Silver	U	0.0050	0	0	0	0-0	-0.00009242	0	25	
Sodium	67.07	0.20	0	0	0	0-0	65.44	2.46	25	
Uranium	0.006251	0.0050	0	0	0		0.006008	3.96	25	
Zinc	0.01375	0.0050	0	0	0	0-0	0.01316	4.38	25	

DUP Sample ID: **1302138-01EDUP** Units: **mg/L** Analysis Date: **2/8/2013 01:22 PM**
 Client ID: **RO Discharge** Run ID: **ICP7500_130208A** SeqNo: **3106804** Prep Date: **2/6/2013** DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	662	25	0	0	0	0-0	625	5.75	25	

The following samples were analyzed in this batch:

1302138-01E	1302138-02E	1302138-03E
1302138-04E		

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

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67624** Instrument ID **Mercury** Method: **SW7470** (Dissolve)

MBLK	Sample ID: GBLKW4-020713-67624				Units: mg/L		Analysis Date: 2/7/2013 04:12 PM			
Client ID:	Run ID: MERCURY_130207A				SeqNo: 3105666		Prep Date: 2/7/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	0.00020								

LCS	Sample ID: GLCSW4-020713-67624				Units: mg/L		Analysis Date: 2/7/2013 04:14 PM			
Client ID:	Run ID: MERCURY_130207A				SeqNo: 3105667		Prep Date: 2/7/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00534	0.00020	0.005	0	107	80-120	0			

MS	Sample ID: 1302162-02DMS				Units: mg/L		Analysis Date: 2/7/2013 04:20 PM			
Client ID:	Run ID: MERCURY_130207A				SeqNo: 3105670		Prep Date: 2/7/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00399	0.00020	0.005	-0.00001	80	80-120	0			

MSD	Sample ID: 1302162-02DMSD				Units: mg/L		Analysis Date: 2/7/2013 04:22 PM			
Client ID:	Run ID: MERCURY_130207A				SeqNo: 3105671		Prep Date: 2/7/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00392	0.00020	0.005	-0.00001	78.6	80-120	0.00399	1.77	20	S

DUP	Sample ID: 1302162-02DDUP				Units: mg/L		Analysis Date: 2/7/2013 04:18 PM			
Client ID:	Run ID: MERCURY_130207A				SeqNo: 3105669		Prep Date: 2/7/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	0.00020	0	0	0	0-0	-0.00001	0	20	

The following samples were analyzed in this batch:

1302138-01E	1302138-02E	1302138-03E
1302138-04E		

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

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67639** Instrument ID **ICPMS05** Method: **SW6020** **(Dissolve)**

MBLK	Sample ID: MBLKW5-020813-67639				Units: mg/L		Analysis Date: 2/11/2013 05:25 PM			
Client ID:	Run ID: ICPMS05_130211A				SeqNo: 3109576		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.006192	0.010								J
Arsenic	U	0.0050								
Barium	U	0.0050								
Cadmium	U	0.0020								
Calcium	0.2533	0.50								J
Chromium	U	0.0050								
Cobalt	U	0.0050								
Copper	U	0.0050								
Iron	U	0.20								
Lead	U	0.0050								
Manganese	U	0.0050								
Molybdenum	U	0.0050								
Nickel	U	0.0050								
Potassium	U	0.20								
Selenium	U	0.0050								
Silver	U	0.0050								
Uranium	U	0.0050								
Zinc	0.003007	0.0050								J

MBLK	Sample ID: MBLKW5-020813-67639				Units: mg/L		Analysis Date: 2/12/2013 02:04 PM			
Client ID:	Run ID: ICPMS05_130212A				SeqNo: 3110576		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	U	0.050								
Sodium	U	0.20								

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

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67639** Instrument ID **ICPMS05** Method: **SW6020** (Dissolve)

LCS		Sample ID: MLCSW5-020813-67639				Units: mg/L		Analysis Date: 2/11/2013 05:27 PM		
Client ID:		Run ID: ICPMS05_130211A				SeqNo: 3109577		Prep Date: 2/8/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1117	0.010	0.1	0	112	80-120	0			
Arsenic	0.05058	0.0050	0.05	0	101	80-120	0			
Barium	0.05024	0.0050	0.05	0	100	80-120	0			
Cadmium	0.05148	0.0020	0.05	0	103	80-120	0			
Calcium	5.189	0.50	5	0	104	80-120	0			
Chromium	0.05108	0.0050	0.05	0	102	80-120	0			
Cobalt	0.05227	0.0050	0.05	0	105	80-120	0			
Copper	0.05136	0.0050	0.05	0	103	80-120	0			
Iron	5.088	0.20	5	0	102	80-120	0			
Lead	0.05288	0.0050	0.05	0	106	80-120	0			
Manganese	0.05154	0.0050	0.05	0	103	80-120	0			
Molybdenum	0.04945	0.0050	0.05	0	98.9	80-120	0			
Nickel	0.05042	0.0050	0.05	0	101	80-120	0			
Potassium	5.069	0.20	5	0	101	80-120	0			
Selenium	0.05183	0.0050	0.05	0	104	80-120	0			
Silver	0.05213	0.0050	0.05	0	104	80-120	0			
Sodium	5.221	1.0	5	0	104	80-120	0			
Uranium	0.1001	0.0050	0.1	0	100	80-120	0			
Zinc	0.05315	0.0050	0.05	0	106	80-120	0			

LCS		Sample ID: MLCSW5-020813-67639				Units: mg/L		Analysis Date: 2/12/2013 02:06 PM		
Client ID:		Run ID: ICPMS05_130212A				SeqNo: 3110577		Prep Date: 2/8/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.5137	0.050	0.5	0	103	80-120	0			

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

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67639** Instrument ID **ICPMS05** Method: **SW6020** **(Dissolve)**

MS		Sample ID: 1302162-02DMS				Units: mg/L		Analysis Date: 2/11/2013 05:51 PM		
Client ID:		Run ID: ICPMS05_130211A				SeqNo: 3109595		Prep Date: 2/8/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.3754	0.010	0.1	0.08538	290	75-125	0			S
Arsenic	0.05166	0.0050	0.05	0.001764	99.8	75-125	0			
Barium	0.1245	0.0050	0.05	0.07333	102	75-125	0			
Boron	1.31	0.050	0.5	0.723	117	75-125	0			
Cadmium	0.05072	0.0020	0.05	0	101	75-125	0			
Calcium	205.4	0.50	5	195.9	189	75-125	0			SEO
Chromium	0.05017	0.0050	0.05	0	100	75-125	0			
Cobalt	0.05197	0.0050	0.05	0.00258	98.8	75-125	0			
Copper	0.05874	0.0050	0.05	0.007833	102	75-125	0			
Iron	5.244	0.20	5	0.08799	103	75-125	0			
Lead	0.05166	0.0050	0.05	0	103	75-125	0			
Manganese	1.043	0.0050	0.05	0.9886	108	75-125	0			O
Molybdenum	0.05065	0.0050	0.05	0.003301	94.7	75-125	0			
Nickel	0.05995	0.0050	0.05	0.01032	99.3	75-125	0			
Potassium	5.185	0.20	5	0.3187	97.3	75-125	0			
Selenium	0.05066	0.0050	0.05	0	101	75-125	0			
Silver	0.04846	0.0050	0.05	0	96.9	75-125	0			
Sodium	80.45	0.20	5	75.22	105	75-125	0			O
Uranium	0.1148	0.0050	0.05	0.01453	201	75-125	0			S
Zinc	0.1201	0.0050	0.05	0.111	18.2	75-125	0			S

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

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67639** Instrument ID **ICPMS05** Method: **SW6020** **(Dissolve)**

MSD		Sample ID: 1302162-02DMSD				Units: mg/L		Analysis Date: 2/11/2013 05:54 PM		
Client ID:		Run ID: ICPMS05_130211A				SeqNo: 3109596		Prep Date: 2/8/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.8466	0.010	0.1	0.08538	761	75-125	0.3754	77.1	25	SR
Arsenic	0.05059	0.0050	0.05	0.001764	97.7	75-125	0.05166	2.1	25	
Barium	0.1256	0.0050	0.05	0.07333	105	75-125	0.1245	0.876	25	
Boron	1.281	0.050	0.5	0.723	112	75-125	1.31	2.24	25	
Cadmium	0.05061	0.0020	0.05	0	101	75-125	0.05072	0.231	25	
Calcium	198.7	0.50	5	195.9	54.4	75-125	205.4	3.34	25	SEO
Chromium	0.04976	0.0050	0.05	0	99.5	75-125	0.05017	0.817	25	
Cobalt	0.05119	0.0050	0.05	0.00258	97.2	75-125	0.05197	1.53	25	
Copper	0.06255	0.0050	0.05	0.007833	109	75-125	0.05874	6.3	25	
Iron	5.64	0.20	5	0.08799	111	75-125	5.244	7.28	25	
Lead	0.05249	0.0050	0.05	0	105	75-125	0.05166	1.61	25	
Manganese	1.016	0.0050	0.05	0.9886	55.5	75-125	1.043	2.56	25	SO
Molybdenum	0.05104	0.0050	0.05	0.003301	95.5	75-125	0.05065	0.753	25	
Nickel	0.05914	0.0050	0.05	0.01032	97.6	75-125	0.05995	1.36	25	
Potassium	5.175	0.20	5	0.3187	97.1	75-125	5.185	0.195	25	
Selenium	0.04861	0.0050	0.05	0	97.2	75-125	0.05066	4.12	25	
Silver	0.04821	0.0050	0.05	0	96.4	75-125	0.04846	0.523	25	
Sodium	77.87	0.20	5	75.22	52.9	75-125	80.45	3.26	25	SO
Uranium	0.1148	0.0050	0.05	0.01453	201	75-125	0.1148	0.054	25	S
Zinc	0.121	0.0050	0.05	0.111	19.9	75-125	0.1201	0.707	25	S

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

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67639** Instrument ID **ICPMS05** Method: **SW6020** (Dissolve)

DUP	Sample ID: 1302162-02DDUP					Units: mg/L		Analysis Date: 2/11/2013 05:49 PM		
Client ID:	Run ID: ICPMS05_130211A				SeqNo: 3109594		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1358	0.010	0	0	0	0-0	0.08538	45.6	25	R
Arsenic	0.001544	0.0050	0	0	0	0-0	0.001764	0	25	J
Barium	0.07134	0.0050	0	0	0	0-0	0.07333	2.75	25	
Boron	0.7208	0.050	0	0	0	0-0	0.723	0.295	25	
Cadmium	U	0.0020	0	0	0	0-0	0.000088	0	25	
Chromium	U	0.0050	0	0	0	0-0	0.000339	0	25	
Cobalt	0.002315	0.0050	0	0	0	0-0	0.00258	0	25	J
Copper	0.007413	0.0050	0	0	0	0-0	0.007833	5.51	25	
Iron	0.1153	0.20	0	0	0	0-0	0.08799	0	25	J
Lead	U	0.0050	0	0	0	0-0	0.000123	0	25	
Manganese	0.9603	0.0050	0	0	0	0-0	0.9886	2.9	25	
Molybdenum	0.003106	0.0050	0	0	0	0-0	0.003301	0	25	J
Nickel	0.0105	0.0050	0	0	0	0-0	0.01032	1.73	25	
Potassium	0.3152	0.20	0	0	0	0-0	0.3187	1.11	25	
Selenium	U	0.0050	0	0	0	0-0	-0.000908	0	25	
Silver	U	0.0050	0	0	0	0-0	0.000034	0	25	
Sodium	74.01	0.20	0	0	0	0-0	75.22	1.62	25	
Uranium	0.01412	0.0050	0	0	0		0.01453	2.91	25	
Zinc	0.1104	0.0050	0	0	0	0-0	0.111	0.546	25	

DUP	Sample ID: 1302162-02DDUP					Units: mg/L		Analysis Date: 2/12/2013 02:35 PM		
Client ID:	Run ID: ICPMS05_130212A				SeqNo: 3110589		Prep Date: 2/8/2013		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	198.5	5.0	0	0	0	0-0	202.2	1.85	25	

The following samples were analyzed in this batch:

1302138-01E	1302138-02E	1302138-03E
1302138-04E		

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

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67652** Instrument ID **SV-6** Method: **SW8270**

MBLK Sample ID: **SBLKW2-130207-67652** Units: **µg/L** Analysis Date: **2/8/2013 01:13 PM**
 Client ID: Run ID: **SV-6_130208A** SeqNo: **3108320** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	U	0.20								
2-Methylnaphthalene	U	0.20								
Benzo(a)pyrene	U	0.20								
Naphthalene	U	0.20								
Surr: 2,4,6-Tribromophenol	3.917	0.20	5	0	78.3	34-129	0			
Surr: 2-Fluorobiphenyl	4.298	0.20	5	0	86	40-125	0			
Surr: 2-Fluorophenol	3.88	0.20	5	0	77.6	20-120	0			
Surr: 4-Terphenyl-d14	4.845	0.20	5	0	96.9	40-135	0			
Surr: Nitrobenzene-d5	4.337	0.20	5	0	86.7	41-120	0			
Surr: Phenol-d6	4.179	0.20	5	0	83.6	20-120	0			

LCS Sample ID: **SLCSW2-130207-67652** Units: **µg/L** Analysis Date: **2/8/2013 01:33 PM**
 Client ID: Run ID: **SV-6_130208A** SeqNo: **3108321** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	4.55	0.20	5	0	91	45-120	0			
2-Methylnaphthalene	4.623	0.20	5	0	92.5	50-120	0			
Benzo(a)pyrene	4.718	0.20	5	0	94.4	45-120	0			
Naphthalene	4.463	0.20	5	0	89.3	45-120	0			
Surr: 2,4,6-Tribromophenol	4.284	0.20	5	0	85.7	34-129	0			
Surr: 2-Fluorobiphenyl	4.295	0.20	5	0	85.9	40-125	0			
Surr: 2-Fluorophenol	4.096	0.20	5	0	81.9	20-120	0			
Surr: 4-Terphenyl-d14	4.973	0.20	5	0	99.5	40-135	0			
Surr: Nitrobenzene-d5	4.235	0.20	5	0	84.7	41-120	0			
Surr: Phenol-d6	4.012	0.20	5	0	80.2	20-120	0			

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

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67652** Instrument ID **SV-6** Method: **SW8270**

LCSD Sample ID: **SLCSDW2-130207-67652** Units: **µg/L** Analysis Date: **2/8/2013 01:52 PM**

Client ID: Run ID: **SV-6_130208A** SeqNo: **3108323** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	4.365	0.20	5	0	87.3	45-120	4.55	4.13	20	
2-Methylnaphthalene	4.423	0.20	5	0	88.5	50-120	4.623	4.44	20	
Benzo(a)pyrene	4.773	0.20	5	0	95.5	45-120	4.718	1.16	20	
Naphthalene	4.285	0.20	5	0	85.7	45-120	4.463	4.07	20	
<i>Surr: 2,4,6-Tribromophenol</i>	4.279	0.20	5	0	85.6	34-129	4.284	0.118	0	
<i>Surr: 2-Fluorobiphenyl</i>	4.281	0.20	5	0	85.6	40-125	4.295	0.322	0	
<i>Surr: 2-Fluorophenol</i>	4.05	0.20	5	0	81	20-120	4.096	1.12	0	
<i>Surr: 4-Terphenyl-d14</i>	4.878	0.20	5	0	97.6	40-135	4.973	1.92	0	
<i>Surr: Nitrobenzene-d5</i>	4.191	0.20	5	0	83.8	41-120	4.235	1.04	0	
<i>Surr: Phenol-d6</i>	4.006	0.20	5	0	80.1	20-120	4.012	0.155	0	

MS Sample ID: **1302166-02AMS** Units: **µg/L** Analysis Date: **2/8/2013 02:35 PM**

Client ID: Run ID: **SV-6_130208A** SeqNo: **3108326** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	4.507	0.20	5	0.041	89.3	45-120	0			
2-Methylnaphthalene	4.563	0.20	5	0.06144	90	50-120	0			
Benzo(a)pyrene	4.668	0.20	5	0	93.4	45-120	0			
Naphthalene	4.369	0.20	5	0.05768	86.2	45-120	0			
<i>Surr: 2,4,6-Tribromophenol</i>	4.338	0.20	5	0	86.8	34-129	0			
<i>Surr: 2-Fluorobiphenyl</i>	4.351	0.20	5	0	87	40-125	0			
<i>Surr: 2-Fluorophenol</i>	3.971	0.20	5	0	79.4	20-120	0			
<i>Surr: 4-Terphenyl-d14</i>	5.066	0.20	5	0	101	40-135	0			
<i>Surr: Nitrobenzene-d5</i>	4.259	0.20	5	0	85.2	41-120	0			
<i>Surr: Phenol-d6</i>	3.95	0.20	5	0	79	20-120	0			

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

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67652** Instrument ID **SV-6** Method: **SW8270**

MSD		Sample ID: 1302166-02AMSD				Units: µg/L		Analysis Date: 2/8/2013 02:54 PM		
Client ID:		Run ID: SV-6_130208A				SeqNo: 3108327		Prep Date: 2/7/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	4.55	0.20	5	0.041	90.2	45-120	4.507	0.951	20	
2-Methylnaphthalene	4.617	0.20	5	0.06144	91.1	50-120	4.563	1.17	20	
Benzo(a)pyrene	4.952	0.20	5	0	99	45-120	4.668	5.91	20	
Naphthalene	4.415	0.20	5	0.05768	87.1	45-120	4.369	1.03	20	
<i>Surr: 2,4,6-Tribromophenol</i>	4.292	0.20	5	0	85.8	34-129	4.338	1.06	0	
<i>Surr: 2-Fluorobiphenyl</i>	4.291	0.20	5	0	85.8	40-125	4.351	1.38	0	
<i>Surr: 2-Fluorophenol</i>	3.848	0.20	5	0	77	20-120	3.971	3.15	0	
<i>Surr: 4-Terphenyl-d14</i>	5.26	0.20	5	0	105	40-135	5.066	3.77	0	
<i>Surr: Nitrobenzene-d5</i>	4.13	0.20	5	0	82.6	41-120	4.259	3.08	0	
<i>Surr: Phenol-d6</i>	3.943	0.20	5	0	78.9	20-120	3.95	0.168	0	

The following samples were analyzed in this batch:

1302138-01D	1302138-02D	1302138-03D
1302138-04D		

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

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142213** Instrument ID **VOA4** Method: **SW8260**

MBLK Sample ID: **VBLKW-130206-R142213** Units: **µg/L** Analysis Date: **2/6/2013 10:59 AM**

Client ID: Run ID: **VOA4_130206A** SeqNo: **3103319** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichloroethane	U	1.0								
Benzene	U	1.0								
Carbon tetrachloride	U	1.0								
Chloroform	U	1.0								
Ethylbenzene	U	1.0								
Methylene chloride	U	2.0								
Tetrachloroethene	U	1.0								
Toluene	U	1.0								
Trichloroethene	U	1.0								
Vinyl chloride	U	1.0								
Xylenes, Total	U	1.0								
Surr: 1,2-Dichloroethane-d4	45.87	1.0	50	0	91.7	71-125	0			
Surr: 4-Bromofluorobenzene	48.12	1.0	50	0	96.2	70-125	0			
Surr: Dibromofluoromethane	50.46	1.0	50	0	101	74-125	0			
Surr: Toluene-d8	48.36	1.0	50	0	96.7	78-123	0			

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

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142213** Instrument ID **VOA4** Method: **SW8260**

LCS		Sample ID: VLCSW-130206-R142213				Units: µg/L		Analysis Date: 2/6/2013 10:11 AM		
Client ID:		Run ID: VOA4_130206A				SeqNo: 3103318		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	52.73	1.0	50	0	105	80-120	0			
1,1,2,2-Tetrachloroethane	43.78	1.0	50	0	87.6	74-123	0			
1,1,2-Trichloroethane	46.9	1.0	50	0	93.8	80-120	0			
1,1-Dichloroethane	45.3	1.0	50	0	90.6	80-120	0			
1,1-Dichloroethene	52.88	1.0	50	0	106	80-120	0			
1,2-Dibromoethane	51.68	1.0	50	0	103	80-120	0			
1,2-Dichloroethane	48.52	1.0	50	0	97	79-120	0			
Benzene	47.93	1.0	50	0	95.9	80-120	0			
Carbon tetrachloride	57.55	1.0	50	0	115	79-120	0			
Chloroform	46.06	1.0	50	0	92.1	80-120	0			
Ethylbenzene	47.01	1.0	50	0	94	80-120	0			
Methylene chloride	46.19	2.0	50	0	92.4	75-125	0			
Tetrachloroethene	51.51	1.0	50	0	103	80-120	0			
Toluene	46.16	1.0	50	0	92.3	80-121	0			
Trichloroethene	53.76	1.0	50	0	108	80-120	0			
Vinyl chloride	47.31	1.0	50	0	94.6	75-125	0			
Xylenes, Total	136.7	1.0	150	0	91.2	80-124	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	44.19	1.0	50	0	88.4	71-125	0			
<i>Surr: 4-Bromofluorobenzene</i>	50.47	1.0	50	0	101	70-125	0			
<i>Surr: Dibromofluoromethane</i>	49.76	1.0	50	0	99.5	74-125	0			
<i>Surr: Toluene-d8</i>	47.67	1.0	50	0	95.3	78-123	0			

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

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142213** Instrument ID **VOA4** Method: **SW8260**

MS	Sample ID: 1302133-05AMS				Units: µg/L		Analysis Date: 2/6/2013 11:23 AM			
Client ID:	Run ID: VOA4_130206A				SeqNo: 3103320		Prep Date:		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	504.8	10	500	0	101	80-120	0			
1,1,2,2-Tetrachloroethane	421.3	10	500	0	84.3	74-123	0			
1,1,2-Trichloroethane	453.8	10	500	0	90.8	80-120	0			
1,1-Dichloroethane	427.1	10	500	0	85.4	80-120	0			
1,1-Dichloroethene	511.5	10	500	0	102	80-120	0			
1,2-Dibromoethane	501.8	10	500	0	100	80-120	0			
1,2-Dichloroethane	461.9	10	500	0	92.4	79-120	0			
Benzene	834.5	10	500	355.1	95.9	80-120	0			
Carbon tetrachloride	546.4	10	500	0	109	79-120	0			
Chloroform	438.5	10	500	0	87.7	80-120	0			
Ethylbenzene	460.1	10	500	0	92	80-120	0			
Methylene chloride	442.4	20	500	0	88.5	75-125	0			
Tetrachloroethene	501.9	10	500	0	100	80-120	0			
Toluene	454.7	10	500	1.298	90.7	80-121	0			
Trichloroethene	511.8	10	500	0	102	80-120	0			
Vinyl chloride	456.7	10	500	0	91.3	75-125	0			
Xylenes, Total	1358	10	1500	2.156	90.4	80-124	0			
Surr: 1,2-Dichloroethane-d4	428.4	10	500	0	85.7	71-125	0			
Surr: 4-Bromofluorobenzene	506.9	10	500	0	101	70-125	0			
Surr: Dibromofluoromethane	484.2	10	500	0	96.8	74-125	0			
Surr: Toluene-d8	479.6	10	500	0	95.9	78-123	0			

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

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142213** Instrument ID **VOA4** Method: **SW8260**

MSD	Sample ID: 1302133-05AMSD				Units: µg/L		Analysis Date: 2/6/2013 11:47 AM			
Client ID:	Run ID: VOA4_130206A				SeqNo: 3103321		Prep Date:		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	497.3	10	500	0	99.5	80-120	504.8	1.5	20	
1,1,2,2-Tetrachloroethane	420.3	10	500	0	84.1	74-123	421.3	0.236	20	
1,1,2-Trichloroethane	447.3	10	500	0	89.5	80-120	453.8	1.46	20	
1,1-Dichloroethane	414	10	500	0	82.8	80-120	427.1	3.13	20	
1,1-Dichloroethene	480.8	10	500	0	96.2	80-120	511.5	6.19	20	
1,2-Dibromoethane	481.3	10	500	0	96.3	80-120	501.8	4.16	20	
1,2-Dichloroethane	452.8	10	500	0	90.6	79-120	461.9	1.97	20	
Benzene	801.7	10	500	355.1	89.3	80-120	834.5	4.02	20	
Carbon tetrachloride	535.7	10	500	0	107	79-120	546.4	1.99	20	
Chloroform	419.6	10	500	0	83.9	80-120	438.5	4.39	20	
Ethylbenzene	450.2	10	500	0	90	80-120	460.1	2.17	20	
Methylene chloride	421.3	20	500	0	84.3	75-125	442.4	4.87	20	
Tetrachloroethene	498.5	10	500	0	99.7	80-120	501.9	0.683	20	
Toluene	448.6	10	500	1.298	89.5	80-121	454.7	1.35	20	
Trichloroethene	483.1	10	500	0	96.6	80-120	511.8	5.78	20	
Vinyl chloride	435.8	10	500	0	87.2	75-125	456.7	4.68	20	
Xylenes, Total	1321	10	1500	2.156	87.9	80-124	1358	2.75	20	
Surr: 1,2-Dichloroethane-d4	421.1	10	500	0	84.2	71-125	428.4	1.71	20	
Surr: 4-Bromofluorobenzene	502.8	10	500	0	101	70-125	506.9	0.796	20	
Surr: Dibromofluoromethane	472.3	10	500	0	94.5	74-125	484.2	2.49	20	
Surr: Toluene-d8	479.3	10	500	0	95.9	78-123	479.6	0.0501	20	

The following samples were analyzed in this batch:

1302138-01A	1302138-02A	1302138-03A
1302138-04A	1302138-05A	1302138-06A

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

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142275** Instrument ID **ICS2100** Method: **E300** (Dissolve)

MBLK	Sample ID: WBLKW2-R142275				Units: mg/L		Analysis Date: 2/6/2013 11:17 AM			
Client ID:	Run ID: ICS2100_130206A				SeqNo: 3104639		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	0.50								
Fluoride	U	0.10								
Nitrogen, Nitrate (As N)	U	0.10								
Nitrogen, Nitrite (As N)	U	0.10								
<i>Surr: Selenate (surr)</i>	4.316	0.10	5	0	86.3	85-115	0			

LCS	Sample ID: WLC SW2-R142275				Units: mg/L		Analysis Date: 2/6/2013 11:31 AM			
Client ID:	Run ID: ICS2100_130206A				SeqNo: 3104640		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.78	0.50	20	0	104	90-110	0			
Fluoride	3.608	0.10	4	0	90.2	90-110	0			
Nitrogen, Nitrate (As N)	4.033	0.10	4	0	101	90-110	0			
Nitrogen, Nitrite (As N)	4.332	0.10	4	0	108	90-110	0			
<i>Surr: Selenate (surr)</i>	4.436	0.10	5	0	88.7	85-115	0			

MS	Sample ID: 13011010-20BMS				Units: mg/L		Analysis Date: 2/6/2013 07:14 PM			
Client ID:	Run ID: ICS2100_130206A				SeqNo: 3104667		Prep Date:		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	98.84	2.5	50	50.45	96.8	80-120	0			
Fluoride	8.773	0.50	10	0.125	86.5	80-120	0			
Nitrogen, Nitrate (As N)	10.03	0.50	10	0	100	80-120	0			H
Nitrogen, Nitrite (As N)	10.57	0.50	10	0	106	80-120	0			H
<i>Surr: Selenate (surr)</i>	21.26	0.50	25	0	85.1	85-115	0			

MSD	Sample ID: 13011010-20BMSD				Units: mg/L		Analysis Date: 2/6/2013 07:29 PM			
Client ID:	Run ID: ICS2100_130206A				SeqNo: 3104669		Prep Date:		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	103.2	2.5	50	50.45	106	80-120	98.84	4.36	20	
Fluoride	9.222	0.50	10	0.125	91	80-120	8.773	4.99	20	
Nitrogen, Nitrate (As N)	10.45	0.50	10	0	105	80-120	10.03	4.12	20	H
Nitrogen, Nitrite (As N)	10.86	0.50	10	0	109	80-120	10.57	2.65	20	H
<i>Surr: Selenate (surr)</i>	22.16	0.50	25	0	88.6	85-115	21.26	4.11	20	

The following samples were analyzed in this batch:

1302138-01H	1302138-02H	1302138-03G
1302138-04G		

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

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142370** Instrument ID **Balance1** Method: **M2540C** **(Dissolve)**

MBLK	Sample ID: WBLK-020713-R142370				Units: mg/L		Analysis Date: 2/7/2013 10:10 AM			
Client ID:	Run ID: BALANCE1_130207D				SeqNo: 3106836		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	U	10								

LCS	Sample ID: WLCS-020713-R142370				Units: mg/L		Analysis Date: 2/7/2013 10:10 AM			
Client ID:	Run ID: BALANCE1_130207D				SeqNo: 3106837		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1010	10	1000	0	101	85-115	0			

DUP	Sample ID: 1302016-01HDUP				Units: mg/L		Analysis Date: 2/7/2013 10:10 AM			
Client ID:	Run ID: BALANCE1_130207D				SeqNo: 3106830		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	562	10	0	0	0	0-0	564	0.355	20	

DUP	Sample ID: 1302138-04GDUP				Units: mg/L		Analysis Date: 2/7/2013 10:10 AM			
Client ID: MW-115	Run ID: BALANCE1_130207D				SeqNo: 3109474		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	4812	10	0	0	0	0-0	4956	2.95	20	

The following samples were analyzed in this batch:

1302138-01G	1302138-02G	1302138-03G
1302138-04G		

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

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142525** Instrument ID **UV-2450** Method: **M4500CN E&G (Dissolve)**

MBLK	Sample ID: WBLKW1-021113-R142525				Units: mg/L		Analysis Date: 2/11/2013 10:05 AM			
Client ID:	Run ID: UV-2450_130211A				SeqNo: 3108735		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	U	0.020								

LCS	Sample ID: WLCSW1-021113-R142525				Units: mg/L		Analysis Date: 2/11/2013 10:05 AM			
Client ID:	Run ID: UV-2450_130211A				SeqNo: 3108736		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.17	0.020	0.2	0	85	80-120	0			

LCSD	Sample ID: WLCSDW1-021113-R142525				Units: mg/L		Analysis Date: 2/11/2013 10:05 AM			
Client ID:	Run ID: UV-2450_130211A				SeqNo: 3108744		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.174	0.020	0.2	0	87	80-120	0.17	2.33	20	

MS	Sample ID: 1302181-01EMS				Units: mg/L		Analysis Date: 2/11/2013 10:05 AM			
Client ID:	Run ID: UV-2450_130211A				SeqNo: 3108747		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.175	0.020	0.2	0	87.5	80-120	0			

The following samples were analyzed in this batch:

1302138-01F	1302138-02F	1302138-03F
1302138-04F		

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

Client: Navajo Refining Company
Work Order: 1302138
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142615** Instrument ID **ICS2100** Method: **E300** **(Dissolve)**

MBLK	Sample ID: WBLKW1-R142615			Units: mg/L			Analysis Date: 2/12/2013 10:37 AM			
Client ID:	Run ID: ICS2100_130212A			SeqNo: 3110343			Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.238	0.50								J
Sulfate	U	0.50								
<i>Surr: Selenate (surr)</i>	4.937	0.10	5	0	98.7	85-115	0			

LCS	Sample ID: WLCSW1-R142615			Units: mg/L			Analysis Date: 2/12/2013 10:52 AM			
Client ID:	Run ID: ICS2100_130212A			SeqNo: 3110344			Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	21.96	0.50	20	0	110	90-110	0			
Sulfate	21.6	0.50	20	0	108	90-110	0			
<i>Surr: Selenate (surr)</i>	5.024	0.10	5	0	100	85-115	0			

MS	Sample ID: 1302189-01GMS			Units: mg/L			Analysis Date: 2/12/2013 12:58 PM			
Client ID:	Run ID: ICS2100_130212A			SeqNo: 3110358			Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	410.7	0.50	10	415.2	-45.1	80-120	0			SEO
Sulfate	2156	0.50	10	2217	-610	80-120	0			SEO
<i>Surr: Selenate (surr)</i>	4.387	0.10	5	0	87.7	85-115	0			

MSD	Sample ID: 1302189-01GMSD			Units: mg/L			Analysis Date: 2/12/2013 01:12 PM			
Client ID:	Run ID: ICS2100_130212A			SeqNo: 3110360			Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	406.9	0.50	10	415.2	-83.2	80-120	410.7	0.932	20	SEO
Sulfate	2130	0.50	10	2217	-869	80-120	2156	1.21	20	SEO
<i>Surr: Selenate (surr)</i>	4.498	0.10	5	0	90	85-115	4.387	2.5	20	

The following samples were analyzed in this batch:

1302138-01H	1302138-02H	1302138-03G
1302138-04G		

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

Client: Navajo Refining Company
Project: RO Discharge Sampling
WorkOrder: 1302138

QUALIFIERS, ACRONYMS, UNITS

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

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

<u>Units Reported</u>	<u>Description</u>
mg/L	Milligrams per Liter

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**

Date/Time Received: **05-Feb-13 09:15**

Work Order: **1302138**

Received by: **PMG**

Checklist completed by *Parash M. Ciga*
eSignature

05-Feb-13
Date

Reviewed by:

eSignature

Date

Matrices: **Water**

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>1.2c, 1.4c C/U</u> <u>005</u>		
Cooler(s)/Kit(s):	<u>3323, 7119</u>		
Date/Time sample(s) sent to storage:	<u>2/5/13 18:50</u>		
Water - VOA vials have zero headspace?	Yes ☐	No ☒	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☒	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☐	N/A ☒
pH adjusted by:	<u>-</u>		

Login Notes: 1302138-02;-03 & -04 Radium fraction re-logged in WO 1302192-05;-06 & -07 respectively

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



Cincinnati, OH
+1 513 733 5336

Everett, WA
+1 425 356 2600

Fort Collins, CO
+1 970 490 1511

Holland, MI
+1 616 399 6070

Chain of Custody Form

Page 1 of 1

COC ID: 72329

Environmental

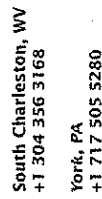
ALS Project Manager:

Customer Information				Project Information													
Purchase Order		Project Name	RO Discharge/Sampling														
Work Order		Project Number	128823														
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company														
Send Report To	Robert Combs	Invoice Attn	Robert Combs														
Address	501 East Main	Address	501 East Main														
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211														
Phone	(575) 748-5733	Phone	(575) 748-5733														
Fax	(575) 746-5421	Fax	(575) 746-5421														
e-Mail Address		e-Mail Address															
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
44	RO Discharge	2-3-13	0930	water	Mix	18						X	X	X	X	X	X
45	MW-117	2-3-13	1000	water	Mix	18						X	X	X	X	X	X
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign		Shipment Method		Required Turnaround Time: (Check Box)		Results Due Date:	
Ben McKenna				☒ Std 10 WK Days ☐ 5 WK Days ☐ 2 WK Days ☐ 24 Hour			
Relinquished by	Date: 2/4/13	Received by:	Date: 2-5-13				
Relinquished by	Date:	Received by (Laboratory):	Date:				
Logged by (Laboratory):	Date:	Checked by (Laboratory):	Date:				
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035		Cooler ID	Cooler Temp.	QC Package: (Check One Box Below)			
		3323		☒ Level II Std QC ☐ TRRP Checklist			
				☐ Level III Std QC/Raw Data ☐ TRRP Level IV			
				☐ Level IV SW846/CLP ☐ Other / EDD			

Notes: 10 Day TAT. Dissolved Metals Field Filtered

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



COC ID: 72328

ALS Project Manager:

ALS Project Manager:

18

Note:

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

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

5323.

CUSTODY SEAL

Date: 2/4/13 Time: 1400
 Name: Eric Bergersen
 Company: J. ARCADIS

Seal Broken By: _____
 Date: 2-5-13

FedEx Package
 Express US Airbill

FedEx Tracking Number 8013 7714 1240

1 From Date 2/4/13

Sender's Name Eric Bergersen Phone 281 787123

Company ARCADIS

Address 2979 Briarpack Suite 300

City Houston State TX ZIP 77042

2 Your Internal Billing Reference

**ALS Environmental**

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

Date: 2/4/13
Name: Eric Bergersen
Company: ARCADIS O

CUSTODY SEAL

Time: 1400

Seal Broken By: *[Signature]*

Date: 2-5-13



Package
US Airbill

FedEx
Tracking
Number

8013 8012 5560

From

Date: 2/4/13

Sender's
Name

Eric Bergersen

Phone 281 787 1234

Company

ARCADIS

Address

2929 Briarpark Suite 300

Dept./Floor/Suite/Room

City

Houston

State

TX

ZIP

77349

2 Your Internal Billing Reference



19-Feb-2013

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

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

Re: RO Discharge Sampling

Work Order: **1302189**

Dear Robert,

ALS Environmental received 5 samples on 06-Feb-2013 08:40 AM for the analyses presented in the following report.

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

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

The total number of pages in this report is 49.

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

Sincerely,

A handwritten signature in cursive script that reads "Sonia West".

Electronically approved by: Jumoke M. Lawal

Sonia West
Project Manager



Certificate No: T104704231-12-10

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

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

Environmental

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 1302189

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1302189-01	MW-116	Water		2/3/2013 13:15	2/6/2013 08:40	☐
1302189-02	MW-119	Water		2/5/2013 14:25	2/6/2013 08:40	☐
1302189-03	MW-118	Water		2/5/2013 14:25	2/6/2013 08:40	☐
1302189-04	TRIP BLANK 011813-71			2/5/2013	2/6/2013 08:40	☐
1302189-05	TRIP BLANK 011813-30			2/5/2013	2/6/2013 08:40	☐

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 1302189

Case Narrative

Nitrogen, Nitrate (As N) Method Anions, Sample MW-116 holding time expired prior to sample receipt. Sample analyzed at the request of the client. Results should be considered estimated.

Batch 67624, Dissolved Mercury, Sample 1302162-02: MS/MSD is for an unrelated sample.

Batch 67639, Metals, Sample 1302162-02: MS/MSD is for an unrelated sample.

Batch 67639, Metals, Sample 1302162-02: MS/MSD RPD is for an unrelated sample.

Batch 67639, Metals, Sample 1302162-02: Duplicate RPD is for an unrelated sample.

Batch R142338, Volatile Organics, Sample 1302212-01: MS/MSD is for an unrelated sample.

Batch R142615, Anions, Sample MW-116: MS/MSD recoveries were outside the control limits for Fluoride. The associated LCS recoveries and MS/MSD RPD were within the control limits.

Batch R142773, Anions, Sample 1302276-01: MS/MSD recoveries were outside the control limits for Chloride and Sulfate due to high concentration to the background sample. Results are flagged with an O. The associated LCS recoveries and MS/MSD RPD were within the control limits.

ALS Environmental

Date: 19-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116
Collection Date: 2/3/2013 01:15 PM

Work Order: 1302189
Lab ID: 1302189-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3511 / 2/8/13 Analyst: KMB							
TPH (Diesel Range)	U		0.021	0.051	mg/L	1	2/11/2013 18:52
TPH (Oil Range)	U		0.041	0.10	mg/L	1	2/11/2013 18:52
Surr: 2-Fluorobiphenyl	106			60-135	%REC	1	2/11/2013 18:52
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Prep: SW3511 / 2/8/13 Analyst: KKP							
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	2/14/2013 00:02
Surr: 4-Bromofluorobenzene	91.7			70-130	%REC	1	2/14/2013 00:02
DISSOLVED MERCURY Method: SW7470 Prep: SW7470 / 2/7/13 Analyst: OFO							
Mercury	0.000131	J	0.000042	0.000200	mg/L	1	2/7/2013 18:01
DISSOLVED METALS Method: SW6020 Prep: SW3010A / 2/8/13 Analyst: SKS							
Aluminum	0.00797	J	0.0040	0.0100	mg/L	1	2/11/2013 18:29
Arsenic	0.00274	J	0.0013	0.00500	mg/L	1	2/11/2013 18:29
Barium	0.0161		0.00090	0.00500	mg/L	1	2/11/2013 18:29
Boron	0.220		0.040	0.100	mg/L	2	2/12/2013 14:56
Cadmium	U		0.00080	0.00200	mg/L	1	2/11/2013 18:29
Calcium	624		1.7	10.0	mg/L	20	2/12/2013 15:03
Chromium	U		0.0012	0.00500	mg/L	1	2/11/2013 18:29
Cobalt	U		0.00080	0.00500	mg/L	1	2/11/2013 18:29
Copper	U		0.0015	0.00500	mg/L	1	2/11/2013 18:29
Iron	U		0.078	0.200	mg/L	1	2/11/2013 18:29
Lead	U		0.00070	0.00500	mg/L	1	2/11/2013 18:29
Manganese	0.0437		0.0025	0.00500	mg/L	1	2/11/2013 18:29
Molybdenum	0.00348	J	0.0015	0.00500	mg/L	1	2/11/2013 18:29
Nickel	0.00120	J	0.0012	0.00500	mg/L	1	2/11/2013 18:29
Potassium	1.06		0.084	0.200	mg/L	1	2/11/2013 18:29
Selenium	0.00203	J	0.0010	0.00500	mg/L	1	2/11/2013 18:29
Silver	U		0.00080	0.00500	mg/L	1	2/11/2013 18:29
Sodium	206		1.7	4.00	mg/L	20	2/12/2013 15:03
Uranium	0.0331		0.0050	0.00500	mg/L	1	2/11/2013 18:29
Zinc	0.00291	J	0.0025	0.00500	mg/L	1	2/11/2013 18:29
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3510 / 2/7/13 Analyst: LG							
1-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 19:08
2-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 19:08
Benzo(a)pyrene	U		0.000050	0.00020	mg/L	1	2/8/2013 19:08
Naphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 19:08
Surr: 2,4,6-Tribromophenol	45.3			34-129	%REC	1	2/8/2013 19:08
Surr: 2-Fluorobiphenyl	53.4			40-125	%REC	1	2/8/2013 19:08

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

ALS Environmental

Date: 19-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116
Collection Date: 2/3/2013 01:15 PM

Work Order: 1302189
Lab ID: 1302189-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	45.7			20-120	%REC	1	2/8/2013 19:08
Surr: 4-Terphenyl-d14	67.6			40-135	%REC	1	2/8/2013 19:08
Surr: Nitrobenzene-d5	58.7			41-120	%REC	1	2/8/2013 19:08
Surr: Phenol-d6	46.3			20-120	%REC	1	2/8/2013 19:08

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/9/2013 06:02
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	2/9/2013 06:02
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/9/2013 06:02
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/9/2013 06:02
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	2/9/2013 06:02
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	2/9/2013 06:02
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/9/2013 06:02
Benzene	U		0.00020	0.0010	mg/L	1	2/9/2013 06:02
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	2/9/2013 06:02
Chloroform	U		0.00030	0.0010	mg/L	1	2/9/2013 06:02
Ethylbenzene	U		0.00030	0.0010	mg/L	1	2/9/2013 06:02
Methylene chloride	U		0.00040	0.0020	mg/L	1	2/9/2013 06:02
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	2/9/2013 06:02
Toluene	U		0.00030	0.0010	mg/L	1	2/9/2013 06:02
Trichloroethene	U		0.00020	0.0010	mg/L	1	2/9/2013 06:02
Vinyl chloride	U		0.00040	0.0010	mg/L	1	2/9/2013 06:02
Xylenes, Total	U		0.00030	0.0010	mg/L	1	2/9/2013 06:02
Surr: 1,2-Dichloroethane-d4	101			71-125	%REC	1	2/9/2013 06:02
Surr: 4-Bromofluorobenzene	103			70-125	%REC	1	2/9/2013 06:02
Surr: Dibromofluoromethane	100			74-125	%REC	1	2/9/2013 06:02
Surr: Toluene-d8	106			78-123	%REC	1	2/9/2013 06:02

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	389		10	25.0	mg/L	50	2/14/2013 08:13
Fluoride	1.31		0.050	0.100	mg/L	1	2/12/2013 12:43
Nitrogen, Nitrate (As N)	1.37	H	0.030	0.100	mg/L	1	2/12/2013 12:43
Nitrogen, Nitrite (As N)	U	H	0.030	0.100	mg/L	1	2/12/2013 12:43
Sulfate	2,250		10	25.0	mg/L	50	2/14/2013 08:13
Surr: Selenate (surr)	92.9			85-115	%REC	1	2/12/2013 12:43
Surr: Selenate (surr)	109			85-115	%REC	50	2/14/2013 08:13

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	U		0.0040	0.0200	mg/L	1	2/12/2013 11:45

TOTAL DISSOLVED SOLIDS			Method: M2540C			Analyst: KAH	
------------------------	--	--	----------------	--	--	--------------	--

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

ALS Environmental

Date: 19-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116
Collection Date: 2/3/2013 01:15 PM

Work Order: 1302189
Lab ID: 1302189-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Total Dissolved Solids (Residue, Filterable)	3,650		5.0	10.0	mg/L	1	2/8/2013 16:15

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

ALS Environmental

Date: 19-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119
Collection Date: 2/5/2013 02:25 PM

Work Order: 1302189
Lab ID: 1302189-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3511 / 2/8/13 Analyst: KMB							
TPH (Diesel Range)	U		0.021	0.051	mg/L	1	2/11/2013 19:14
TPH (Oil Range)	U		0.041	0.10	mg/L	1	2/11/2013 19:14
Surr: 2-Fluorobiphenyl	110			60-135	%REC	1	2/11/2013 19:14
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Prep: SW3511 / 2/8/13 Analyst: KKP							
Gasoline Range Organics	0.0371	J	0.020	0.0500	mg/L	1	2/14/2013 00:20
Surr: 4-Bromofluorobenzene	90.6			70-130	%REC	1	2/14/2013 00:20
DISSOLVED MERCURY Method: SW7470 Prep: SW7470 / 2/7/13 Analyst: OFO							
Mercury	U		0.000042	0.000200	mg/L	1	2/7/2013 18:03
DISSOLVED METALS Method: SW6020 Prep: SW3010A / 2/8/13 Analyst: SKS							
Aluminum	0.00994	J	0.0040	0.0100	mg/L	1	2/12/2013 14:59
Arsenic	0.00294	J	0.0013	0.00500	mg/L	1	2/12/2013 14:59
Barium	0.00981		0.00090	0.00500	mg/L	1	2/12/2013 14:59
Boron	0.0987		0.020	0.0500	mg/L	1	2/12/2013 14:59
Cadmium	U		0.00080	0.00200	mg/L	1	2/12/2013 14:59
Calcium	494		1.7	10.0	mg/L	20	2/12/2013 15:06
Chromium	U		0.0012	0.00500	mg/L	1	2/12/2013 14:59
Cobalt	0.000871	J	0.00080	0.00500	mg/L	1	2/12/2013 14:59
Copper	0.00309	J	0.0015	0.00500	mg/L	1	2/12/2013 14:59
Iron	U		0.078	0.200	mg/L	1	2/12/2013 14:59
Lead	U		0.00070	0.00500	mg/L	1	2/12/2013 14:59
Manganese	0.0424		0.0025	0.00500	mg/L	1	2/12/2013 14:59
Molybdenum	0.00830		0.0015	0.00500	mg/L	1	2/12/2013 14:59
Nickel	0.00174	J	0.0012	0.00500	mg/L	1	2/12/2013 14:59
Potassium	0.870		0.084	0.200	mg/L	1	2/12/2013 14:59
Selenium	0.00246	J	0.0010	0.00500	mg/L	1	2/12/2013 14:59
Silver	U		0.00080	0.00500	mg/L	1	2/12/2013 14:59
Sodium	127		1.7	4.00	mg/L	20	2/12/2013 15:06
Uranium	0.0244		0.0050	0.00500	mg/L	1	2/12/2013 14:59
Zinc	U		0.0025	0.00500	mg/L	1	2/12/2013 14:59
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3510 / 2/7/13 Analyst: LG							
1-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 19:27
2-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 19:27
Benzo(a)pyrene	U		0.000050	0.00020	mg/L	1	2/8/2013 19:27
Naphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 19:27
Surr: 2,4,6-Tribromophenol	59.1			34-129	%REC	1	2/8/2013 19:27
Surr: 2-Fluorobiphenyl	64.5			40-125	%REC	1	2/8/2013 19:27

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

ALS Environmental

Date: 19-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119
Collection Date: 2/5/2013 02:25 PM

Work Order: 1302189
Lab ID: 1302189-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	60.0			20-120	%REC	1	2/8/2013 19:27
Surr: 4-Terphenyl-d14	82.3			40-135	%REC	1	2/8/2013 19:27
Surr: Nitrobenzene-d5	65.4			41-120	%REC	1	2/8/2013 19:27
Surr: Phenol-d6	57.9			20-120	%REC	1	2/8/2013 19:27

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 17:31
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	2/7/2013 17:31
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 17:31
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 17:31
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	2/7/2013 17:31
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	2/7/2013 17:31
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 17:31
Benzene	0.0036		0.00020	0.0010	mg/L	1	2/7/2013 17:31
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	2/7/2013 17:31
Chloroform	U		0.00030	0.0010	mg/L	1	2/7/2013 17:31
Ethylbenzene	0.0021		0.00030	0.0010	mg/L	1	2/7/2013 17:31
Methylene chloride	U		0.00040	0.0020	mg/L	1	2/7/2013 17:31
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	2/7/2013 17:31
Toluene	0.0027		0.00030	0.0010	mg/L	1	2/7/2013 17:31
Trichloroethene	U		0.00020	0.0010	mg/L	1	2/7/2013 17:31
Vinyl chloride	U		0.00040	0.0010	mg/L	1	2/7/2013 17:31
Xylenes, Total	0.0037		0.00030	0.0010	mg/L	1	2/7/2013 17:31
Surr: 1,2-Dichloroethane-d4	86.7			71-125	%REC	1	2/7/2013 17:31
Surr: 4-Bromofluorobenzene	98.0			70-125	%REC	1	2/7/2013 17:31
Surr: Dibromofluoromethane	95.4			74-125	%REC	1	2/7/2013 17:31
Surr: Toluene-d8	100			78-123	%REC	1	2/7/2013 17:31

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	116		10	25.0	mg/L	50	2/14/2013 08:34
Fluoride	2.36		0.050	0.100	mg/L	1	2/7/2013 10:34
Nitrogen, Nitrate (As N)	2.35		0.030	0.100	mg/L	1	2/7/2013 10:34
Nitrogen, Nitrite (As N)	U		0.030	0.100	mg/L	1	2/7/2013 10:34
Sulfate	2,090		10	25.0	mg/L	50	2/14/2013 08:34
Surr: Selenate (surr)	88.0			85-115	%REC	1	2/7/2013 10:34
Surr: Selenate (surr)	111			85-115	%REC	50	2/14/2013 08:34

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	U		0.0040	0.0200	mg/L	1	2/12/2013 11:45

TOTAL DISSOLVED SOLIDS			Method: M2540C			Analyst: KAH	
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Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 19-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119
Collection Date: 2/5/2013 02:25 PM

Work Order: 1302189
Lab ID: 1302189-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Total Dissolved Solids (Residue, Filterable)	3,670		5.0	10.0	mg/L	1	2/12/2013 10:15

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

ALS Environmental

Date: 19-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118
Collection Date: 2/5/2013 02:25 PM

Work Order: 1302189
Lab ID: 1302189-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3511 / 2/8/13 Analyst: KMB							
TPH (Diesel Range)	U		0.021	0.052	mg/L	1	2/11/2013 19:36
TPH (Oil Range)	U		0.041	0.10	mg/L	1	2/11/2013 19:36
Surr: 2-Fluorobiphenyl	107			60-135	%REC	1	2/11/2013 19:36
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Prep: SW3511 / 2/8/13 Analyst: KKP							
Gasoline Range Organics	0.0436	J	0.020	0.0500	mg/L	1	2/14/2013 00:38
Surr: 4-Bromofluorobenzene	88.5			70-130	%REC	1	2/14/2013 00:38
DISSOLVED MERCURY Method: SW7470 Prep: SW7470 / 2/7/13 Analyst: OFO							
Mercury	0.0000420	J	0.000042	0.000200	mg/L	1	2/7/2013 18:05
DISSOLVED METALS Method: SW6020 Prep: SW3010A / 2/8/13 Analyst: SKS							
Aluminum	0.0146		0.0040	0.0100	mg/L	1	2/12/2013 15:01
Arsenic	0.0110		0.0013	0.00500	mg/L	1	2/12/2013 15:01
Barium	0.0145		0.00090	0.00500	mg/L	1	2/12/2013 15:01
Boron	0.226		0.020	0.0500	mg/L	1	2/12/2013 15:01
Cadmium	U		0.00080	0.00200	mg/L	1	2/12/2013 15:01
Calcium	563		1.7	10.0	mg/L	20	2/12/2013 15:08
Chromium	U		0.0012	0.00500	mg/L	1	2/12/2013 15:01
Cobalt	U		0.00080	0.00500	mg/L	1	2/12/2013 15:01
Copper	0.00156	J	0.0015	0.00500	mg/L	1	2/12/2013 15:01
Iron	U		0.078	0.200	mg/L	1	2/12/2013 15:01
Lead	U		0.00070	0.00500	mg/L	1	2/12/2013 15:01
Manganese	0.0232		0.0025	0.00500	mg/L	1	2/12/2013 15:01
Molybdenum	0.0195		0.0015	0.00500	mg/L	1	2/12/2013 15:01
Nickel	0.00173	J	0.0012	0.00500	mg/L	1	2/12/2013 15:01
Potassium	7.95		0.084	0.200	mg/L	1	2/12/2013 15:01
Selenium	0.00861		0.0010	0.00500	mg/L	1	2/12/2013 15:01
Silver	U		0.00080	0.00500	mg/L	1	2/12/2013 15:01
Sodium	218		1.7	4.00	mg/L	20	2/12/2013 15:08
Uranium	0.0370		0.0050	0.00500	mg/L	1	2/12/2013 15:01
Zinc	U		0.0025	0.00500	mg/L	1	2/12/2013 15:01
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3510 / 2/7/13 Analyst: LG							
1-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 19:47
2-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 19:47
Benzo(a)pyrene	U		0.000050	0.00020	mg/L	1	2/8/2013 19:47
Naphthalene	U		0.000050	0.00020	mg/L	1	2/8/2013 19:47
Surr: 2,4,6-Tribromophenol	59.0			34-129	%REC	1	2/8/2013 19:47
Surr: 2-Fluorobiphenyl	62.2			40-125	%REC	1	2/8/2013 19:47

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

ALS Environmental

Date: 19-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118
Collection Date: 2/5/2013 02:25 PM

Work Order: 1302189
Lab ID: 1302189-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	65.4			20-120	%REC	1	2/8/2013 19:47
Surr: 4-Terphenyl-d14	96.9			40-135	%REC	1	2/8/2013 19:47
Surr: Nitrobenzene-d5	71.7			41-120	%REC	1	2/8/2013 19:47
Surr: Phenol-d6	62.3			20-120	%REC	1	2/8/2013 19:47

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 17:55
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	2/7/2013 17:55
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 17:55
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 17:55
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	2/7/2013 17:55
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	2/7/2013 17:55
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 17:55
Benzene	0.0042		0.00020	0.0010	mg/L	1	2/7/2013 17:55
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	2/7/2013 17:55
Chloroform	U		0.00030	0.0010	mg/L	1	2/7/2013 17:55
Ethylbenzene	0.0024		0.00030	0.0010	mg/L	1	2/7/2013 17:55
Methylene chloride	U		0.00040	0.0020	mg/L	1	2/7/2013 17:55
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	2/7/2013 17:55
Toluene	0.0033		0.00030	0.0010	mg/L	1	2/7/2013 17:55
Trichloroethene	U		0.00020	0.0010	mg/L	1	2/7/2013 17:55
Vinyl chloride	U		0.00040	0.0010	mg/L	1	2/7/2013 17:55
Xylenes, Total	0.0047		0.00030	0.0010	mg/L	1	2/7/2013 17:55
Surr: 1,2-Dichloroethane-d4	86.6			71-125	%REC	1	2/7/2013 17:55
Surr: 4-Bromofluorobenzene	95.7			70-125	%REC	1	2/7/2013 17:55
Surr: Dibromofluoromethane	95.7			74-125	%REC	1	2/7/2013 17:55
Surr: Toluene-d8	99.5			78-123	%REC	1	2/7/2013 17:55

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	296		10	25.0	mg/L	50	2/14/2013 08:56
Fluoride	5.16		0.050	0.100	mg/L	1	2/7/2013 10:49
Nitrogen, Nitrate (As N)	2.39		0.030	0.100	mg/L	1	2/7/2013 10:49
Nitrogen, Nitrite (As N)	U		0.030	0.100	mg/L	1	2/7/2013 10:49
Sulfate	2,450		10	25.0	mg/L	50	2/14/2013 08:56
Surr: Selenate (surr)	87.9			85-115	%REC	1	2/7/2013 10:49
Surr: Selenate (surr)	110			85-115	%REC	50	2/14/2013 08:56

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	U		0.0040	0.0200	mg/L	1	2/12/2013 11:45

TOTAL DISSOLVED SOLIDS			Method: M2540C			Analyst: KAH	
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Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 19-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118
Collection Date: 2/5/2013 02:25 PM

Work Order: 1302189
Lab ID: 1302189-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Total Dissolved Solids (Residue, Filterable)	4,610		5.0	10.0	mg/L	1	2/12/2013 10:15

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

ALS Environmental

Date: 19-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: TRIP BLANK 011813-71
Collection Date: 2/5/2013

Work Order: 1302189
Lab ID: 1302189-04
Matrix:

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 18:19
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	2/7/2013 18:19
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 18:19
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 18:19
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	2/7/2013 18:19
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	2/7/2013 18:19
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 18:19
Benzene	U		0.00020	0.0010	mg/L	1	2/7/2013 18:19
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	2/7/2013 18:19
Chloroform	U		0.00030	0.0010	mg/L	1	2/7/2013 18:19
Ethylbenzene	U		0.00030	0.0010	mg/L	1	2/7/2013 18:19
Methylene chloride	U		0.00040	0.0020	mg/L	1	2/7/2013 18:19
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	2/7/2013 18:19
Toluene	U		0.00030	0.0010	mg/L	1	2/7/2013 18:19
Trichloroethene	U		0.00020	0.0010	mg/L	1	2/7/2013 18:19
Vinyl chloride	U		0.00040	0.0010	mg/L	1	2/7/2013 18:19
Xylenes, Total	U		0.00030	0.0010	mg/L	1	2/7/2013 18:19
Surr: 1,2-Dichloroethane-d4	87.1			71-125	%REC	1	2/7/2013 18:19
Surr: 4-Bromofluorobenzene	95.1			70-125	%REC	1	2/7/2013 18:19
Surr: Dibromofluoromethane	95.1			74-125	%REC	1	2/7/2013 18:19
Surr: Toluene-d8	99.2			78-123	%REC	1	2/7/2013 18:19

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

ALS Environmental

Date: 19-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: TRIP BLANK 011813-30
Collection Date: 2/5/2013

Work Order: 1302189
Lab ID: 1302189-05
Matrix:

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 18:44
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	2/7/2013 18:44
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 18:44
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 18:44
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	2/7/2013 18:44
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	2/7/2013 18:44
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	2/7/2013 18:44
Benzene	U		0.00020	0.0010	mg/L	1	2/7/2013 18:44
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	2/7/2013 18:44
Chloroform	U		0.00030	0.0010	mg/L	1	2/7/2013 18:44
Ethylbenzene	U		0.00030	0.0010	mg/L	1	2/7/2013 18:44
Methylene chloride	U		0.00040	0.0020	mg/L	1	2/7/2013 18:44
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	2/7/2013 18:44
Toluene	U		0.00030	0.0010	mg/L	1	2/7/2013 18:44
Trichloroethene	U		0.00020	0.0010	mg/L	1	2/7/2013 18:44
Vinyl chloride	U		0.00040	0.0010	mg/L	1	2/7/2013 18:44
Xylenes, Total	U		0.00030	0.0010	mg/L	1	2/7/2013 18:44
Surr: 1,2-Dichloroethane-d4	87.4			71-125	%REC	1	2/7/2013 18:44
Surr: 4-Bromofluorobenzene	96.0			70-125	%REC	1	2/7/2013 18:44
Surr: Dibromofluoromethane	95.0			74-125	%REC	1	2/7/2013 18:44
Surr: Toluene-d8	98.0			78-123	%REC	1	2/7/2013 18:44

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

ALS Environmental

Date: 19-Feb-13

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67710** Instrument ID **FID-16** Method: **SW8015M**

MBLK	Sample ID: LBLKW-130208-67710				Units: mg/L		Analysis Date: 2/11/2013 02:30 PM			
Client ID:	Run ID: FID-16_130211B				SeqNo: 3110036		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	U	0.050								
TPH (Oil Range)	U	0.10								
<i>Surr: 2-Fluorobiphenyl</i>	0.06355	0.0050	0.06061	0	105	60-135	0			

LCS	Sample ID: LLCSW-130208-67710				Units: mg/L		Analysis Date: 2/11/2013 02:52 PM			
Client ID:	Run ID: FID-16_130211B				SeqNo: 3110037		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.5399	0.050	0.6061	0	89.1	70-130	0			
TPH (Oil Range)	0.5571	0.10	0.6061	0	91.9	70-130	0			
<i>Surr: 2-Fluorobiphenyl</i>	0.0583	0.0050	0.06061	0	96.2	60-135	0			

LCSD	Sample ID: LLCSDW-130208-67710				Units: mg/L		Analysis Date: 2/11/2013 03:14 PM			
Client ID:	Run ID: FID-16_130211B				SeqNo: 3110038		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.5053	0.050	0.6061	0	83.4	70-130	0.5399	6.61	20	
TPH (Oil Range)	0.494	0.10	0.6061	0	81.5	70-130	0.5571	12	20	
<i>Surr: 2-Fluorobiphenyl</i>	0.05676	0.0050	0.06061	0	93.7	60-135	0.0583	2.68	20	

The following samples were analyzed in this batch:

1302189-01C	1302189-02C	1302189-03C
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 1 of 27

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142754** Instrument ID **FID-9** Method: **SW8015**

MBLK	Sample ID: GBLKW-130213-R142754					Units: mg/L		Analysis Date: 2/13/2013 11:44 PM		
Client ID:	Run ID: FID-9_130213C					SeqNo: 3113108		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	U	0.050								
<i>Surr: 4-Bromofluorobenzene</i>	0.09263	0.0050	0.1	0	92.6	70-130	0			

LCS	Sample ID: GLCSW-130213-R142754					Units: mg/L		Analysis Date: 2/13/2013 10:50 PM		
Client ID:	Run ID: FID-9_130213C					SeqNo: 3113106		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.9572	0.050	1	0	95.7	70-130	0			
<i>Surr: 4-Bromofluorobenzene</i>	0.09422	0.0050	0.1	0	94.2	70-130	0			

LCSD	Sample ID: GLCSDW-130213-R142754					Units: mg/L		Analysis Date: 2/13/2013 11:08 PM		
Client ID:	Run ID: FID-9_130213C					SeqNo: 3113107		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.9516	0.050	1	0	95.2	70-130	0.9572	0.586	30	
<i>Surr: 4-Bromofluorobenzene</i>	0.0934	0.0050	0.1	0	93.4	70-130	0.09422	0.877	30	

MS	Sample ID: 1302308-07BMS					Units: mg/L		Analysis Date: 2/14/2013 03:19 AM		
Client ID:	Run ID: FID-9_130213C					SeqNo: 3113125		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.9172	0.050	1	0.03334	88.4	70-130	0			
<i>Surr: 4-Bromofluorobenzene</i>	0.09279	0.0050	0.1	0	92.8	70-130	0			

MSD	Sample ID: 1302308-07BMSD					Units: mg/L		Analysis Date: 2/14/2013 03:37 AM		
Client ID:	Run ID: FID-9_130213C					SeqNo: 3113126		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.9414	0.050	1	0.03334	90.8	70-130	0.9172	2.61	30	
<i>Surr: 4-Bromofluorobenzene</i>	0.09245	0.0050	0.1	0	92.4	70-130	0.09279	0.365	30	

The following samples were analyzed in this batch:

1302189-01B	1302189-02B	1302189-03B
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67624** Instrument ID **Mercury** Method: **SW7470** (Dissolve)

MBLK	Sample ID: GBLKW4-020713-67624				Units: mg/L		Analysis Date: 2/7/2013 04:12 PM			
Client ID:	Run ID: MERCURY_130207A				SeqNo: 3105666		Prep Date: 2/7/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	0.00020								

LCS	Sample ID: GLCSW4-020713-67624				Units: mg/L		Analysis Date: 2/7/2013 04:14 PM			
Client ID:	Run ID: MERCURY_130207A				SeqNo: 3105667		Prep Date: 2/7/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00534	0.00020	0.005	0	107	80-120	0			

MS	Sample ID: 1302162-02DMS				Units: mg/L		Analysis Date: 2/7/2013 04:20 PM			
Client ID:	Run ID: MERCURY_130207A				SeqNo: 3105670		Prep Date: 2/7/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00399	0.00020	0.005	-0.00001	80	80-120	0			

MSD	Sample ID: 1302162-02DMSD				Units: mg/L		Analysis Date: 2/7/2013 04:22 PM			
Client ID:	Run ID: MERCURY_130207A				SeqNo: 3105671		Prep Date: 2/7/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00392	0.00020	0.005	-0.00001	78.6	80-120	0.00399	1.77	20	S

DUP	Sample ID: 1302162-02DDUP				Units: mg/L		Analysis Date: 2/7/2013 04:18 PM			
Client ID:	Run ID: MERCURY_130207A				SeqNo: 3105669		Prep Date: 2/7/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	0.00020	0	0	0	0-0	-0.00001	0	20	

The following samples were analyzed in this batch:

1302189-01E	1302189-02E	1302189-03E
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67639** Instrument ID **ICPMS05** Method: **SW6020** **(Dissolve)**

MBLK	Sample ID: MBLKW5-020813-67639				Units: mg/L		Analysis Date: 2/11/2013 05:25 PM			
Client ID:	Run ID: ICPMS05_130211A				SeqNo: 3109576		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.006192	0.010								J
Arsenic	U	0.0050								
Barium	U	0.0050								
Cadmium	U	0.0020								
Calcium	0.2533	0.50								J
Chromium	U	0.0050								
Cobalt	U	0.0050								
Copper	U	0.0050								
Iron	U	0.20								
Lead	U	0.0050								
Manganese	U	0.0050								
Molybdenum	U	0.0050								
Nickel	U	0.0050								
Potassium	U	0.20								
Selenium	U	0.0050								
Silver	U	0.0050								
Uranium	U	0.0050								
Zinc	0.003007	0.0050								J

MBLK	Sample ID: MBLKW5-020813-67639				Units: mg/L		Analysis Date: 2/12/2013 02:04 PM			
Client ID:	Run ID: ICPMS05_130212A				SeqNo: 3110576		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	U	0.050								
Sodium	U	0.20								

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

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67639** Instrument ID **ICPMS05** Method: **SW6020** (Dissolve)

LCS	Sample ID: MLCSW5-020813-67639				Units: mg/L		Analysis Date: 2/11/2013 05:27 PM			
Client ID:	Run ID: ICPMS05_130211A				SeqNo: 3109577		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1117	0.010	0.1	0	112	80-120	0			
Arsenic	0.05058	0.0050	0.05	0	101	80-120	0			
Barium	0.05024	0.0050	0.05	0	100	80-120	0			
Cadmium	0.05148	0.0020	0.05	0	103	80-120	0			
Calcium	5.189	0.50	5	0	104	80-120	0			
Chromium	0.05108	0.0050	0.05	0	102	80-120	0			
Cobalt	0.05227	0.0050	0.05	0	105	80-120	0			
Copper	0.05136	0.0050	0.05	0	103	80-120	0			
Iron	5.088	0.20	5	0	102	80-120	0			
Lead	0.05288	0.0050	0.05	0	106	80-120	0			
Manganese	0.05154	0.0050	0.05	0	103	80-120	0			
Molybdenum	0.04945	0.0050	0.05	0	98.9	80-120	0			
Nickel	0.05042	0.0050	0.05	0	101	80-120	0			
Potassium	5.069	0.20	5	0	101	80-120	0			
Selenium	0.05183	0.0050	0.05	0	104	80-120	0			
Silver	0.05213	0.0050	0.05	0	104	80-120	0			
Sodium	5.221	1.0	5	0	104	80-120	0			
Uranium	0.1001	0.0050	0.1	0	100	80-120	0			
Zinc	0.05315	0.0050	0.05	0	106	80-120	0			

LCS	Sample ID: MLCSW5-020813-67639				Units: mg/L		Analysis Date: 2/12/2013 02:06 PM			
Client ID:	Run ID: ICPMS05_130212A				SeqNo: 3110577		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.5137	0.050	0.5	0	103	80-120	0			

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

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67639** Instrument ID **ICPMS05** Method: **SW6020** **(Dissolve)**

MS		Sample ID: 1302162-02DMS				Units: mg/L		Analysis Date: 2/11/2013 05:51 PM		
Client ID:		Run ID: ICPMS05_130211A				SeqNo: 3109595		Prep Date: 2/8/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.3754	0.010	0.1	0.08538	290	75-125	0			S
Arsenic	0.05166	0.0050	0.05	0.001764	99.8	75-125	0			
Barium	0.1245	0.0050	0.05	0.07333	102	75-125	0			
Boron	1.31	0.050	0.5	0.723	117	75-125	0			
Cadmium	0.05072	0.0020	0.05	0	101	75-125	0			
Calcium	205.4	0.50	5	195.9	189	75-125	0			SEO
Chromium	0.05017	0.0050	0.05	0	100	75-125	0			
Cobalt	0.05197	0.0050	0.05	0.00258	98.8	75-125	0			
Copper	0.05874	0.0050	0.05	0.007833	102	75-125	0			
Iron	5.244	0.20	5	0.08799	103	75-125	0			
Lead	0.05166	0.0050	0.05	0	103	75-125	0			
Manganese	1.043	0.0050	0.05	0.9886	108	75-125	0			O
Molybdenum	0.05065	0.0050	0.05	0.003301	94.7	75-125	0			
Nickel	0.05995	0.0050	0.05	0.01032	99.3	75-125	0			
Potassium	5.185	0.20	5	0.3187	97.3	75-125	0			
Selenium	0.05066	0.0050	0.05	0	101	75-125	0			
Silver	0.04846	0.0050	0.05	0	96.9	75-125	0			
Sodium	80.45	0.20	5	75.22	105	75-125	0			O
Uranium	0.1148	0.0050	0.05	0.01453	201	75-125	0			S
Zinc	0.1201	0.0050	0.05	0.111	18.2	75-125	0			S

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

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67639** Instrument ID **ICPMS05** Method: **SW6020** **(Dissolve)**

MSD	Sample ID: 1302162-02DMSD					Units: mg/L		Analysis Date: 2/11/2013 05:54 PM		
Client ID:	Run ID: ICPMS05_130211A				SeqNo: 3109596		Prep Date: 2/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.8466	0.010	0.1	0.08538	761	75-125	0.3754	77.1	25	SR
Arsenic	0.05059	0.0050	0.05	0.001764	97.7	75-125	0.05166	2.1	25	
Barium	0.1256	0.0050	0.05	0.07333	105	75-125	0.1245	0.876	25	
Boron	1.281	0.050	0.5	0.723	112	75-125	1.31	2.24	25	
Cadmium	0.05061	0.0020	0.05	0	101	75-125	0.05072	0.231	25	
Calcium	198.7	0.50	5	195.9	54.4	75-125	205.4	3.34	25	SEO
Chromium	0.04976	0.0050	0.05	0	99.5	75-125	0.05017	0.817	25	
Cobalt	0.05119	0.0050	0.05	0.00258	97.2	75-125	0.05197	1.53	25	
Copper	0.06255	0.0050	0.05	0.007833	109	75-125	0.05874	6.3	25	
Iron	5.64	0.20	5	0.08799	111	75-125	5.244	7.28	25	
Lead	0.05249	0.0050	0.05	0	105	75-125	0.05166	1.61	25	
Manganese	1.016	0.0050	0.05	0.9886	55.5	75-125	1.043	2.56	25	SO
Molybdenum	0.05104	0.0050	0.05	0.003301	95.5	75-125	0.05065	0.753	25	
Nickel	0.05914	0.0050	0.05	0.01032	97.6	75-125	0.05995	1.36	25	
Potassium	5.175	0.20	5	0.3187	97.1	75-125	5.185	0.195	25	
Selenium	0.04861	0.0050	0.05	0	97.2	75-125	0.05066	4.12	25	
Silver	0.04821	0.0050	0.05	0	96.4	75-125	0.04846	0.523	25	
Sodium	77.87	0.20	5	75.22	52.9	75-125	80.45	3.26	25	SO
Uranium	0.1148	0.0050	0.05	0.01453	201	75-125	0.1148	0.054	25	S
Zinc	0.121	0.0050	0.05	0.111	19.9	75-125	0.1201	0.707	25	S

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

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67639** Instrument ID **ICPMS05** Method: **SW6020** (Dissolve)

DUP		Sample ID: 1302162-02DDUP				Units: mg/L		Analysis Date: 2/11/2013 05:49 PM		
Client ID:		Run ID: ICPMS05_130211A				SeqNo: 3109594		Prep Date: 2/8/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1358	0.010	0	0	0	0-0	0.08538	45.6	25	R
Arsenic	0.001544	0.0050	0	0	0	0-0	0.001764	0	25	J
Barium	0.07134	0.0050	0	0	0	0-0	0.07333	2.75	25	
Boron	0.7208	0.050	0	0	0	0-0	0.723	0.295	25	
Cadmium	U	0.0020	0	0	0	0-0	0.000088	0	25	
Chromium	U	0.0050	0	0	0	0-0	0.000339	0	25	
Cobalt	0.002315	0.0050	0	0	0	0-0	0.00258	0	25	J
Copper	0.007413	0.0050	0	0	0	0-0	0.007833	5.51	25	
Iron	0.1153	0.20	0	0	0	0-0	0.08799	0	25	J
Lead	U	0.0050	0	0	0	0-0	0.000123	0	25	
Manganese	0.9603	0.0050	0	0	0	0-0	0.9886	2.9	25	
Molybdenum	0.003106	0.0050	0	0	0	0-0	0.003301	0	25	J
Nickel	0.0105	0.0050	0	0	0	0-0	0.01032	1.73	25	
Potassium	0.3152	0.20	0	0	0	0-0	0.3187	1.11	25	
Selenium	U	0.0050	0	0	0	0-0	-0.000908	0	25	
Silver	U	0.0050	0	0	0	0-0	0.000034	0	25	
Sodium	74.01	0.20	0	0	0	0-0	75.22	1.62	25	
Uranium	0.01412	0.0050	0	0	0		0.01453	2.91	25	
Zinc	0.1104	0.0050	0	0	0	0-0	0.111	0.546	25	

DUP		Sample ID: 1302162-02DDUP				Units: mg/L		Analysis Date: 2/12/2013 02:35 PM		
Client ID:		Run ID: ICPMS05_130212A				SeqNo: 3110589		Prep Date: 2/8/2013		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	198.5	5.0	0	0	0	0-0	202.2	1.85	25	

The following samples were analyzed in this batch:

1302189-01E	1302189-02E	1302189-03E
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67652** Instrument ID **SV-6** Method: **SW8270**

MBLK	Sample ID: SBLKW2-130207-67652				Units: µg/L		Analysis Date: 2/8/2013 01:13 PM			
Client ID:	Run ID: SV-6_130208A				SeqNo: 3108320		Prep Date: 2/7/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	U	0.20								
2-Methylnaphthalene	U	0.20								
Benzo(a)pyrene	U	0.20								
Naphthalene	U	0.20								
<i>Surr: 2,4,6-Tribromophenol</i>	3.917	0.20	5	0	78.3	34-129	0			
<i>Surr: 2-Fluorobiphenyl</i>	4.298	0.20	5	0	86	40-125	0			
<i>Surr: 2-Fluorophenol</i>	3.88	0.20	5	0	77.6	20-120	0			
<i>Surr: 4-Terphenyl-d14</i>	4.845	0.20	5	0	96.9	40-135	0			
<i>Surr: Nitrobenzene-d5</i>	4.337	0.20	5	0	86.7	41-120	0			
<i>Surr: Phenol-d6</i>	4.179	0.20	5	0	83.6	20-120	0			

LCS	Sample ID: SLCSW2-130207-67652				Units: µg/L		Analysis Date: 2/8/2013 01:33 PM			
Client ID:	Run ID: SV-6_130208A				SeqNo: 3108321		Prep Date: 2/7/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	4.55	0.20	5	0	91	45-120	0			
2-Methylnaphthalene	4.623	0.20	5	0	92.5	50-120	0			
Benzo(a)pyrene	4.718	0.20	5	0	94.4	45-120	0			
Naphthalene	4.463	0.20	5	0	89.3	45-120	0			
<i>Surr: 2,4,6-Tribromophenol</i>	4.284	0.20	5	0	85.7	34-129	0			
<i>Surr: 2-Fluorobiphenyl</i>	4.295	0.20	5	0	85.9	40-125	0			
<i>Surr: 2-Fluorophenol</i>	4.096	0.20	5	0	81.9	20-120	0			
<i>Surr: 4-Terphenyl-d14</i>	4.973	0.20	5	0	99.5	40-135	0			
<i>Surr: Nitrobenzene-d5</i>	4.235	0.20	5	0	84.7	41-120	0			
<i>Surr: Phenol-d6</i>	4.012	0.20	5	0	80.2	20-120	0			

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

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67652** Instrument ID **SV-6** Method: **SW8270**

LCSD Sample ID: **SLCSDW2-130207-67652** Units: **µg/L** Analysis Date: **2/8/2013 01:52 PM**

Client ID: Run ID: **SV-6_130208A** SeqNo: **3108323** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	4.365	0.20	5	0	87.3	45-120	4.55	4.13	20	
2-Methylnaphthalene	4.423	0.20	5	0	88.5	50-120	4.623	4.44	20	
Benzo(a)pyrene	4.773	0.20	5	0	95.5	45-120	4.718	1.16	20	
Naphthalene	4.285	0.20	5	0	85.7	45-120	4.463	4.07	20	
Surr: 2,4,6-Tribromophenol	4.279	0.20	5	0	85.6	34-129	4.284	0.118	0	
Surr: 2-Fluorobiphenyl	4.281	0.20	5	0	85.6	40-125	4.295	0.322	0	
Surr: 2-Fluorophenol	4.05	0.20	5	0	81	20-120	4.096	1.12	0	
Surr: 4-Terphenyl-d14	4.878	0.20	5	0	97.6	40-135	4.973	1.92	0	
Surr: Nitrobenzene-d5	4.191	0.20	5	0	83.8	41-120	4.235	1.04	0	
Surr: Phenol-d6	4.006	0.20	5	0	80.1	20-120	4.012	0.155	0	

MS Sample ID: **1302166-02AMS** Units: **µg/L** Analysis Date: **2/8/2013 02:35 PM**

Client ID: Run ID: **SV-6_130208A** SeqNo: **3108326** Prep Date: **2/7/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	4.507	0.20	5	0.041	89.3	45-120	0			
2-Methylnaphthalene	4.563	0.20	5	0.06144	90	50-120	0			
Benzo(a)pyrene	4.668	0.20	5	0	93.4	45-120	0			
Naphthalene	4.369	0.20	5	0.05768	86.2	45-120	0			
Surr: 2,4,6-Tribromophenol	4.338	0.20	5	0	86.8	34-129	0			
Surr: 2-Fluorobiphenyl	4.351	0.20	5	0	87	40-125	0			
Surr: 2-Fluorophenol	3.971	0.20	5	0	79.4	20-120	0			
Surr: 4-Terphenyl-d14	5.066	0.20	5	0	101	40-135	0			
Surr: Nitrobenzene-d5	4.259	0.20	5	0	85.2	41-120	0			
Surr: Phenol-d6	3.95	0.20	5	0	79	20-120	0			

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

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **67652** Instrument ID **SV-6** Method: **SW8270**

MSD		Sample ID: 1302166-02AMSD				Units: µg/L		Analysis Date: 2/8/2013 02:54 PM		
Client ID:		Run ID: SV-6_130208A				SeqNo: 3108327		Prep Date: 2/7/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	4.55	0.20	5	0.041	90.2	45-120	4.507	0.951	20	
2-Methylnaphthalene	4.617	0.20	5	0.06144	91.1	50-120	4.563	1.17	20	
Benzo(a)pyrene	4.952	0.20	5	0	99	45-120	4.668	5.91	20	
Naphthalene	4.415	0.20	5	0.05768	87.1	45-120	4.369	1.03	20	
<i>Surr: 2,4,6-Tribromophenol</i>	4.292	0.20	5	0	85.8	34-129	4.338	1.06	0	
<i>Surr: 2-Fluorobiphenyl</i>	4.291	0.20	5	0	85.8	40-125	4.351	1.38	0	
<i>Surr: 2-Fluorophenol</i>	3.848	0.20	5	0	77	20-120	3.971	3.15	0	
<i>Surr: 4-Terphenyl-d14</i>	5.26	0.20	5	0	105	40-135	5.066	3.77	0	
<i>Surr: Nitrobenzene-d5</i>	4.13	0.20	5	0	82.6	41-120	4.259	3.08	0	
<i>Surr: Phenol-d6</i>	3.943	0.20	5	0	78.9	20-120	3.95	0.168	0	

The following samples were analyzed in this batch:

1302189-01D	1302189-02D	1302189-03D
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142338** Instrument ID **VOA4** Method: **SW8260**

MBLK		Sample ID: VBLKW-130207-R142338				Units: µg/L		Analysis Date: 2/7/2013 01:04 PM		
Client ID:		Run ID: VOA4_130207A				SeqNo: 3106182		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichloroethane	U	1.0								
Benzene	U	1.0								
Carbon tetrachloride	U	1.0								
Chloroform	U	1.0								
Ethylbenzene	U	1.0								
Methylene chloride	U	2.0								
Tetrachloroethene	U	1.0								
Toluene	U	1.0								
Trichloroethene	U	1.0								
Vinyl chloride	U	1.0								
Xylenes, Total	U	1.0								
<i>Surr: 1,2-Dichloroethane-d4</i>	43.22	1.0	50	0	86.4	71-125	0			
<i>Surr: 4-Bromofluorobenzene</i>	47.27	1.0	50	0	94.5	70-125	0			
<i>Surr: Dibromofluoromethane</i>	48.09	1.0	50	0	96.2	74-125	0			
<i>Surr: Toluene-d8</i>	48.74	1.0	50	0	97.5	78-123	0			

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

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142338** Instrument ID **VOA4** Method: **SW8260**

LCS		Sample ID: VLCSW-130207-R142338				Units: µg/L		Analysis Date: 2/7/2013 11:52 AM		
Client ID:		Run ID: VOA4_130207A				SeqNo: 3106180		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	54.12	1.0	50	0	108	80-120	0			
1,1,2,2-Tetrachloroethane	47.37	1.0	50	0	94.7	74-123	0			
1,1,2-Trichloroethane	49.93	1.0	50	0	99.9	80-120	0			
1,1-Dichloroethane	45.83	1.0	50	0	91.7	80-120	0			
1,1-Dichloroethene	53.33	1.0	50	0	107	80-120	0			
1,2-Dibromoethane	54.67	1.0	50	0	109	80-120	0			
1,2-Dichloroethane	47.37	1.0	50	0	94.7	79-120	0			
Benzene	48.2	1.0	50	0	96.4	80-120	0			
Carbon tetrachloride	58.64	1.0	50	0	117	79-120	0			
Chloroform	46.43	1.0	50	0	92.9	80-120	0			
Ethylbenzene	50.46	1.0	50	0	101	80-120	0			
Methylene chloride	47.39	2.0	50	0	94.8	75-125	0			
Tetrachloroethene	55.58	1.0	50	0	111	80-120	0			
Toluene	49.84	1.0	50	0	99.7	80-121	0			
Trichloroethene	54.31	1.0	50	0	109	80-120	0			
Vinyl chloride	48.12	1.0	50	0	96.2	75-125	0			
Xylenes, Total	147.3	1.0	150	0	98.2	80-124	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	40.29	1.0	50	0	80.6	71-125	0			
<i>Surr: 4-Bromofluorobenzene</i>	51.07	1.0	50	0	102	70-125	0			
<i>Surr: Dibromofluoromethane</i>	46.75	1.0	50	0	93.5	74-125	0			
<i>Surr: Toluene-d8</i>	48.46	1.0	50	0	96.9	78-123	0			

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

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142338** Instrument ID **VOA4** Method: **SW8260**

LCSD		Sample ID: VLCS DW-130207-R142338				Units: µg/L		Analysis Date: 2/7/2013 12:16 PM		
Client ID:		Run ID: VOA4_130207A				SeqNo: 3106181		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	53.04	1.0	50	0	106	80-120	54.12	2.03	20	
1,1,2,2-Tetrachloroethane	47.24	1.0	50	0	94.5	74-123	47.37	0.272	20	
1,1,2-Trichloroethane	50.09	1.0	50	0	100	80-120	49.93	0.316	20	
1,1-Dichloroethane	45.24	1.0	50	0	90.5	80-120	45.83	1.3	20	
1,1-Dichloroethene	51.67	1.0	50	0	103	80-120	53.33	3.17	20	
1,2-Dibromoethane	53.7	1.0	50	0	107	80-120	54.67	1.8	20	
1,2-Dichloroethane	46.81	1.0	50	0	93.6	79-120	47.37	1.19	20	
Benzene	46.92	1.0	50	0	93.8	80-120	48.2	2.7	20	
Carbon tetrachloride	55.21	1.0	50	0	110	79-120	58.64	6.03	20	
Chloroform	45.85	1.0	50	0	91.7	80-120	46.43	1.24	20	
Ethylbenzene	49.1	1.0	50	0	98.2	80-120	50.46	2.75	20	
Methylene chloride	46.39	2.0	50	0	92.8	75-125	47.39	2.13	20	
Tetrachloroethene	53.36	1.0	50	0	107	80-120	55.58	4.07	20	
Toluene	48.56	1.0	50	0	97.1	80-121	49.84	2.58	20	
Trichloroethene	52.61	1.0	50	0	105	80-120	54.31	3.17	20	
Vinyl chloride	46	1.0	50	0	92	75-125	48.12	4.5	20	
Xylenes, Total	144.2	1.0	150	0	96.1	80-124	147.3	2.14	20	
<i>Surr: 1,2-Dichloroethane-d4</i>	42.39	1.0	50	0	84.8	71-125	40.29	5.09	20	
<i>Surr: 4-Bromofluorobenzene</i>	51.83	1.0	50	0	104	70-125	51.07	1.47	20	
<i>Surr: Dibromofluoromethane</i>	48.24	1.0	50	0	96.5	74-125	46.75	3.14	20	
<i>Surr: Toluene-d8</i>	48.94	1.0	50	0	97.9	78-123	48.46	0.98	20	

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

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142338** Instrument ID **VOA4** Method: **SW8260**

MS	Sample ID: 1302212-01AMS					Units: µg/L		Analysis Date: 2/7/2013 07:57 PM		
Client ID:	Run ID: VOA4_130207A					SeqNo: 3106199		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	53.97	1.0	50	0	108	80-120	0			
1,1,2,2-Tetrachloroethane	45.9	1.0	50	0	91.8	74-123	0			
1,1,2-Trichloroethane	49.51	1.0	50	0	99	80-120	0			
1,1-Dichloroethane	44.96	1.0	50	0	89.9	80-120	0			
1,1-Dichloroethene	54.68	1.0	50	0	109	80-120	0			
1,2-Dibromoethane	53.74	1.0	50	0	107	80-120	0			
1,2-Dichloroethane	47.08	1.0	50	0	94.2	79-120	0			
Benzene	48	1.0	50	0	96	80-120	0			
Carbon tetrachloride	58.28	1.0	50	0	117	79-120	0			
Chloroform	45.95	1.0	50	0	91.9	80-120	0			
Ethylbenzene	49.44	1.0	50	0	98.9	80-120	0			
Methylene chloride	46.21	2.0	50	0	92.4	75-125	0			
Tetrachloroethene	54.73	1.0	50	0	109	80-120	0			
Toluene	49.36	1.0	50	0	98.7	80-121	0			
Trichloroethene	54.11	1.0	50	0	108	80-120	0			
Vinyl chloride	49.09	1.0	50	0	98.2	75-125	0			
Xylenes, Total	144.9	1.0	150	0	96.6	80-124	0			
Surr: 1,2-Dichloroethane-d4	42.45	1.0	50	0	84.9	71-125	0			
Surr: 4-Bromofluorobenzene	51.15	1.0	50	0	102	70-125	0			
Surr: Dibromofluoromethane	47.86	1.0	50	0	95.7	74-125	0			
Surr: Toluene-d8	48.37	1.0	50	0	96.7	78-123	0			

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

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142338** Instrument ID **VOA4** Method: **SW8260**

MSD	Sample ID: 1302212-01AMSD				Units: µg/L		Analysis Date: 2/7/2013 08:21 PM			
Client ID:	Run ID: VOA4_130207A				SeqNo: 3106200		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	57.01	1.0	50	0	114	80-120	53.97	5.48	20	
1,1,2,2-Tetrachloroethane	48.94	1.0	50	0	97.9	74-123	45.9	6.42	20	
1,1,2-Trichloroethane	50.75	1.0	50	0	101	80-120	49.51	2.47	20	
1,1-Dichloroethane	48.16	1.0	50	0	96.3	80-120	44.96	6.87	20	
1,1-Dichloroethene	56.88	1.0	50	0	114	80-120	54.68	3.95	20	
1,2-Dibromoethane	56.5	1.0	50	0	113	80-120	53.74	5	20	
1,2-Dichloroethane	51.51	1.0	50	0	103	79-120	47.08	8.98	20	
Benzene	52.19	1.0	50	0	104	80-120	48	8.37	20	
Carbon tetrachloride	63.72	1.0	50	0	127	79-120	58.28	8.92	20	S
Chloroform	49.3	1.0	50	0	98.6	80-120	45.95	7.04	20	
Ethylbenzene	52.5	1.0	50	0	105	80-120	49.44	5.99	20	
Methylene chloride	48.73	2.0	50	0	97.5	75-125	46.21	5.31	20	
Tetrachloroethene	57.75	1.0	50	0	115	80-120	54.73	5.36	20	
Toluene	51.86	1.0	50	0	104	80-121	49.36	4.94	20	
Trichloroethene	58.65	1.0	50	0	117	80-120	54.11	8.06	20	
Vinyl chloride	52.37	1.0	50	0	105	75-125	49.09	6.45	20	
Xylenes, Total	153.8	1.0	150	0	103	80-124	144.9	5.99	20	
Surr: 1,2-Dichloroethane-d4	43	1.0	50	0	86	71-125	42.45	1.3	20	
Surr: 4-Bromofluorobenzene	50.33	1.0	50	0	101	70-125	51.15	1.61	20	
Surr: Dibromofluoromethane	48.55	1.0	50	0	97.1	74-125	47.86	1.44	20	
Surr: Toluene-d8	48.73	1.0	50	0	97.5	78-123	48.37	0.743	20	

The following samples were analyzed in this batch:

1302189-01A	1302189-02A	1302189-03A
1302189-04A	1302189-05A	

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

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142498** Instrument ID **VOA4** Method: **SW8260**

MBLK Sample ID: **VBLKW2-130208-R142498** Units: **µg/L** Analysis Date: **2/8/2013 11:09 PM**

Client ID: Run ID: **VOA4_130208B** SeqNo: **3108013** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichloroethane	U	1.0								
Benzene	U	1.0								
Carbon tetrachloride	U	1.0								
Chloroform	U	1.0								
Ethylbenzene	U	1.0								
Methylene chloride	U	2.0								
Tetrachloroethene	U	1.0								
Toluene	U	1.0								
Trichloroethene	U	1.0								
Vinyl chloride	U	1.0								
Xylenes, Total	U	1.0								
Surr: 1,2-Dichloroethane-d4	49.71	1.0	50	0	99.4	71-125	0			
Surr: 4-Bromofluorobenzene	50.66	1.0	50	0	101	70-125	0			
Surr: Dibromofluoromethane	49.37	1.0	50	0	98.7	74-125	0			
Surr: Toluene-d8	52.58	1.0	50	0	105	78-123	0			

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

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142498** Instrument ID **VOA4** Method: **SW8260**

LCS		Sample ID: VLCSW2-130208-R142498				Units: µg/L		Analysis Date: 2/8/2013 09:57 PM		
Client ID:		Run ID: VOA4_130208B				SeqNo: 3108009		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	55.09	1.0	50	0	110	80-120	0			
1,1,2,2-Tetrachloroethane	49.36	1.0	50	0	98.7	74-123	0			
1,1,2-Trichloroethane	51.51	1.0	50	0	103	80-120	0			
1,1-Dichloroethane	51.83	1.0	50	0	104	80-120	0			
1,1-Dichloroethene	54.88	1.0	50	0	110	80-120	0			
1,2-Dibromoethane	54.57	1.0	50	0	109	80-120	0			
1,2-Dichloroethane	50.55	1.0	50	0	101	79-120	0			
Benzene	50.32	1.0	50	0	101	80-120	0			
Carbon tetrachloride	50.54	1.0	50	0	101	79-120	0			
Chloroform	50.55	1.0	50	0	101	80-120	0			
Ethylbenzene	51.95	1.0	50	0	104	80-120	0			
Methylene chloride	52.11	2.0	50	0	104	75-125	0			
Tetrachloroethene	53.98	1.0	50	0	108	80-120	0			
Toluene	52.03	1.0	50	0	104	80-121	0			
Trichloroethene	53.32	1.0	50	0	107	80-120	0			
Vinyl chloride	56.32	1.0	50	0	113	75-125	0			
Xylenes, Total	153.9	1.0	150	0	103	80-124	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	47.96	1.0	50	0	95.9	71-125	0			
<i>Surr: 4-Bromofluorobenzene</i>	53.9	1.0	50	0	108	70-125	0			
<i>Surr: Dibromofluoromethane</i>	49.34	1.0	50	0	98.7	74-125	0			
<i>Surr: Toluene-d8</i>	51.2	1.0	50	0	102	78-123	0			

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

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142498** Instrument ID **VOA4** Method: **SW8260**

LCSD		Sample ID: VLCS DW2-130208-R142498				Units: µg/L		Analysis Date: 2/8/2013 10:21 PM		
Client ID:		Run ID: VOA4_130208B				SeqNo: 3108011		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	54.6	1.0	50	0	109	80-120	55.09	0.901	20	
1,1,2,2-Tetrachloroethane	49.32	1.0	50	0	98.6	74-123	49.36	0.068	20	
1,1,2-Trichloroethane	50.72	1.0	50	0	101	80-120	51.51	1.54	20	
1,1-Dichloroethane	50.95	1.0	50	0	102	80-120	51.83	1.71	20	
1,1-Dichloroethene	54.92	1.0	50	0	110	80-120	54.88	0.0699	20	
1,2-Dibromoethane	53.64	1.0	50	0	107	80-120	54.57	1.71	20	
1,2-Dichloroethane	50.43	1.0	50	0	101	79-120	50.55	0.233	20	
Benzene	49.36	1.0	50	0	98.7	80-120	50.32	1.93	20	
Carbon tetrachloride	49.16	1.0	50	0	98.3	79-120	50.54	2.78	20	
Chloroform	49.36	1.0	50	0	98.7	80-120	50.55	2.36	20	
Ethylbenzene	50.31	1.0	50	0	101	80-120	51.95	3.2	20	
Methylene chloride	51.14	2.0	50	0	102	75-125	52.11	1.88	20	
Tetrachloroethene	52.07	1.0	50	0	104	80-120	53.98	3.59	20	
Toluene	50.24	1.0	50	0	100	80-121	52.03	3.5	20	
Trichloroethene	51.88	1.0	50	0	104	80-120	53.32	2.73	20	
Vinyl chloride	54.47	1.0	50	0	109	75-125	56.32	3.34	20	
Xylenes, Total	149.4	1.0	150	0	99.6	80-124	153.9	2.94	20	
<i>Surr: 1,2-Dichloroethane-d4</i>	47.27	1.0	50	0	94.5	71-125	47.96	1.45	20	
<i>Surr: 4-Bromofluorobenzene</i>	53.48	1.0	50	0	107	70-125	53.9	0.798	20	
<i>Surr: Dibromofluoromethane</i>	49.25	1.0	50	0	98.5	74-125	49.34	0.193	20	
<i>Surr: Toluene-d8</i>	51.32	1.0	50	0	103	78-123	51.2	0.233	20	

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

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142498** Instrument ID **VOA4** Method: **SW8260**

MS Sample ID: 1302236-06AMS				Units: µg/L			Analysis Date: 2/9/2013 01:35 AM			
Client ID:		Run ID: VOA4_130208B		SeqNo: 3108165		Prep Date:		DF: 2500		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	133700	2,500	125000	0	107	80-120	0			
1,1,2,2-Tetrachloroethane	118800	2,500	125000	0	95	74-123	0			
1,1,2-Trichloroethane	124000	2,500	125000	0	99.2	80-120	0			
1,1-Dichloroethane	125300	2,500	125000	0	100	80-120	0			
1,1-Dichloroethene	133000	2,500	125000	0	106	80-120	0			
1,2-Dibromoethane	128600	2,500	125000	0	103	80-120	0			
1,2-Dichloroethane	122700	2,500	125000	0	98.1	79-120	0			
Benzene	120300	2,500	125000	0	96.3	80-120	0			
Carbon tetrachloride	119000	2,500	125000	0	95.2	79-120	0			
Chloroform	129400	2,500	125000	8729	96.5	80-120	0			
Ethylbenzene	128100	2,500	125000	4531	98.9	80-120	0			
Methylene chloride	126400	5,000	125000	3717	98.1	75-125	0			
Tetrachloroethene	125900	2,500	125000	0	101	80-120	0			
Toluene	123700	2,500	125000	0	99	80-121	0			
Trichloroethene	125300	2,500	125000	0	100	80-120	0			
Vinyl chloride	134600	2,500	125000	0	108	75-125	0			
Xylenes, Total	418500	2,500	375000	49150	98.5	80-124	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	120700	2,500	125000	0	96.6	71-125	0			
<i>Surr: 4-Bromofluorobenzene</i>	134800	2,500	125000	0	108	70-125	0			
<i>Surr: Dibromofluoromethane</i>	125100	2,500	125000	0	100	74-125	0			
<i>Surr: Toluene-d8</i>	129500	2,500	125000	0	104	78-123	0			

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

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142498** Instrument ID **VOA4** Method: **SW8260**

MSD				Sample ID: 1302236-06AMSD			Units: µg/L		Analysis Date: 2/9/2013 01:59 AM	
Client ID:				Run ID: VOA4_130208B			SeqNo: 3108166		Prep Date:	
									DF: 2500	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	126500	2,500	125000	0	101	80-120	133700	5.49	20	
1,1,2,2-Tetrachloroethane	114100	2,500	125000	0	91.3	74-123	118800	3.98	20	
1,1,2-Trichloroethane	121100	2,500	125000	0	96.9	80-120	124000	2.42	20	
1,1-Dichloroethane	119600	2,500	125000	0	95.7	80-120	125300	4.61	20	
1,1-Dichloroethene	126100	2,500	125000	0	101	80-120	133000	5.28	20	
1,2-Dibromoethane	125900	2,500	125000	0	101	80-120	128600	2.14	20	
1,2-Dichloroethane	120200	2,500	125000	0	96.2	79-120	122700	2.05	20	
Benzene	115900	2,500	125000	0	92.7	80-120	120300	3.75	20	
Carbon tetrachloride	114600	2,500	125000	0	91.7	79-120	119000	3.76	20	
Chloroform	126000	2,500	125000	8729	93.8	80-120	129400	2.64	20	
Ethylbenzene	123600	2,500	125000	4531	95.2	80-120	128100	3.62	20	
Methylene chloride	122300	5,000	125000	3717	94.8	75-125	126400	3.31	20	
Tetrachloroethene	121800	2,500	125000	0	97.5	80-120	125900	3.3	20	
Toluene	120100	2,500	125000	0	96.1	80-121	123700	2.94	20	
Trichloroethene	120400	2,500	125000	0	96.3	80-120	125300	3.98	20	
Vinyl chloride	126900	2,500	125000	0	102	75-125	134600	5.88	20	
Xylenes, Total	409000	2,500	375000	49150	96	80-124	418500	2.29	20	
<i>Surr: 1,2-Dichloroethane-d4</i>	119500	2,500	125000	0	95.6	71-125	120700	0.999	20	
<i>Surr: 4-Bromofluorobenzene</i>	135500	2,500	125000	0	108	70-125	134800	0.5	20	
<i>Surr: Dibromofluoromethane</i>	123000	2,500	125000	0	98.4	74-125	125100	1.7	20	
<i>Surr: Toluene-d8</i>	129000	2,500	125000	0	103	78-123	129500	0.346	20	

The following samples were analyzed in this batch:

1302189-01A

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

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142275** Instrument ID **ICS2100** Method: **E300** (Dissolve)

MBLK	Sample ID: WBLKW2-R142275				Units: mg/L		Analysis Date: 2/6/2013 11:17 AM			
Client ID:	Run ID: ICS2100_130206A				SeqNo: 3104639		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	U	0.10								
Nitrogen, Nitrate (As N)	U	0.10								
Nitrogen, Nitrite (As N)	U	0.10								
Surr: Selenate (surr)	4.316	0.10	5	0	86.3	85-115	0			

LCS	Sample ID: WLCSW2-R142275				Units: mg/L		Analysis Date: 2/6/2013 11:31 AM			
Client ID:	Run ID: ICS2100_130206A				SeqNo: 3104640		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	3.608	0.10	4	0	90.2	90-110	0			
Nitrogen, Nitrate (As N)	4.033	0.10	4	0	101	90-110	0			
Nitrogen, Nitrite (As N)	4.332	0.10	4	0	108	90-110	0			
Surr: Selenate (surr)	4.436	0.10	5	0	88.7	85-115	0			

MS	Sample ID: 13011010-20BMS				Units: mg/L		Analysis Date: 2/6/2013 07:14 PM			
Client ID:	Run ID: ICS2100_130206A				SeqNo: 3104667		Prep Date:		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	8.773	0.50	10	0.125	86.5	80-120	0			
Nitrogen, Nitrate (As N)	10.03	0.50	10	0	100	80-120	0			H
Nitrogen, Nitrite (As N)	10.57	0.50	10	0	106	80-120	0			H
Surr: Selenate (surr)	21.26	0.50	25	0	85.1	85-115	0			

MSD	Sample ID: 13011010-20BMSD				Units: mg/L		Analysis Date: 2/6/2013 07:29 PM			
Client ID:	Run ID: ICS2100_130206A				SeqNo: 3104669		Prep Date:		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	9.222	0.50	10	0.125	91	80-120	8.773	4.99	20	
Nitrogen, Nitrate (As N)	10.45	0.50	10	0	105	80-120	10.03	4.12	20	H
Nitrogen, Nitrite (As N)	10.86	0.50	10	0	109	80-120	10.57	2.65	20	H
Surr: Selenate (surr)	22.16	0.50	25	0	88.6	85-115	21.26	4.11	20	

The following samples were analyzed in this batch:

1302189-02G 1302189-03G

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

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142545** Instrument ID **BALANCE1** Method: **M2540C** **(Dissolve)**

MBLK	Sample ID: WBLK-020813-R142545				Units: mg/L		Analysis Date: 2/8/2013 04:15 PM			
Client ID:	Run ID: BALANCE1_130208E				SeqNo: 3109325		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	U	10								

LCS	Sample ID: WLCS-020813-R142545				Units: mg/L		Analysis Date: 2/8/2013 04:15 PM			
Client ID:	Run ID: BALANCE1_130208E				SeqNo: 3109326		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	940	10	1000		0	94	85-115	0		

DUP	Sample ID: 1302121-01FDUP				Units: mg/L		Analysis Date: 2/8/2013 04:15 PM			
Client ID:	Run ID: BALANCE1_130208E				SeqNo: 3109329		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	496	10	0		0	0	0-0	498	0.402	20

DUP	Sample ID: 1302189-01GDUP				Units: mg/L		Analysis Date: 2/8/2013 04:15 PM			
Client ID: MW-116	Run ID: BALANCE1_130208E				SeqNo: 3109492		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	3598	10	0		0	0	0-0	3652	1.49	20

The following samples were analyzed in this batch:

1302189-01G

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

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142615** Instrument ID **ICS2100** Method: **E300** **(Dissolve)**

MBLK	Sample ID: WBLKW1-R142615				Units: mg/L		Analysis Date: 2/12/2013 10:37 AM			
Client ID:	Run ID: ICS2100_130212A				SeqNo: 3110343		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	U	0.10								
Nitrogen, Nitrate (As N)	0.064	0.10								J
Nitrogen, Nitrite (As N)	U	0.10								
<i>Surr: Selenate (surr)</i>	4.937	0.10	5	0	98.7	85-115	0			

LCS	Sample ID: WLCSW1-R142615				Units: mg/L		Analysis Date: 2/12/2013 10:52 AM			
Client ID:	Run ID: ICS2100_130212A				SeqNo: 3110344		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	3.832	0.10	4	0	95.8	90-110	0			
Nitrogen, Nitrate (As N)	4.379	0.10	4	0	109	90-110	0			
Nitrogen, Nitrite (As N)	4.304	0.10	4	0	108	90-110	0			
<i>Surr: Selenate (surr)</i>	5.024	0.10	5	0	100	85-115	0			

MS	Sample ID: 1302189-01GMS				Units: mg/L		Analysis Date: 2/12/2013 12:58 PM			
Client ID: MW-116	Run ID: ICS2100_130212A				SeqNo: 3110358		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	2.761	0.10	2	1.307	72.7	80-120	0			S
Nitrogen, Nitrate (As N)	3.165	0.10	2	1.367	89.9	80-120	0			H
Nitrogen, Nitrite (As N)	2.338	0.10	2	0	117	80-120	0			H
<i>Surr: Selenate (surr)</i>	4.387	0.10	5	0	87.7	85-115	0			

MSD	Sample ID: 1302189-01GMSD				Units: mg/L		Analysis Date: 2/12/2013 01:12 PM			
Client ID: MW-116	Run ID: ICS2100_130212A				SeqNo: 3110360		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	2.747	0.10	2	1.307	72	80-120	2.761	0.508	20	S
Nitrogen, Nitrate (As N)	3.201	0.10	2	1.367	91.7	80-120	3.165	1.13	20	H
Nitrogen, Nitrite (As N)	2.324	0.10	2	0	116	80-120	2.338	0.601	20	H
<i>Surr: Selenate (surr)</i>	4.498	0.10	5	0	90	85-115	4.387	2.5	20	

The following samples were analyzed in this batch:

1302189-01G

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

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142650** Instrument ID **UV-2450** Method: **M4500CN E&G (Dissolve)**

MBLK	Sample ID: WBLKW1-021213-R142650				Units: mg/L		Analysis Date: 2/12/2013 11:45 AM			
Client ID:	Run ID: UV-2450_130212D				SeqNo: 3111136		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	U	0.020								

LCS	Sample ID: WLCSW1-021213-R142650				Units: mg/L		Analysis Date: 2/12/2013 11:45 AM			
Client ID:	Run ID: UV-2450_130212D				SeqNo: 3111137		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.162	0.020	0.2	0	81	80-120	0			

LCSD	Sample ID: WLCSDW1-021213-R142650				Units: mg/L		Analysis Date: 2/12/2013 11:45 AM			
Client ID:	Run ID: UV-2450_130212D				SeqNo: 3111147		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.166	0.020	0.2	0	83	80-120	0.162	2.44	20	

MS	Sample ID: 1302217-01BMS				Units: mg/L		Analysis Date: 2/12/2013 11:45 AM			
Client ID:	Run ID: UV-2450_130212D				SeqNo: 3111146		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.172	0.020	0.2	0.002	85	80-120	0			

The following samples were analyzed in this batch:

1302189-01F	1302189-02F	1302189-03F
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142723** Instrument ID **Balance1** Method: **M2540C** **(Dissolve)**

MBLK Sample ID: **WBLK-021213-R142723** Units: **mg/L** Analysis Date: **2/12/2013 10:15 AM**

Client ID: Run ID: **BALANCE1_130212C** SeqNo: **3112460** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	U	10								

LCS Sample ID: **WLCS-021213-R142723** Units: **mg/L** Analysis Date: **2/12/2013 10:15 AM**

Client ID: Run ID: **BALANCE1_130212C** SeqNo: **3112461** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	964	10	1000	0	96.4	85-115	0			

DUP Sample ID: **1302159-01CDUP** Units: **mg/L** Analysis Date: **2/12/2013 10:15 AM**

Client ID: Run ID: **BALANCE1_130212C** SeqNo: **3112436** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	230	10	0	0	0	0-0	216	6.28	20	

DUP Sample ID: **1302276-01KDUP** Units: **mg/L** Analysis Date: **2/12/2013 10:15 AM**

Client ID: Run ID: **BALANCE1_130212C** SeqNo: **3112993** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1960	10	0	0	0	0-0	1960	0	20	

The following samples were analyzed in this batch:

1302189-02G 1302189-03G

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

Client: Navajo Refining Company
Work Order: 1302189
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R142773** Instrument ID **ICS3K2** Method: **E300** (Dissolve)

MBLK	Sample ID: WBLKW1-R142773			Units: mg/L			Analysis Date: 2/14/2013 12:37 AM			
Client ID:	Run ID: ICS3K2_130214B			SeqNo: 3113452			Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	0.50								
Sulfate	U	0.50								
Surr: Selenate (surr)	5.088	0.10	5	0	102	85-115	0			

LCS	Sample ID: WLC SW1-R142773			Units: mg/L			Analysis Date: 2/14/2013 12:59 AM			
Client ID:	Run ID: ICS3K2_130214B			SeqNo: 3113454			Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	18.08	0.50	20	0	90.4	90-110	0			
Sulfate	18.57	0.50	20	0	92.9	90-110	0			
Surr: Selenate (surr)	5.138	0.10	5	0	103	85-115	0			

MS	Sample ID: 1302276-01GMS			Units: mg/L			Analysis Date: 2/14/2013 06:46 AM			
Client ID:	Run ID: ICS3K2_130214B			SeqNo: 3113475			Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	749.4	0.50	10	762.7	-133	80-120	0			SEO
Sulfate	160.2	0.50	10	154.2	59.6	80-120	0			SEO
Surr: Selenate (surr)	5.296	0.10	5	0	106	85-115	0			

MSD	Sample ID: 1302276-01GMSD			Units: mg/L			Analysis Date: 2/14/2013 07:07 AM			
Client ID:	Run ID: ICS3K2_130214B			SeqNo: 3113476			Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	749	0.50	10	762.7	-137	80-120	749.4	0.0533	20	SEO
Sulfate	160.1	0.50	10	154.2	58.6	80-120	160.2	0.065	20	SEO
Surr: Selenate (surr)	5.309	0.10	5	0	106	85-115	5.296	0.245	20	

The following samples were analyzed in this batch:

1302189-01G	1302189-02G	1302189-03G
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Project: RO Discharge Sampling
WorkOrder: 1302189

QUALIFIERS, ACRONYMS, UNITS

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

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

<u>Units Reported</u>	<u>Description</u>
mg/L	Milligrams per Liter

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**

Date/Time Received: **06-Feb-13 08:40**

Work Order: **1302189**

Received by: **JBA**

Checklist completed by Johannie B. Allen
eSignature

12-Feb-13
Date

Reviewed by: Patricia L. Lynch
eSignature

19-Feb-13
Date

Matrices: **water**

Carrier name: **FedEx Priority Overnight**

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>1.6 C, 1.0 C, 1.1 C, 1.3 /uc</u>		
Cooler(s)/Kit(s):	<u>IR 1</u>		
Date/Time sample(s) sent to storage:	<u>3747/3040/3306/4185</u>		
Water - VOA vials have zero headspace?	<u>2/6/13 17:00</u>		
Water - pH acceptable upon receipt?	Yes ☒	No ☐	No VOA vials submitted ☐
pH adjusted?	Yes ☒	No ☐	N/A ☐
pH adjusted by:	Yes ☐	No ☒	N/A ☐
	<u></u>		

Login Notes: **1302189-01;-02; & -03 Radium fraction re-logged in WO 1302192-01;-02 & -03 respectively**

Client Contacted:

Date Contacted:

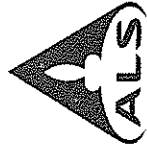
Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



Environmental

Cincinnati, OH
+1 513 733 5336
Everett, WA
+1 425 356 2600

Fort Collins, CO
+1 970 490 1511
Holland, MI
+1 616 399 6070

Chain of Custody Form

Houston, TX
+1 281 530 5656
Middletown, PA
+1 717 944 5541

Spring City, PA
+1 610 948 4903
Salt Lake City, UT
+1 801 266 7700

Page _____ of _____

COC ID: 72325

York, PA
+1 717 505 5280

Customer Information				Project Information				ALS Project Manager:				ALS Work Order #:					
Purchase Order				Project Name				RO Discharge/Sampling				Parameter/Method Request for Analysis					
Work Order				Project Number				128823				VOC (8260) NW GW List					
Company Name				Bill To Company				Navajo Refining Company				GRO (8015M)					
Send Report To				Invoice Attn				Robert Combs				DRO (8015M)					
Address				Address				501 East Main				ORO (8015M)					
City/State/Zip				City/State/Zip				Artesia, NM 88211				LL SVOC (8270) NM GW List					
Phone				Phone				(575) 748-6733				Total Metals (6020/7000) RCRA 8					
Fax				Fax				(575) 746-5421				Dissolved Metals (6020/7000) RCRA 8					
e-Mail Address				e-Mail Address								Moisture					
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-119	2/5/13	14:25	water	Mix	15											
2	MW-118	2/5/13	14:25	water	Mix	15											
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign		Shipment Method		Required Turnaround Time: (Check Box)		Results Due Date:	
Date	Time	Date	Time	Std 10 WK Days	5 WK Days	2 WK Days	24 Hour
2-5-13	1600	2-5-13	1600	☒	☐	☐	☐
Relinquished by: Eric Berger		Received by: [Signature]		Notes: 2/6/13 OAT		10 Day TAT. Dissolved Metals Field Filtered	
Relinquished by:		Received by (Laboratory):		Cooler ID: 3747		Cooler Temp:	
Logged by (Laboratory):		Checked by (Laboratory):		QC Package: (Check One Box Below)		Level II Std QC ☐ Level III Std QC Raw Data ☐ Level IV SW846/CLP ☐ Other / EDD ☐	
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035							

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

1 From
Date 2/5/13

Sender's Name Eric Bergesen Phone 281 781-1234

Company ARCADIS

Address 2929 Briarpark Suite 300

City Houston State TX ZIP 77042

2 Your Internal Billing Reference

3 To
Recipient's Name CLIENT SERVICES Phone 281 530-5656

Company ALS LABORATORY GROUP

Address 10450 STANCLIFF RD STE 210

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address _____

Use this line for the HOLD location address or for continuation of your shipping address.

City HOUSTON State TX ZIP 77099-4338

HOLD Weekday
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.

HOLD Saturday
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.



8013 7025 2083

4 Express Package Service *To most locations.
NOTE: Service order has changed. Please select carefully. Packages up to 150 lbs.
For packages over 150 lbs., use the
FedEx Express Freight US Airbill.

Next Business Day
☐ FedEx First Overnight
Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
☐ FedEx Priority Overnight
Next business morning. * Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
☒ FedEx Standard Overnight
Next business afternoon. * Saturday Delivery NOT available.

2 or 3 Business Days
☐ FedEx 2Day A.M.
Second business morning. * Saturday Delivery NOT available.
☐ FedEx 2Day
Second business afternoon. * Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
☐ FedEx Express Saver
Third business day. * Saturday Delivery NOT available.

5 Packaging *Declared value limit \$500.
☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☒ Other

6 Special Handling and Delivery Signature Options
☐ SATURDAY Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.
☐ No Signature Required
Package may be left without obtaining a signature for delivery.
☐ Direct Signature
Someone at recipient's address may sign for delivery. Fee applies.
☐ Indirect Signature
If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.
Does this shipment contain dangerous goods?
One box must be checked.
☒ No ☐ Yes
As per attached Shipper's Declaration. ☐ Yes
Shipper's Declaration not required. ☐ Dry Ice
Dry Ice, 9 UN 1845 x kg
Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box. ☐ Cargo Aircraft Only

7 Payment Bill to:
Sender's Acct. No. in Section I will be billed. ☒ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check
Enter FedEx Acct. No. or Credit Card No. below. Obtain recip. Acct. No. ☐
Total Packages _____ Total Weight _____ Credit Card Auth. _____

*Our liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

611

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CUSTODY SEAL
Date: 2-5-13 Time: 1100
Name: B. McKenna
Company: ARCADIS U.S.



8022 1536 6851

0200

Recipient's Copy

1 From
Date 3/9
Sender's Name
Company
Address
City State TX ZIP 77042

2 Your Internal Billing Reference

3 To
Recipient's Name Client Services Phone 281 530 5646
Company ALS Lab Group
Address 1450 Stancil Rd
City Houston State TX ZIP 77042

HOLD Weekday
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.
HOLD Saturday
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.

4 Express Package Service

- Next Business Day
- ☐ FedEx First Overnight
Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- ☐ FedEx Priority Overnight
Next business morning. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- ☒ FedEx Standard Overnight
Next business afternoon. Saturday Delivery NOT available.

- 2 or 3 Business Days
- ☐ FedEx 2Day A.M.
Second business morning. Saturday Delivery NOT available.
- ☐ FedEx 2Day
Second business afternoon. Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- ☐ FedEx Express Saver
Third business day. Saturday Delivery NOT available.

5 Packaging

- ☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☒ Other

6 Special Handling and Delivery Signature Options

- ☐ SATURDAY Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.
- ☐ No Signature Required
Package may be left without obtaining a signature for delivery.
- ☐ Direct Signature
Someone at recipient's address may sign for delivery. Fee applies.
- ☐ Indirect Signature
If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?

- One box must be checked.
- ☒ No ☐ Yes
As per attached Shipper's Declaration. ☐ Yes
Shipper's Declaration not required.
- ☐ Dry Ice
Dry Ice, 5, UN 1845 x kg
- ☐ Cargo Aircraft Only

7 Payment Bill to:

- Enter FedEx Acct. No. or Credit Card No. below. Obtain recip. Acct. No. ☐
- ☐ Sender Acct. No. in Section 1 will be billed. ☒ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check
- Total Packages Total Weight Credit Card Auth.

*Our liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

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ALS Environmental

10450 Stancil Rd Suite 270

Houston, Texas 77095

Tel. +1 281 530 5656

Fax. +1 281 530 5887

CUSTODY SEAL

Date: 2.5.13 Time: 1400
Name: BERGERSEN
Company: ARCADIS

Seal Broken By:

2/6/13

FedEx
Tracking
Number

8013 8012 5570

1 From
Date 7/5/13
Sender's Name Eric Bergersen
Company ARCADIS
Address 2929 Briarpark Dr Suite 300
City Houston State TX ZIP 77042

2 Your Internal Billing Reference

3 To
Recipient's Name CLIENT SERVICES
Company ALB LABORATORY GROUP
Address 10450 STANCLIFF RD STE 210
City HOUSTON State TX ZIP 77099-4338

HOLD Weekday
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.

HOLD Saturday
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.



8013 8012 5570



4 Express Package Service

NOTE: Service order has changed. Please select carefully.

Packages up to 150 lbs.
For packages over 150 lbs., use the
FedEx Express Freight US Airbill.

Next Business Day

- ☒ FedEx First Overnight
Next business morning.* Friday shipments will be
delivered on Monday unless SATURDAY Delivery is selected.
- ☐ FedEx Priority Overnight
Next business morning.* Friday shipments will be
delivered on Monday unless SATURDAY Delivery is selected.
- ☒ FedEx Standard Overnight
Next business afternoon.*
Saturday Delivery NOT available.

2 or 3 Business Days

- ☐ FedEx 2Day A.M.
Second business morning.*
Saturday Delivery NOT available.
- ☐ FedEx 2Day
Second business afternoon.* Thursday shipments
will be delivered on Monday unless SATURDAY
Delivery is selected.
- ☐ FedEx Express Saver
Third business day.*
Saturday Delivery NOT available.

5 Packaging

- ☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☒ Other

6 Special Handling and Delivery Signature Options

- ☐ SATURDAY Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.
- ☐ No Signature Required
Package may be left without
obtaining a signature for delivery.
- ☐ Direct Signature
Someone at recipient's address
may sign for delivery. Fee applies.
- ☐ Indirect Signature
If no one is available at recipient's
address, someone at a neighboring
address may sign for delivery. For
residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?

- One box must be checked.
- ☒ No ☐ Yes
As per attached
Shipper's Declaration.
- ☐ Yes
Shipper's Declaration
not required.
- ☐ Dry Ice
Dry Ice 1, UN 1845 x kg
- ☐ Cargo Aircraft Only

7 Payment Bill to:

- Enter FedEx Acct. No. or Credit Card No. below.
- ☐ Sender
Acct. No. in Section
I will be billed.
- ☒ Recipient
- ☐ Third Party
- ☐ Credit Card
- ☐ Cash/Check

Total Packages Total Weight

*Our liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

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ALS Environmental

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

D#
N#
C#

CUSTODY SEAL

Item: 43112 Time: 11:00
Info: B. Bergersen
Company: ARCADIS US
49 of 49

Seal Broken By:

Date:



28-Feb-2013

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

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

Re: RO Discharge Sampling

Work Order: **1302192**

Dear Robert,

ALS Environmental received 6 samples on 05-Feb-2013 through 06-Feb-2013 for the analyses presented in the following report.

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

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

The total number of pages in this report is 38.

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

Sincerely,

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

Electronically approved by: Jumoke M. Lawal

Sonia West
Project Manager



Certificate No: T104704231-12-10

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

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RIGHT SOLUTIONS RIGHT PARTNER

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 1302192

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1302192-01	MW-116	Water		2/3/2013 13:15	2/6/2013 08:40	☐
1302192-02	MW-119	Water		2/5/2013 13:15	2/6/2013 08:40	☐
1302192-03	MW-118	Water		2/5/2013 14:25	2/6/2013 08:40	☐
1302192-05	MW-117	Water		2/3/2013 10:00	2/5/2013 09:15	☐
1302192-06	MW-114	Water		2/3/2013 11:30	2/5/2013 09:15	☐
1302192-07	MW-115	Water		2/3/2013 12:30	2/5/2013 09:15	☐

Client: Navajo Refining Company**Project:** RO Discharge Sampling**Work Order:** 1302192**Case Narrative**

The analyses for Radium 226 and Radium 228 were subcontracted to ALS Environmental in Ft. Collins, CO.

ALS Environmental

Date: 28-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116
Collection Date: 2/3/2013 01:15 PM

Work Order: 1302192
Lab ID: 1302192-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	2/28/2013

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

ALS Environmental

Date: 28-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119
Collection Date: 2/5/2013 01:15 PM

Work Order: 1302192
Lab ID: 1302192-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	2/28/2013

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

ALS Environmental

Date: 28-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118
Collection Date: 2/5/2013 02:25 PM

Work Order: 1302192
Lab ID: 1302192-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	2/28/2013

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

ALS Environmental

Date: 28-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117
Collection Date: 2/3/2013 10:00 AM

Work Order: 1302192
Lab ID: 1302192-05
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	2/28/2013

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

ALS Environmental

Date: 28-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114
Collection Date: 2/3/2013 11:30 AM

Work Order: 1302192
Lab ID: 1302192-06
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	2/28/2013

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

ALS Environmental

Date: 28-Feb-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-115
Collection Date: 2/3/2013 12:30 PM

Work Order: 1302192
Lab ID: 1302192-07
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MISCELLANEOUS ANALYSIS		Method: NA				Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	2/28/2013

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

Client: Navajo Refining Company
Project: RO Discharge Sampling
WorkOrder: 1302192

QUALIFIERS, ACRONYMS, UNITS

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

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

<u>Units Reported</u>	<u>Description</u>
------------------------------	---------------------------

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**Date/Time Received: **06-Feb-13 00:00**Work Order: **1302192**Received by: **PMG**Checklist completed by Johanna B. Allen
eSignature12-Feb-13
Date

Reviewed by:

eSignature

Date

Matrices: **water**Carrier name: **FedEx Priority Overnight**

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>1.2 C, 1.4 C, 1.0 C, 1.6 C/uc</u>		<u>IR 1</u>
Cooler(s)/Kit(s):	<u>3323/7119/3040/3747</u>		
Date/Time sample(s) sent to storage:	<u>2/5/13 17:00 & 2/6/13 17:00</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:	<u>-</u>		

Login Notes: Two separate arrival dates; These samples were initially in WO 1302138 & 1302189 for Radium analyses

=====

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



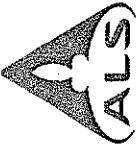
Customer Information				Project Information				ALS Project Manager:									
Purchase Order	Project Name	RO Discharge/Sampling	A	VOC													
Work Order	Project Number	128823	B	GRO (8015M)													
Company Name	Navajo Refining Company	Bill To Company	C	DRO (8015M)													
Send Report To	Robert Combs	Invoice Attn	D	ORO (8015M)													
Address	501 East Main	Address	E	LL SVOC (8270) NM GW List													
City/State/Zip	Artesia, NM 88211	City/State/Zip	F	Total Metals (60207000) RCRA 8													
Phone	(575) 748-5733	Phone	G	Dissolved Metals (60207000) RCRA 8													
Fax	(575) 748-5421	Fax	H	TDS													
e-Mail Address		e-Mail Address	I	Moisture - Cyanide													
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	RO Discharge	2-3-13	0930	water	Mix	18						X	X	X	X	X	
2	MW-117	2-3-13	1000	water	Mix	18						X	X	X	X	X	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign		Ship Method		Required Turnaround Time: (Check Box)		Results Due Date:	
Ben McQuinn				☒ Std 10 WK Days ☐ 5 WK Days ☐ 2 WK Days ☐ 24-Hour		☐ 2 WK Days ☐ 24-Hour	
Relinquished by:		Received by:		Notes:		10 Day TAT. Dissolved Metals Field Filtered	
Date: 2/14/13		Date: 2-5-13		Cooler ID: 3323		Cooler Temp:	
Relinquished by:		Received by (Laboratory):		QC Package: (Check One Box Below)		☒ Level II Std QC ☐ Level III Std QC/Raw Data ☐ Level IV SW846/CLP ☐ Other / EDD	
Date: 2/14/13		Date: 2-5-13		Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035		☐ TRRP CheckList ☐ TRRP Level IV	

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.

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Middletown, PA
+1 717 944 5541

Spring City, PA
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Salt Lake City, UT
+1 801 266 7700

South Charleston, WV
+1 304 356 3168
York, PA
+1 717 505 5280

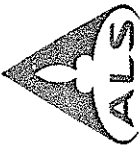
Environmental

COC ID: 72328

Customer Information				Project Information				ALS Project Manager:				ALS Work Order #: 1302138			
Purchase Order				Project Name				RO Discharge/Sampling				Parameter/Method Request for Analysis			
Work Order				Project Number				128823				VOC (8260) NW GW List			
Company Name				Navajo Refining Company				Navajo Refining Company				GRO (8015M)			
Send Report To				Robert Combs				Robert Combs				DRO (8015M)			
Address				501 East Main				501 East Main				ORO (8015M)			
City/State/Zip				Artesia, NM 88211				Artesia, NM 88211				LL SVOC (8270) NM GW List			
Phone				(515) 748-6733				(575) 748-6733				Total Metals (6020/7000) RCRA 8			
Fax				(515) 748-5421				(575) 748-5421				Dissolved Metals (6020/7000) RCRA 8			
e-Mail Address				e-Mail Address				e-Mail Address				TDS			
Sample Description				Date				Time				Matrix			
13 MW-114				2-3-13				1130				water			
23 MW-115				2-3-13				1230				water			
3															
4															
5															
6															
7															
8															
9															
10															
Sampler(s) Please Print & Sign				Shipment Method				Required Turnaround Time: (Check Box)				Results Due Date:			
Relinquished by: Eric Bergesen												Other			
Relinquished by:				Time: 1400				Date: 2/4/13				5 WK Days			
Logged by (Laboratory):				Time:				Date:				10 Day TAT. Dissolved Metals Field Filtered			
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035				Received by:				Cooler ID:				Cooler Temp:			
				Time: 1400				Date: 2-5-13 0915				QC Package: (Check One Box Below)			
				Time:				Date:				Level II Std QC			
				Time:				Date:				Level III Std QC/Raw Data			
				Time:				Date:				Level IV SW846/CLP			
				Time:				Date:				Other / EDD			

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.

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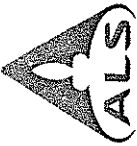
Houston, TX
+1 281 530 5656
Middletown, PA
+1 717 944 5541
Spring City, PA
+1 610 948 4903
Salt Lake City, UT
+1 801 266 7700
South Charleston, WV
+1 304 356 3168
York, PA
+1 717 505 5280

Page 1 of 1

COC ID: 72327

Customer Information				Project Information				ALS Project Manager:				ALS Work Order #:					
Purchase Order				Project Name				RO Discharge/Sampling				Parameter/Method Request for Analysis					
Work Order				Project Number				128823				VOC (8260) NW GW List					
Company Name				Bill To Company				Navajo Refining Company				GRO (8015M)					
Send Report To				Invoice Attn				Robert Combs				DRO (8015M)					
Address				501 East Main				501 East Main				GRO (8015M)					
City/State/Zip				Artesia, NM 88211				Artesia, NM 88211				LL SVOC (8270) NM GW List					
Phone				(575) 748-6733				(575) 748-6733				Total Metals (6020/7000) RCRA 8					
Fax				(575) 748-5421				(575) 748-5421				Dissolved Metals (6020/7000) RCRA 8					
e-Mail Address				e-Mail Address				e-Mail Address				TDS					
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-116	2-3-13	1315	water	MIX	16	X						X	X	X	X	Extra Bottles
2	MW-112	2-4-13	1040	water	Mix	11	X	X	X	X	X						
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign		Shipment Method		Required Turnaround Time: (Check Box)		Results Due Date:					
Relinquished by:		Received by:		Std 10-WK Days		5 WK Days		2 WK Days		24 Hour	
Eric Degersen		Eric Degersen		2-5-13		0930		2-4-13		1040	
Relinquished by:		Received by (Laboratory):		Checked by (Laboratory):		Cooler ID		Cooler Temp.		QC Package: (Check One Box Below)	
						3090				☒ Level II Std QC ☐ Level III Std QC/Raw Data ☐ Level IV SW846/CLP ☐ Other / EDD	
Preservative Key:		1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other		8-4°C		9-5035					



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Middletown, PA
+1 717 944 5541

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Salt Lake City, UT
+1 801 266 7700

South Charleston, WV
+1 304 356 3168
York, PA
+1 717 505 5280

Environmental

Page _____ of _____

COC ID: 72325

Customer Information				Project Information				ALS Project Manager:				ALS Work Order #:					
Purchase Order	Project Name	RO Discharge/Sampling	A	VOC (8260) NW GW List													
Work Order	Project Number	128823	B	GRO (8015M)													
Company Name	Bill To Company	Navajo Refining Company	C	DRO (8015M)													
Send Report To	Invoice Attn	Robert Combs	D	QRO (8015M)													
Address	Address	501 East Main	E	LL SVOC (8270) NM GW List													
City/State/Zip	City/State/Zip	Artesia, NM 88211	F	Total Metals (6020/7000) RCRA 8													
Phone	Phone	(575) 748-6733	G	Dissolved Metals (6020/7000) RCRA 8													
Fax	Fax	(575) 746-5421	H	ES Radium													
e-Mail Address	e-Mail Address		I	Moisture													
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-119	2/5/13	14:55	water	Mix	17						X	X	X	X	X	Hold
2	MW-118	2/5/13	14:55	water	Mix	15						X	X	X	X	X	Extr
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
Sampler(s) Please Print & Sign		Shipment Method		Required Turnaround Time: (Check Box)		Other		Results Due Date:									
Relinquished by: Eric Bergeren		Time: 1600		Std 10 WK Days		5 WK Days		24 Hour									
Relinquished by:		Time:		Received by (Laboratory):		Cooler ID		Cooler Temp.									
Logged by (Laboratory):		Time:		Checked by (Laboratory):		QC Package: (Check One Box Below)		Level II Std QC									
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035		Time:		Received by (Laboratory):		Level III Std QC/Raw Data		Level IV SW846/CLP									
		Time:		Checked by (Laboratory):		Other / EDD		TRRP Checklist									
		Time:		Checked by (Laboratory):				TRRP Level IV									

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.

Copyright 2011 by ALS Environmental

**ALS Environmental**

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

Date: 2
Name: 14/13
Company: Eric Bergersen
ARCADIS

CUSTODY SEAL

Time: 1400

Seal Broken By: 2

Date: 2-5-13



Package
US Airbill

FedEx
Tracking
Number

8013 8012 5560

From

Date

Sender's
Name

Phone

Company

Address

City

State

ZIP

Dept./Floor/Suite/Room

2 Your Internal Billing Reference

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

2323

CUSTODY SEAL		Seal Broken By:
Date: 2/4/13	Time: 1400	
Name: Eric Bergesen		Date: 2-5-13
Company: J. ARCADIS		

FedEx Package
 Express US Airbill

FedEx Tracking Number: 8013 7714 1240

1 From [Redacted]
 Date: 2/4/13

Sender's Name: Eric Bergesen
 Company: ARCADIS
 Address: 2979 Briarpark Suite 300
 City: Houston State: TX ZIP: 77042

2 Your Internal Billing Reference

1 From
Date 2/5/13
Sender's Name Eric Bergeron Phone 281 781-1231
Company ARCADIS
Address 2929 Briarpark Suite 300
City Houston State TX ZIP 77012

2 Your Internal Billing Reference

3 To
Recipient's Name CLIENT SERVICES Phone 281 530-5656
Company ALS LABORATORY GROUP
Address 10450 STANCLIFF RD STE 210
City HOUSTON State TX ZIP 77099-4338



8013 7025 2083

4 Express Package Service *To most locations.
NOTE: Service order has changed. Please select carefully.

Next Business Day
☐ FedEx First Overnight
☐ FedEx Priority Overnight
☒ FedEx Standard Overnight

2 or 3 Business Days
☐ FedEx 2Day A.M.
☐ FedEx 2Day
☐ FedEx Express Saver

5 Packaging *Declared value limit \$500.
☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☒ Other

6 Special Handling and Delivery Signature Options

☐ SATURDAY Delivery
☐ No Signature Required
☐ Direct Signature
☐ Indirect Signature

Does this shipment contain dangerous goods?
☒ No ☐ Yes ☐ Yes
☐ Dry Ice ☐ Cargo Aircraft Only

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below.
☐ Sender ☒ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

Total Packages 1 Total Weight 11.00 lbs. Credit Card Auth. 611

Your liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

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CUSTODY SEAL
Date: 2-5-13 Time: 1100
Name: B. McKenna
Company: ARCADIS U.S.

FedEx Package
Express US Airbill

FedEx
Tracking
Number

8013 8012 5537

1 From
Date 2/5/13
Sender's Name Eric Bergesen
Company ARCADIS
Address 2929 Brairpark Suite 300
City Houston State TX ZIP 77042

2 Your Internal Billing Reference

3 To
Recipient's Name CLIENT SERVICES
Phone 281 530-5656

Company ALS LABORATORY GROUP

Address 10450 STANCLIFF RD STE 210
Dept./Floor/Suite/Room
We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address Use this line for the HOLD location address or for continuation of your shipping address.

City HOUSTON

State TX ZIP 77099-4098

0455550776



8013 8012 5537

0215

4 Express Package Service

NOTE: Service order has changed. Please select carefully.

Next Business Day

- ☐ Next business morning. End of day shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- ☐ FedEx Priority Overnight
Next business morning. End of day shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- ☒ FedEx Standard Overnight
Next business afternoon. Saturday Delivery NOT available.

2 or 3 Business Days

- ☐ FedEx 2Day A.M.
Second business morning. Saturday Delivery NOT available.
- ☐ FedEx 2Day
Second business afternoon. Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- ☐ FedEx Express Saver
Third business day. Saturday Delivery NOT available.

5 Packaging

* Declared value limit \$500.

- ☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☒ Other

6 Special Handling and Delivery Signature Options

☐ SATURDAY Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐ No Signature Required
Package may be left without obtaining a signature for delivery.

☐ Direct Signature
Someone at recipient's address may sign for delivery. Fee applies.

☐ Indirect Signature
If no one is available at recipient's address, someone at a neighboring address may sign for delivery. Fee applies for residential deliveries only.

Does this shipment contain dangerous goods?
One box must be checked.

- ☒ No ☐ Yes As per attached Shipper's Declaration ☐ Yes Shipper's Declaration not required.

☐ Dry Ice
Dry ice, 9 UN 1845 ☐ Cargo Aircraft Only

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below.

Sender Acct. No. in Section 1 will be billed ☒ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/CF

Total Packages Total Weight

Our liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

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ALS Environmental

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

374

CUSTODY SEAL

Date: 2-5-13 Time: 11:00
Name: ERIC BERGSEN
Company: ARCADIS

374
2/6/13

FedEx *NEW Package*
Express *US Airbill*



8022 1536 6851

0200

Recipient's Copy

From
Date 2-3-13
Sender's Name [Redacted]
Company [Redacted]
Address [Redacted]
City [Redacted] State TX ZIP 77042

Your Internal Billing Reference

To
Recipient's Name ALS Services Phone 281 530-5656
Company ALS Lab Group
Address 1450 Sandbar Rd
City Houston State TX ZIP 77059

HOLD Weekday
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.

HOLD Saturday
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.



8022 1536 6851

4 Express Package Service

* To most locations.
NOTE: Service order has changed. Please select carefully.

Packages up to 150 lbs.
For packages over 150 lbs., use the new
FedEx Express Freight US Airbill.

Next Business Day

- ☐ FedEx First Overnight
Earliest next business morning delivery to select
locations. Friday shipments will be delivered on
Monday unless SATURDAY Delivery is selected.
- ☐ FedEx Priority Overnight
Next business morning.* Friday shipments will be
delivered on Monday unless SATURDAY Delivery
is selected.
- ☒ FedEx Standard Overnight
Next business afternoon.
Saturday Delivery NOT available.

2 or 3 Business Days

- ☐ FedEx 2Day A.M.
Second business morning.*
Saturday Delivery NOT available.
- ☐ FedEx 2Day
Second business afternoon.* Thursday shipments
will be delivered on Monday unless SATURDAY
Delivery is selected.
- ☐ FedEx Express Saver
Third business day.*
Saturday Delivery NOT available.

5 Packaging

* Declared value limit \$500.

- ☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☒ Other

6 Special Handling and Delivery Signature Options

SATURDAY Delivery

NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

No Signature Required

Package may be left without
obtaining a signature for delivery.

Direct Signature

Someone at recipient's address
may sign for delivery. Fee applies.

Indirect Signature

If no one is available at recipient's
address, someone at a neighboring
address may sign for delivery. For
residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?

One box must be checked.

- ☒ No ☐ Yes As per attached Shipper's Declaration. ☐ Yes Shipper's Declaration not required. ☐ Dry Ice Dry ice, 3 UN 1845 x kg ☐ Cargo Aircraft Only

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below.

Obtain recip.
Acct. No. ☐

- ☐ Sender Acct. No. in Section 7 will be billed. ☒ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

Total Packages Total Weight

Credit Card Acct.

*Our liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

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ALS Environmental

10450 Stancin Rd, Suite 217
Houston, Texas 77099
Tel. 281 530 5656
Fax. +1 281 530 5887

CUSTODY SEAL

Date: 2-3-13 Time: 11:00
Name: BERGERSEN
Company: ARCADIS

Seal Broken By:

[Signature]

FedEx
Tracking
Number

8013 8012 5570

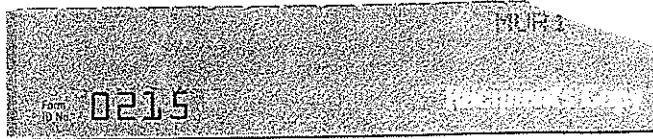
1 From
Date 2/5/13
Sender's Name Eric Bergersen
Company ARCADIS
Address 2929 Briarpark Dr Suite 300
City Houston State TX ZIP 77042

2 Your Internal Billing Reference

3 To
Recipient's Name CLIENT SERVICES
Company ALS LABORATORY GROUP
Address 10450 STANCLIFF RD STE 210
We cannot deliver to P.O. boxes or P.O. ZIP codes.
Address
Use this line for the HOLD location address or for continuation of your shipping address.
City HOUSTON State TX ZIP 77099-4338

HOLD Weekday
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.HOLD Saturday
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.

8013 8012 5570



4 Express Package Service

NOTE: Service order has changed. Please select carefully.

Next Business Day
☒ FedEx First Overnight
FedEx First Overnight is the fastest service to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

☐ FedEx Priority Overnight
Next business morning. * Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

☒ FedEx Standard Overnight
Next business afternoon. * Saturday Delivery NOT available.

2 or 3 Business Days
☐ FedEx 2Day A.M.
Second business morning. * Saturday Delivery NOT available.

☐ FedEx 2Day
Second business afternoon. * Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

☐ FedEx Express Saver
Third business day. * Saturday Delivery NOT available.

5 Packaging

*Declared value limit \$500.

☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☒ Other

6 Special Handling and Delivery Signature Options

☐ SATURDAY Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐ No Signature Required
Package may be left without obtaining a signature for delivery.

☐ Direct Signature
Someone at recipient's address may sign for delivery. Fee applies.

☐ Indirect Signature
If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?

One box must be checked.
☒ No ☐ Yes As per attached Shipper's Declaration ☐ Yes Shipper's Declaration not required

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

☐ Dry Ice
Dry ice, 9, UN 1845 x kg

☐ Cargo Aircraft Only

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below. Obtain recip. Acct. No. ☐

☐ Sender Acct. No. in Section 1 will be billed. ☒ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

Total Packages Total Weight

*Our liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

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ALS Environmental

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

Da
Ne
Co

CUSTODY SEAL

Date: 2/5/13 Time: 11:00
From: B. Bergersen
Company: ARCADIS US
21 of 30

Seal Broken By:

Date:



February 28, 2013

Ms. Sonia West
ALS Environmental
10450 Stancliff Rd, Suite 210
Houston, TX 77099

Re: ALS Workorder: 13-02-163
Project Name: None Submitted
Project Number: 1302192

Dear Ms. West:

Six water samples were received from ALS Environmental on February 14, 2013. The samples were scheduled for the following analyses:

Radium-226
Radium-228

The results for these analyses are contained in the enclosed report.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Jeff Kujawa
Project Manager

JRK/mic
Enclosure (s): Report

ADDRESS 225 Commerce Drive, Fort Collins, Colorado, USA 80524 | PHONE +1 970 490 1511 | FAX +1 970 490 1522

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Environmental

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO00078
Arizona (AZ)*	AZ0742
California (CA)	06251CA
Colorado (CO)	CO00078
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO00078
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri	175
Nevada (NV)	CO000782008A
New Jersey (NJ)**	CO003
North Dakota (ND)	R-057
Oklahoma	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241-09-1
Utah (UT)	CO00078
Washington	C1280



1302163

Radium-228:

The samples were analyzed for the presence of ^{228}Ra by low background gas flow proportional counting of ^{228}Ac , which is the ingrown progeny of ^{228}Ra , according to the current revision of SOP 724.

All acceptance criteria were met.

Radium-226:

The samples were prepared and analyzed according to the current revision of SOP 783.

All acceptance criteria were met.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1302163

Client Name: ALS Environmental

Client Project Name: 1302192

Client Project Number:

Client PO Number: 10-1302192

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
1302192-01A (MW-116)	1302163-1		WATER	03-Feb-13	13:15
1302192-02A (MW-119)	1302163-2		WATER	05-Feb-13	13:15
1302192-03A (MW-118)	1302163-3		WATER	05-Feb-13	14:25
1302192-05A (MW-117)	1302163-4		WATER	03-Feb-13	10:00
1302192-06A (MW-114)	1302163-5		WATER	03-Feb-13	11:30
1302192-07A (MW-115)	1302163-6		WATER	03-Feb-13	12:30



Subcontractor:
ALS Environmental
225 Commerce Drive
Fort Collins, CO 80524

TEL: (800) 443-1511
FAX: (970) 490-1522
Acct #:

CHAIN-OF-CUSTODY RECORD

Date: 13-Feb-13
COC ID: 13351
Due Date: 21-Feb-13

Page 1 of 1

Salesperson: Mala H. Belmonte

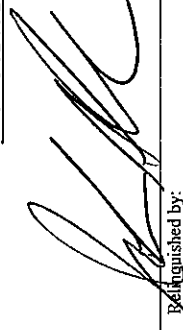
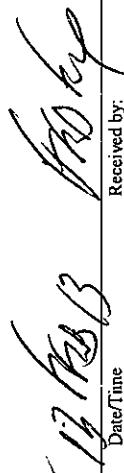
1302192

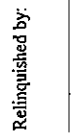
Customer Information		Project Information		Parameter/Method Request for Analysis											
Purchase Order	10-1302192	Project Name	1302192	A Radium 226, 228 Sub to ALS Ft. Collins											
Work Order		Project Number		B											
Company Name	ALS Group USA, Corp.	Bill To Company	ALS Group USA, Corp.	C											
Send Report To	Sonia West	Inv Attn	Accounts Payable	D											
Address	10450 Stanciliff Rd., Suite 210	Address	10450 Stanciliff Rd., Suite 210	E											
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	F											
Phone	(281) 530-5656	Phone	(281) 530-5656	G											
Fax	(281) 530-5887	Fax	(281) 530-5887	H											
eMail Address	Sonia.West@alsglobal.com	eMail CC	jumoke.lawal@alsglobal.com	I											
				J											

Sample ID	Matrix	Collection Date	24hr	Bottle	A	B	C	D	E	F	G	H	I	J
1302192-01A (MW-116)	Water	3/Feb/2013	13:15	(2) 1LPHNO3	X									
1302192-02A (MW-119)	Water	5/Feb/2013	13:15	(2) 1LPHNO3	X									
1302192-03A (MW-118)	Water	5/Feb/2013	14:25	(2) 1LPHNO3	X									
1302192-05A (MW-117)	Water	3/Feb/2013	10:00	(2) 1LPHNO3	X									
1302192-06A (MW-114)	Water	3/Feb/2013	11:30	(2) 1LPHNO3	X									
1302192-07A (MW-115)	Water	3/Feb/2013	12:30	(2) 1LPHNO3	X									

Comments:

WO 1302192 - Please analyze for Radium 226/228

Relinquished by:  Date/Time: 13 Feb 13
Received by:  Date/Time: 13 Feb 13

Relinquished by:  Date/Time:
Received by:  Date/Time: 02-14-13

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS-TX

Workorder No: 1302163

Project Manager: JK

Initials: KR Date: 2-14-13

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<u>NO</u>
2. Are custody seals on shipping containers intact?	NONE	<u>YES</u>	NO
3. Are Custody seals on sample containers intact?	<u>NONE</u>	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<u>YES</u>	NO
5. Are the COC and bottle labels complete and legible?		<u>YES</u>	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<u>YES</u>	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<u>YES</u>	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	<u>YES</u>	NO
9. Are all aqueous non-preserved samples pH 4-9?	<u>N/A</u>	YES	NO
10. Is there sufficient sample for the requested analyses?		<u>YES</u>	NO
11. Were all samples placed in the proper containers for the requested analyses?		<u>YES</u>	NO
12. Are all samples within holding times for the requested analyses?		<u>YES</u>	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<u>YES</u>	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<u>N/A</u>	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	<u>NO</u>
16. Were the samples shipped on ice?		<u>YES</u>	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 <u>#4</u> <u>RAD ONLY</u>		<u>YES</u>	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>3.2</u>			
No. of custody seals on cooler: <u>1</u>			
DOT Survey/ Acceptance Information	External µR/hr reading: <u>12</u>		
	Background µR/hr reading: <u>12</u>		
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <u>YES</u> / NO / NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / NA Contact: _____ Date/Time: _____

Project Manager Signature / Date: [Signature] 2-14-13

af: pl/bf/jba Date: 13Feb13
ep: Environmental Wgt: 43.47 LBS

SHIPPING: 93.39
SPECIAL: 9.34
HANDLING: 0.00
TOTAL: 102.73

Svcs: PRIORITY OVERNIGHT
TRCK: 4340 2174 2849

1302163

ORIGIN ID: SGRA (281) 530-5856
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

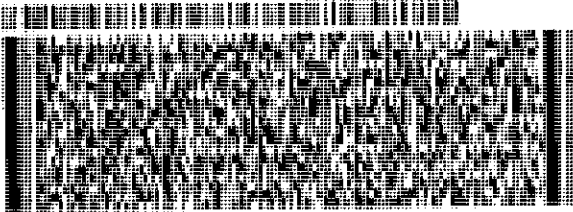
SHIP DATE: 13FEB13
ACTWGT: 43.5 LB
CAD: 300130/CAFE2606

BILL SENDER

0 ROY FRENCH
ALS ENVIRONMENTAL
225 COMMERCE DRIVE

FORT COLLINS CO 80524
(970) 490-1511 REF: PL/BF/JBA
DEPT: ENVIRONMENTAL

S12C1/0124/TFE0



FedEx
Express



J12131210050125

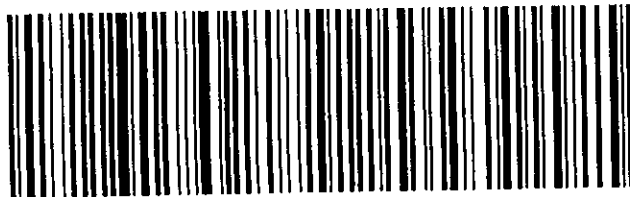
TRK# 4340 2174 2849
0201

THU - 14 FEB A2
PRIORITY OVERNIGHT

NA FTCA

80524
CO-US DEN

P-201 # 130142-434 M112 U4712



ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 1302192
Sample ID: 1302192-01A (MW-116)
Legal Location:
Collection Date: 2/3/2013 13:15

Date: 28-Feb-13
Work Order: 1302163
Lab ID: 1302163-1
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	ND (+/- 0.17)	U	0.32	pCi/l	NA	2/27/2013 15:18
Carr: BARIUM	88		40-110	%REC	NA	2/27/2013 15:18
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	ND (+/- 0.29)	U	0.55	pCi/l	NA	2/21/2013 11:13
Carr: BARIUM	88		40-110	%REC	NA	2/21/2013 11:13

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 1302192
Sample ID: 1302192-02A (MW-119)
Legal Location:
Collection Date: 2/5/2013 13:15

Date: 28-Feb-13
Work Order: 1302163
Lab ID: 1302163-2
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	ND (+/- 0.17)	U	0.25	pCi/l	NA	2/27/2013 15:18
Carr: BARIUM	88.2		40-110	%REC	NA	2/27/2013 15:18
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	ND (+/- 0.26)	U	0.52	pCi/l	NA	2/21/2013 11:13
Carr: BARIUM	88.2		40-110	%REC	NA	2/21/2013 11:13

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 1302192
Sample ID: 1302192-03A (MW-118)
Legal Location:
Collection Date: 2/5/2013 14:25

Date: 28-Feb-13
Work Order: 1302163
Lab ID: 1302163-3
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1			PAI 783		Prep Date: 2/15/2013	PrepBy: PJW
Ra-226	0.38 (+/- 0.24)	Y1,LT	0.21	pCi/l	NA	2/27/2013 15:18
Carr: <i>BARIUM</i>	101	Y1	40-110	%REC	NA	2/27/2013 15:18
RADIUM-228 ANALYSIS BY GFPC			PAI 724		Prep Date: 2/15/2013	PrepBy: EKG
Ra-228	0.87 (+/- 0.33)	Y1,LT	0.49	pCi/l	NA	2/21/2013 11:13
Carr: <i>BARIUM</i>	101	Y1	40-110	%REC	NA	2/21/2013 11:13

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 1302192
Sample ID: 1302192-05A (MW-117)
Legal Location:
Collection Date: 2/3/2013 10:00

Date: 28-Feb-13
Work Order: 1302163
Lab ID: 1302163-4
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	0.54 (+/- 0.3)	LT	PAI 783 0.09	pCi/l	Prep Date: 2/15/2013 NA	PrepBy: PJW 2/27/2013 15:18
Carr: <i>BARIUM</i>	95.6		40-110	%REC	NA	2/27/2013 15:18
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	0.89 (+/- 0.34)	LT	PAI 724 0.48	pCi/l	Prep Date: 2/15/2013 NA	PrepBy: EKG 2/21/2013 11:13
Carr: <i>BARIUM</i>	95.6		40-110	%REC	NA	2/21/2013 11:13

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 1302192
Sample ID: 1302192-06A (MW-114)
Legal Location:
Collection Date: 2/3/2013 11:30

Date: 28-Feb-13
Work Order: 1302163
Lab ID: 1302163-5
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	0.43 (+/- 0.27)	LT	PAI 783	0.23 pCi/l	Prep Date: 2/15/2013	PrepBy: PJW
Carr: BARIUM	96		40-110	%REC	NA	2/27/2013 15:18
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	0.74 (+/- 0.31)	LT	PAI 724	0.49 pCi/l	Prep Date: 2/15/2013	PrepBy: EKG
Carr: BARIUM	96		40-110	%REC	NA	2/21/2013 11:13

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 1302192
Sample ID: 1302192-07A (MW-115)
Legal Location:
Collection Date: 2/3/2013 12:30

Date: 28-Feb-13
Work Order: 1302163
Lab ID: 1302163-6
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	ND (+/- 0.17)	U	0.23	pCi/l	NA	2/27/2013 15:18
Carr: BARIUM	99.4		40-110	%REC	NA	2/27/2013 15:18
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	ND (+/- 0.25)	U	0.52	pCi/l	NA	2/21/2013 11:13
Carr: BARIUM	99.4		40-110	%REC	NA	2/21/2013 11:13

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 1302192
Sample ID: 1302192-07A (MW-115)
Legal Location:
Collection Date: 2/3/2013 12:30

Date: 28-Feb-13
Work Order: 1302163
Lab ID: 1302163-6
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
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Explanation of Qualifiers

Radiochemistry:

U or ND - Result is less than the sample specific MDC.	M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.	L - LCS Recovery below lower control limit.
Y2 - Chemical Yield outside default limits.	H - LCS Recovery above upper control limit.
W - DER is greater than Warning Limit of 1.42	P - LCS, Matrix Spike Recovery within control limits.
* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.	N - Matrix Spike Recovery outside control limits
# - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.	NC - Not Calculated for duplicate results less than 5 times MDC
G - Sample density differs by more than 15% of LCS density.	B - Analyte concentration greater than MDC.
D - DER is greater than Control Limit	B3 - Analyte concentration greater than MDC but less than Requested MDC.
M - Requested MDC not met.	

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).
 U or ND - Indicates that the compound was analyzed for but not detected.
 E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.
 M - Duplicate injection precision was not met.
 N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.
 Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.
 * - Duplicate analysis (relative percent difference) not within control limits.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.
 B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.
 E - Analyte concentration exceeds the upper level of the calibration range.
 J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).
 A - A tentatively identified compound is a suspected aldol-condensation product.
 X - The analyte was diluted below an accurate quantitation level.
 * - The spike recovery is equal to or outside the control criteria used.
 + - The relative percent difference (RPD) equals or exceeds the control criteria.

Diesel Range Organics:

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 1302192
Sample ID: 1302192-07A (MW-115)
Legal Location:
Collection Date: 2/3/2013 12:30

Date: 28-Feb-13
Work Order: 1302163
Lab ID: 1302163-6
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
G - A pattern resembling gasoline was detected in this sample. D - A pattern resembling diesel was detected in this sample. M - A pattern resembling motor oil was detected in this sample. C - A pattern resembling crude oil was detected in this sample. 4 - A pattern resembling JP-4 was detected in this sample. 5 - A pattern resembling JP-5 was detected in this sample. H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest. L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest. Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products: - gasoline - JP-8 - diesel - mineral spirits - motor oil - Stoddard solvent - bunker C						

ALS Environmental -- FC

Date: 2/28/2013 8:22:

Client: ALS Environmental

Work Order: 1302163

Project: 1302192

QC BATCH REPORT

Batch ID: RE130215-2-2

Instrument ID: Alpha Scin

Method: Ra-226 by Radon Emanation - Me

LCS		Sample ID: RE130215-2				Units: pCi/l		Analysis Date: 2/27/2013 15:41			
Client ID:		Run ID: RE130215-2A				Prep Date: 2/15/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual	
Ra-226	27.7 (+/- 7)	0.2	30		92.3	67-120				P,Y1	
Carr: BARIUM	32180		31720		101	40-110				Y1	

LCSD		Sample ID: RE130215-2				Units: pCi/l		Analysis Date: 2/27/2013 15:41			
Client ID:		Run ID: RE130215-2A				Prep Date: 2/15/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual	
Ra-226	26.1 (+/- 6.7)	0.4	30		87.2	67-120	27.7	0.16	2.13	P,Y1	
Carr: BARIUM	32670		31720		103	40-110	32180			Y1	

MB		Sample ID: RE130215-2				Units: pCi/l		Analysis Date: 2/27/2013 15:18			
Client ID:		Run ID: RE130215-2A				Prep Date: 2/15/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual	
Ra-226	ND	0.3								U	
Carr: BARIUM	30860		31720		97.3	40-110					

The following samples were analyzed in this batch:

1302163-1	1302163-2	1302163-3
1302163-4	1302163-5	1302163-6

Client: ALS Environmental
Work Order: 1302163
Project: 1302192

QC BATCH REPORT

Batch ID: **RA130215-1-2** Instrument ID: **LB4100-B** Method: **Radium-228 Analysis by GFPC**

LCS	Sample ID: RA130215-1				Units: pCi/l		Analysis Date: 2/21/2013 11:13			
Client ID:		Run ID: RA130215-1A				Prep Date: 2/15/2013		DF: NA		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	11 (+/- 2.6)	0.5	10.19		108	70-130				P,Y1
Carr: BARIUM	32180		31720		101	40-110				Y1

LCSD		Sample ID: RA130215-1				Units: pCi/l		Analysis Date: 2/21/2013 11:13			
Client ID:		Run ID: RA130215-1A				Prep Date: 2/15/2013			DF: NA		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual	
Ra-228	10.7 (+/- 2.5)	0.5	10.19		105	70-130	11	0.095	2.13	P,Y1	
Carr: BARIUM	32670		31720		103	40-110	32180			Y1	

MB		Sample ID: RA130215-1				Units: pCi/l		Analysis Date: 2/21/2013 11:13			
Client ID:		Run ID: RA130215-1A				Prep Date: 2/15/2013			DF: NA		
Analyte		Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228		ND	0.49								U
Carr: BARIUM		30860		31720		97.3	40-110				

The following samples were analyzed in this batch:

1302163-1	1302163-2	1302163-3
1302163-4	1302163-5	1302163-6

DATA VALIDATION CHECKLIST**NAVAJO REFINING RO Discharge Sampling**

ARCADIS, Inc.
2929 Briarpark Dr.
Suite 300
Houston, TX 77042
Tel. (713) 953-4800

Sample Team:	ARCADIS
Sample Matrix:	Water
Analytical Laboratory:	ALS Environmental
Laboratory Work Order No.:	1301989
Lab Project Manager:	Sonia West
Analyses:	VOCs, SVOCs, TPH, Metals, Mercury, Cyanide, and Anions
QA Reporting Level:	ARCADIS, Level II

Environmental
Project:
Navajo Refinery

Project Number:
TX001027.0002

Analytical data were evaluated in accordance with applicable USEPA SW-846 method requirements, "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (October 1999), "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" (July 2002), analytical method control criteria, the analytical laboratory Quality Assurance Control Limits, and professional judgment. National Functional Guidelines were used primarily to determine applicable qualification.

The data verification was performed at a Level II and included review of data package completeness, laboratory control samples and method blanks, matrix spike precision and accuracy, surrogate recoveries, and holding time compliance. Laboratory calculations were not verified. Only QA/QC results and analytical data associated with analytes/compounds of interest were reviewed for this validation. Field sampling documentation was not reviewed as a component of this validation.

Only QA/QC results and analytical data associated with analytes/compounds of interest were reviewed for this validation.

ANALYTICAL DATA PACKAGE DOCUMENTATION

The following samples were included in this data validation:

SDG Number	Sample ID	Sample Date	Parent Sample
1302189	MW-116	2/3/2013	
1302189	MW-119	2/5/2013	
1302189	MW-118	2/5/2013	
1302189	TRIP BLANK 011813-71	2/5/2013	
1302189	TRIP BLANK 011813-30	2/5/2013	

I. VOLATILE COMPOUNDS

ITEMS REVIEWED	REPORTED/ REVIEWED		EXCEPTIONS NOTED		GENERAL COMMENTS NOTED		ITEM NOT REQUIRED
	NO	YES	NO	YES	NO	YES	
1. Holding times		X	X		X		
2. Reporting limits		X	X		X		
3. Blanks							
A. Method Blanks		X	X		X		
B. Equipment Blanks	X						X
C. Trip Blanks		X	X		X		
4. Laboratory control sample (LCS) (%R)		X	X		X		
5. Laboratory control sample duplicate (LCSD) (%R)		X	X		X		
6. LCS/LCSD (RPD)		X	X		X		
7. Matrix spike (MS) (%R)	X						X
8. Matrix spike duplicate (MSD) (%R)	X						X
9. MS/MSD (RPD)	X						X
10. Surrogate Recoveries (%R)		X	X		X		
11. Field Duplicate Comparison (RPD)	X						X

COMMENTS: The samples were analyzed for Volatiles by Method 8260. Performance was acceptable, with the following exceptions and notes.

II. METALS

ITEMS REVIEWED	REPORTED/ REVIEWED		EXCEPTIONS NOTED		GENERAL COMMENTS NOTED		ITEM NOT REQUIRED
	NO	YES	NO	YES	YES	NO	
1. Holding times		X	X			X	
2. Reporting limits		X	X			X	
3. Blanks							
A. Method Blanks		X		X	X		
B. Field Blanks	X						X
C. Equipment Blank	X						X
4. Laboratory control sample (LCS) (%R)		X	X			X	
5. LCSD (% R)	X						X
6. LCS/LCSD (RPD)	X						X
7. Matrix spike (MS) (%R)	X						X
8. MSD (%R)	X						X
9. MS/MSD (RPD)	X						X
10. Lab Duplicate (RPD)	X						X
11. Field Duplicate (RPD)	X						X

COMMENTS: The samples were analyzed for metals by Methods 6020 and 7471A. Performance was acceptable, with the following exceptions and notes.

- 3A. Aluminum was detected in the associated method blank. The associated field sample results were less than five times the method blank concentration. The field sample results for aluminum were qualified as non-detect at the Reporting Limit (RL), or at the detected sample concentration when greater than the RL. See the attached qualification summary for details of the qualifications.
- 3A. Calcium was detected in the associated method blank. The associated field sample calcium results were greater than five times the blank value; therefore, qualification of the data was not warranted.
- 3A. Zinc was detected in the associated method blank. The result for sample location MW-116 was less than five times the method blank concentration. The zinc result for this sample was qualified as non-detect at the RL. Sample locations MW-119 and MW-118 were either non-detect or greater than five times the method blank concentration, and did not require qualification. See the attached qualification summary for details of the qualifications.

III. SEMIVOLATILE ORGANIC COMPOUNDS

ITEMS REVIEWED	REPORTED/ REVIEWED		EXCEPTIONS NOTED		GENERAL COMMENTS NOTED		ITEM NOT REQUIRED
	NO	YES	NO	YES	NO	YES	
1. Holding times		X	X		X		
2. Reporting limits		X	X		X		
3. Blanks							
A. Method Blanks		X	X		X		
B. Field Blanks	X						X
C. Equipment Blank	X						X
4. Surrogate Recovery		X	X		X		
5. Laboratory control sample (LCS) (%R)		X	X		X		
6. LCSD (% R)		X	X		X		
7. LCS/LCSD (RPD)		X	X		X		
8. Matrix spike (MS) (%R)	X						X
9. MSD (%R)	X						X
10. MS/MSD (RPD)	X						X
11. Field Duplicate (RPD)	X						X

COMMENTS: The samples were analyzed for SVOCs by Method 8270. Performance was acceptable, with the following exceptions and notes.

IV. TOTAL PETROLEUM HYDROCARBONS

ITEMS REVIEWED	REPORTED/ REVIEWED		EXCEPTIONS NOTED		GENERAL COMMENTS NOTED		ITEM NOT REQUIRED
	NO	YES	NO	YES	NO	YES	
1. Holding times		X	X		X		
2. Reporting limits		X	X		X		
3. Blanks							
A. Method Blanks		X	X		X		
B. Field Blanks	X						X
C. Equipment Blank	X						X
4. Surrogate Recovery		X	X		X		
5. Laboratory control sample (LCS) (%R)		X	X		X		
6. LCSD (% R)		X	X		X		
7. LCS/LCSD (RPD)		X	X		X		
8. Matrix spike (MS) (%R)	X						X
9. MSD (%R)	X						X
10. MS/MSD (RPD)	X						X
11. Field Duplicate (RPD)	X						X

COMMENTS: The samples were analyzed for TPH by Method 8015. Performance was acceptable, with the following exceptions and notes.

V. CYANIDE

ITEMS REVIEWED	REPORTED/ REVIEWED		EXCEPTIONS NOTED		GENERAL COMMENTS NOTED		ITEM NOT REQUIRED
	NO	YES	NO	YES	YES	NO	
1. Holding times		X	X			X	
2. Reporting limits		X	X			X	
3. Blanks							
A. Method Blanks		X		X	X		
B. Field Blanks	X						X
C. Equipment Blank	X						X
4. Laboratory control sample (LCS) (%R)		X	X			X	
5. LCSD (% R)		X	X			X	
6. LCS/LCSD (RPD)		X	X			X	
7. Matrix spike (MS) (%R)	X						X
8. MSD (%R)	X						X
9. MS/MSD (RPD)	X						X
10. Lab Duplicate (RPD)	X						X

COMMENTS: The samples were analyzed for cyanide by Standard Methods 4500CN E&G. Performance was acceptable, with the following exceptions and notes.

VI. ANIONS

ITEMS REVIEWED	REPORTED/ REVIEWED		EXCEPTIONS NOTED		GENERAL COMMENTS NOTED		ITEM NOT REQUIRED
	NO	YES	NO	YES	YES	NO	
1. Holding times		X		X	X		
2. Reporting limits		X	X			X	
3. Blanks							
A. Method Blanks		X	X	X		X	
B. Field Blanks	X						X
C. Equipment Blank	X						X
4. Laboratory control sample (LCS) (%R)		X		X		X	
5. LCSD (% R)	X						X
6. LCS/LCSD (RPD)	X						X
7. Matrix spike (MS) (%R)		X		X		X	
8. MSD (%R)		X		X		X	
9. MS/MSD (RPD)		X	X		X		
10. Lab Duplicate (RPD)	X						X

COMMENTS: The samples were analyzed for chloride, fluoride, nitrate, nitrite, and sulfate by EPA Method 300.0. Performance was acceptable, with the following exceptions and notes.

1. Sample location MW-116 was received by the laboratory beyond the 48 hour hold time for nitrate and nitrite. The laboratory contacted the client, and the lab was authorized to proceed with the analysis. The nitrate and nitrite analysis was performed 9 days from collection, which is greater than twice the holding time. The nitrate result should be considered estimated. The nitrite result was non-detect and is rejected. See the attached qualification summary for details of the qualifications.
- 3A. Nitrate was detected in the method blank associated with the analysis of sample location MW-116. The associated sample result was greater than five times the method blank concentration therefore, qualification of the data was not required.
- 7-8. Sample MW-116 was used as the MS/MSD for fluoride, nitrate and nitrite. The recovery of fluoride was less than the control limit in the MS and the MSD. The fluoride result for sample location MW-116 was qualified as estimated. See the attached qualification summary for details of the qualifications.

VII. TOTAL DISSOLVED SOLIDS (TDS)

ITEMS REVIEWED	REPORTED/ REVIEWED		EXCEPTIONS NOTED		GENERAL COMMENTS NOTED		ITEM NOT REQUIRED
	NO	YES	NO	YES	YES	NO	
1. Holding times		X	X			X	
2. Reporting limits		X	X			X	
3. Blanks							
A. Method Blanks		X		X	X		
B. Field Blanks	X						X
C. Equipment Blank	X						X
4. Laboratory control sample (LCS) (%R)		X		X		X	
5. LCSD (% R)	X						X
6. LCS/LCSD (RPD)	X						X
7. Matrix spike (MS) (%R)	X						X
8. MSD (%R)	X						X
9. MS/MSD (RPD)	X						X
10. Lab Duplicate (RPD)		X		X		X	

COMMENTS: The samples were analyzed for chloride, fluoride, nitrate, nitrite, and sulfate by EPA Method 300.0. Performance was acceptable, with the following exceptions and notes.

- Sample MW-116 was used as the laboratory duplicate for TDS. The RPD was acceptable.

Qualifier Definitions:

J – Result is considered to be estimated at the value reported.

UJ – Result is considered not detected but estimated due to QC deficiencies.

UB – Non-detect at the Reporting Limit (RL) or at the concentration reported if greater than the RL due to associated blank contamination.

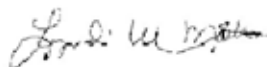
R – Result is qualified as unusable, data point is rejected.

Explanation/Notes:

Sample ID	Parameter	Result	Units	Qualifier	Reason
MW-116	Nitrate	1.37	mg/L	J	Holding Time
	Nitrite	0.1 U	mg/L	R	Holding Time
	Aluminum	0.01	mg/L	UB	Blank contamination
	Zinc	0.005	mg/L	UB	Blank contamination
	Fluoride	1.31	mg/L	J	MS/MSD % Recovery
MW-119	Aluminum	0.01	mg/L	UB	Blank contamination
MW-118	Aluminum	0.0146	mg/L	UB	Blank contamination

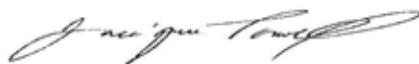
VALIDATION PERFORMED BY: Lyndi Mott

SIGNATURE:



DATE: March 6, 2013

PEER REVIEW:



DATE: March 12, 2013



12-Jun-2013

Aaron Strange
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 748-6733
Fax: (575) 746-5421

Re: RO Discharge Sampling 128823

Work Order: **1305797**

Dear Aaron,

ALS Environmental received 17 samples on 17-May-2013 09:00 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 89.

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

Sincerely,

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

Electronically approved by: Luke F. Hernandez

Sonia West
Project Manager



Certificate No: T104704231-13-12

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

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Environmental

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Work Order: 1305797

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>
1305797-01	MW-114	Water		5/15/2013 13:50	5/17/2013 09:00	☐
1305797-01	MW-114	Water		5/15/2013 13:50	5/17/2013 09:00	☐
1305797-02	MW-115	Water		5/15/2013 15:50	5/17/2013 09:00	☐
1305797-02	MW-115	Water		5/15/2013 15:50	5/17/2013 09:00	☐
1305797-03	MW-117	Water		5/15/2013 10:30	5/17/2013 09:00	☐
1305797-03	MW-117	Water		5/15/2013 10:30	5/17/2013 09:00	☐
1305797-04	MW-118	Water		5/15/2013 18:30	5/17/2013 09:00	☐
1305797-04	MW-118	Water		5/15/2013 18:30	5/17/2013 09:00	☐
1305797-05	MW-119	Water		5/15/2013 18:10	5/17/2013 09:00	☐
1305797-05	MW-119	Water		5/15/2013 18:10	5/17/2013 09:00	☐
1305797-06	DUP-03	Water		5/15/2013 00:01	5/17/2013 09:00	☐
1305797-06	DUP-03	Water		5/15/2013 00:01	5/17/2013 09:00	☐
1305797-07	MW-116	Water		5/16/2013 10:15	5/17/2013 09:00	☐
1305797-07	MW-116	Water		5/16/2013 10:15	5/17/2013 09:00	☐
1305797-08	EQB-03	Water		5/16/2013 11:40	5/17/2013 09:00	☐
1305797-08	EQB-03	Water		5/16/2013 11:40	5/17/2013 09:00	☐
1305797-09	RO Discharge	Water		5/16/2013 08:30	5/17/2013 09:00	☐
1305797-09	RO Discharge	Water		5/16/2013 08:30	5/17/2013 09:00	☐
1305797-10	Trip Blank 050313-36	Water		5/16/2013	5/17/2013 09:00	☐
1305797-11	Trip Blank 050313-33	Water		5/16/2013	5/17/2013 09:00	☐
1305797-12	Trip Blank 050313-49	Water		5/16/2013	5/17/2013 09:00	☐
1305797-13	Trip Blank 050313-43	Water		5/16/2013	5/17/2013 09:00	☐
1305797-14	Trip Blank 050313-12	Water		5/16/2013	5/17/2013 09:00	☐
1305797-15	Trip Blank 050313-34	Water		5/16/2013	5/17/2013 09:00	☐
1305797-16	Trip Blank 050313-14	Water		5/16/2013	5/17/2013 09:00	☐
1305797-17	Trip Blank 050313-24	Water		5/16/2013	5/17/2013 09:00	☐

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Work Order: 1305797

Case Narrative

The analyses for Radium 226 and Radium 228 were subcontracted to ALS Environmental in Ft. Collins, CO.

Batch 70138, Dissolved Metals 6020, Sample 1305631-07C: MS/MSD are for an unrelated sample.

Batch 70117, Semivolatile Organics 8270, Sample SLCSW1-130520: Insufficient sample volume was received for MS/MSD.

Batch R147734, Volatile Organics 8260, Sample 1306842-01A: MS/MSD are for an unrelated sample.

Batch R147736, Volatile Organics 8260, Sample 1306818-01A: MS/MSD are for an unrelated sample.

Batch R147882, Silicate, Sample 1306966-06E: MS/MSD are for an unrelated sample.

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: MW-114
Collection Date: 5/15/2013 01:50 PM

Work Order: 1305797
Lab ID: 1305797-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO		Method: SW8015M		Prep: SW3511 / 5/20/13		Analyst: RPM	
TPH (Diesel Range)	U		0.021	0.052	mg/L	1	5/22/2013 19:03
TPH (Oil Range)	U		0.042	0.10	mg/L	1	5/22/2013 19:03
Surr: 2-Fluorobiphenyl	93.7			60-135	%REC	1	5/22/2013 19:03
GASOLINE RANGE ORGANICS - SW8015C		Method: SW8015		Prep: SW7470 / 5/20/13		Analyst: RPM	
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	5/23/2013 17:08
Surr: 4-Bromofluorobenzene	105			70-130	%REC	1	5/23/2013 17:08
DISSOLVED MERCURY BY 7470A		Method: SW7470		Prep: SW7470 / 5/20/13		Analyst: OFO	
Mercury	U		0.000042	0.000200	mg/L	1	5/20/2013 14:20
DISSOLVED METALS		Method: SW6020		Prep: SW3010A / 5/20/13		Analyst: ALR	
Aluminum	0.00722	J	0.0040	0.0100	mg/L	1	5/22/2013 06:14
Arsenic	0.00437	J	0.0010	0.00500	mg/L	1	5/22/2013 06:14
Barium	0.0129		0.00090	0.00500	mg/L	1	5/22/2013 06:14
Boron	0.101		0.040	0.100	mg/L	2	5/22/2013 15:51
Cadmium	U		0.00080	0.00200	mg/L	1	5/22/2013 06:14
Calcium	576		0.86	5.00	mg/L	10	5/22/2013 05:13
Chromium	U		0.0010	0.00500	mg/L	1	5/22/2013 06:14
Cobalt	0.00451	J	0.00080	0.00500	mg/L	1	5/22/2013 06:14
Copper	U		0.0010	0.00500	mg/L	1	5/22/2013 06:14
Iron	U		0.078	0.200	mg/L	1	5/22/2013 06:14
Lead	U		0.00070	0.00500	mg/L	1	5/22/2013 06:14
Manganese	0.844		0.0025	0.00500	mg/L	1	5/22/2013 06:14
Molybdenum	0.00978		0.0015	0.00500	mg/L	1	5/22/2013 06:14
Nickel	0.00410	J	0.0010	0.00500	mg/L	1	5/22/2013 06:14
Potassium	2.76		0.084	0.200	mg/L	1	5/22/2013 06:14
Selenium	0.00636		0.0010	0.00500	mg/L	1	5/22/2013 06:14
Silver	U		0.00080	0.00500	mg/L	1	5/22/2013 06:14
Sodium	123		0.085	0.200	mg/L	1	5/22/2013 06:14
Uranium	0.0108		0.0050	0.00500	mg/L	1	5/22/2013 06:14
Zinc	U		0.0025	0.00500	mg/L	1	5/22/2013 06:14
LOW-LEVEL SEMIVOLATILES		Method: SW8270		Prep: SW3510 / 5/20/13		Analyst: ACN	
1-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	5/22/2013 21:25
2-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	5/22/2013 21:25
Benzo(a)pyrene	U		0.000050	0.00020	mg/L	1	5/22/2013 21:25
Naphthalene	U		0.000050	0.00020	mg/L	1	5/22/2013 21:25
Surr: 2,4,6-Tribromophenol	0			34-129	%REC	1	5/22/2013 21:25
Surr: 2-Fluorobiphenyl	0			40-125	%REC	1	5/22/2013 21:25

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: MW-114
Collection Date: 5/15/2013 01:50 PM

Work Order: 1305797
Lab ID: 1305797-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	0			20-120	%REC	1	5/22/2013 21:25
Surr: 4-Terphenyl-d14	0			40-135	%REC	1	5/22/2013 21:25
Surr: Nitrobenzene-d5	0			41-120	%REC	1	5/22/2013 21:25
Surr: Phenol-d6	0			20-120	%REC	1	5/22/2013 21:25

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: PC	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 17:17
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	5/21/2013 17:17
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 17:17
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 17:17
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	5/21/2013 17:17
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	5/21/2013 17:17
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 17:17
Benzene	U		0.00020	0.0010	mg/L	1	5/21/2013 17:17
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	5/21/2013 17:17
Chloroform	U		0.00030	0.0010	mg/L	1	5/21/2013 17:17
Ethylbenzene	U		0.00030	0.0010	mg/L	1	5/21/2013 17:17
Methylene chloride	U		0.00040	0.0020	mg/L	1	5/21/2013 17:17
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	5/21/2013 17:17
Toluene	U		0.00030	0.0010	mg/L	1	5/21/2013 17:17
Trichloroethene	U		0.00020	0.0010	mg/L	1	5/21/2013 17:17
Vinyl chloride	U		0.00040	0.0010	mg/L	1	5/21/2013 17:17
Xylenes, Total	U		0.00030	0.0010	mg/L	1	5/21/2013 17:17
Surr: 1,2-Dichloroethane-d4	104			71-125	%REC	1	5/21/2013 17:17
Surr: 4-Bromofluorobenzene	102			70-125	%REC	1	5/21/2013 17:17
Surr: Dibromofluoromethane	101			74-125	%REC	1	5/21/2013 17:17
Surr: Toluene-d8	97.5			78-123	%REC	1	5/21/2013 17:17

MISCELLANEOUS ANALYSIS			Method: NA			Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	6/12/2013

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	150		20	50.0	mg/L	100	5/23/2013 21:56
Fluoride	1.91		0.050	0.100	mg/L	1	5/24/2013 11:34
Sulfate	1,800		20	50.0	mg/L	100	5/23/2013 21:56
Nitrate/Nitrite (as N)	U		0.30	2.00	mg/L	10	5/22/2013 17:33
Surr: Selenate (surr)	104			85-115	%REC	10	5/22/2013 17:33
Surr: Selenate (surr)	94.6			85-115	%REC	100	5/23/2013 21:56
Surr: Selenate (surr)	96.6			85-115	%REC	1	5/24/2013 11:34

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	0.00432	J	0.0040	0.0200	mg/L	1	5/22/2013 13:00

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: MW-114
Collection Date: 5/15/2013 01:50 PM

Work Order: 1305797
Lab ID: 1305797-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TOTAL DISSOLVED SOLIDS	Method: M2540C						Analyst: KAH
Total Dissolved Solids (Residue, Filterable)	3,990		5.0	10.0	mg/L	1	5/22/2013 09:55

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: MW-115
Collection Date: 5/15/2013 03:50 PM

Work Order: 1305797
Lab ID: 1305797-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3511 / 5/20/13 Analyst: RPM							
TPH (Diesel Range)	U		0.020	0.051	mg/L	1	5/22/2013 17:42
TPH (Oil Range)	U		0.041	0.10	mg/L	1	5/22/2013 17:42
Surr: 2-Fluorobiphenyl	111			60-135	%REC	1	5/22/2013 17:42
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Prep: SW3511 / 5/20/13 Analyst: RPM							
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	5/24/2013 01:37
Surr: 4-Bromofluorobenzene	105			70-130	%REC	1	5/24/2013 01:37
DISSOLVED MERCURY BY 7470A Method: SW7470 Prep: SW7470 / 5/20/13 Analyst: OFO							
Mercury	U		0.000042	0.000200	mg/L	1	5/20/2013 14:21
DISSOLVED METALS Method: SW6020 Prep: SW3010A / 5/20/13 Analyst: ALR							
Aluminum	0.00816	J	0.0040	0.0100	mg/L	1	5/22/2013 06:20
Arsenic	0.00478	J	0.0020	0.0100	mg/L	2	5/22/2013 15:56
Barium	0.0107		0.00090	0.00500	mg/L	1	5/22/2013 06:20
Boron	0.605		0.040	0.100	mg/L	2	5/22/2013 15:56
Cadmium	U		0.00080	0.00200	mg/L	1	5/22/2013 06:20
Calcium	511		0.86	5.00	mg/L	10	5/22/2013 05:19
Chromium	U		0.0020	0.0100	mg/L	2	5/22/2013 15:56
Cobalt	U		0.0016	0.0100	mg/L	2	5/22/2013 15:56
Copper	U		0.0020	0.0100	mg/L	2	5/22/2013 15:56
Iron	U		0.16	0.400	mg/L	2	5/22/2013 15:56
Lead	U		0.00070	0.00500	mg/L	1	5/22/2013 06:20
Manganese	0.0267		0.0050	0.0100	mg/L	2	5/22/2013 15:56
Molybdenum	0.00750		0.0015	0.00500	mg/L	1	5/22/2013 06:20
Nickel	U		0.0020	0.0100	mg/L	2	5/22/2013 15:56
Potassium	0.780		0.084	0.200	mg/L	1	5/22/2013 06:20
Selenium	0.00654	J	0.0020	0.0100	mg/L	2	5/22/2013 15:56
Silver	U		0.00080	0.00500	mg/L	1	5/22/2013 06:20
Sodium	206		0.85	2.00	mg/L	10	5/22/2013 05:19
Uranium	0.0825		0.0050	0.00500	mg/L	1	5/22/2013 06:20
Zinc	0.00821	J	0.0050	0.0100	mg/L	2	5/22/2013 15:56
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3510 / 5/20/13 Analyst: ACN							
1-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	5/21/2013 08:56
2-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	5/21/2013 08:56
Benzo(a)pyrene	U		0.000050	0.00020	mg/L	1	5/21/2013 08:56
Naphthalene	U		0.000050	0.00020	mg/L	1	5/21/2013 08:56
Surr: 2,4,6-Tribromophenol	0			34-129	%REC	1	5/21/2013 08:56
Surr: 2-Fluorobiphenyl	0			40-125	%REC	1	5/21/2013 08:56

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: MW-115
Collection Date: 5/15/2013 03:50 PM

Work Order: 1305797
Lab ID: 1305797-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	0			20-120	%REC	1	5/21/2013 08:56
Surr: 4-Terphenyl-d14	0			40-135	%REC	1	5/21/2013 08:56
Surr: Nitrobenzene-d5	0			41-120	%REC	1	5/21/2013 08:56
Surr: Phenol-d6	0			20-120	%REC	1	5/21/2013 08:56

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: PC	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 17:44
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	5/21/2013 17:44
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 17:44
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 17:44
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	5/21/2013 17:44
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	5/21/2013 17:44
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 17:44
Benzene	U		0.00020	0.0010	mg/L	1	5/21/2013 17:44
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	5/21/2013 17:44
Chloroform	U		0.00030	0.0010	mg/L	1	5/21/2013 17:44
Ethylbenzene	U		0.00030	0.0010	mg/L	1	5/21/2013 17:44
Methylene chloride	U		0.00040	0.0020	mg/L	1	5/21/2013 17:44
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	5/21/2013 17:44
Toluene	U		0.00030	0.0010	mg/L	1	5/21/2013 17:44
Trichloroethene	U		0.00020	0.0010	mg/L	1	5/21/2013 17:44
Vinyl chloride	U		0.00040	0.0010	mg/L	1	5/21/2013 17:44
Xylenes, Total	U		0.00030	0.0010	mg/L	1	5/21/2013 17:44
Surr: 1,2-Dichloroethane-d4	104			71-125	%REC	1	5/21/2013 17:44
Surr: 4-Bromofluorobenzene	99.9			70-125	%REC	1	5/21/2013 17:44
Surr: Dibromofluoromethane	98.6			74-125	%REC	1	5/21/2013 17:44
Surr: Toluene-d8	96.7			78-123	%REC	1	5/21/2013 17:44

MISCELLANEOUS ANALYSIS			Method: NA			Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	6/12/2013

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	373		20	50.0	mg/L	100	5/23/2013 22:11
Fluoride	1.18		0.050	0.100	mg/L	1	5/24/2013 11:48
Sulfate	2,490		20	50.0	mg/L	100	5/23/2013 22:11
Nitrate/Nitrite (as N)	U		0.30	2.00	mg/L	10	5/22/2013 17:48
Surr: Selenate (surr)	104			85-115	%REC	10	5/22/2013 17:48
Surr: Selenate (surr)	99.4			85-115	%REC	100	5/23/2013 22:11
Surr: Selenate (surr)	95.0			85-115	%REC	1	5/24/2013 11:48

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	U		0.0040	0.0200	mg/L	1	5/22/2013 13:00

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: MW-115
Collection Date: 5/15/2013 03:50 PM

Work Order: 1305797
Lab ID: 1305797-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TOTAL DISSOLVED SOLIDS	Method: M2540C						Analyst: KAH
Total Dissolved Solids (Residue, Filterable)	5,510		5.0	10.0	mg/L	1	5/22/2013 09:55

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: MW-117
Collection Date: 5/15/2013 10:30 AM

Work Order: 1305797
Lab ID: 1305797-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3511 / 5/20/13 Analyst: RPM							
TPH (Diesel Range)	U		0.021	0.052	mg/L	1	5/22/2013 16:22
TPH (Oil Range)	U		0.042	0.10	mg/L	1	5/22/2013 16:22
Surr: 2-Fluorobiphenyl	105			60-135	%REC	1	5/22/2013 16:22
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: RPM							
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	5/24/2013 01:55
Surr: 4-Bromofluorobenzene	106			70-130	%REC	1	5/24/2013 01:55
DISSOLVED MERCURY BY 7470A Method: SW7470 Prep: SW7470 / 5/20/13 Analyst: OFO							
Mercury	U		0.000042	0.000200	mg/L	1	5/20/2013 14:27
DISSOLVED METALS Method: SW6020 Prep: SW3010A / 5/20/13 Analyst: ALR							
Aluminum	0.0184		0.0040	0.0100	mg/L	1	5/22/2013 06:25
Arsenic	0.00367	J	0.0020	0.0100	mg/L	2	5/22/2013 16:01
Barium	0.0113		0.00090	0.00500	mg/L	1	5/22/2013 06:25
Boron	0.175		0.040	0.100	mg/L	2	5/22/2013 16:01
Cadmium	U		0.00080	0.00200	mg/L	1	5/22/2013 06:25
Calcium	524		0.86	5.00	mg/L	10	5/22/2013 05:24
Chromium	U		0.0020	0.0100	mg/L	2	5/22/2013 16:01
Cobalt	U		0.0016	0.0100	mg/L	2	5/22/2013 16:01
Copper	U		0.0020	0.0100	mg/L	2	5/22/2013 16:01
Iron	U		0.16	0.400	mg/L	2	5/22/2013 16:01
Lead	U		0.00070	0.00500	mg/L	1	5/22/2013 06:25
Manganese	0.00978	J	0.0050	0.0100	mg/L	2	5/22/2013 16:01
Molybdenum	0.00664		0.0015	0.00500	mg/L	1	5/22/2013 06:25
Nickel	U		0.0020	0.0100	mg/L	2	5/22/2013 16:01
Potassium	4.37		0.084	0.200	mg/L	1	5/22/2013 06:25
Selenium	0.00585	J	0.0020	0.0100	mg/L	2	5/22/2013 16:01
Silver	U		0.00080	0.00500	mg/L	1	5/22/2013 06:25
Sodium	160		0.085	0.200	mg/L	1	5/22/2013 06:25
Uranium	0.0247		0.0050	0.00500	mg/L	1	5/22/2013 06:25
Zinc	U		0.0050	0.0100	mg/L	2	5/22/2013 16:01
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3510 / 5/20/13 Analyst: ACN							
1-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	5/22/2013 21:45
2-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	5/22/2013 21:45
Benzo(a)pyrene	U		0.000050	0.00020	mg/L	1	5/22/2013 21:45
Naphthalene	U		0.000050	0.00020	mg/L	1	5/22/2013 21:45
Surr: 2,4,6-Tribromophenol	70.7			34-129	%REC	1	5/22/2013 21:45
Surr: 2-Fluorobiphenyl	64.6			40-125	%REC	1	5/22/2013 21:45

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: MW-117
Collection Date: 5/15/2013 10:30 AM

Work Order: 1305797
Lab ID: 1305797-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	51.9			20-120	%REC	1	5/22/2013 21:45
Surr: 4-Terphenyl-d14	73.0			40-135	%REC	1	5/22/2013 21:45
Surr: Nitrobenzene-d5	59.9			41-120	%REC	1	5/22/2013 21:45
Surr: Phenol-d6	49.9			20-120	%REC	1	5/22/2013 21:45

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: PC	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 18:07
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	5/21/2013 18:07
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 18:07
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 18:07
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	5/21/2013 18:07
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	5/21/2013 18:07
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 18:07
Benzene	U		0.00020	0.0010	mg/L	1	5/21/2013 18:07
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	5/21/2013 18:07
Chloroform	U		0.00030	0.0010	mg/L	1	5/21/2013 18:07
Ethylbenzene	U		0.00030	0.0010	mg/L	1	5/21/2013 18:07
Methylene chloride	U		0.00040	0.0020	mg/L	1	5/21/2013 18:07
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	5/21/2013 18:07
Toluene	U		0.00030	0.0010	mg/L	1	5/21/2013 18:07
Trichloroethene	U		0.00020	0.0010	mg/L	1	5/21/2013 18:07
Vinyl chloride	U		0.00040	0.0010	mg/L	1	5/21/2013 18:07
Xylenes, Total	U		0.00030	0.0010	mg/L	1	5/21/2013 18:07
Surr: 1,2-Dichloroethane-d4	102			71-125	%REC	1	5/21/2013 18:07
Surr: 4-Bromofluorobenzene	98.3			70-125	%REC	1	5/21/2013 18:07
Surr: Dibromofluoromethane	99.1			74-125	%REC	1	5/21/2013 18:07
Surr: Toluene-d8	96.0			78-123	%REC	1	5/21/2013 18:07

MISCELLANEOUS ANALYSIS			Method: NA			Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	6/12/2013

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	137		20	50.0	mg/L	100	5/23/2013 22:26
Fluoride	2.29		0.050	0.100	mg/L	1	5/24/2013 12:03
Sulfate	2,010		20	50.0	mg/L	100	5/23/2013 22:26
Nitrate/Nitrite (as N)	U		0.30	2.00	mg/L	10	5/22/2013 18:02
Surr: Selenate (surr)	100			85-115	%REC	10	5/22/2013 18:02
Surr: Selenate (surr)	98.9			85-115	%REC	100	5/23/2013 22:26
Surr: Selenate (surr)	99.4			85-115	%REC	1	5/24/2013 12:03

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	U		0.0040	0.0200	mg/L	1	5/22/2013 13:00

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: MW-117
Collection Date: 5/15/2013 10:30 AM

Work Order: 1305797
Lab ID: 1305797-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TOTAL DISSOLVED SOLIDS	Method: M2540C						Analyst: KAH
Total Dissolved Solids (Residue, Filterable)	4,260		5.0	10.0	mg/L	1	5/22/2013 09:55

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: MW-118
Collection Date: 5/15/2013 06:30 PM

Work Order: 1305797
Lab ID: 1305797-04
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3511 / 5/20/13 Analyst: RPM							
TPH (Diesel Range)	U		0.020	0.051	mg/L	1	5/22/2013 18:36
TPH (Oil Range)	U		0.041	0.10	mg/L	1	5/22/2013 18:36
Surr: 2-Fluorobiphenyl	98.2			60-135	%REC	1	5/22/2013 18:36
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: RPM							
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	5/24/2013 02:13
Surr: 4-Bromofluorobenzene	105			70-130	%REC	1	5/24/2013 02:13
DISSOLVED MERCURY BY 7470A Method: SW7470 Prep: SW7470 / 5/20/13 Analyst: OFO							
Mercury	U		0.000042	0.000200	mg/L	1	5/20/2013 14:29
DISSOLVED METALS Method: SW6020 Prep: SW3010A / 5/20/13 Analyst: ALR							
Aluminum	0.00796	J	0.0040	0.0100	mg/L	1	5/22/2013 08:05
Arsenic	0.0146		0.0010	0.00500	mg/L	1	5/22/2013 08:05
Barium	0.00919		0.00090	0.00500	mg/L	1	5/22/2013 08:05
Boron	0.230		0.040	0.100	mg/L	2	5/22/2013 16:06
Cadmium	U		0.00080	0.00200	mg/L	1	5/22/2013 08:05
Calcium	530		0.86	5.00	mg/L	10	5/22/2013 05:30
Chromium	U		0.0010	0.00500	mg/L	1	5/22/2013 08:05
Cobalt	U		0.00080	0.00500	mg/L	1	5/22/2013 08:05
Copper	0.00156	J	0.0010	0.00500	mg/L	1	5/22/2013 08:05
Iron	U		0.078	0.200	mg/L	1	5/22/2013 08:05
Lead	U		0.00070	0.00500	mg/L	1	5/22/2013 08:05
Manganese	U		0.0025	0.00500	mg/L	1	5/22/2013 08:05
Molybdenum	0.0179		0.0015	0.00500	mg/L	1	5/22/2013 08:05
Nickel	0.00184	J	0.0010	0.00500	mg/L	1	5/22/2013 08:05
Potassium	7.20		0.084	0.200	mg/L	1	5/22/2013 08:05
Selenium	0.0127		0.0010	0.00500	mg/L	1	5/22/2013 08:05
Silver	U		0.00080	0.00500	mg/L	1	5/22/2013 08:05
Sodium	229		0.85	2.00	mg/L	10	5/22/2013 05:30
Uranium	0.0330		0.0050	0.00500	mg/L	1	5/22/2013 08:05
Zinc	U		0.0025	0.00500	mg/L	1	5/22/2013 08:05
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3510 / 5/20/13 Analyst: ACN							
1-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	5/21/2013 09:37
2-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	5/21/2013 09:37
Benzo(a)pyrene	U		0.000050	0.00020	mg/L	1	5/21/2013 09:37
Naphthalene	U		0.000050	0.00020	mg/L	1	5/21/2013 09:37
Surr: 2,4,6-Tribromophenol	0			34-129	%REC	1	5/21/2013 09:37
Surr: 2-Fluorobiphenyl	0			40-125	%REC	1	5/21/2013 09:37

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: MW-118
Collection Date: 5/15/2013 06:30 PM

Work Order: 1305797
Lab ID: 1305797-04
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	0			20-120	%REC	1	5/21/2013 09:37
Surr: 4-Terphenyl-d14	0			40-135	%REC	1	5/21/2013 09:37
Surr: Nitrobenzene-d5	0			41-120	%REC	1	5/21/2013 09:37
Surr: Phenol-d6	0			20-120	%REC	1	5/21/2013 09:37

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: PC	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 18:31
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	5/21/2013 18:31
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 18:31
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 18:31
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	5/21/2013 18:31
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	5/21/2013 18:31
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 18:31
Benzene	U		0.00020	0.0010	mg/L	1	5/21/2013 18:31
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	5/21/2013 18:31
Chloroform	U		0.00030	0.0010	mg/L	1	5/21/2013 18:31
Ethylbenzene	U		0.00030	0.0010	mg/L	1	5/21/2013 18:31
Methylene chloride	U		0.00040	0.0020	mg/L	1	5/21/2013 18:31
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	5/21/2013 18:31
Toluene	U		0.00030	0.0010	mg/L	1	5/21/2013 18:31
Trichloroethene	U		0.00020	0.0010	mg/L	1	5/21/2013 18:31
Vinyl chloride	U		0.00040	0.0010	mg/L	1	5/21/2013 18:31
Xylenes, Total	U		0.00030	0.0010	mg/L	1	5/21/2013 18:31
Surr: 1,2-Dichloroethane-d4	106			71-125	%REC	1	5/21/2013 18:31
Surr: 4-Bromofluorobenzene	100			70-125	%REC	1	5/21/2013 18:31
Surr: Dibromofluoromethane	99.0			74-125	%REC	1	5/21/2013 18:31
Surr: Toluene-d8	97.4			78-123	%REC	1	5/21/2013 18:31

MISCELLANEOUS ANALYSIS			Method: NA			Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	6/12/2013

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	287		20	50.0	mg/L	100	5/23/2013 22:40
Fluoride	5.39		0.050	0.100	mg/L	1	5/24/2013 12:25
Sulfate	2,250		20	50.0	mg/L	100	5/23/2013 22:40
Nitrate/Nitrite (as N)	2.09		0.30	2.00	mg/L	10	5/22/2013 18:30
Surr: Selenate (surr)	103			85-115	%REC	10	5/22/2013 18:30
Surr: Selenate (surr)	94.6			85-115	%REC	100	5/23/2013 22:40
Surr: Selenate (surr)	95.9			85-115	%REC	1	5/24/2013 12:25

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	U		0.0040	0.0200	mg/L	1	5/22/2013 13:00

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: MW-118
Collection Date: 5/15/2013 06:30 PM

Work Order: 1305797
Lab ID: 1305797-04
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TOTAL DISSOLVED SOLIDS	Method: M2540C						Analyst: KAH
Total Dissolved Solids (Residue, Filterable)	5,090		5.0	10.0	mg/L	1	5/22/2013 09:55

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: MW-119
Collection Date: 5/15/2013 06:10 PM

Work Order: 1305797
Lab ID: 1305797-05
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3511 / 5/20/13 Analyst: RPM							
TPH (Diesel Range)	U		0.021	0.052	mg/L	1	5/22/2013 17:16
TPH (Oil Range)	U		0.041	0.10	mg/L	1	5/22/2013 17:16
Surr: 2-Fluorobiphenyl	101			60-135	%REC	1	5/22/2013 17:16
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: RPM							
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	5/24/2013 02:31
Surr: 4-Bromofluorobenzene	104			70-130	%REC	1	5/24/2013 02:31
DISSOLVED MERCURY BY 7470A Method: SW7470 Prep: SW7470 / 5/20/13 Analyst: OFO							
Mercury	U		0.000042	0.000200	mg/L	1	5/20/2013 14:31
DISSOLVED METALS Method: SW6020 Prep: SW3010A / 5/20/13 Analyst: ALR							
Aluminum	0.0296		0.0040	0.0100	mg/L	1	5/22/2013 08:10
Arsenic	0.00537		0.0010	0.00500	mg/L	1	5/22/2013 08:10
Barium	0.00625		0.00090	0.00500	mg/L	1	5/22/2013 08:10
Boron	0.130		0.040	0.100	mg/L	2	5/22/2013 16:21
Cadmium	U		0.00080	0.00200	mg/L	1	5/22/2013 08:10
Calcium	491		0.86	5.00	mg/L	10	5/22/2013 05:36
Chromium	U		0.0010	0.00500	mg/L	1	5/22/2013 08:10
Cobalt	U		0.00080	0.00500	mg/L	1	5/22/2013 08:10
Copper	0.00137	J	0.0010	0.00500	mg/L	1	5/22/2013 08:10
Iron	U		0.078	0.200	mg/L	1	5/22/2013 08:10
Lead	U		0.00070	0.00500	mg/L	1	5/22/2013 08:10
Manganese	U		0.0025	0.00500	mg/L	1	5/22/2013 08:10
Molybdenum	0.00745		0.0015	0.00500	mg/L	1	5/22/2013 08:10
Nickel	0.00163	J	0.0010	0.00500	mg/L	1	5/22/2013 08:10
Potassium	0.794		0.084	0.200	mg/L	1	5/22/2013 08:10
Selenium	0.00506		0.0010	0.00500	mg/L	1	5/22/2013 08:10
Silver	U		0.00080	0.00500	mg/L	1	5/22/2013 08:10
Sodium	120		0.085	0.200	mg/L	1	5/22/2013 08:10
Uranium	0.0222		0.0050	0.00500	mg/L	1	5/22/2013 08:10
Zinc	U		0.0025	0.00500	mg/L	1	5/22/2013 08:10
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3510 / 5/20/13 Analyst: ACN							
1-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	5/22/2013 22:06
2-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	5/22/2013 22:06
Benzo(a)pyrene	U		0.000050	0.00020	mg/L	1	5/22/2013 22:06
Naphthalene	U		0.000050	0.00020	mg/L	1	5/22/2013 22:06
Surr: 2,4,6-Tribromophenol	0			34-129	%REC	1	5/22/2013 22:06
Surr: 2-Fluorobiphenyl	0			40-125	%REC	1	5/22/2013 22:06

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: MW-119
Collection Date: 5/15/2013 06:10 PM

Work Order: 1305797
Lab ID: 1305797-05
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	0			20-120	%REC	1	5/22/2013 22:06
Surr: 4-Terphenyl-d14	0			40-135	%REC	1	5/22/2013 22:06
Surr: Nitrobenzene-d5	0			41-120	%REC	1	5/22/2013 22:06
Surr: Phenol-d6	0			20-120	%REC	1	5/22/2013 22:06

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: PC	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 18:57
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	5/21/2013 18:57
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 18:57
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 18:57
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	5/21/2013 18:57
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	5/21/2013 18:57
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 18:57
Benzene	U		0.00020	0.0010	mg/L	1	5/21/2013 18:57
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	5/21/2013 18:57
Chloroform	U		0.00030	0.0010	mg/L	1	5/21/2013 18:57
Ethylbenzene	U		0.00030	0.0010	mg/L	1	5/21/2013 18:57
Methylene chloride	U		0.00040	0.0020	mg/L	1	5/21/2013 18:57
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	5/21/2013 18:57
Toluene	U		0.00030	0.0010	mg/L	1	5/21/2013 18:57
Trichloroethene	U		0.00020	0.0010	mg/L	1	5/21/2013 18:57
Vinyl chloride	U		0.00040	0.0010	mg/L	1	5/21/2013 18:57
Xylenes, Total	U		0.00030	0.0010	mg/L	1	5/21/2013 18:57
Surr: 1,2-Dichloroethane-d4	105			71-125	%REC	1	5/21/2013 18:57
Surr: 4-Bromofluorobenzene	100			70-125	%REC	1	5/21/2013 18:57
Surr: Dibromofluoromethane	102			74-125	%REC	1	5/21/2013 18:57
Surr: Toluene-d8	97.5			78-123	%REC	1	5/21/2013 18:57

MISCELLANEOUS ANALYSIS			Method: NA			Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	6/12/2013

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	118		20	50.0	mg/L	100	5/23/2013 22:55
Fluoride	2.43		0.050	0.100	mg/L	1	5/24/2013 12:39
Sulfate	1,970		20	50.0	mg/L	100	5/23/2013 22:55
Nitrate/Nitrite (as N)	1.91	J	0.30	2.00	mg/L	10	5/22/2013 18:45
Surr: Selenate (surr)	105			85-115	%REC	10	5/22/2013 18:45
Surr: Selenate (surr)	98.5			85-115	%REC	100	5/23/2013 22:55
Surr: Selenate (surr)	96.0			85-115	%REC	1	5/24/2013 12:39

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	U		0.0040	0.0200	mg/L	1	5/22/2013 13:00

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: MW-119
Collection Date: 5/15/2013 06:10 PM

Work Order: 1305797
Lab ID: 1305797-05
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TOTAL DISSOLVED SOLIDS	Method: M2540C						Analyst: KAH
Total Dissolved Solids (Residue, Filterable)	4,030		5.0	10.0	mg/L	1	5/22/2013 09:55

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: DUP-03
Collection Date: 5/15/2013 12:01 AM

Work Order: 1305797
Lab ID: 1305797-06
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO		Method: SW8015M		Prep: SW3511 / 5/20/13		Analyst: RPM	
TPH (Diesel Range)	U		0.021	0.052	mg/L	1	5/22/2013 18:09
TPH (Oil Range)	U		0.042	0.10	mg/L	1	5/22/2013 18:09
Surr: 2-Fluorobiphenyl	87.4			60-135	%REC	1	5/22/2013 18:09
GASOLINE RANGE ORGANICS - SW8015C		Method: SW8015		Prep: SW7470 / 5/20/13		Analyst: RPM	
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	5/24/2013 03:25
Surr: 4-Bromofluorobenzene	103			70-130	%REC	1	5/24/2013 03:25
DISSOLVED MERCURY BY 7470A		Method: SW7470		Prep: SW7470 / 5/20/13		Analyst: OFO	
Mercury	U		0.000042	0.000200	mg/L	1	5/20/2013 14:33
DISSOLVED METALS		Method: SW6020		Prep: SW3010A / 5/20/13		Analyst: ALR	
Aluminum	0.00865	J	0.0040	0.0100	mg/L	1	5/22/2013 08:16
Arsenic	0.00427	J	0.0010	0.00500	mg/L	1	5/22/2013 08:16
Barium	0.0110		0.00090	0.00500	mg/L	1	5/22/2013 08:16
Boron	0.635		0.040	0.100	mg/L	2	5/22/2013 16:26
Cadmium	U		0.00080	0.00200	mg/L	1	5/22/2013 08:16
Calcium	495		0.86	5.00	mg/L	10	5/22/2013 05:41
Chromium	U		0.0010	0.00500	mg/L	1	5/22/2013 08:16
Cobalt	U		0.00080	0.00500	mg/L	1	5/22/2013 08:16
Copper	0.00151	J	0.0010	0.00500	mg/L	1	5/22/2013 08:16
Iron	U		0.078	0.200	mg/L	1	5/22/2013 08:16
Lead	U		0.00070	0.00500	mg/L	1	5/22/2013 08:16
Manganese	0.0230		0.0025	0.00500	mg/L	1	5/22/2013 08:16
Molybdenum	0.00723		0.0015	0.00500	mg/L	1	5/22/2013 08:16
Nickel	0.00225	J	0.0010	0.00500	mg/L	1	5/22/2013 08:16
Potassium	0.766		0.084	0.200	mg/L	1	5/22/2013 08:16
Selenium	0.00734		0.0010	0.00500	mg/L	1	5/22/2013 08:16
Silver	U		0.00080	0.00500	mg/L	1	5/22/2013 08:16
Sodium	201		0.85	2.00	mg/L	10	5/22/2013 05:41
Uranium	0.0731		0.0050	0.00500	mg/L	1	5/22/2013 08:16
Zinc	U		0.0025	0.00500	mg/L	1	5/22/2013 08:16
LOW-LEVEL SEMIVOLATILES		Method: SW8270		Prep: SW3510 / 5/20/13		Analyst: ACN	
1-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	5/21/2013 10:18
2-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	5/21/2013 10:18
Benzo(a)pyrene	U		0.000050	0.00020	mg/L	1	5/21/2013 10:18
Naphthalene	U		0.000050	0.00020	mg/L	1	5/21/2013 10:18
Surr: 2,4,6-Tribromophenol	0			34-129	%REC	1	5/21/2013 10:18
Surr: 2-Fluorobiphenyl	0			40-125	%REC	1	5/21/2013 10:18

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: DUP-03
Collection Date: 5/15/2013 12:01 AM

Work Order: 1305797
Lab ID: 1305797-06
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	0			20-120	%REC	1	5/21/2013 10:18
Surr: 4-Terphenyl-d14	0			40-135	%REC	1	5/21/2013 10:18
Surr: Nitrobenzene-d5	0			41-120	%REC	1	5/21/2013 10:18
Surr: Phenol-d6	0			20-120	%REC	1	5/21/2013 10:18

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: PC	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 19:24
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	5/21/2013 19:24
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 19:24
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 19:24
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	5/21/2013 19:24
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	5/21/2013 19:24
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 19:24
Benzene	U		0.00020	0.0010	mg/L	1	5/21/2013 19:24
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	5/21/2013 19:24
Chloroform	U		0.00030	0.0010	mg/L	1	5/21/2013 19:24
Ethylbenzene	U		0.00030	0.0010	mg/L	1	5/21/2013 19:24
Methylene chloride	U		0.00040	0.0020	mg/L	1	5/21/2013 19:24
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	5/21/2013 19:24
Toluene	U		0.00030	0.0010	mg/L	1	5/21/2013 19:24
Trichloroethene	U		0.00020	0.0010	mg/L	1	5/21/2013 19:24
Vinyl chloride	U		0.00040	0.0010	mg/L	1	5/21/2013 19:24
Xylenes, Total	U		0.00030	0.0010	mg/L	1	5/21/2013 19:24
Surr: 1,2-Dichloroethane-d4	107			71-125	%REC	1	5/21/2013 19:24
Surr: 4-Bromofluorobenzene	100			70-125	%REC	1	5/21/2013 19:24
Surr: Dibromofluoromethane	102			74-125	%REC	1	5/21/2013 19:24
Surr: Toluene-d8	97.6			78-123	%REC	1	5/21/2013 19:24

MISCELLANEOUS ANALYSIS			Method: NA			Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	6/12/2013

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	364		20	50.0	mg/L	100	5/23/2013 23:09
Fluoride	1.15		0.050	0.100	mg/L	1	5/24/2013 15:29
Sulfate	2,420		20	50.0	mg/L	100	5/23/2013 23:09
Nitrate/Nitrite (as N)	U		0.30	2.00	mg/L	10	5/22/2013 19:00
Surr: Selenate (surr)	104			85-115	%REC	10	5/22/2013 19:00
Surr: Selenate (surr)	98.6			85-115	%REC	100	5/23/2013 23:09
Surr: Selenate (surr)	95.6			85-115	%REC	1	5/24/2013 15:29

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	U		0.0040	0.0200	mg/L	1	5/22/2013 13:00

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: DUP-03
Collection Date: 5/15/2013 12:01 AM

Work Order: 1305797
Lab ID: 1305797-06
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TOTAL DISSOLVED SOLIDS	Method: M2540C						Analyst: JKP
Total Dissolved Solids (Residue, Filterable)	4,990		5.0	10.0	mg/L	1	5/21/2013 10:00

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: MW-116
Collection Date: 5/16/2013 10:15 AM

Work Order: 1305797
Lab ID: 1305797-07
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3511 / 5/20/13 Analyst: RPM							
TPH (Diesel Range)	U		0.021	0.052	mg/L	1	5/22/2013 16:49
TPH (Oil Range)	U		0.041	0.10	mg/L	1	5/22/2013 16:49
Surr: 2-Fluorobiphenyl	105			60-135	%REC	1	5/22/2013 16:49
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Prep: SW3511 / 5/20/13 Analyst: RPM							
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	5/24/2013 03:43
Surr: 4-Bromofluorobenzene	103			70-130	%REC	1	5/24/2013 03:43
DISSOLVED MERCURY BY 7470A Method: SW7470 Prep: SW7470 / 5/20/13 Analyst: OFO							
Mercury	0.0000460	J	0.000042	0.000200	mg/L	1	5/20/2013 14:35
DISSOLVED METALS Method: SW6020 Prep: SW3010A / 5/20/13 Analyst: ALR							
Aluminum	0.349		0.0040	0.0100	mg/L	1	5/22/2013 08:21
Arsenic	0.00502		0.0010	0.00500	mg/L	1	5/22/2013 08:21
Barium	0.0111		0.00090	0.00500	mg/L	1	5/22/2013 08:21
Boron	0.238		0.040	0.100	mg/L	2	5/22/2013 16:31
Cadmium	U		0.00080	0.00200	mg/L	1	5/22/2013 08:21
Calcium	578		0.86	5.00	mg/L	10	5/22/2013 05:47
Chromium	0.00119	J	0.0010	0.00500	mg/L	1	5/22/2013 08:21
Cobalt	U		0.00080	0.00500	mg/L	1	5/22/2013 08:21
Copper	0.00176	J	0.0010	0.00500	mg/L	1	5/22/2013 08:21
Iron	0.201		0.078	0.200	mg/L	1	5/22/2013 08:21
Lead	U		0.0014	0.0100	mg/L	2	5/22/2013 16:31
Manganese	0.0342		0.0025	0.00500	mg/L	1	5/22/2013 08:21
Molybdenum	0.00308	J	0.0015	0.00500	mg/L	1	5/22/2013 08:21
Nickel	0.00204	J	0.0010	0.00500	mg/L	1	5/22/2013 08:21
Potassium	1.38		0.084	0.200	mg/L	1	5/22/2013 08:21
Selenium	0.00733		0.0010	0.00500	mg/L	1	5/22/2013 08:21
Silver	U		0.00080	0.00500	mg/L	1	5/22/2013 08:21
Sodium	194		0.85	2.00	mg/L	10	5/22/2013 05:47
Uranium	0.0343		0.010	0.0100	mg/L	2	5/22/2013 16:31
Zinc	U		0.0025	0.00500	mg/L	1	5/22/2013 08:21
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3510 / 5/20/13 Analyst: ACN							
1-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	5/21/2013 10:39
2-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	5/21/2013 10:39
Benzo(a)pyrene	U		0.000050	0.00020	mg/L	1	5/21/2013 10:39
Naphthalene	U		0.000050	0.00020	mg/L	1	5/21/2013 10:39
Surr: 2,4,6-Tribromophenol	0			34-129	%REC	1	5/21/2013 10:39
Surr: 2-Fluorobiphenyl	0			40-125	%REC	1	5/21/2013 10:39

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: MW-116
Collection Date: 5/16/2013 10:15 AM

Work Order: 1305797
Lab ID: 1305797-07
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	0			20-120	%REC	1	5/21/2013 10:39
Surr: 4-Terphenyl-d14	0			40-135	%REC	1	5/21/2013 10:39
Surr: Nitrobenzene-d5	0			41-120	%REC	1	5/21/2013 10:39
Surr: Phenol-d6	0			20-120	%REC	1	5/21/2013 10:39

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: PC	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 19:50
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	5/21/2013 19:50
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 19:50
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 19:50
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	5/21/2013 19:50
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	5/21/2013 19:50
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 19:50
Benzene	U		0.00020	0.0010	mg/L	1	5/21/2013 19:50
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	5/21/2013 19:50
Chloroform	U		0.00030	0.0010	mg/L	1	5/21/2013 19:50
Ethylbenzene	U		0.00030	0.0010	mg/L	1	5/21/2013 19:50
Methylene chloride	U		0.00040	0.0020	mg/L	1	5/21/2013 19:50
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	5/21/2013 19:50
Toluene	U		0.00030	0.0010	mg/L	1	5/21/2013 19:50
Trichloroethene	U		0.00020	0.0010	mg/L	1	5/21/2013 19:50
Vinyl chloride	U		0.00040	0.0010	mg/L	1	5/21/2013 19:50
Xylenes, Total	U		0.00030	0.0010	mg/L	1	5/21/2013 19:50
Surr: 1,2-Dichloroethane-d4	107			71-125	%REC	1	5/21/2013 19:50
Surr: 4-Bromofluorobenzene	100			70-125	%REC	1	5/21/2013 19:50
Surr: Dibromofluoromethane	100			74-125	%REC	1	5/21/2013 19:50
Surr: Toluene-d8	97.1			78-123	%REC	1	5/21/2013 19:50

MISCELLANEOUS ANALYSIS			Method: NA			Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	6/12/2013

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	330		20	50.0	mg/L	100	5/23/2013 23:24
Fluoride	1.19		0.050	0.100	mg/L	1	5/24/2013 12:54
Sulfate	2,080		20	50.0	mg/L	100	5/23/2013 23:24
Nitrate/Nitrite (as N)	U		0.30	2.00	mg/L	10	5/22/2013 19:43
Surr: Selenate (surr)	105			85-115	%REC	10	5/22/2013 19:43
Surr: Selenate (surr)	97.2			85-115	%REC	100	5/23/2013 23:24
Surr: Selenate (surr)	92.1			85-115	%REC	1	5/24/2013 12:54

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	U		0.0040	0.0200	mg/L	1	5/22/2013 13:00

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: MW-116
Collection Date: 5/16/2013 10:15 AM

Work Order: 1305797
Lab ID: 1305797-07
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TOTAL DISSOLVED SOLIDS							
			Method: M2540C				Analyst: KAH
Total Dissolved Solids (Residue, Filterable)	4,480		5.0	10.0	mg/L	1	5/22/2013 09:55

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: EQB-03
Collection Date: 5/16/2013 11:40 AM

Work Order: 1305797
Lab ID: 1305797-08
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3511 / 5/20/13 Analyst: RPM							
TPH (Diesel Range)	U		0.021	0.053	mg/L	1	5/22/2013 13:41
TPH (Oil Range)	U		0.042	0.11	mg/L	1	5/22/2013 13:41
Surr: 2-Fluorobiphenyl	95.2			60-135	%REC	1	5/22/2013 13:41
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: RPM							
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	5/24/2013 04:01
Surr: 4-Bromofluorobenzene	102			70-130	%REC	1	5/24/2013 04:01
DISSOLVED MERCURY BY 7470A Method: SW7470 Prep: SW7470 / 5/20/13 Analyst: OFO							
Mercury	U		0.000042	0.000200	mg/L	1	5/20/2013 14:37
DISSOLVED METALS Method: SW6020 Prep: SW3010A / 5/20/13 Analyst: ALR							
Aluminum	0.00413	J	0.0040	0.0100	mg/L	1	5/22/2013 06:03
Arsenic	U		0.0010	0.00500	mg/L	1	5/22/2013 06:03
Barium	U		0.00090	0.00500	mg/L	1	5/22/2013 06:03
Boron	U		0.020	0.0500	mg/L	1	5/22/2013 15:46
Cadmium	U		0.00080	0.00200	mg/L	1	5/22/2013 06:03
Calcium	U		0.086	0.500	mg/L	1	5/22/2013 06:03
Chromium	U		0.0010	0.00500	mg/L	1	5/22/2013 06:03
Cobalt	U		0.00080	0.00500	mg/L	1	5/22/2013 06:03
Copper	U		0.0010	0.00500	mg/L	1	5/22/2013 06:03
Iron	U		0.078	0.200	mg/L	1	5/22/2013 06:03
Lead	U		0.00070	0.00500	mg/L	1	5/22/2013 06:03
Manganese	U		0.0025	0.00500	mg/L	1	5/22/2013 06:03
Molybdenum	U		0.0015	0.00500	mg/L	1	5/22/2013 06:03
Nickel	U		0.0010	0.00500	mg/L	1	5/22/2013 06:03
Potassium	U		0.084	0.200	mg/L	1	5/22/2013 06:03
Selenium	0.00116	J	0.0010	0.00500	mg/L	1	5/22/2013 06:03
Silver	U		0.00080	0.00500	mg/L	1	5/22/2013 06:03
Sodium	U		0.085	0.200	mg/L	1	5/22/2013 06:03
Uranium	U		0.0050	0.00500	mg/L	1	5/22/2013 06:03
Zinc	0.00463	J	0.0025	0.00500	mg/L	1	5/22/2013 06:03
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3510 / 5/20/13 Analyst: ACN							
1-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	5/21/2013 10:59
2-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	5/21/2013 10:59
Benzo(a)pyrene	U		0.000050	0.00020	mg/L	1	5/21/2013 10:59
Naphthalene	U		0.000050	0.00020	mg/L	1	5/21/2013 10:59
Surr: 2,4,6-Tribromophenol	0			34-129	%REC	1	5/21/2013 10:59
Surr: 2-Fluorobiphenyl	0			40-125	%REC	1	5/21/2013 10:59

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: EQB-03
Collection Date: 5/16/2013 11:40 AM

Work Order: 1305797
Lab ID: 1305797-08
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	0			20-120	%REC	1	5/21/2013 10:59
Surr: 4-Terphenyl-d14	0			40-135	%REC	1	5/21/2013 10:59
Surr: Nitrobenzene-d5	0			41-120	%REC	1	5/21/2013 10:59
Surr: Phenol-d6	0			20-120	%REC	1	5/21/2013 10:59
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: PC	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/22/2013 01:03
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	5/22/2013 01:03
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/22/2013 01:03
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/22/2013 01:03
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	5/22/2013 01:03
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	5/22/2013 01:03
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/22/2013 01:03
Benzene	U		0.00020	0.0010	mg/L	1	5/22/2013 01:03
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	5/22/2013 01:03
Chloroform	U		0.00030	0.0010	mg/L	1	5/22/2013 01:03
Ethylbenzene	U		0.00030	0.0010	mg/L	1	5/22/2013 01:03
Methylene chloride	U		0.00040	0.0020	mg/L	1	5/22/2013 01:03
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	5/22/2013 01:03
Toluene	0.00039	J	0.00030	0.0010	mg/L	1	5/22/2013 01:03
Trichloroethene	U		0.00020	0.0010	mg/L	1	5/22/2013 01:03
Vinyl chloride	U		0.00040	0.0010	mg/L	1	5/22/2013 01:03
Xylenes, Total	U		0.00030	0.0010	mg/L	1	5/22/2013 01:03
Surr: 1,2-Dichloroethane-d4	103			71-125	%REC	1	5/22/2013 01:03
Surr: 4-Bromofluorobenzene	101			70-125	%REC	1	5/22/2013 01:03
Surr: Dibromofluoromethane	101			74-125	%REC	1	5/22/2013 01:03
Surr: Toluene-d8	97.7			78-123	%REC	1	5/22/2013 01:03
MISCELLANEOUS ANALYSIS			Method: NA			Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	6/12/2013
ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	U		0.20	0.500	mg/L	1	5/23/2013 23:38
Fluoride	U		0.050	0.100	mg/L	1	5/23/2013 23:38
Sulfate	0.329	J	0.20	0.500	mg/L	1	5/23/2013 23:38
Nitrate/Nitrite (as N)	U		0.30	2.00	mg/L	10	5/22/2013 19:58
Surr: Selenate (surr)	87.7			85-115	%REC	10	5/22/2013 19:58
Surr: Selenate (surr)	98.0			85-115	%REC	1	5/23/2013 23:38
CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	U		0.0040	0.0200	mg/L	1	5/22/2013 13:00

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: EQB-03
Collection Date: 5/16/2013 11:40 AM

Work Order: 1305797
Lab ID: 1305797-08
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TOTAL DISSOLVED SOLIDS	Method: M2540C						Analyst: KAH
Total Dissolved Solids (Residue, Filterable)	50.0		5.0	10.0	mg/L	1	5/23/2013 09:05

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: RO Discharge
Collection Date: 5/16/2013 08:30 AM

Work Order: 1305797
Lab ID: 1305797-09
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO Method: SW8015M Prep: SW3511 / 5/20/13 Analyst: RPM							
TPH (Diesel Range)	U		0.021	0.053	mg/L	1	5/22/2013 15:01
TPH (Oil Range)	U		0.042	0.11	mg/L	1	5/22/2013 15:01
Surr: 2-Fluorobiphenyl	106			60-135	%REC	1	5/22/2013 15:01
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Prep: SW3511 / 5/20/13 Analyst: RPM							
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	5/24/2013 04:19
Surr: 4-Bromofluorobenzene	103			70-130	%REC	1	5/24/2013 04:19
DISSOLVED MERCURY BY 7470A Method: SW7470 Prep: SW7470 / 5/20/13 Analyst: OFO							
Mercury	U		0.000042	0.000200	mg/L	1	5/20/2013 14:39
DISSOLVED METALS Method: SW6020 Prep: SW3010A / 5/20/13 Analyst: ALR							
Aluminum	0.00529	J	0.0040	0.0100	mg/L	1	5/22/2013 08:27
Arsenic	0.00250	J	0.0020	0.0100	mg/L	2	5/22/2013 16:36
Barium	0.0464		0.00090	0.00500	mg/L	1	5/22/2013 08:27
Boron	0.104		0.040	0.100	mg/L	2	5/22/2013 16:36
Cadmium	U		0.00080	0.00200	mg/L	1	5/22/2013 08:27
Calcium	397		0.86	5.00	mg/L	10	5/22/2013 06:09
Chromium	U		0.0020	0.0100	mg/L	2	5/22/2013 16:36
Cobalt	U		0.0016	0.0100	mg/L	2	5/22/2013 16:36
Copper	U		0.0020	0.0100	mg/L	2	5/22/2013 16:36
Iron	U		0.16	0.400	mg/L	2	5/22/2013 16:36
Lead	U		0.0014	0.0100	mg/L	2	5/22/2013 16:36
Manganese	U		0.0050	0.0100	mg/L	2	5/22/2013 16:36
Molybdenum	0.00622		0.0015	0.00500	mg/L	1	5/22/2013 08:27
Nickel	U		0.0020	0.0100	mg/L	2	5/22/2013 16:36
Potassium	2.91		0.084	0.200	mg/L	1	5/22/2013 08:27
Selenium	0.00750	J	0.0020	0.0100	mg/L	2	5/22/2013 16:36
Silver	U		0.00080	0.00500	mg/L	1	5/22/2013 08:27
Sodium	40.4		0.085	0.200	mg/L	1	5/22/2013 08:27
Uranium	U		0.010	0.0100	mg/L	2	5/22/2013 16:36
Zinc	0.00516	J	0.0050	0.0100	mg/L	2	5/22/2013 16:36
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3510 / 5/20/13 Analyst: ACN							
1-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	5/21/2013 11:20
2-Methylnaphthalene	U		0.000050	0.00020	mg/L	1	5/21/2013 11:20
Benzo(a)pyrene	U		0.000050	0.00020	mg/L	1	5/21/2013 11:20
Naphthalene	U		0.000050	0.00020	mg/L	1	5/21/2013 11:20
Surr: 2,4,6-Tribromophenol	0			34-129	%REC	1	5/21/2013 11:20
Surr: 2-Fluorobiphenyl	0			40-125	%REC	1	5/21/2013 11:20

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: RO Discharge
Collection Date: 5/16/2013 08:30 AM

Work Order: 1305797
Lab ID: 1305797-09
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	0			20-120	%REC	1	5/21/2013 11:20
Surr: 4-Terphenyl-d14	0			40-135	%REC	1	5/21/2013 11:20
Surr: Nitrobenzene-d5	0			41-120	%REC	1	5/21/2013 11:20
Surr: Phenol-d6	0			20-120	%REC	1	5/21/2013 11:20

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: PC	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 20:16
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	5/21/2013 20:16
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 20:16
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 20:16
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	5/21/2013 20:16
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	5/21/2013 20:16
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 20:16
Benzene	U		0.00020	0.0010	mg/L	1	5/21/2013 20:16
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	5/21/2013 20:16
Chloroform	U		0.00030	0.0010	mg/L	1	5/21/2013 20:16
Ethylbenzene	U		0.00030	0.0010	mg/L	1	5/21/2013 20:16
Methylene chloride	U		0.00040	0.0020	mg/L	1	5/21/2013 20:16
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	5/21/2013 20:16
Toluene	U		0.00030	0.0010	mg/L	1	5/21/2013 20:16
Trichloroethene	U		0.00020	0.0010	mg/L	1	5/21/2013 20:16
Vinyl chloride	U		0.00040	0.0010	mg/L	1	5/21/2013 20:16
Xylenes, Total	U		0.00030	0.0010	mg/L	1	5/21/2013 20:16
Surr: 1,2-Dichloroethane-d4	107			71-125	%REC	1	5/21/2013 20:16
Surr: 4-Bromofluorobenzene	99.9			70-125	%REC	1	5/21/2013 20:16
Surr: Dibromofluoromethane	99.6			74-125	%REC	1	5/21/2013 20:16
Surr: Toluene-d8	97.1			78-123	%REC	1	5/21/2013 20:16

MISCELLANEOUS ANALYSIS			Method: NA			Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	6/12/2013

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	38.2		0.20	0.500	mg/L	1	5/24/2013 13:08
Fluoride	2.15		0.050	0.100	mg/L	1	5/24/2013 13:08
Sulfate	1,080		20	50.0	mg/L	100	5/23/2013 20:15
Nitrate/Nitrite (as N)	2.11		0.30	2.00	mg/L	10	5/22/2013 20:12
Surr: Selenate (surr)	99.2			85-115	%REC	10	5/22/2013 20:12
Surr: Selenate (surr)	101			85-115	%REC	100	5/23/2013 20:15
Surr: Selenate (surr)	92.1			85-115	%REC	1	5/24/2013 13:08

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	0.00487	J	0.0040	0.0200	mg/L	1	5/22/2013 13:00

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: RO Discharge
Collection Date: 5/16/2013 08:30 AM

Work Order: 1305797
Lab ID: 1305797-09
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TOTAL DISSOLVED SOLIDS	Method: M2540C						Analyst: KAH
Total Dissolved Solids (Residue, Filterable)	2,410		5.0	10.0	mg/L	1	5/23/2013 09:05

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: Trip Blank 050313-36
Collection Date: 5/16/2013

Work Order: 1305797
Lab ID: 1305797-10
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: PC	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 15:27
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	5/21/2013 15:27
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 15:27
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 15:27
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	5/21/2013 15:27
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	5/21/2013 15:27
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 15:27
Benzene	U		0.00020	0.0010	mg/L	1	5/21/2013 15:27
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	5/21/2013 15:27
Chloroform	U		0.00030	0.0010	mg/L	1	5/21/2013 15:27
Ethylbenzene	U		0.00030	0.0010	mg/L	1	5/21/2013 15:27
Methylene chloride	U		0.00040	0.0020	mg/L	1	5/21/2013 15:27
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	5/21/2013 15:27
Toluene	U		0.00030	0.0010	mg/L	1	5/21/2013 15:27
Trichloroethene	U		0.00020	0.0010	mg/L	1	5/21/2013 15:27
Vinyl chloride	U		0.00040	0.0010	mg/L	1	5/21/2013 15:27
Xylenes, Total	U		0.00030	0.0010	mg/L	1	5/21/2013 15:27
Surr: 1,2-Dichloroethane-d4	104			71-125	%REC	1	5/21/2013 15:27
Surr: 4-Bromofluorobenzene	103			70-125	%REC	1	5/21/2013 15:27
Surr: Dibromofluoromethane	102			74-125	%REC	1	5/21/2013 15:27
Surr: Toluene-d8	97.5			78-123	%REC	1	5/21/2013 15:27

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: Trip Blank 050313-33
Collection Date: 5/16/2013

Work Order: 1305797
Lab ID: 1305797-11
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: PC	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 15:50
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	5/21/2013 15:50
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 15:50
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 15:50
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	5/21/2013 15:50
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	5/21/2013 15:50
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 15:50
Benzene	U		0.00020	0.0010	mg/L	1	5/21/2013 15:50
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	5/21/2013 15:50
Chloroform	U		0.00030	0.0010	mg/L	1	5/21/2013 15:50
Ethylbenzene	U		0.00030	0.0010	mg/L	1	5/21/2013 15:50
Methylene chloride	U		0.00040	0.0020	mg/L	1	5/21/2013 15:50
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	5/21/2013 15:50
Toluene	U		0.00030	0.0010	mg/L	1	5/21/2013 15:50
Trichloroethene	U		0.00020	0.0010	mg/L	1	5/21/2013 15:50
Vinyl chloride	U		0.00040	0.0010	mg/L	1	5/21/2013 15:50
Xylenes, Total	U		0.00030	0.0010	mg/L	1	5/21/2013 15:50
Surr: 1,2-Dichloroethane-d4	105			71-125	%REC	1	5/21/2013 15:50
Surr: 4-Bromofluorobenzene	101			70-125	%REC	1	5/21/2013 15:50
Surr: Dibromofluoromethane	103			74-125	%REC	1	5/21/2013 15:50
Surr: Toluene-d8	98.6			78-123	%REC	1	5/21/2013 15:50

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: Trip Blank 050313-49
Collection Date: 5/16/2013

Work Order: 1305797
Lab ID: 1305797-12
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: PC	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 16:15
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	5/21/2013 16:15
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 16:15
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 16:15
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	5/21/2013 16:15
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	5/21/2013 16:15
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/21/2013 16:15
Benzene	U		0.00020	0.0010	mg/L	1	5/21/2013 16:15
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	5/21/2013 16:15
Chloroform	U		0.00030	0.0010	mg/L	1	5/21/2013 16:15
Ethylbenzene	U		0.00030	0.0010	mg/L	1	5/21/2013 16:15
Methylene chloride	U		0.00040	0.0020	mg/L	1	5/21/2013 16:15
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	5/21/2013 16:15
Toluene	U		0.00030	0.0010	mg/L	1	5/21/2013 16:15
Trichloroethene	U		0.00020	0.0010	mg/L	1	5/21/2013 16:15
Vinyl chloride	U		0.00040	0.0010	mg/L	1	5/21/2013 16:15
Xylenes, Total	U		0.00030	0.0010	mg/L	1	5/21/2013 16:15
Surr: 1,2-Dichloroethane-d4	106			71-125	%REC	1	5/21/2013 16:15
Surr: 4-Bromofluorobenzene	98.3			70-125	%REC	1	5/21/2013 16:15
Surr: Dibromofluoromethane	101			74-125	%REC	1	5/21/2013 16:15
Surr: Toluene-d8	95.9			78-123	%REC	1	5/21/2013 16:15

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: Trip Blank 050313-43
Collection Date: 5/16/2013

Work Order: 1305797
Lab ID: 1305797-13
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: PC	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/22/2013 01:29
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	5/22/2013 01:29
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/22/2013 01:29
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/22/2013 01:29
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	5/22/2013 01:29
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	5/22/2013 01:29
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/22/2013 01:29
Benzene	U		0.00020	0.0010	mg/L	1	5/22/2013 01:29
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	5/22/2013 01:29
Chloroform	U		0.00030	0.0010	mg/L	1	5/22/2013 01:29
Ethylbenzene	U		0.00030	0.0010	mg/L	1	5/22/2013 01:29
Methylene chloride	U		0.00040	0.0020	mg/L	1	5/22/2013 01:29
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	5/22/2013 01:29
Toluene	U		0.00030	0.0010	mg/L	1	5/22/2013 01:29
Trichloroethene	U		0.00020	0.0010	mg/L	1	5/22/2013 01:29
Vinyl chloride	U		0.00040	0.0010	mg/L	1	5/22/2013 01:29
Xylenes, Total	U		0.00030	0.0010	mg/L	1	5/22/2013 01:29
Surr: 1,2-Dichloroethane-d4	103			71-125	%REC	1	5/22/2013 01:29
Surr: 4-Bromofluorobenzene	99.8			70-125	%REC	1	5/22/2013 01:29
Surr: Dibromofluoromethane	101			74-125	%REC	1	5/22/2013 01:29
Surr: Toluene-d8	98.9			78-123	%REC	1	5/22/2013 01:29

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: Trip Blank 050313-12
Collection Date: 5/16/2013

Work Order: 1305797
Lab ID: 1305797-14
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: PC	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/22/2013 01:55
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	5/22/2013 01:55
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/22/2013 01:55
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/22/2013 01:55
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	5/22/2013 01:55
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	5/22/2013 01:55
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/22/2013 01:55
Benzene	U		0.00020	0.0010	mg/L	1	5/22/2013 01:55
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	5/22/2013 01:55
Chloroform	U		0.00030	0.0010	mg/L	1	5/22/2013 01:55
Ethylbenzene	U		0.00030	0.0010	mg/L	1	5/22/2013 01:55
Methylene chloride	U		0.00040	0.0020	mg/L	1	5/22/2013 01:55
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	5/22/2013 01:55
Toluene	U		0.00030	0.0010	mg/L	1	5/22/2013 01:55
Trichloroethene	U		0.00020	0.0010	mg/L	1	5/22/2013 01:55
Vinyl chloride	U		0.00040	0.0010	mg/L	1	5/22/2013 01:55
Xylenes, Total	U		0.00030	0.0010	mg/L	1	5/22/2013 01:55
Surr: 1,2-Dichloroethane-d4	103			71-125	%REC	1	5/22/2013 01:55
Surr: 4-Bromofluorobenzene	102			70-125	%REC	1	5/22/2013 01:55
Surr: Dibromofluoromethane	98.1			74-125	%REC	1	5/22/2013 01:55
Surr: Toluene-d8	98.3			78-123	%REC	1	5/22/2013 01:55

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: Trip Blank 050313-34
Collection Date: 5/16/2013

Work Order: 1305797
Lab ID: 1305797-15
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: PC	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/22/2013 02:21
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	5/22/2013 02:21
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/22/2013 02:21
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/22/2013 02:21
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	5/22/2013 02:21
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	5/22/2013 02:21
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/22/2013 02:21
Benzene	U		0.00020	0.0010	mg/L	1	5/22/2013 02:21
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	5/22/2013 02:21
Chloroform	U		0.00030	0.0010	mg/L	1	5/22/2013 02:21
Ethylbenzene	U		0.00030	0.0010	mg/L	1	5/22/2013 02:21
Methylene chloride	U		0.00040	0.0020	mg/L	1	5/22/2013 02:21
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	5/22/2013 02:21
Toluene	U		0.00030	0.0010	mg/L	1	5/22/2013 02:21
Trichloroethene	U		0.00020	0.0010	mg/L	1	5/22/2013 02:21
Vinyl chloride	U		0.00040	0.0010	mg/L	1	5/22/2013 02:21
Xylenes, Total	U		0.00030	0.0010	mg/L	1	5/22/2013 02:21
Surr: 1,2-Dichloroethane-d4	107			71-125	%REC	1	5/22/2013 02:21
Surr: 4-Bromofluorobenzene	101			70-125	%REC	1	5/22/2013 02:21
Surr: Dibromofluoromethane	103			74-125	%REC	1	5/22/2013 02:21
Surr: Toluene-d8	96.3			78-123	%REC	1	5/22/2013 02:21

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: Trip Blank 050313-14
Collection Date: 5/16/2013

Work Order: 1305797
Lab ID: 1305797-16
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: PC	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/22/2013 02:47
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	5/22/2013 02:47
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/22/2013 02:47
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/22/2013 02:47
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	5/22/2013 02:47
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	5/22/2013 02:47
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/22/2013 02:47
Benzene	U		0.00020	0.0010	mg/L	1	5/22/2013 02:47
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	5/22/2013 02:47
Chloroform	U		0.00030	0.0010	mg/L	1	5/22/2013 02:47
Ethylbenzene	U		0.00030	0.0010	mg/L	1	5/22/2013 02:47
Methylene chloride	U		0.00040	0.0020	mg/L	1	5/22/2013 02:47
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	5/22/2013 02:47
Toluene	U		0.00030	0.0010	mg/L	1	5/22/2013 02:47
Trichloroethene	U		0.00020	0.0010	mg/L	1	5/22/2013 02:47
Vinyl chloride	U		0.00040	0.0010	mg/L	1	5/22/2013 02:47
Xylenes, Total	U		0.00030	0.0010	mg/L	1	5/22/2013 02:47
Surr: 1,2-Dichloroethane-d4	104			71-125	%REC	1	5/22/2013 02:47
Surr: 4-Bromofluorobenzene	99.3			70-125	%REC	1	5/22/2013 02:47
Surr: Dibromofluoromethane	99.5			74-125	%REC	1	5/22/2013 02:47
Surr: Toluene-d8	96.3			78-123	%REC	1	5/22/2013 02:47

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

ALS Environmental

Date: 12-Jun-13

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
Sample ID: Trip Blank 050313-24
Collection Date: 5/16/2013

Work Order: 1305797
Lab ID: 1305797-17
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: PC	
1,1,1-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/22/2013 03:13
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	5/22/2013 03:13
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	5/22/2013 03:13
1,1-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/22/2013 03:13
1,1-Dichloroethene	U		0.00050	0.0010	mg/L	1	5/22/2013 03:13
1,2-Dibromoethane	U		0.00030	0.0010	mg/L	1	5/22/2013 03:13
1,2-Dichloroethane	U		0.00030	0.0010	mg/L	1	5/22/2013 03:13
Benzene	U		0.00020	0.0010	mg/L	1	5/22/2013 03:13
Carbon tetrachloride	U		0.00030	0.0010	mg/L	1	5/22/2013 03:13
Chloroform	U		0.00030	0.0010	mg/L	1	5/22/2013 03:13
Ethylbenzene	U		0.00030	0.0010	mg/L	1	5/22/2013 03:13
Methylene chloride	U		0.00040	0.0020	mg/L	1	5/22/2013 03:13
Tetrachloroethene	U		0.00040	0.0010	mg/L	1	5/22/2013 03:13
Toluene	U		0.00030	0.0010	mg/L	1	5/22/2013 03:13
Trichloroethene	U		0.00020	0.0010	mg/L	1	5/22/2013 03:13
Vinyl chloride	U		0.00040	0.0010	mg/L	1	5/22/2013 03:13
Xylenes, Total	U		0.00030	0.0010	mg/L	1	5/22/2013 03:13
Surr: 1,2-Dichloroethane-d4	103			71-125	%REC	1	5/22/2013 03:13
Surr: 4-Bromofluorobenzene	101			70-125	%REC	1	5/22/2013 03:13
Surr: Dibromofluoromethane	102			74-125	%REC	1	5/22/2013 03:13
Surr: Toluene-d8	97.4			78-123	%REC	1	5/22/2013 03:13

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

Client: Navajo Refining Company
Work Order: 1305797
Project: RO Discharge Sampling 128823

QC BATCH REPORT

Batch ID: **70151** Instrument ID **FID-16** Method: **SW8015M**

MBLK	Sample ID: LBLKW-130520-70151				Units: mg/L		Analysis Date: 5/22/2013 10:34 AM			
Client ID:	Run ID: FID-16_130520A				SeqNo: 3228675		Prep Date: 5/20/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	U	0.050								
TPH (Oil Range)	U	0.10								
<i>Surr: 2-Fluorobiphenyl</i>	0.06089	0.0050	0.06061	0	100	60-135	0			

LCS	Sample ID: LLCSW-130520-70151				Units: mg/L		Analysis Date: 5/22/2013 11:01 AM			
Client ID:	Run ID: FID-16_130520A				SeqNo: 3228676		Prep Date: 5/20/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.693	0.050	0.6061	0	114	70-130				
TPH (Oil Range)	0.5582	0.10	0.6061	0	92.1	70-130				
<i>Surr: 2-Fluorobiphenyl</i>	0.04578	0.0050	0.06061	0	75.5	60-135	0			

LCSD	Sample ID: LLCSDW-130520-70151				Units: mg/L		Analysis Date: 5/22/2013 11:27 AM			
Client ID:	Run ID: FID-16_130520A				SeqNo: 3228677		Prep Date: 5/20/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.7029	0.050	0.6061	0	116	70-130	0.693	1.43	20	
TPH (Oil Range)	0.5517	0.10	0.6061	0	91	70-130	0.5582	1.17	20	
<i>Surr: 2-Fluorobiphenyl</i>	0.04636	0.0050	0.06061	0	76.5	60-135	0.04578	1.25	20	

The following samples were analyzed in this batch:

1305797-01C	1305797-02C	1305797-03C
1305797-04C	1305797-05C	1305797-06C
1305797-07C	1305797-08C	1305797-09C

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

Client: Navajo Refining Company
Work Order: 1305797
Project: RO Discharge Sampling 128823

QC BATCH REPORT

Batch ID: **R147859** Instrument ID **FID-9** Method: **SW8015**

MBLK	Sample ID: GBLKW-130523-R147859				Units: mg/L		Analysis Date: 5/23/2013 04:46 PM			
Client ID:	Run ID: FID-9_130523A				SeqNo: 3228332		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	U	0.050								
<i>Surr: 4-Bromofluorobenzene</i>	0.1047	0.0050	0.1	0	105	70-130	0			

LCS	Sample ID: GLCSW-130523-R147859				Units: mg/L		Analysis Date: 5/23/2013 04:07 PM			
Client ID:	Run ID: FID-9_130523A				SeqNo: 3228331		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	0.8025	0.050	1	0	80.3	70-130				
<i>Surr: 4-Bromofluorobenzene</i>	0.109	0.0050	0.1	0	109	70-130	0			

MS	Sample ID: 1305797-01BMS				Units: mg/L		Analysis Date: 5/24/2013 01:01 AM			
Client ID: MW-114	Run ID: FID-9_130523A				SeqNo: 3228334		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	0.7048	0.050	1	0	70.5	70-130				
<i>Surr: 4-Bromofluorobenzene</i>	0.1144	0.0050	0.1	0	114	70-130	0			

MSD	Sample ID: 1305797-01BMSD				Units: mg/L		Analysis Date: 5/24/2013 01:19 AM			
Client ID: MW-114	Run ID: FID-9_130523A				SeqNo: 3228335		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	0.707	0.050	1	0	70.7	70-130	0.7048	0.314	30	
<i>Surr: 4-Bromofluorobenzene</i>	0.1155	0.0050	0.1	0	115	70-130	0.1144	0.892	30	

The following samples were analyzed in this batch:

1305797-01B	1305797-02B	1305797-03B
1305797-04B	1305797-05B	1305797-06B
1305797-07B	1305797-08B	1305797-09B

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

Client: Navajo Refining Company
Work Order: 1305797
Project: RO Discharge Sampling 128823

QC BATCH REPORT

Batch ID: **70093** Instrument ID **Mercury** Method: **SW7470** (Dissolve)

MBLK	Sample ID: GBLKW1-052013-70093				Units: mg/L		Analysis Date: 5/20/2013 01:31 PM			
Client ID:	Run ID: MERCURY_130520A				SeqNo: 3222135		Prep Date: 5/20/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	0.00020								

LCS	Sample ID: GLCSW1-052013-70093				Units: mg/L		Analysis Date: 5/20/2013 01:45 PM			
Client ID:	Run ID: MERCURY_130520A				SeqNo: 3222136		Prep Date: 5/20/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00512	0.00020	0.005	0	102	80-120				

MS	Sample ID: 1305631-01CMS				Units: mg/L		Analysis Date: 5/20/2013 01:56 PM			
Client ID:	Run ID: MERCURY_130520A				SeqNo: 3222139		Prep Date: 5/20/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00505	0.00020	0.005	0.000018	101	80-120				

MSD	Sample ID: 1305631-01CMSD				Units: mg/L		Analysis Date: 5/20/2013 01:58 PM			
Client ID:	Run ID: MERCURY_130520A				SeqNo: 3222140		Prep Date: 5/20/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00503	0.00020	0.005	0.000018	100	80-120	0.00505	0.397	20	

DUP	Sample ID: 1305631-01CDUP				Units: mg/L		Analysis Date: 5/20/2013 01:48 PM			
Client ID:	Run ID: MERCURY_130520A				SeqNo: 3222138		Prep Date: 5/20/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	0.00020					0.000018	0	20	

The following samples were analyzed in this batch:

1305797-01E	1305797-02E	1305797-03E
1305797-04E	1305797-05E	1305797-06E
1305797-07E	1305797-08E	1305797-09E

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

Client: Navajo Refining Company
Work Order: 1305797
Project: RO Discharge Sampling 128823

QC BATCH REPORT

Batch ID: **70138** Instrument ID **ICP7500** Method: **SW6020** **(Dissolve)**

MBLK Sample ID: **MBLKW4-052013-70138** Units: **mg/L** Analysis Date: **5/20/2013 10:19 PM**
 Client ID: Run ID: **ICP7500_130520A** SeqNo: **3222965** Prep Date: **5/20/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.0050								
Barium	U	0.0050								
Cadmium	U	0.0020								
Calcium	U	0.50								
Chromium	U	0.0050								
Cobalt	U	0.0050								
Copper	U	0.0050								
Iron	U	0.20								
Lead	U	0.0050								
Manganese	U	0.0050								
Nickel	U	0.0050								
Selenium	U	0.0050								

MBLK Sample ID: **MBLKW4-052013-70138** Units: **mg/L** Analysis Date: **5/21/2013 02:58 PM**
 Client ID: Run ID: **ICP7500_130521A** SeqNo: **3223790** Prep Date: **5/20/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.00464	0.010								J
Boron	U	0.050								
Molybdenum	U	0.0050								
Potassium	U	0.20								
Silver	U	0.0050								
Sodium	U	0.20								
Uranium	U	0.0050								
Zinc	U	0.0050								

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

Client: Navajo Refining Company
Work Order: 1305797
Project: RO Discharge Sampling 128823

QC BATCH REPORT

Batch ID: **70138** Instrument ID **ICP7500** Method: **SW6020** **(Dissolve)**

LCS	Sample ID: MLCSW4-052013-70138				Units: mg/L		Analysis Date: 5/20/2013 10:24 PM			
Client ID:	Run ID: ICP7500_130520A				SeqNo: 3222969		Prep Date: 5/20/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05045	0.0050	0.05	0	101	80-120				
Barium	0.0525	0.0050	0.05	0	105	80-120				
Cadmium	0.04981	0.0020	0.05	0	99.6	80-120				
Calcium	5.25	0.50	5	0	105	80-120				
Chromium	0.05135	0.0050	0.05	0	103	80-120				
Cobalt	0.05146	0.0050	0.05	0	103	80-120				
Copper	0.05218	0.0050	0.05	0	104	80-120				
Iron	5.323	0.20	5	0	106	80-120				
Lead	0.04737	0.0050	0.05	0	94.7	80-120				
Manganese	0.052	0.0050	0.05	0	104	80-120				
Nickel	0.05069	0.0050	0.05	0	101	80-120				
Selenium	0.05101	0.0050	0.05	0	102	80-120				

LCS	Sample ID: MLCSW4-052013-70138				Units: mg/L		Analysis Date: 5/21/2013 02:53 PM			
Client ID:	Run ID: ICP7500_130521A				SeqNo: 3223789		Prep Date: 5/20/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1153	0.010	0.1	0	115	80-120				
Boron	0.4901	0.050	0.5	0	98	80-120				
Molybdenum	0.04916	0.0050	0.05	0	98.3	80-120				
Potassium	5.131	0.20	5	0	103	80-120				
Silver	0.0508	0.0050	0.05	0	102	80-120				
Sodium	5.159	0.20	5	0	103	80-120				
Uranium	0.09877	0.0050	0.1	0	98.8	80-120				
Zinc	0.05252	0.0050	0.05	0	105	80-120				

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

Client: Navajo Refining Company
Work Order: 1305797
Project: RO Discharge Sampling 128823

QC BATCH REPORT

Batch ID: **70138** Instrument ID **ICP7500** Method: **SW6020** **(Dissolve)**

MS		Sample ID: 1305631-07CMS				Units: mg/L		Analysis Date: 5/20/2013 10:44 PM		
Client ID:		Run ID: ICP7500_130520A				SeqNo: 3222974		Prep Date: 5/20/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05694	0.0050	0.05	0.002342	109	75-125				
Barium	0.06849	0.0050	0.05	0.01582	105	75-125				
Cadmium	0.04942	0.0020	0.05	0.000278	98.3	75-125				
Calcium	622.4	0.50	5	642.3	-398	75-125				SEO
Chromium	0.04974	0.0050	0.05	0.0009524	97.6	75-125				
Cobalt	0.05029	0.0050	0.05	0.00002101	101	75-125				
Copper	0.04902	0.0050	0.05	0.0005997	96.8	75-125				
Iron	5.278	0.20	5	0.01389	105	75-125				
Lead	0.04983	0.0050	0.05	0.0003501	99	75-125				
Manganese	0.08107	0.0050	0.05	0.03229	97.6	75-125				
Nickel	0.05048	0.0050	0.05	0.002087	96.8	75-125				
Selenium	0.0626	0.0050	0.05	0.0009735	123	75-125				

MS		Sample ID: 1305631-07CMS				Units: mg/L		Analysis Date: 5/21/2013 03:28 PM		
Client ID:		Run ID: ICP7500_130521A				SeqNo: 3224005		Prep Date: 5/20/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1547	0.010	0.1	0.04429	110	75-125				
Boron	1.364	0.050	0.5	0.8347	106	75-125				
Molybdenum	0.05301	0.0050	0.05	0.002711	101	75-125				
Potassium	9.398	0.20	5	4.601	95.9	75-125				
Silver	0.04896	0.0050	0.05	-0.0001468	98.2	75-125				
Sodium	76.78	0.20	5	72.1	93.6	75-125				O
Uranium	0.104	0.0050	0.1	0.00107	103	75-125				
Zinc	0.05437	0.0050	0.05	0.005404	97.9	75-125				

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

Client: Navajo Refining Company
Work Order: 1305797
Project: RO Discharge Sampling 128823

QC BATCH REPORT

Batch ID: **70138** Instrument ID **ICP7500** Method: **SW6020** **(Dissolve)**

MSD		Sample ID: 1305631-07CMSD				Units: mg/L		Analysis Date: 5/20/2013 10:49 PM		
Client ID:		Run ID: ICP7500_130520A				SeqNo: 3222976		Prep Date: 5/20/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.06137	0.0050	0.05	0.002342	118	75-125	0.05694	7.49	25	
Barium	0.07023	0.0050	0.05	0.01582	109	75-125	0.06849	2.51	25	
Cadmium	0.04904	0.0020	0.05	0.000278	97.5	75-125	0.04942	0.772	25	
Calcium	609.9	0.50	5	642.3	-648	75-125	622.4	2.03	25	SEO
Chromium	0.05014	0.0050	0.05	0.0009524	98.4	75-125	0.04974	0.801	25	
Cobalt	0.04994	0.0050	0.05	0.00002101	99.8	75-125	0.05029	0.698	25	
Copper	0.05063	0.0050	0.05	0.0005997	100	75-125	0.04902	3.23	25	
Iron	5.229	0.20	5	0.01389	104	75-125	5.278	0.933	25	
Lead	0.04982	0.0050	0.05	0.0003501	98.9	75-125	0.04983	0.0201	25	
Manganese	0.07971	0.0050	0.05	0.03229	94.8	75-125	0.08107	1.69	25	
Nickel	0.05067	0.0050	0.05	0.002087	97.2	75-125	0.05048	0.376	25	

MSD		Sample ID: 1305631-07CMSD				Units: mg/L		Analysis Date: 5/21/2013 03:33 PM		
Client ID:		Run ID: ICP7500_130521A				SeqNo: 3224006		Prep Date: 5/20/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1652	0.010	0.1	0.04429	121	75-125	0.1547	6.56	25	
Boron	1.448	0.050	0.5	0.8347	123	75-125	1.364	5.97	25	
Molybdenum	0.05394	0.0050	0.05	0.002711	102	75-125	0.05301	1.74	25	
Potassium	9.774	0.20	5	4.601	103	75-125	9.398	3.92	25	
Selenium	0.05684	0.0050	0.05	-0.00005637	114	75-125	0.05635	0.866	25	
Silver	0.04969	0.0050	0.05	-0.0001468	99.7	75-125	0.04896	1.48	25	
Sodium	78.22	0.20	5	72.1	122	75-125	76.78	1.86	25	O
Uranium	0.1055	0.0050	0.1	0.00107	104	75-125	0.104	1.43	25	
Zinc	0.05742	0.0050	0.05	0.005404	104	75-125	0.05437	5.46	25	

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

Client: Navajo Refining Company
Work Order: 1305797
Project: RO Discharge Sampling 128823

QC BATCH REPORT

Batch ID: **70138** Instrument ID **ICP7500** Method: **SW6020** (Dissolve)

DUP	Sample ID: 1305631-07CDUP				Units: mg/L		Analysis Date: 5/20/2013 10:34 PM			
Client ID:	Run ID: ICP7500_130520A				SeqNo: 3222971		Prep Date: 5/20/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.002346	0.0050					0.002342	0	25	J
Barium	0.01622	0.0050					0.01582	2.5	25	
Cadmium	U	0.0020					0.000278	0	25	
Chromium	U	0.0050					0.0009524	0	25	
Cobalt	U	0.0050					0.00002101	0	25	
Copper	U	0.0050					0.0005997	0	25	
Iron	U	0.20					0.01389	0	25	
Lead	U	0.0050					0.0003501	0	25	
Manganese	0.03261	0.0050					0.03229	0.986	25	
Nickel	0.002229	0.0050					0.002087	0	25	J
Selenium	U	0.0050					0.0009735	0	25	

DUP	Sample ID: 1305631-07CDUP					Units: mg/L		Analysis Date: 5/21/2013 03:18 PM			
Client ID:	Run ID: ICP7500_130521A					SeqNo:3224003		Prep Date: 5/20/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Aluminum	0.04555	0.010					0.04429	2.8	25		
Boron	0.859	0.050					0.8347	2.87	25		
Molybdenum	0.002438	0.0050					0.002711	0	25	J	
Potassium	4.562	0.20					4.601	0.851	25		
Silver	U	0.0050					-0.0001468	0	25		
Sodium	73	0.20					72.1	1.24	25		
Uranium	U	0.0050					0.00107	0	25		
Zinc	0.004553	0.0050					0.005404	0	25	J	

DUP	Sample ID: 1305631-07CDUP					Units: mg/L		Analysis Date: 5/21/2013 04:08 PM		
Client ID:	Run ID: ICP7500_130521A					SeqNo: 3224013		Prep Date: 5/20/2013		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	582.5	5.0					573.3	1.59	25	

The following samples were analyzed in this batch:

1305797-01E	1305797-02E	1305797-03E
1305797-04E	1305797-05E	1305797-06E
1305797-07E	1305797-08E	1305797-09E

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

Client: Navajo Refining Company
Work Order: 1305797
Project: RO Discharge Sampling 128823

QC BATCH REPORT

Batch ID: **70117** Instrument ID **SV-4** Method: **SW8270**

MBLK Sample ID: **SBLKW1-130520-70117** Units: **µg/L** Analysis Date: **5/21/2013 12:21 AM**
 Client ID: Run ID: **SV-4_130520A** SeqNo: **3227420** Prep Date: **5/20/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	U	0.20								
2-Methylnaphthalene	U	0.20								
Benzo(a)pyrene	U	0.20								
Naphthalene	U	0.20								
Surr: 2,4,6-Tribromophenol	4.324	0.20	5	0	0	34-129	0			
Surr: 2-Fluorobiphenyl	3.77	0.20	5	0	0	40-125	0			
Surr: 2-Fluorophenol	3.455	0.20	5	0	0	20-120	0			
Surr: 4-Terphenyl-d14	3.896	0.20	5	0	0	40-135	0			
Surr: Nitrobenzene-d5	3.381	0.20	5	0	0	41-120	0			
Surr: Phenol-d6	3.62	0.20	5	0	0	20-120	0			

LCS Sample ID: **SLCSW1-130520-70117** Units: **µg/L** Analysis Date: **5/21/2013 12:42 AM**
 Client ID: Run ID: **SV-4_130520A** SeqNo: **3227421** Prep Date: **5/20/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	3.72	0.20	5	0	0	45-120				
2-Methylnaphthalene	3.782	0.20	5	0	0	50-120				
Benzo(a)pyrene	3.858	0.20	5	0	0	45-120				
Naphthalene	3.35	0.20	5	0	0	45-120				
Surr: 2,4,6-Tribromophenol	4.147	0.20	5	0	0	34-129	0			
Surr: 2-Fluorobiphenyl	3.819	0.20	5	0	0	40-125	0			
Surr: 2-Fluorophenol	3.726	0.20	5	0	0	20-120	0			
Surr: 4-Terphenyl-d14	3.895	0.20	5	0	0	40-135	0			
Surr: Nitrobenzene-d5	3.365	0.20	5	0	0	41-120	0			
Surr: Phenol-d6	3.621	0.20	5	0	0	20-120	0			

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

Client: Navajo Refining Company
Work Order: 1305797
Project: RO Discharge Sampling 128823

QC BATCH REPORT

Batch ID: **70117** Instrument ID **SV-4** Method: **SW8270**

LCSD				Sample ID: SLCSDW1-130520-70117		Units: µg/L		Analysis Date: 5/21/2013 01:03 AM			
Client ID:		Run ID: SV-4_130520A				SeqNo: 3227422		Prep Date: 5/20/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
1-Methylnaphthalene	3.727	0.20	5	0	0	45-120	3.72	0	20		
2-Methylnaphthalene	3.881	0.20	5	0	0	50-120	3.782	0	20		
Benzo(a)pyrene	3.791	0.20	5	0	0	45-120	3.858	0	20		
Naphthalene	3.486	0.20	5	0	0	45-120	3.35	0	20		
Surr: 2,4,6-Tribromophenol	4.081	0.20	5	0	0	34-129	4.147	0	0		
Surr: 2-Fluorobiphenyl	3.682	0.20	5	0	0	40-125	3.819	0	0		
Surr: 2-Fluorophenol	3.649	0.20	5	0	0	20-120	3.726	0	0		
Surr: 4-Terphenyl-d14	3.815	0.20	5	0	0	40-135	3.895	0	0		
Surr: Nitrobenzene-d5	3.368	0.20	5	0	0	41-120	3.365	0	0		
Surr: Phenol-d6	3.654	0.20	5	0	0	20-120	3.621	0	0		

The following samples were analyzed in this batch:

1305797-01H	1305797-02H	1305797-03H
1305797-04H	1305797-05H	1305797-06H
1305797-07H	1305797-08H	1305797-09H

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

Client: Navajo Refining Company
Work Order: 1305797
Project: RO Discharge Sampling 128823

QC BATCH REPORT

Batch ID: **R147734** Instrument ID **VOA6** Method: **SW8260**

MBLK Sample ID: **VBLKW-130521-R147734** Units: **µg/L** Analysis Date: **5/21/2013 11:45 AM**

Client ID: Run ID: **VOA6_130521B** SeqNo: **3225043** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichloroethane	U	1.0								
Benzene	U	1.0								
Carbon tetrachloride	U	1.0								
Chloroform	U	1.0								
Ethylbenzene	U	1.0								
Methylene chloride	U	2.0								
Tetrachloroethene	U	1.0								
Toluene	U	1.0								
Trichloroethene	U	1.0								
Vinyl chloride	U	1.0								
Xylenes, Total	U	3.0								
Surr: 1,2-Dichloroethane-d4	51.94	1.0	50	0	104	71-125	0			
Surr: 4-Bromofluorobenzene	50.79	1.0	50	0	102	70-125	0			
Surr: Dibromofluoromethane	50.85	1.0	50	0	102	74-125	0			
Surr: Toluene-d8	49.13	1.0	50	0	98.3	78-123	0			

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

Client: Navajo Refining Company
Work Order: 1305797
Project: RO Discharge Sampling 128823

QC BATCH REPORT

Batch ID: **R147734** Instrument ID **VOA6** Method: **SW8260**

LCS		Sample ID: VLCSW-130521-R147734				Units: µg/L		Analysis Date: 5/21/2013 10:32 AM		
Client ID:		Run ID: VOA6_130521B				SeqNo: 3225042		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	51.32	1.0	50	0	103	75-130				
1,1,2,2-Tetrachloroethane	51.63	1.0	50	0	103	74-123				
1,1,2-Trichloroethane	47.13	1.0	50	0	94.3	80-120				
1,1-Dichloroethane	50.8	1.0	50	0	102	80-120				
1,1-Dichloroethene	51.96	1.0	50	0	104	75-130				
1,2-Dibromoethane	48.2	1.0	50	0	96.4	80-120				
1,2-Dichloroethane	48.3	1.0	50	0	96.6	79-120				
Benzene	49.74	1.0	50	0	99.5	80-120				
Carbon tetrachloride	49.95	1.0	50	0	99.9	75-125				
Chloroform	50.88	1.0	50	0	102	70-130				
Ethylbenzene	48.66	1.0	50	0	97.3	80-120				
Methylene chloride	52.07	2.0	50	0	104	75-125				
Tetrachloroethene	49.84	1.0	50	0	99.7	75-130				
Toluene	48.77	1.0	50	0	97.5	80-121				
Trichloroethene	50.89	1.0	50	0	102	75-125				
Vinyl chloride	49.87	1.0	50	0	99.7	70-135				
Xylenes, Total	147.2	3.0	150	0	98.1	80-124				
<i>Surr: 1,2-Dichloroethane-d4</i>	50.68	1.0	50	0	101	71-125		0		
<i>Surr: 4-Bromofluorobenzene</i>	50.36	1.0	50	0	101	70-125		0		
<i>Surr: Dibromofluoromethane</i>	50.97	1.0	50	0	102	74-125		0		
<i>Surr: Toluene-d8</i>	49.04	1.0	50	0	98.1	78-123		0		

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

Client: Navajo Refining Company
Work Order: 1305797
Project: RO Discharge Sampling 128823

QC BATCH REPORT

Batch ID: **R147734** Instrument ID **VOA6** Method: **SW8260**

MS	Sample ID: 1305842-01AMS				Units: µg/L		Analysis Date: 5/21/2013 01:21 PM			
Client ID:	Run ID: VOA6_130521B				SeqNo: 3225045		Prep Date:		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	212.9	5.0	250	0	85.2	75-130				
1,1,2,2-Tetrachloroethane	261.3	5.0	250	0	105	74-123				
1,1,2-Trichloroethane	235	5.0	250	0	94	80-120				
1,1-Dichloroethane	218.5	5.0	250	0	87.4	80-120				
1,1-Dichloroethene	196.9	5.0	250	0	78.8	75-130				
1,2-Dibromoethane	237.2	5.0	250	0	94.9	80-120				
1,2-Dichloroethane	231.2	5.0	250	0	92.5	79-120				
Benzene	219	5.0	250	0	87.6	80-120				
Carbon tetrachloride	197.5	5.0	250	0	79	79-120				S
Chloroform	233.1	5.0	250	0	93.2	70-130				
Ethylbenzene	210.8	5.0	250	0	84.3	80-120				
Methylene chloride	240.2	10	250	7.578	93.1	75-125				
Tetrachloroethene	210	5.0	250	0	84	75-130				
Toluene	216.5	5.0	250	2.728	85.5	80-121				
Trichloroethene	618.7	5.0	250	429.6	75.7	75-125				
Vinyl chloride	162.7	5.0	250	0	65.1	70-135				S
Xylenes, Total	632	15	750	0	84.3	80-124				
Surr: 1,2-Dichloroethane-d4	260.9	5.0	250	0	104	71-125		0		
Surr: 4-Bromofluorobenzene	251.5	5.0	250	0	101	70-125		0		
Surr: Dibromofluoromethane	251.2	5.0	250	0	100	74-125		0		
Surr: Toluene-d8	245.9	5.0	250	0	98.4	78-123		0		

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

Client: Navajo Refining Company
Work Order: 1305797
Project: RO Discharge Sampling 128823

QC BATCH REPORT

Batch ID: **R147734** Instrument ID **VOA6** Method: **SW8260**

MSD		Sample ID: 1305842-01AMSD				Units: µg/L		Analysis Date: 5/21/2013 01:47 PM		
Client ID:		Run ID: VOA6_130521B				SeqNo: 3225046		Prep Date:		DF: 5
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	227.5	5.0	250	0	91	75-130	212.9	6.64	20	
1,1,2,2-Tetrachloroethane	268.7	5.0	250	0	107	74-123	261.3	2.78	20	
1,1,2-Trichloroethane	241.6	5.0	250	0	96.7	80-120	235	2.77	20	
1,1-Dichloroethane	226.5	5.0	250	0	90.6	80-120	218.5	3.57	20	
1,1-Dichloroethene	211.3	5.0	250	0	84.5	75-130	196.9	7.05	20	
1,2-Dibromoethane	243.2	5.0	250	0	97.3	80-120	237.2	2.49	20	
1,2-Dichloroethane	242.8	5.0	250	0	97.1	79-120	231.2	4.9	20	
Benzene	232.6	5.0	250	0	93	80-120	219	6.05	20	
Carbon tetrachloride	222.4	5.0	250	0	89	75-125	197.5	11.9	20	
Chloroform	237.4	5.0	250	0	94.9	70-130	233.1	1.83	20	
Ethylbenzene	228	5.0	250	0	91.2	80-120	210.8	7.86	20	
Methylene chloride	245.1	10	250	7.578	95	75-125	240.2	1.99	20	
Tetrachloroethene	224.6	5.0	250	0	89.8	75-130	210	6.67	20	
Toluene	225.8	5.0	250	2.728	89.2	80-121	216.5	4.18	20	
Trichloroethene	634.3	5.0	250	429.6	81.9	75-120	618.7	2.48	20	
Vinyl chloride	169.4	5.0	250	0	67.7	70-135	162.7	4.01	20	S
Xylenes, Total	683.5	15	750	0	91.1	80-124	632	7.83	20	
<i>Surr: 1,2-Dichloroethane-d4</i>	252	5.0	250	0	101	71-125	260.9	3.49	20	
<i>Surr: 4-Bromofluorobenzene</i>	251.4	5.0	250	0	101	70-125	251.5	0.0386	20	
<i>Surr: Dibromofluoromethane</i>	249.3	5.0	250	0	99.7	74-125	251.2	0.757	20	
<i>Surr: Toluene-d8</i>	243.2	5.0	250	0	97.3	78-123	245.9	1.11	20	

The following samples were analyzed in this batch:

1305797-01A	1305797-02A	1305797-03A
1305797-04A	1305797-05A	1305797-06A
1305797-07A	1305797-09A	1305797-10A
1305797-11A	1305797-12A	

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

Client: Navajo Refining Company
Work Order: 1305797
Project: RO Discharge Sampling 128823

QC BATCH REPORT

Batch ID: **R147736** Instrument ID **VOA6** Method: **SW8260**

MBLK Sample ID: **VBLKW-130521-R147736** Units: **µg/L** Analysis Date: **5/22/2013 12:37 AM**
 Client ID: Run ID: **VOA6_130521D** SeqNo: **3225137** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichloroethane	U	1.0								
Benzene	U	1.0								
Carbon tetrachloride	U	1.0								
Chloroform	U	1.0								
Ethylbenzene	U	1.0								
Methylene chloride	U	2.0								
Tetrachloroethene	U	1.0								
Toluene	U	1.0								
Trichloroethene	U	1.0								
Vinyl chloride	U	1.0								
Xylenes, Total	U	3.0								
Surr: 1,2-Dichloroethane-d4	52.1	1.0	50	0	104	71-125	0			
Surr: 4-Bromofluorobenzene	50.43	1.0	50	0	101	70-125	0			
Surr: Dibromofluoromethane	51.79	1.0	50	0	104	74-125	0			
Surr: Toluene-d8	49.01	1.0	50	0	98	78-123	0			

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

Client: Navajo Refining Company
Work Order: 1305797
Project: RO Discharge Sampling 128823

QC BATCH REPORT

Batch ID: **R147736** Instrument ID **VOA6** Method: **SW8260**

LCS				Sample ID: VLCSW-130521-R147736			Units: µg/L		Analysis Date: 5/21/2013 11:19 PM		
Client ID:		Run ID: VOA6_130521D			SeqNo: 3225136		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
1,1,1-Trichloroethane	50.46	1.0	50	0	101	75-130					
1,1,2,2-Tetrachloroethane	49.77	1.0	50	0	99.5	74-123					
1,1,2-Trichloroethane	46.9	1.0	50	0	93.8	80-120					
1,1-Dichloroethane	49.05	1.0	50	0	98.1	80-120					
1,1-Dichloroethene	50.38	1.0	50	0	101	75-130					
1,2-Dibromoethane	47.45	1.0	50	0	94.9	80-120					
1,2-Dichloroethane	47.39	1.0	50	0	94.8	79-120					
Benzene	48.8	1.0	50	0	97.6	80-120					
Carbon tetrachloride	49.7	1.0	50	0	99.4	75-125					
Chloroform	49.77	1.0	50	0	99.5	70-130					
Ethylbenzene	48.51	1.0	50	0	97	80-120					
Methylene chloride	50.04	2.0	50	0	100	75-125					
Tetrachloroethene	49.23	1.0	50	0	98.5	75-130					
Toluene	47.9	1.0	50	0	95.8	80-121					
Trichloroethene	50.81	1.0	50	0	102	75-125					
Vinyl chloride	47.34	1.0	50	0	94.7	70-135					
Xylenes, Total	144.9	3.0	150	0	96.6	80-124					
Surr: 1,2-Dichloroethane-d4	49.74	1.0	50	0	99.5	71-125		0			
Surr: 4-Bromofluorobenzene	49.76	1.0	50	0	99.5	70-125		0			
Surr: Dibromofluoromethane	50.14	1.0	50	0	100	74-125		0			
Surr: Toluene-d8	49.32	1.0	50	0	98.6	78-123		0			

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

Client: Navajo Refining Company
Work Order: 1305797
Project: RO Discharge Sampling 128823

QC BATCH REPORT

Batch ID: **R147736** Instrument ID **VOA6** Method: **SW8260**

MS	Sample ID: 1305818-01AMS				Units: µg/L		Analysis Date: 5/22/2013 04:33 AM			
Client ID:	Run ID: VOA6_130521D				SeqNo: 3225145		Prep Date:		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	202.6	5.0	250	0	81	75-130				
1,1,2,2-Tetrachloroethane	249.8	5.0	250	0	99.9	74-123				
1,1,2-Trichloroethane	232.1	5.0	250	0	92.8	80-120				
1,1-Dichloroethane	221.1	5.0	250	0	88.4	80-120				
1,1-Dichloroethene	182.1	5.0	250	0	72.8	75-130				S
1,2-Dibromoethane	233.2	5.0	250	0	93.3	80-120				
1,2-Dichloroethane	231.3	5.0	250	0	92.5	79-120				
Benzene	218.6	5.0	250	0	87.4	80-120				
Carbon tetrachloride	182.7	5.0	250	0	73.1	79-120				S
Chloroform	233.4	5.0	250	0	93.4	70-130				
Ethylbenzene	203.5	5.0	250	0	81.4	80-120				
Methylene chloride	236.1	10	250	3.798	92.9	75-125				
Tetrachloroethene	188.3	5.0	250	0	75.3	75-130				
Toluene	210.4	5.0	250	0	84.2	80-121				
Trichloroethene	215.4	5.0	250	0	86.2	75-125				
Vinyl chloride	153.7	5.0	250	0	61.5	70-135				S
Xylenes, Total	617.1	15	750	0	82.3	80-124				
Surr: 1,2-Dichloroethane-d4	254.5	5.0	250	0	102	71-125		0		
Surr: 4-Bromofluorobenzene	250.7	5.0	250	0	100	70-125		0		
Surr: Dibromofluoromethane	254.8	5.0	250	0	102	74-125		0		
Surr: Toluene-d8	247.6	5.0	250	0	99	78-123		0		

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

Client: Navajo Refining Company
Work Order: 1305797
Project: RO Discharge Sampling 128823

QC BATCH REPORT

Batch ID: **R147736** Instrument ID **VOA6** Method: **SW8260**

MSD	Sample ID: 1305818-01AMSD				Units: µg/L		Analysis Date: 5/22/2013 04:59 AM			
Client ID:	Run ID: VOA6_130521D				SeqNo: 3225146		Prep Date:		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	227.9	5.0	250	0	91.1	75-130	202.6	11.8	20	
1,1,2,2-Tetrachloroethane	264.9	5.0	250	0	106	74-123	249.8	5.84	20	
1,1,2-Trichloroethane	241.4	5.0	250	0	96.6	80-120	232.1	3.96	20	
1,1-Dichloroethane	226	5.0	250	0	90.4	80-120	221.1	2.17	20	
1,1-Dichloroethene	211.8	5.0	250	0	84.7	75-130	182.1	15.1	20	
1,2-Dibromoethane	241.2	5.0	250	0	96.5	80-120	233.2	3.35	20	
1,2-Dichloroethane	234.4	5.0	250	0	93.7	79-120	231.3	1.33	20	
Benzene	225.6	5.0	250	0	90.2	80-120	218.6	3.14	20	
Carbon tetrachloride	219	5.0	250	0	87.6	75-125	182.7	18.1	20	
Chloroform	237.8	5.0	250	0	95.1	70-130	233.4	1.89	20	
Ethylbenzene	228.8	5.0	250	0	91.5	80-120	203.5	11.7	20	
Methylene chloride	233.9	10	250	3.798	92	75-125	236.1	0.933	20	
Tetrachloroethene	223.7	5.0	250	0	89.5	75-130	188.3	17.2	20	
Toluene	224.6	5.0	250	0	89.8	80-121	210.4	6.53	20	
Trichloroethene	230.9	5.0	250	0	92.3	75-120	215.4	6.91	20	
Vinyl chloride	166.5	5.0	250	0	66.6	70-135	153.7	8	20	S
Xylenes, Total	677.9	15	750	0	90.4	80-124	617.1	9.39	20	
Surr: 1,2-Dichloroethane-d4	256.8	5.0	250	0	103	71-125	254.5	0.933	20	
Surr: 4-Bromofluorobenzene	246.3	5.0	250	0	98.5	70-125	250.7	1.76	20	
Surr: Dibromofluoromethane	250.9	5.0	250	0	100	74-125	254.8	1.54	20	
Surr: Toluene-d8	248.3	5.0	250	0	99.3	78-123	247.6	0.286	20	

The following samples were analyzed in this batch:

1305797-08A	1305797-13A	1305797-14A
1305797-15A	1305797-16A	1305797-17A

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

Client: Navajo Refining Company
Work Order: 1305797
Project: RO Discharge Sampling 128823

QC BATCH REPORT

Batch ID: **R147754** Instrument ID **Balance1** Method: **M2540C** **(Dissolve)**

MBLK Sample ID: **WBLKW-R147754** Units: **mg/L** Analysis Date: **5/21/2013 10:00 AM**
Client ID: Run ID: **BALANCE1_130521F** SeqNo: **3225483** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	U	10								

LCS Sample ID: **WLCSW-R147754** Units: **mg/L** Analysis Date: **5/21/2013 10:00 AM**
Client ID: Run ID: **BALANCE1_130521F** SeqNo: **3225484** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	958	10	1000	0	95.8	85-115				

DUP Sample ID: **1305797-06FDUP** Units: **mg/L** Analysis Date: **5/21/2013 10:00 AM**
Client ID: **DUP-03** Run ID: **BALANCE1_130521F** SeqNo: **3225482** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	5310	10					4990	6.21	20	

The following samples were analyzed in this batch:

1305797-06F

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

Client: Navajo Refining Company
Work Order: 1305797
Project: RO Discharge Sampling 128823

QC BATCH REPORT

Batch ID: **R147779** Instrument ID **Gall01** Method: **M4500CN E&G (Dissolve)**

MBLK	Sample ID: WBLKW1-052213-R147779				Units: mg/L		Analysis Date: 5/22/2013 01:00 PM			
Client ID:	Run ID: GALL01_130522A				SeqNo: 3225998		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	U	0.020								

LCS	Sample ID: WLCSW1-052213-R147779				Units: mg/L		Analysis Date: 5/22/2013 01:00 PM			
Client ID:	Run ID: GALL01_130522A				SeqNo: 3225999		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.197	0.020	0.2	0	98.5	80-120				

MS	Sample ID: 1305797-01DMS				Units: mg/L		Analysis Date: 5/22/2013 01:00 PM			
Client ID: MW-114	Run ID: GALL01_130522A				SeqNo: 3226009		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.2068	0.020	0.2	0.00432	101	80-120				

MSD	Sample ID: 1305797-01DMSD				Units: mg/L		Analysis Date: 5/22/2013 01:00 PM			
Client ID: MW-114	Run ID: GALL01_130522A				SeqNo: 3226010		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.1883	0.020	0.2	0.00432	92	80-120	0.2068	9.36	20	

The following samples were analyzed in this batch:

1305797-01D	1305797-02D	1305797-03D
1305797-04D	1305797-05D	1305797-06D
1305797-07D	1305797-08D	1305797-09D

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

Client: Navajo Refining Company
Work Order: 1305797
Project: RO Discharge Sampling 128823

QC BATCH REPORT

Batch ID: **R147841** Instrument ID **BALANCE1** Method: **M2540C** **(Dissolve)**

MBLK Sample ID: **WBLK-052213-R147841** Units: **mg/L** Analysis Date: **5/22/2013 09:55 AM**

Client ID: Run ID: **BALANCE1_130522E** SeqNo: **3227706** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	U	10								

LCS Sample ID: **WLCS-052213-R147841** Units: **mg/L** Analysis Date: **5/22/2013 09:55 AM**

Client ID: Run ID: **BALANCE1_130522E** SeqNo: **3227707** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	1008	10	1000		0	101	85-115			

DUP Sample ID: **1305730-08DDUP** Units: **mg/L** Analysis Date: **5/22/2013 09:55 AM**

Client ID: Run ID: **BALANCE1_130522E** SeqNo: **3227685** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	802	10					808	0.745	20	

DUP Sample ID: **1305797-07FDUP** Units: **mg/L** Analysis Date: **5/22/2013 09:55 AM**

Client ID: **MW-116** Run ID: **BALANCE1_130522E** SeqNo: **3227705** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	4520	10					4480	0.889	20	

The following samples were analyzed in this batch:

1305797-01F	1305797-02F	1305797-03F
1305797-04F	1305797-05F	1305797-07F

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

Client: Navajo Refining Company
Work Order: 1305797
Project: RO Discharge Sampling 128823

QC BATCH REPORT

Batch ID: **R147881** Instrument ID **Balance1** Method: **M2540C** (**Dissolve**)

MBLK Sample ID: **WBLK-052313-R147881** Units: **mg/L** Analysis Date: **5/23/2013 09:05 AM**

Client ID: Run ID: **BALANCE1_130523C** SeqNo: **3228897** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	U	10								

LCS Sample ID: **WLCS-052313-R147881** Units: **mg/L** Analysis Date: **5/23/2013 09:05 AM**

Client ID: Run ID: **BALANCE1_130523C** SeqNo: **3228898** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	1074	10	1000	0	107	85-115				

DUP Sample ID: **1305797-08FDUP** Units: **mg/L** Analysis Date: **5/23/2013 09:05 AM**

Client ID: **EQB-03** Run ID: **BALANCE1_130523C** SeqNo: **3228887** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	46	10					50	8.33	20	

DUP Sample ID: **1305966-08EDUP** Units: **mg/L** Analysis Date: **5/23/2013 09:05 AM**

Client ID: Run ID: **BALANCE1_130523C** SeqNo: **3231058** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	1094	10					1094	0	20	

The following samples were analyzed in this batch:

1305797-08F 1305797-09F

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

Client: Navajo Refining Company
Work Order: 1305797
Project: RO Discharge Sampling 128823

QC BATCH REPORT

Batch ID: **R147882** Instrument ID **ICS2100** Method: **E300** **(Dissolve)**

MBLK	Sample ID: WBLKW1-R147882				Units: mg/L		Analysis Date: 5/23/2013 04:29 PM			
Client ID:	Run ID: ICS2100_130523A				SeqNo: 3228922		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	U	0.50								
<i>Surr: Selenate (surr)</i>	5.018	0.10	5	0	100	85-115	0			

LCS	Sample ID: WLCSW1-R147882				Units: mg/L		Analysis Date: 5/23/2013 04:15 PM			
Client ID:	Run ID: ICS2100_130523A				SeqNo: 3228921		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	21.24	0.50	20	0	106	90-110				
<i>Surr: Selenate (surr)</i>	5.249	0.10	5	0	105	85-115	0			

MS	Sample ID: 1305966-06EMS				Units: mg/L		Analysis Date: 5/23/2013 02:48 PM			
Client ID:	Run ID: ICS2100_130523A				SeqNo: 3228915		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	475.4	0.50	10	474.2	12.8	80-120				SEO
<i>Surr: Selenate (surr)</i>	5.329	0.10	5	0	107	85-115	0			

MSD	Sample ID: 1305966-06EMSD				Units: mg/L		Analysis Date: 5/23/2013 03:02 PM			
Client ID:	Run ID: ICS2100_130523A				SeqNo: 3228916		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	448	0.50	10	474.2	-261	80-120	475.4	5.94	20	SEO
<i>Surr: Selenate (surr)</i>	5.032	0.10	5	0	101	85-115	5.329	5.73	20	

The following samples were analyzed in this batch:

1305797-09F

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

Client: Navajo Refining Company
Work Order: 1305797
Project: RO Discharge Sampling 128823

QC BATCH REPORT

Batch ID: **R147891** Instrument ID **ICS2100** Method: **E300** **(Dissolve)**

MBLK	Sample ID: WBLKW2-R147891				Units: mg/L		Analysis Date: 5/23/2013 09:27 PM			
Client ID:	Run ID: ICS2100_130523C				SeqNo: 3229137		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	0.50								
Fluoride	U	0.10								
Sulfate	U	0.50								
<i>Surr: Selenate (surr)</i>	5.183	0.10	5	0	104	85-115	0			

LCS	Sample ID: WLCSW2-R147891				Units: mg/L		Analysis Date: 5/23/2013 09:42 PM			
Client ID:	Run ID: ICS2100_130523C				SeqNo: 3229138		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.17	0.50	20	0	101	90-110				
Fluoride	3.957	0.10	4	0	98.9	90-110				
Sulfate	21.85	0.50	20	0	109	90-110				
<i>Surr: Selenate (surr)</i>	5.56	0.10	5	0	111	85-115	0			

MS	Sample ID: 1305830-07AMSZ				Units: mg/L		Analysis Date: 5/24/2013 03:46 AM			
Client ID:	Run ID: ICS2100_130523C				SeqNo: 3229169		Prep Date:		DF: 100	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	2024	50	1000	1029	99.5	80-120				
Fluoride	178.8	10	200	0	89.4	80-120				
Sulfate	1094	50	1000	96.39	99.8	80-120				
<i>Surr: Selenate (surr)</i>	480.8	10	500	0	96.2	85-115	0			

MSD	Sample ID: 1305830-07AMSDZ				Units: mg/L		Analysis Date: 5/24/2013 04:00 AM			
Client ID:	Run ID: ICS2100_130523C				SeqNo: 3229170		Prep Date:		DF: 100	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	2047	50	1000	1029	102	80-120	2024	1.17	20	
Fluoride	182.2	10	200	0	91.1	80-120	178.8	1.89	20	
Sulfate	1111	50	1000	96.39	101	80-120	1094	1.55	20	
<i>Surr: Selenate (surr)</i>	488.2	10	500	0	97.6	85-115	480.8	1.53	20	

The following samples were analyzed in this batch:

1305797-01F	1305797-02F	1305797-03F
1305797-04F	1305797-05F	1305797-06F
1305797-07F	1305797-08F	1305797-09F

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

Client: Navajo Refining Company
Work Order: 1305797
Project: RO Discharge Sampling 128823

QC BATCH REPORT

Batch ID: **R147896** Instrument ID **ICS2100** Method: **E300** **(Dissolve)**

MBLK	Sample ID: WBLKW-R147896				Units: mg/L		Analysis Date: 5/22/2013 02:34 PM			
Client ID:	Run ID: ICS2100_130523D				SeqNo: 3229245		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrate/Nitrite (as N)	U	0.20								
<i>Surr: Selenate (surr)</i>	4.99	0.10	5	0	99.8	85-115	0			

LCS	Sample ID: WLCSW-R147896				Units: mg/L		Analysis Date: 5/22/2013 02:19 PM			
Client ID:	Run ID: ICS2100_130523D				SeqNo: 3229244		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrate/Nitrite (as N)	7.5	0.20	8	0	93.8	90-110				
<i>Surr: Selenate (surr)</i>	5.018	0.10	5	0	100	85-115	0			

MS	Sample ID: 1305797-09GMS				Units: mg/L		Analysis Date: 5/22/2013 08:27 PM			
Client ID: RO Discharge	Run ID: ICS2100_130523D				SeqNo: 3229257		Prep Date:		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrate/Nitrite (as N)	36.33	2.0	40	2.114	85.5	80-120				
<i>Surr: Selenate (surr)</i>	46.27	1.0	50	0	92.5	85-115	0			

MSD	Sample ID: 1305797-09GMSD				Units: mg/L		Analysis Date: 5/22/2013 08:41 PM			
Client ID: RO Discharge	Run ID: ICS2100_130523D				SeqNo: 3229258		Prep Date:		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrate/Nitrite (as N)	39.54	2.0	40	2.114	93.6	80-120	36.33	8.46	20	
<i>Surr: Selenate (surr)</i>	50.6	1.0	50	0	101	85-115	46.27	8.94	20	

The following samples were analyzed in this batch:

1305797-01G	1305797-02G	1305797-03G
1305797-04G	1305797-05G	1305797-06G
1305797-07G	1305797-08G	1305797-09G

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

Client: Navajo Refining Company
Project: RO Discharge Sampling 128823
WorkOrder: 1305797

QUALIFIERS, ACRONYMS, UNITS

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

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

<u>Units Reported</u>	<u>Description</u>
mg/L	Milligrams per Liter

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**

Date/Time Received: **17-May-13 09:00**

Work Order: **1305797**

Received by: **RDH**

Checklist completed by Robert D. Harris
eSignature

18-May-13
Date

Reviewed by: Senia West
eSignature

21-May-13
Date

Matrices: **waters**

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): 5.6c/5.6c,5.3c/5.3c,4.2c/4.2c,4.1c/4.1c,5.8c/5.8c,5.6c/5.6c,1.5c/1.5c,2.1c IR1

Cooler(s)/Kit(s): 4611,3112,5160,3095,3192,3178,3160,4051

Date/Time sample(s) sent to storage: 5/18/13 12:10

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:

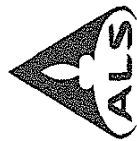
Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



Cincinnati, OH
+1 513 733 5336
Everett, WA
+1 425 356 2600

Fort Collins, CO
+1 970 490 1511
Holland, MI
+1 616 399 6070

Chain of Custody Form

Page 1 of 1

COC ID: 81090

1305797

NAVAJO REFINING: Navajo Refining Company

Project: RO Discharge Sampling

Environmental



ALS Project Manager:

Customer Information				Project Information													
Purchase Order	Project Name	RO Discharge/Sampling	A	VOC (8260) NM GW List													
Work Order	Project Number	123823	B	GRO (8015M)													
Company Name	Bill To Company	Navajo Refining Company	C	DRO (8015M) ORO (8015M)													
Send Report To	Invoice Attn	Robert Combs	D	LL SVOC (8270) NM GW List													
Address	Address	501 East Main	E	Dissolved Metals (60207000) Al, As, Ba, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, K, Se, Ag, Na, U, Zn													
City/State/Zip	City/State/Zip	Artesia, NM 88211	F	Anions (320) Cl, F, SO ₄ , Nitrate, Nitrite													
Phone	Phone	(575) 748-6733	G	Total Cyanide (SM 4500)													
Fax	Fax	(575) 746-5421	H	TDS													
e-Mail Address	e-Mail Address	(575) 746-5421	I	Radium 226/228													
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-114	5/15/13	1350	WATER	SEE BOTTLES	10	X	X	X	X	X	X	X	X	X	X	
2	MW-115	5/15/13	1550	WATER	SEE BOTTLES	10	X	X	X	X	X	X	X	X	X	X	
3	MW-117	5/15/13	1030	WATER	SEE BOTTLES	10	X	X	X	X	X	X	X	X	X	X	
4	MW-118	5/15/13	1830	WATER	SEE BOTTLES	17	X	X	X	X	X	X	X	X	X	X	
5	MW-119	5/15/13	1810	WATER	SEE BOTTLES	18	X	X	X	X	X	X	X	X	X	X	
6	DUP-03	5/15/13	0001	WATER	SEE BOTTLES	10	X	X	X	X	X	X	X	X	X	X	
7	MW-116	5/16/13	1015	WATER	SEE BOTTLES	17	X	X	X	X	X	X	X	X	X	X	
8	EQB-03	5/16/13	1140	WATER	SEE BOTTLES	17	X	X	X	X	X	X	X	X	X	X	
9	RO DISCHARGE	5/16/13	0830	WATER	SEE BOTTLES	17	X	X	X	X	X	X	X	X	X	X	
10	TRIP BLANKS	5/16/13	-	WATER	-	6	X	X	X	X	X	X	X	X	X	X	

Sampler(s) Please Print & Sign: **MAURORY BAILEY**

Relinquished by: *[Signature]*

Relinquished by: *[Signature]*

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

Shipments Method: **FedEx**

Received by: *[Signature]*

Received by (Laboratory): *[Signature]*

Checked by (Laboratory): *[Signature]*

Time: 5/16/13 1330

Date: 5/16/13

Date: 5/16/13

Date: 5/16/13

Required Turnaround Time: (Check Box)

☒ Std. 10 WK Days ☐ 5 WK Days ☐ Other

Notes: 10 Day TAT. CC Pam Krueger with Arcadis.

QC Package: (Check One Box Below)

☒ Level I Std QC ☐ TRAP CheckList

☐ Level III Std QC/Raw Data ☐ TRAP Level IV

☐ Level IV SW846/CLP ☐ Other / EDD

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

2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.

3. The Chain of Custody is a legal document. All information must be completed accurately.

Copyright 2011 by ALS Environmental.

130574

FedEx
TRK# 0215 8020 3307 1087

AB SGRA

77099
TX-US
IAH

FRI - 17 MAY 10:30A
PRIORITY OVERNIGHT

Emp# 637368 16MAY13 ROWA 519C1/9983/93AB

 ALS Environmental 10450 Stancliff Rd., Suite 210 Houston, Texas 77099 Tel. +1 281 530 5656 Fax. +1 281 530 5887	CUSTODY SEAL		Seal Broken By:
	Date: 5/16/13 Name: William B. Arnold Company: ALS	Time: 1315	Date: 5/17/13

FedEx
TRK# 0215 8020 3307 1093

AB SGRA

77099
TX-US
IAH

FRI - 17 MAY 10:30A
PRIORITY OVERNIGHT

Emp# 637368 16MAY13 ROWA 519C1/9983/93AB

 ALS Environmental 10450 Stancliff Rd., Suite 210 Houston, Texas 77099 Tel. +1 281 530 5656 Fax. +1 281 530 5887	CUSTODY SEAL		Seal Broken By:
	Date: 5/16/13 Name: William B. Arnold Company: ALS	Time: 1315	Date: 5/17/13

1305

FedEx
0215 8020 3307 1499
AB SGRA
FRI - 17 MAY 10:30A
PRIORITY OVERNIGHT
77099
TX-US
IAH
Emp# 637368 16MAY13 ROWA 519C1/9983/93AB

ALS Environmental
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887
315

CUSTODY SEAL
Date: 5/16/13 Time: 1315
Name: ARCADIS
Company:
Seal Broken By: RAC
Date: 5/17/13

FedEx
0215 8020 3307 1065
AB SGRA
FRI - 17 MAY 10:30A
PRIORITY OVERNIGHT
77099
TX-US
IAH
Emp# 637368 16MAY13 ROWA 519C1/9983/93AB

ALS Environmental
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887
3176

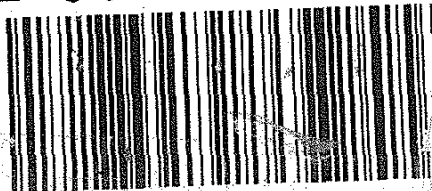
CUSTODY SEAL
Date: 5/16/13 Time: 1315
Name: Mallon
Company: ARCADIS
Seal Broken By: RAC
Date: 5/17/13

130579

FedEx
TRACKING
0215 8020 3307 1514

FRI - 17 MA
PRIORITY 01

AB SGRA



Emp# 637368 16MAY13 ROWA 519C1/9983/93AB



ALS Environmental

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

3160

Date:
Name:
Company:

CUSTODY SEAL

110113 Time: 1315
Name: [Signature]
Company: ARCADIS

Seal Broken By:

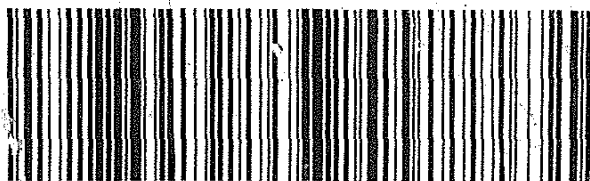
Date:

5/17/13

FedEx
TRACKING
0215 8020 3307 1076

FRI - 17 MAY 10:30A
PRIORITY OVERNIGHT

AB SGRA



Emp# 637368 16MAY13 ROWA 519C1/9983/93AB

77099
TX-US
IAH



ALS Environmental

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

4051

Date:
Name:
Company:

CUSTODY SEAL

5/16/13 Time: 1215
Name: [Signature]
Company: ARCADIS

Seal Broken By:

Date:

5/17/13



June 12, 2013

Ms. Sonia West
ALS Environmental
10450 Stancliff Rd, Suite 210
Houston, TX 77099

Re: ALS Workorder: 13-05-319
Project Name: None Submitted
Project Number: 1305797

Dear Ms. West:

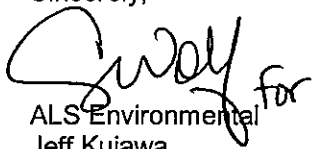
Nine water samples were received from ALS Environmental on May 21, 2013. The samples were scheduled for the following analyses:

Radium-226
Radium-228

The results for these analyses are contained in the enclosed report.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,



ALS Environmental
Jeff Kujawa
Project Manager

JRK/mlc
Enclosure (s): Report

ADDRESS 225 Commerce Drive, Fort Collins, Colorado, USA 80524 | PHONE +1 970 490 1511 | FAX +1 970 490 1522

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

Environmental 

www.alsglobal.com

ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO00078
Arizona (AZ)*	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO00078
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri	175
Nebraska	NE-OS-24-13
Nevada (NV)	CO000782008A
New Jersey (NJ)**	CO003
North Dakota (ND)	R-057
Oklahoma	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241-09-1
Utah (UT)	CO00078
Washington	C1280



1305319

Radium-228:

The samples were analyzed for the presence of ^{228}Ra by low background gas flow proportional counting of ^{228}Ac , which is the ingrown progeny of ^{228}Ra , according to the current revision of SOP 724.

All acceptance criteria were met.

Radium-226:

The samples were prepared and analyzed according to the current revision of SOP 783.

All acceptance criteria were met.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1305319

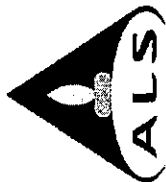
Client Name: ALS Environmental

Client Project Name:

Client Project Number: 1305797

Client PO Number: 10-1305797

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
MW-114	1305319-1		WATER	15-May-13	13:50
MW-115	1305319-2		WATER	15-May-13	15:50
MW-117	1305319-3		WATER	15-May-13	10:30
DUP-03	1305319-4		WATER	15-May-13	
MW-118	1305319-5		WATER	15-May-13	18:30
MW-119	1305319-6		WATER	15-May-13	18:10
MW-116	1305319-7		WATER	16-May-13	10:15
EQB-03	1305319-8		WATER	16-May-13	11:40
RO Discharge	1305319-9		WATER	16-May-13	8:30



Subcontractor:
ALS Environmental
225 Commerce Drive
Fort Collins, CO 80524

TEL: (800) 443-1511
FAX: (970) 490-1522
Acct #:

Salesperson

Houston House Acct

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	1305797	A	Radium 226 228 Sub to ALS Ft. Collins
Work Order		Project Number		B	
Company Name	ALS Group USA, Corp.	Bill To Company	ALS Group USA, Corp.	C	
Send Report To	Sonia West	Inv Attn	Accounts Payable	D	
Address	10450 Stanciliff Rd, Suite 210	Address	10450 Stanciliff Rd, Suite 210	E	
				F	
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G	
Phone	(281) 530-5656	Phone	(281) 530-5656	H	
Fax	(281) 530-5887	Fax	(281) 530-5887	I	
eMail Address	Sonia.West@alsglobal.com	eMail CC	jumoke.lawal@alsglobal.com	J	

1305319

CHAIN-OF-CUSTODY RECORD

Date: 18-May-13
COC ID: 14099
Due Date 23-May-13

Page 1 of 1

Sample ID	Matrix	Collection Date	24hr Bottle	A	B	C	D	E	F	G	H	I	J
1305797-011 (MW-114)	Water	15/May/2013 13:50	(1) 1LPHNO3	X									
1305797-021 (MW-115)	Water	15/May/2013 15:50	(1) 1LPHNO3	X									
1305797-031 (MW-117)	Water	15/May/2013 10:30	(1) 1LPHNO3	X									
1305797-061 (DUP-03)	Water	15/May/2013	(1) 1LPHNO3	X									
1305797-041 (MW-118)	Water	15/May/2013 18:30	(2) 1LPHNO3	X									
1305797-051 (MW-119)	Water	15/May/2013 18:10	(2) 1LPHNO3	X									
1305797-071 (MW-116)	Water	16/May/2013 10:15	(2) 1LPHNO3	X									
1305797-081 (EQB-03)	Water	16/May/2013 11:40	(2) 1LPHNO3	X									
1305797-091 (RO Discharge)	Water	16/May/2013 8:30	(2) 1LPHNO3	X									

Comments:

Please analyze for Radium 226/228. Report is due on 5/23/13. Send report to Sonia West, sonia.west@alsglobal.com, and CC: results to Jumoke Lawal jumoke.lawal@alsglobal.com and Luke Hernandez luke.hernandez@alsglobal.com

Relinquished by:

Date/Time

Received by:

Date/Time

Cooler IDs

Report/QC Level
Std

Relinquished by:

Date/Time

Received by:

Date/Time

Cooler IDs

Report/QC Level
Std



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS TX

Workorder No: 1305319

Project Manager: JRK

Initials: LAS

Date: 5/21/13

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<u>NO</u>
2. Are custody seals on shipping containers intact?	NONE	<u>YES</u>	NO
3. Are Custody seals on sample containers intact?	<u>NONE</u>	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<u>YES</u>	NO
5. Are the COC and bottle labels complete and legible?		<u>YES</u>	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<u>YES</u>	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<u>YES</u>	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	<u>YES</u>	NO
9. Are all aqueous non-preserved samples pH 4-9?	<u>N/A</u>	YES	NO
10. Is there sufficient sample for the requested analyses?		<u>YES</u>	NO
11. Were all samples placed in the proper containers for the requested analyses?		<u>YES</u>	NO
12. Are all samples within holding times for the requested analyses?		<u>YES</u>	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<u>YES</u>	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<u>N/A</u>	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	<u>NO</u>
16. Were the samples shipped on ice?		YES	<u>NO</u>
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	<u>RAD ONLY</u>	YES	<u>NO</u>
Cooler #: <u>1</u>			
Temperature (°C): <u>AMB</u>			
No. of custody seals on cooler: <u>1</u>			
External µR/hr reading: <u>15</u>			
Background µR/hr reading: <u>13</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <u>YES</u> NO / NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / NA Contact: _____ Date/Time: _____

Project Manager Signature / Date: [Signature] 5-22-0

13053-19

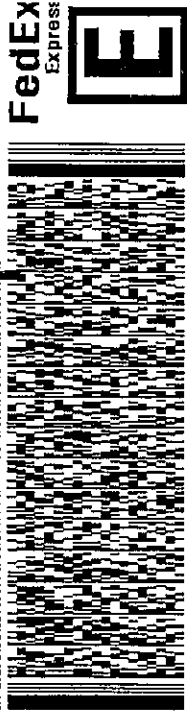
19.6

SHIP DATE: 20MAY13
ACTWT: 45.2 LB
CAD: 300130/C8FE2608
DIMS: 26x14x14 IN
BILL SENDER

ORIGIN ID: SGRA (281) 530-5656
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

TO ROY FRENCH
ALS ENVIRONMENTAL
225 COMMERCE DRIVE

FORT COLLINS CO 80524
(970) 490-1611 REF: BFJ/BAG-FRO
DEPT: ENVIRONMENTAL



TUE - 21 MAY 10:30/
PRIORITY OVERNIGHT

TRK# 4340 2175 7911
0201

AG FTCA

80524
CO-US DEN



Part # 159149-434 RITE 04/12 *

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 1305797
Sample ID: MW-114
Legal Location:
Collection Date: 5/15/2013 13:50

Date: 10-Jun-13
Work Order: 1305319
Lab ID: 1305319-1
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	ND (+/- 0.25)	U	0.36	pCi/l	NA	6/7/2013 13:29
Carr: BARIUM	97.2		40-110	%REC	NA	6/7/2013 13:29
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	ND (+/- 0.29)	U	0.55	pCi/l	NA	5/31/2013 10:39
Carr: BARIUM	97.2		40-110	%REC	NA	5/31/2013 10:39

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 1305797
Sample ID: MW-115
Legal Location:
Collection Date: 5/15/2013 15:50

Date: 10-Jun-13
Work Order: 1305319
Lab ID: 1305319-2
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	ND (+/- 0.31)	U	0.58	pCi/l	NA	6/7/2013 13:29
Carr: BARIUM	98		40-110	%REC	NA	6/7/2013 13:29
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	ND (+/- 0.33)	U	0.64	pCi/l	NA	5/31/2013 10:39
Carr: BARIUM	98		40-110	%REC	NA	5/31/2013 10:39

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 1305797
Sample ID: MW-117
Legal Location:
Collection Date: 5/15/2013 10:30

Date: 10-Jun-13
Work Order: 1305319
Lab ID: 1305319-3
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	ND (+/- 0.24)	U	0.45	pCi/l	NA	6/7/2013 13:29
Carr: BARIUM	99.1		40-110	%REC	NA	6/7/2013 13:29
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	ND (+/- 0.29)	U	0.53	pCi/l	NA	5/31/2013 10:39
Carr: BARIUM	99.1		40-110	%REC	NA	5/31/2013 10:39

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 1305797
Sample ID: DUP-03
Legal Location:
Collection Date: 5/15/2013

Date: 10-Jun-13
Work Order: 1305319
Lab ID: 1305319-4
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	ND (+/- 0.3)	Y1,U	0.54	pCi/l	NA	6/7/2013 13:29
Carr: BARIUM	101	Y1	40-110	%REC	NA	6/7/2013 13:29
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	ND (+/- 0.29)	Y1,U	0.55	pCi/l	NA	5/31/2013 10:39
Carr: BARIUM	101	Y1	40-110	%REC	NA	5/31/2013 10:39

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 1305797
Sample ID: MW-118
Legal Location:
Collection Date: 5/15/2013 18:30

Date: 10-Jun-13
Work Order: 1305319
Lab ID: 1305319-5
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	0.22 (+/- 0.18)	LT	PAI 783	0.2 pCi/l	Prep Date: 5/29/2013	PrepBy: PJW
Carr: BARIUM	96.6		40-110 %REC		NA	6/7/2013 13:29
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	ND (+/- 0.25)	U	PAI 724	0.48 pCi/l	Prep Date: 5/28/2013	PrepBy: JTL
Carr: BARIUM	96.6		40-110 %REC		NA	5/31/2013 10:28

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 1305797
Sample ID: MW-119
Legal Location:
Collection Date: 5/15/2013 18:10

Date: 10-Jun-13
Work Order: 1305319
Lab ID: 1305319-6
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1			PAI 783		Prep Date: 5/29/2013	PrepBy: PJW
Ra-226	ND (+/- 0.19)	Y1,U	0.31	pCi/l	NA	6/7/2013 13:29
Carr: <i>BARIUM</i>	100	Y1	40-110	%REC	NA	6/7/2013 13:29
RADIUM-228 ANALYSIS BY GFPC			PAI 724		Prep Date: 5/28/2013	PrepBy: JTL
Ra-228	ND (+/- 0.21)	Y1,U	0.47	pCi/l	NA	5/31/2013 10:28
Carr: <i>BARIUM</i>	100	Y1	40-110	%REC	NA	5/31/2013 10:28

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 1305797
Sample ID: MW-116
Legal Location:
Collection Date: 5/16/2013 10:15

Date: 10-Jun-13
Work Order: 1305319
Lab ID: 1305319-7
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	ND (+/- 0.21)	U	0.36	pCi/l	NA	6/7/2013 13:29
Carr: BARIUM	97.2		40-110	%REC	NA	6/7/2013 13:29
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	ND (+/- 0.21)	U	0.46	pCi/l	NA	5/31/2013 10:28
Carr: BARIUM	97.2		40-110	%REC	NA	5/31/2013 10:28

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 1305797
Sample ID: EQB-03
Legal Location:
Collection Date: 5/16/2013 11:40

Date: 10-Jun-13
Work Order: 1305319
Lab ID: 1305319-8
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	ND (+/- 0.13)	U	PAI 783	0.2 pCi/l	Prep Date: 5/29/2013	PrepBy: PJW
Carr: BARIUM	97.6		40-110	%REC	NA	6/7/2013 13:29
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	ND (+/- 0.21)	U	PAI 724	0.45 pCi/l	Prep Date: 5/28/2013	PrepBy: JTL
Carr: BARIUM	97.6		40-110	%REC	NA	5/31/2013 10:28

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 1305797
Sample ID: RO Discharge
Legal Location:
Collection Date: 5/16/2013 08:30

Date: 10-Jun-13
Work Order: 1305319
Lab ID: 1305319-9
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	0.49 (+/- 0.3)	LT	PAI 783	0.24 pCi/l	Prep Date: 5/29/2013	PrepBy: PJW
Carr: BARIUM	88.2		40-110	%REC	NA	6/7/2013 13:29
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	ND (+/- 0.25)	U	PAI 724	0.52 pCi/l	Prep Date: 5/28/2013	PrepBy: JTL
Carr: BARIUM	88.2		40-110	%REC	NA	5/31/2013 10:28

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 1305797
Sample ID: RO Discharge
Legal Location:
Collection Date: 5/16/2013 08:30

Date: 10-Jun-13
Work Order: 1305319
Lab ID: 1305319-9
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
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Explanation of Qualifiers

Radiochemistry:

U or ND - Result is less than the sample specific MDC.	M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.	L - LCS Recovery below lower control limit.
Y2 - Chemical Yield outside default limits.	H - LCS Recovery above upper control limit.
W - DER is greater than Warning Limit of 1.42	P - LCS, Matrix Spike Recovery within control limits.
* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.	N - Matrix Spike Recovery outside control limits
# - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.	NC - Not Calculated for duplicate results less than 5 times MDC
G - Sample density differs by more than 15% of LCS density.	B - Analyte concentration greater than MDC.
D - DER is greater than Control Limit	B3 - Analyte concentration greater than MDC but less than Requested MDC.
M - Requested MDC not met.	
LT - Result is less than requested MDC but greater than achieved MDC.	

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).
 U or ND - Indicates that the compound was analyzed for but not detected.
 E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.
 M - Duplicate injection precision was not met.
 N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.
 Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.
 * - Duplicate analysis (relative percent difference) not within control limits.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.
 B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.
 E - Analyte concentration exceeds the upper level of the calibration range.
 J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).
 A - A tentatively identified compound is a suspected aldol-condensation product.
 X - The analyte was diluted below an accurate quantitation level.
 * - The spike recovery is equal to or outside the control criteria used.
 + - The relative percent difference (RPD) equals or exceeds the control criteria.

Diesel Range Organics:

ALS Environmental -- FC**SAMPLE SUMMARY REPORT**

Client: ALS Environmental
Project: 1305797
Sample ID: RO Discharge
Legal Location:
Collection Date: 5/16/2013 08:30

Date: 10-Jun-13
Work Order: 1305319
Lab ID: 1305319-9
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
G - A pattern resembling gasoline was detected in this sample.						
D - A pattern resembling diesel was detected in this sample.						
M - A pattern resembling motor oil was detected in this sample.						
C - A pattern resembling crude oil was detected in this sample.						
4 - A pattern resembling JP-4 was detected in this sample.						
5 - A pattern resembling JP-5 was detected in this sample.						
H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.						
L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.						
Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:						
- gasoline						
- JP-8						
- diesel						
- mineral spirits						
- motor oil						
- Stoddard solvent						
- bunker C						

ALS Environmental -- FC

Date: 6/10/2013 7:58:

Client: ALS Environmental

Work Order: 1305319

Project: 1305797

QC BATCH REPORT

Batch ID: RE130529-2-1

Instrument ID: Alpha Scin

Method: Ra-226 by Radon Emanation - Me

LCS		Sample ID: RE130529-2				Units: pCi/l		Analysis Date: 6/7/2013 14:01			
Client ID:		Run ID: RE130529-2A				Prep Date: 5/29/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual	
Ra-226	30.4 (+/- 7.7)	0.4	29.99		101	67-120				P	
Carr: BARIUM	32650		33170		98.4	40-110					

LCSD		Sample ID: RE130529-2				Units: pCi/l		Analysis Date: 6/7/2013 14:01			
Client ID:		Run ID: RE130529-2A				Prep Date: 5/29/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual	
Ra-226	26.2 (+/- 6.7)	0.2	29.99		87.2	67-120	30.4	0.419	2.13	P	
Carr: BARIUM	31570		33170		95.2	40-110	32650				

MB		Sample ID: RE130529-2				Units: pCi/l		Analysis Date: 6/7/2013 13:29			
Client ID:		Run ID: RE130529-2A				Prep Date: 5/29/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual	
Ra-226	ND	0.28								U	
Carr: BARIUM	31150		33170		93.9	40-110					

The following samples were analyzed in this batch:

1305319-1	1305319-2	1305319-3
1305319-4	1305319-5	1305319-6
1305319-7	1305319-8	1305319-9

Client: ALS Environmental
Work Order: 1305319
Project: 1305797

QC BATCH REPORT

Batch ID: **RA130528-1-1** Instrument ID: **LB4100-B** Method: **Radium-228 Analysis by GFPC**

LCS	Sample ID: RA130528-1				Units: pCi/l		Analysis Date: 5/31/2013 10:31			
Client ID:	Run ID: RA130528-1A				Prep Date: 5/28/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	10.2 (+/- 2.5)	0.6	9.859		104	70-130				P
Carr: BARIUM	32650		33170		98.4	40-110				

LCSD	Sample ID: RA130528-1				Units: pCi/l		Analysis Date: 5/31/2013 10:31			
Client ID:	Run ID: RA130528-1A				Prep Date: 5/28/2013			DF: NA		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	11 (+/- 2.7)	0.6	9.859		112	70-130	10.2	0.223	2.13	P
Carr: BARIUM	31570		33170		95.2	40-110	32650			

MB	Sample ID: RA130528-1				Units: pCi/l		Analysis Date: 5/31/2013 10:39			
Client ID:	Run ID: RA130528-1A				Prep Date: 5/28/2013			DF: NA		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	ND	0.39								U
Carr: BARIUM	31150		33170		93.9	40-110				

The following samples were analyzed in this batch:

1305319-1	1305319-2	1305319-3
1305319-4	1305319-5	1305319-6
1305319-7	1305319-8	1305319-9



08-Oct-2013

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

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

Re: RO Discharge Sampling

Work Order: **1309249**

Dear Robert,

ALS Environmental received 12 samples on 06-Sep-2013 09:40 AM for the analyses presented in the following report.

This is a REVISED REPORT. Please see the Case Narrative for discussion concerning this revision.

The total number of pages in this revised report is 88.

Regards,

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

Electronically approved by: Sonia West

Sonia West
Project Manager



Certificate No: T104704231-13-12

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

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Environmental

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RIGHT SOLUTIONS RIGHT PARTNER

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 1309249

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>
1309249-01	MW-114	Water		9/5/2013 09:30	9/6/2013 09:40	☐
1309249-02	MW-115	Water		9/4/2013 17:10	9/6/2013 09:40	☐
1309249-03	MW-116	Water		9/4/2013 15:20	9/6/2013 09:40	☐
1309249-04	MW-117	Water		9/4/2013 09:50	9/6/2013 09:40	☐
1309249-05	MW-118	Water		9/4/2013 12:00	9/6/2013 09:40	☐
1309249-06	MW-119	Water		9/4/2013 13:30	9/6/2013 09:40	☐
1309249-07	RO DISCHARGE	Water		9/5/2013 11:00	9/6/2013 09:40	☐
1309249-08	DUP-01	Water		9/4/2013	9/6/2013 09:40	☐
1309249-09	TRIP BLANKS-1	Water		9/4/2013	9/6/2013 09:40	☐
1309249-10	TRIP BLANKS-2	Water		9/4/2013	9/6/2013 09:40	☐
1309249-11	TRIP BLANKS-3	Water		9/4/2013	9/6/2013 09:40	☐
1309249-12	TRIP BLANKS	Water		9/4/2013	9/6/2013 09:40	☐

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 1309249

Case Narrative

Due to a laboratory error, this report has been revised to add Nitrate-Nitrite by method 300.0.

The analyses for Radium 226 and Radium 228 were subcontracted to ALS Environmental in Ft. Collins, CO.

Batch 72948, TPH DRO/ORO 8015M, Sample LLCSDW-130910: The LCSD surrogate RPD was outside of the control limits. However, the surrogate recoveries were within the control limits for the LCS and LCSD.

Batch 73040, Dissolved Metals 6020, Sample 1309411-01L: MS/MSD are for an unrelated sample.

Batch 72927, Semivolatile Organics 8270, Sample SLCSW3-130910: Insufficient sample for MS/MSD.

ALS Environmental

Date: 08-Oct-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114
Collection Date: 9/5/2013 09:30 AM

Work Order: 1309249
Lab ID: 1309249-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO 8015C							
			Method: SW8015M		Prep: SW3511 / 9/10/13		Analyst: RPM
TPH (Diesel Range)	U		0.021	0.052	mg/L	1	9/11/2013 10:12
TPH (Oil Range)	U		0.041	0.10	mg/L	1	9/11/2013 10:12
Surr: 2-Fluorobiphenyl	62.9			60-135	%REC	1	9/11/2013 10:12
GASOLINE RANGE ORGANICS - SW8015C							
			Method: SW8015				Analyst: KKP
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	9/12/2013 17:18
Surr: 4-Bromofluorobenzene	104			70-130	%REC	1	9/12/2013 17:18
DISSOLVED MERCURY BY 7470A							
			Method: SW7470		Prep: SW7470 / 9/13/13		Analyst: OFO
Mercury	U		0.000042	0.000200	mg/L	1	9/13/2013 16:49
DISSOLVED METALS							
			Method: SW6020		Prep: SW3010A / 9/13/13		Analyst: ALR
Aluminum	0.00848	J	0.0040	0.0100	mg/L	1	9/13/2013 23:53
Arsenic	0.00502		0.0010	0.00500	mg/L	1	9/13/2013 23:53
Barium	0.0170		0.00090	0.00500	mg/L	1	9/13/2013 23:53
Boron	0.132		0.020	0.0500	mg/L	1	9/13/2013 23:53
Cadmium	U		0.00080	0.00200	mg/L	1	9/13/2013 23:53
Calcium	672		0.86	5.00	mg/L	10	9/17/2013 13:34
Chromium	U		0.0010	0.00500	mg/L	1	9/13/2013 23:53
Cobalt	0.00718		0.00080	0.00500	mg/L	1	9/13/2013 23:53
Copper	0.00197	J	0.0010	0.00500	mg/L	1	9/13/2013 23:53
Iron	U		0.078	0.200	mg/L	1	9/13/2013 23:53
Lead	U		0.00070	0.00500	mg/L	1	9/13/2013 23:53
Manganese	1.42		0.0025	0.00500	mg/L	1	9/13/2013 23:53
Molybdenum	0.0116		0.0015	0.00500	mg/L	1	9/13/2013 23:53
Nickel	0.00558		0.0010	0.00500	mg/L	1	9/13/2013 23:53
Potassium	2.94		0.084	0.200	mg/L	1	9/13/2013 23:53
Selenium	0.00245	J	0.0010	0.00500	mg/L	1	9/13/2013 23:53
Silver	U		0.00080	0.00500	mg/L	1	9/13/2013 23:53
Sodium	138		0.085	0.200	mg/L	1	9/13/2013 23:53
Uranium	0.0138		0.0050	0.00500	mg/L	1	9/13/2013 23:53
Zinc	U		0.0025	0.00500	mg/L	1	9/13/2013 23:53
LOW-LEVEL SEMIVOLATILES							
			Method: SW8270		Prep: SW3510 / 9/10/13		Analyst: LG
1-Methylnaphthalene	U		0.000030	0.00020	mg/L	1	9/13/2013 11:57
2-Methylnaphthalene	U		0.000034	0.00020	mg/L	1	9/13/2013 11:57
Benzo(a)pyrene	U		0.000030	0.00020	mg/L	1	9/13/2013 11:57
Naphthalene	U		0.000050	0.00020	mg/L	1	9/13/2013 11:57
Surr: 2,4,6-Tribromophenol	84.9			34-129	%REC	1	9/13/2013 11:57
Surr: 2-Fluorobiphenyl	73.1			40-125	%REC	1	9/13/2013 11:57

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

ALS Environmental

Date: 08-Oct-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114
Collection Date: 9/5/2013 09:30 AM

Work Order: 1309249
Lab ID: 1309249-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	63.7			20-120	%REC	1	9/13/2013 11:57
Surr: 4-Terphenyl-d14	78.2			40-135	%REC	1	9/13/2013 11:57
Surr: Nitrobenzene-d5	75.9			41-120	%REC	1	9/13/2013 11:57
Surr: Phenol-d6	68.5			20-120	%REC	1	9/13/2013 11:57

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00020	0.0010	mg/L	1	9/9/2013 23:41
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	9/9/2013 23:41
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	9/9/2013 23:41
1,1-Dichloroethane	U		0.00020	0.0010	mg/L	1	9/9/2013 23:41
1,1-Dichloroethene	U		0.00020	0.0010	mg/L	1	9/9/2013 23:41
1,2-Dibromoethane	U		0.00020	0.0010	mg/L	1	9/9/2013 23:41
1,2-Dichloroethane	U		0.00020	0.0010	mg/L	1	9/9/2013 23:41
Benzene	U		0.00020	0.0010	mg/L	1	9/9/2013 23:41
Carbon tetrachloride	U		0.00050	0.0010	mg/L	1	9/9/2013 23:41
Chloroform	U		0.00020	0.0010	mg/L	1	9/9/2013 23:41
Ethylbenzene	U		0.00030	0.0010	mg/L	1	9/9/2013 23:41
Methylene chloride	U		0.00040	0.0020	mg/L	1	9/9/2013 23:41
Tetrachloroethene	U		0.00030	0.0010	mg/L	1	9/9/2013 23:41
Toluene	U		0.00020	0.0010	mg/L	1	9/9/2013 23:41
Trichloroethene	U		0.00020	0.0010	mg/L	1	9/9/2013 23:41
Vinyl chloride	U		0.00020	0.0010	mg/L	1	9/9/2013 23:41
Xylenes, Total	U		0.00050	0.0010	mg/L	1	9/9/2013 23:41
Surr: 1,2-Dichloroethane-d4	112			71-125	%REC	1	9/9/2013 23:41
Surr: 4-Bromofluorobenzene	90.5			70-125	%REC	1	9/9/2013 23:41
Surr: Dibromofluoromethane	113			74-125	%REC	1	9/9/2013 23:41
Surr: Toluene-d8	114			75-125	%REC	1	9/9/2013 23:41

MISCELLANEOUS ANALYSIS			Method: NA			Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	9/25/2013

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	198	E	0.20	0.500	mg/L	1	9/16/2013 07:09
Chloride	199		10	25.0	mg/L	50	9/16/2013 12:13
Fluoride	1.82		0.050	0.100	mg/L	1	9/16/2013 07:09
Nitrogen, Nitrate (As N)	0.0550	JH	0.030	0.100	mg/L	1	9/16/2013 07:09
Nitrogen, Nitrite (As N)	U	H	0.030	0.100	mg/L	1	9/16/2013 07:09
Sulfate	2,000	E	0.20	0.500	mg/L	1	9/16/2013 07:09
Sulfate	1,950		10	25.0	mg/L	50	9/16/2013 12:13
Nitrate/Nitrite (as N)	0.0550	JH	0.030	0.200	mg/L	1	9/16/2013 07:09

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
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Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 08-Oct-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114
Collection Date: 9/5/2013 09:30 AM

Work Order: 1309249
Lab ID: 1309249-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Cyanide	U		0.0050	0.0200	mg/L	1	9/13/2013 10:15
PH - SM4500H+ B		Method: SM4500H+ B					Analyst: KL
pH	7.07	H	0.10	0.100	pH Units	1	9/8/2013 11:16
Temp Deg C @pH	23.7	H	0		°C	1	9/8/2013 11:16
TOTAL DISSOLVED SOLIDS		Method: M2540C					Analyst: KAH
Total Dissolved Solids (Residue, Filterable)	3,870		5.0	10.0	mg/L	1	9/11/2013 18:55

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

ALS Environmental

Date: 08-Oct-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-115
Collection Date: 9/4/2013 05:10 PM

Work Order: 1309249
Lab ID: 1309249-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO 8015C Method: SW8015M Prep: SW3511 / 9/10/13 Analyst: RPM							
TPH (Diesel Range)	U		0.021	0.052	mg/L	1	9/11/2013 10:39
TPH (Oil Range)	U		0.041	0.10	mg/L	1	9/11/2013 10:39
Surr: 2-Fluorobiphenyl	60.4			60-135	%REC	1	9/11/2013 10:39
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: KKP							
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	9/12/2013 17:36
Surr: 4-Bromofluorobenzene	103			70-130	%REC	1	9/12/2013 17:36
DISSOLVED MERCURY BY 7470A Method: SW7470 Prep: SW7470 / 9/13/13 Analyst: OFO							
Mercury	U		0.000042	0.000200	mg/L	1	9/13/2013 16:51
DISSOLVED METALS Method: SW6020 Prep: SW3010A / 9/13/13 Analyst: ALR							
Aluminum	0.00648	J	0.0040	0.0100	mg/L	1	9/13/2013 23:58
Arsenic	0.00467	J	0.0010	0.00500	mg/L	1	9/13/2013 23:58
Barium	0.0106		0.00090	0.00500	mg/L	1	9/13/2013 23:58
Boron	0.782		0.020	0.0500	mg/L	1	9/13/2013 23:58
Cadmium	U		0.00080	0.00200	mg/L	1	9/13/2013 23:58
Calcium	622		0.86	5.00	mg/L	10	9/17/2013 13:36
Chromium	U		0.0010	0.00500	mg/L	1	9/13/2013 23:58
Cobalt	U		0.00080	0.00500	mg/L	1	9/13/2013 23:58
Copper	U		0.0010	0.00500	mg/L	1	9/13/2013 23:58
Iron	U		0.078	0.200	mg/L	1	9/13/2013 23:58
Lead	U		0.00070	0.00500	mg/L	1	9/13/2013 23:58
Manganese	0.0362		0.0025	0.00500	mg/L	1	9/13/2013 23:58
Molybdenum	0.00663		0.0015	0.00500	mg/L	1	9/13/2013 23:58
Nickel	0.00208	J	0.0010	0.00500	mg/L	1	9/13/2013 23:58
Potassium	0.782		0.084	0.200	mg/L	1	9/13/2013 23:58
Selenium	0.00568		0.0010	0.00500	mg/L	1	9/13/2013 23:58
Silver	U		0.00080	0.00500	mg/L	1	9/13/2013 23:58
Sodium	247		0.85	2.00	mg/L	10	9/17/2013 13:36
Uranium	0.0936		0.0050	0.00500	mg/L	1	9/13/2013 23:58
Zinc	U		0.0025	0.00500	mg/L	1	9/13/2013 23:58
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3510 / 9/10/13 Analyst: LG							
1-Methylnaphthalene	U		0.000030	0.00020	mg/L	1	9/13/2013 12:17
2-Methylnaphthalene	U		0.000034	0.00020	mg/L	1	9/13/2013 12:17
Benzo(a)pyrene	U		0.000030	0.00020	mg/L	1	9/13/2013 12:17
Naphthalene	U		0.000050	0.00020	mg/L	1	9/13/2013 12:17
Surr: 2,4,6-Tribromophenol	47.8			34-129	%REC	1	9/13/2013 12:17
Surr: 2-Fluorobiphenyl	49.8			40-125	%REC	1	9/13/2013 12:17

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

ALS Environmental

Date: 08-Oct-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-115
Collection Date: 9/4/2013 05:10 PM

Work Order: 1309249
Lab ID: 1309249-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	53.1			20-120	%REC	1	9/13/2013 12:17
Surr: 4-Terphenyl-d14	67.5			40-135	%REC	1	9/13/2013 12:17
Surr: Nitrobenzene-d5	70.6			41-120	%REC	1	9/13/2013 12:17
Surr: Phenol-d6	60.1			20-120	%REC	1	9/13/2013 12:17

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 00:06
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	9/10/2013 00:06
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	9/10/2013 00:06
1,1-Dichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 00:06
1,1-Dichloroethene	U		0.00020	0.0010	mg/L	1	9/10/2013 00:06
1,2-Dibromoethane	U		0.00020	0.0010	mg/L	1	9/10/2013 00:06
1,2-Dichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 00:06
Benzene	U		0.00020	0.0010	mg/L	1	9/10/2013 00:06
Carbon tetrachloride	U		0.00050	0.0010	mg/L	1	9/10/2013 00:06
Chloroform	U		0.00020	0.0010	mg/L	1	9/10/2013 00:06
Ethylbenzene	U		0.00030	0.0010	mg/L	1	9/10/2013 00:06
Methylene chloride	U		0.00040	0.0020	mg/L	1	9/10/2013 00:06
Tetrachloroethene	U		0.00030	0.0010	mg/L	1	9/10/2013 00:06
Toluene	U		0.00020	0.0010	mg/L	1	9/10/2013 00:06
Trichloroethene	U		0.00020	0.0010	mg/L	1	9/10/2013 00:06
Vinyl chloride	U		0.00020	0.0010	mg/L	1	9/10/2013 00:06
Xylenes, Total	U		0.00050	0.0010	mg/L	1	9/10/2013 00:06
Surr: 1,2-Dichloroethane-d4	112			71-125	%REC	1	9/10/2013 00:06
Surr: 4-Bromofluorobenzene	91.2			70-125	%REC	1	9/10/2013 00:06
Surr: Dibromofluoromethane	112			74-125	%REC	1	9/10/2013 00:06
Surr: Toluene-d8	111			75-125	%REC	1	9/10/2013 00:06

MISCELLANEOUS ANALYSIS			Method: NA			Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	9/25/2013

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	530		10	25.0	mg/L	50	9/16/2013 12:39
Fluoride	0.845		0.050	0.100	mg/L	1	9/16/2013 07:35
Nitrogen, Nitrate (As N)	0.174	H	0.030	0.100	mg/L	1	9/16/2013 07:35
Nitrogen, Nitrite (As N)	U	H	0.030	0.100	mg/L	1	9/16/2013 07:35
Sulfate	2,900		10	25.0	mg/L	50	9/16/2013 12:39
Nitrate/Nitrite (as N)	0.174	JH	0.030	0.200	mg/L	1	9/16/2013 07:35

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	U		0.0050	0.0200	mg/L	1	9/13/2013 10:15

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

ALS Environmental

Date: 08-Oct-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-115
Collection Date: 9/4/2013 05:10 PM

Work Order: 1309249
Lab ID: 1309249-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PH - SM4500H+ B	Method: SM4500H+ B						Analyst: KL
pH	7.07	H	0.10	0.100	pH Units	1	9/8/2013 11:19
Temp Deg C @pH	23.6	H	0		°C	1	9/8/2013 11:19
TOTAL DISSOLVED SOLIDS	Method: M2540C						Analyst: KAH
Total Dissolved Solids (Residue, Filterable)	6,130		5.0	10.0	mg/L	1	9/11/2013 18:55

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

ALS Environmental

Date: 08-Oct-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116
Collection Date: 9/4/2013 03:20 PM

Work Order: 1309249
Lab ID: 1309249-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO 8015C Method: SW8015M Prep: SW3511 / 9/10/13 Analyst: RPM							
TPH (Diesel Range)	U		0.021	0.052	mg/L	1	9/11/2013 11:06
TPH (Oil Range)	U		0.042	0.10	mg/L	1	9/11/2013 11:06
Surr: 2-Fluorobiphenyl	63.6			60-135	%REC	1	9/11/2013 11:06
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: KKP							
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	9/12/2013 17:54
Surr: 4-Bromofluorobenzene	100			70-130	%REC	1	9/12/2013 17:54
DISSOLVED MERCURY BY 7470A Method: SW7470 Prep: SW7470 / 9/13/13 Analyst: OFO							
Mercury	0.0000610	J	0.000042	0.000200	mg/L	1	9/13/2013 16:53
DISSOLVED METALS Method: SW6020 Prep: SW3010A / 9/13/13 Analyst: ALR							
Aluminum	0.0126		0.0040	0.0100	mg/L	1	9/14/2013 00:03
Arsenic	0.00535		0.0010	0.00500	mg/L	1	9/14/2013 00:03
Barium	0.00928		0.00090	0.00500	mg/L	1	9/14/2013 00:03
Boron	0.304		0.020	0.0500	mg/L	1	9/14/2013 00:03
Cadmium	U		0.00080	0.00200	mg/L	1	9/14/2013 00:03
Calcium	588		0.86	5.00	mg/L	10	9/17/2013 13:39
Chromium	U		0.0010	0.00500	mg/L	1	9/14/2013 00:03
Cobalt	U		0.00080	0.00500	mg/L	1	9/14/2013 00:03
Copper	U		0.0010	0.00500	mg/L	1	9/14/2013 00:03
Iron	U		0.078	0.200	mg/L	1	9/14/2013 00:03
Lead	U		0.00070	0.00500	mg/L	1	9/14/2013 00:03
Manganese	0.00478	J	0.0025	0.00500	mg/L	1	9/14/2013 00:03
Molybdenum	0.00304	J	0.0015	0.00500	mg/L	1	9/14/2013 00:03
Nickel	0.00115	J	0.0010	0.00500	mg/L	1	9/14/2013 00:03
Potassium	1.21		0.084	0.200	mg/L	1	9/14/2013 00:03
Selenium	0.00493	J	0.0010	0.00500	mg/L	1	9/14/2013 00:03
Silver	U		0.00080	0.00500	mg/L	1	9/14/2013 00:03
Sodium	235		0.85	2.00	mg/L	10	9/17/2013 13:39
Uranium	0.0400		0.0050	0.00500	mg/L	1	9/14/2013 00:03
Zinc	U		0.0025	0.00500	mg/L	1	9/14/2013 00:03
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3510 / 9/10/13 Analyst: LG							
1-Methylnaphthalene	U		0.000030	0.00020	mg/L	1	9/10/2013 23:28
2-Methylnaphthalene	U		0.000034	0.00020	mg/L	1	9/10/2013 23:28
Benzo(a)pyrene	U		0.000030	0.00020	mg/L	1	9/10/2013 23:28
Naphthalene	U		0.000050	0.00020	mg/L	1	9/10/2013 23:28
Surr: 2,4,6-Tribromophenol	35.3			34-129	%REC	1	9/10/2013 23:28
Surr: 2-Fluorobiphenyl	47.6			40-125	%REC	1	9/10/2013 23:28

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

ALS Environmental

Date: 08-Oct-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116
Collection Date: 9/4/2013 03:20 PM

Work Order: 1309249
Lab ID: 1309249-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	38.3			20-120	%REC	1	9/10/2013 23:28
Surr: 4-Terphenyl-d14	58.1			40-135	%REC	1	9/10/2013 23:28
Surr: Nitrobenzene-d5	49.8			41-120	%REC	1	9/10/2013 23:28
Surr: Phenol-d6	39.8			20-120	%REC	1	9/10/2013 23:28

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 06:21
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	9/10/2013 06:21
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	9/10/2013 06:21
1,1-Dichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 06:21
1,1-Dichloroethene	U		0.00020	0.0010	mg/L	1	9/10/2013 06:21
1,2-Dibromoethane	U		0.00020	0.0010	mg/L	1	9/10/2013 06:21
1,2-Dichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 06:21
Benzene	U		0.00020	0.0010	mg/L	1	9/10/2013 06:21
Carbon tetrachloride	U		0.00050	0.0010	mg/L	1	9/10/2013 06:21
Chloroform	U		0.00020	0.0010	mg/L	1	9/10/2013 06:21
Ethylbenzene	U		0.00030	0.0010	mg/L	1	9/10/2013 06:21
Methylene chloride	U		0.00040	0.0020	mg/L	1	9/10/2013 06:21
Tetrachloroethene	U		0.00030	0.0010	mg/L	1	9/10/2013 06:21
Toluene	U		0.00020	0.0010	mg/L	1	9/10/2013 06:21
Trichloroethene	U		0.00020	0.0010	mg/L	1	9/10/2013 06:21
Vinyl chloride	U		0.00020	0.0010	mg/L	1	9/10/2013 06:21
Xylenes, Total	U		0.00050	0.0010	mg/L	1	9/10/2013 06:21
Surr: 1,2-Dichloroethane-d4	106			71-125	%REC	1	9/10/2013 06:21
Surr: 4-Bromofluorobenzene	91.4			70-125	%REC	1	9/10/2013 06:21
Surr: Dibromofluoromethane	107			74-125	%REC	1	9/10/2013 06:21
Surr: Toluene-d8	108			75-125	%REC	1	9/10/2013 06:21

MISCELLANEOUS ANALYSIS			Method: NA			Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	9/25/2013

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	344		10	25.0	mg/L	50	9/16/2013 13:05
Fluoride	1.17		0.050	0.100	mg/L	1	9/16/2013 08:01
Nitrogen, Nitrate (As N)	0.418	H	0.030	0.100	mg/L	1	9/16/2013 08:01
Nitrogen, Nitrite (As N)	U	H	0.030	0.100	mg/L	1	9/16/2013 08:01
Sulfate	2,180		10	25.0	mg/L	50	9/16/2013 13:05
Nitrate/Nitrite (as N)	0.418	H	0.030	0.200	mg/L	1	9/16/2013 08:01

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	U		0.0050	0.0200	mg/L	1	9/13/2013 10:15

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

ALS Environmental

Date: 08-Oct-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116
Collection Date: 9/4/2013 03:20 PM

Work Order: 1309249
Lab ID: 1309249-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PH - SM4500H+ B	Method: SM4500H+ B						Analyst: KL
pH	7.20	H	0.10	0.100	pH Units	1	9/8/2013 11:21
Temp Deg C @pH	23.5	H	0		°C	1	9/8/2013 11:21
TOTAL DISSOLVED SOLIDS	Method: M2540C						Analyst: KAH
Total Dissolved Solids (Residue, Filterable)	4,440		5.0	10.0	mg/L	1	9/11/2013 18:55

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

ALS Environmental

Date: 08-Oct-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117
Collection Date: 9/4/2013 09:50 AM

Work Order: 1309249
Lab ID: 1309249-04
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO 8015C		Method: SW8015M		Prep: SW3511 / 9/10/13		Analyst: RPM	
TPH (Diesel Range)	U		0.020	0.051	mg/L	1	9/11/2013 11:32
TPH (Oil Range)	U		0.041	0.10	mg/L	1	9/11/2013 11:32
Surr: 2-Fluorobiphenyl	62.7			60-135	%REC	1	9/11/2013 11:32
GASOLINE RANGE ORGANICS - SW8015C		Method: SW8015		Prep: SW7470 / 9/13/13		Analyst: KKP	
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	9/12/2013 18:13
Surr: 4-Bromofluorobenzene	100			70-130	%REC	1	9/12/2013 18:13
DISSOLVED MERCURY BY 7470A		Method: SW7470		Prep: SW7470 / 9/13/13		Analyst: OFO	
Mercury	U		0.000042	0.000200	mg/L	1	9/13/2013 16:54
DISSOLVED METALS		Method: SW6020		Prep: SW3010A / 9/13/13		Analyst: ALR	
Aluminum	0.0169		0.0040	0.0100	mg/L	1	9/14/2013 00:08
Arsenic	0.00559		0.0010	0.00500	mg/L	1	9/14/2013 00:08
Barium	0.0108		0.00090	0.00500	mg/L	1	9/14/2013 00:08
Boron	0.202		0.020	0.0500	mg/L	1	9/14/2013 00:08
Cadmium	U		0.00080	0.00200	mg/L	1	9/14/2013 00:08
Calcium	550		0.86	5.00	mg/L	10	9/17/2013 13:41
Chromium	U		0.0010	0.00500	mg/L	1	9/14/2013 00:08
Cobalt	U		0.00080	0.00500	mg/L	1	9/14/2013 00:08
Copper	U		0.0010	0.00500	mg/L	1	9/14/2013 00:08
Iron	U		0.078	0.200	mg/L	1	9/14/2013 00:08
Lead	U		0.00070	0.00500	mg/L	1	9/14/2013 00:08
Manganese	0.00502		0.0025	0.00500	mg/L	1	9/14/2013 00:08
Molybdenum	0.0140		0.0015	0.00500	mg/L	1	9/14/2013 00:08
Nickel	0.00189	J	0.0010	0.00500	mg/L	1	9/14/2013 00:08
Potassium	8.92		0.084	0.200	mg/L	1	9/14/2013 00:08
Selenium	0.00316	J	0.0010	0.00500	mg/L	1	9/14/2013 00:08
Silver	U		0.00080	0.00500	mg/L	1	9/14/2013 00:08
Sodium	118		0.085	0.200	mg/L	1	9/14/2013 00:08
Uranium	0.0224		0.0050	0.00500	mg/L	1	9/14/2013 00:08
Zinc	0.00266	J	0.0025	0.00500	mg/L	1	9/14/2013 00:08
LOW-LEVEL SEMIVOLATILES		Method: SW8270		Prep: SW3510 / 9/10/13		Analyst: LG	
1-Methylnaphthalene	U		0.000030	0.00020	mg/L	1	9/13/2013 12:36
2-Methylnaphthalene	U		0.000034	0.00020	mg/L	1	9/13/2013 12:36
Benzo(a)pyrene	U		0.000030	0.00020	mg/L	1	9/13/2013 12:36
Naphthalene	U		0.000050	0.00020	mg/L	1	9/13/2013 12:36
Surr: 2,4,6-Tribromophenol	40.4			34-129	%REC	1	9/13/2013 12:36
Surr: 2-Fluorobiphenyl	42.4			40-125	%REC	1	9/13/2013 12:36

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

ALS Environmental

Date: 08-Oct-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117
Collection Date: 9/4/2013 09:50 AM

Work Order: 1309249
Lab ID: 1309249-04
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	40.1			20-120	%REC	1	9/13/2013 12:36
Surr: 4-Terphenyl-d14	65.4			40-135	%REC	1	9/13/2013 12:36
Surr: Nitrobenzene-d5	52.3			41-120	%REC	1	9/13/2013 12:36
Surr: Phenol-d6	46.3			20-120	%REC	1	9/13/2013 12:36

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 06:46
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	9/10/2013 06:46
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	9/10/2013 06:46
1,1-Dichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 06:46
1,1-Dichloroethene	U		0.00020	0.0010	mg/L	1	9/10/2013 06:46
1,2-Dibromoethane	U		0.00020	0.0010	mg/L	1	9/10/2013 06:46
1,2-Dichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 06:46
Benzene	U		0.00020	0.0010	mg/L	1	9/10/2013 06:46
Carbon tetrachloride	U		0.00050	0.0010	mg/L	1	9/10/2013 06:46
Chloroform	U		0.00020	0.0010	mg/L	1	9/10/2013 06:46
Ethylbenzene	U		0.00030	0.0010	mg/L	1	9/10/2013 06:46
Methylene chloride	U		0.00040	0.0020	mg/L	1	9/10/2013 06:46
Tetrachloroethene	U		0.00030	0.0010	mg/L	1	9/10/2013 06:46
Toluene	U		0.00020	0.0010	mg/L	1	9/10/2013 06:46
Trichloroethene	U		0.00020	0.0010	mg/L	1	9/10/2013 06:46
Vinyl chloride	U		0.00020	0.0010	mg/L	1	9/10/2013 06:46
Xylenes, Total	U		0.00050	0.0010	mg/L	1	9/10/2013 06:46
Surr: 1,2-Dichloroethane-d4	105			71-125	%REC	1	9/10/2013 06:46
Surr: 4-Bromofluorobenzene	88.1			70-125	%REC	1	9/10/2013 06:46
Surr: Dibromofluoromethane	106			74-125	%REC	1	9/10/2013 06:46
Surr: Toluene-d8	106			75-125	%REC	1	9/10/2013 06:46

MISCELLANEOUS ANALYSIS			Method: NA			Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	9/25/2013

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	71.0		0.20	0.500	mg/L	1	9/16/2013 08:27
Fluoride	2.80		0.050	0.100	mg/L	1	9/16/2013 08:27
Nitrogen, Nitrate (As N)	U	H	0.030	0.100	mg/L	1	9/16/2013 08:27
Nitrogen, Nitrite (As N)	U	H	0.030	0.100	mg/L	1	9/16/2013 08:27
Sulfate	2,020		10	25.0	mg/L	50	9/16/2013 14:20
Nitrate/Nitrite (as N)	U	H	0.030	0.200	mg/L	1	9/16/2013 08:27

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	U		0.0050	0.0200	mg/L	1	9/13/2013 10:15

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

ALS Environmental

Date: 08-Oct-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117
Collection Date: 9/4/2013 09:50 AM

Work Order: 1309249
Lab ID: 1309249-04
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PH - SM4500H+ B	Method: SM4500H+ B						Analyst: KL
pH	7.10	H	0.10	0.100	pH Units	1	9/8/2013 11:24
Temp Deg C @pH	23.5	H	0		°C	1	9/8/2013 11:24
TOTAL DISSOLVED SOLIDS	Method: M2540C						Analyst: KAH
Total Dissolved Solids (Residue, Filterable)	3,970		5.0	10.0	mg/L	1	9/9/2013 11:00

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

ALS Environmental

Date: 08-Oct-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118
Collection Date: 9/4/2013 12:00 PM

Work Order: 1309249
Lab ID: 1309249-05
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO 8015C Method: SW8015M Prep: SW3511 / 9/10/13 Analyst: RPM							
TPH (Diesel Range)	U		0.021	0.052	mg/L	1	9/11/2013 11:59
TPH (Oil Range)	U		0.041	0.10	mg/L	1	9/11/2013 11:59
Surr: 2-Fluorobiphenyl	60.7			60-135	%REC	1	9/11/2013 11:59
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: KKP							
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	9/12/2013 18:31
Surr: 4-Bromofluorobenzene	100			70-130	%REC	1	9/12/2013 18:31
DISSOLVED MERCURY BY 7470A Method: SW7470 Prep: SW7470 / 9/13/13 Analyst: OFO							
Mercury	U		0.000042	0.000200	mg/L	1	9/13/2013 16:56
DISSOLVED METALS Method: SW6020 Prep: SW3010A / 9/13/13 Analyst: ALR							
Aluminum	0.00992	J	0.0040	0.0100	mg/L	1	9/14/2013 00:13
Arsenic	0.0156		0.0010	0.00500	mg/L	1	9/14/2013 00:13
Barium	0.00990		0.00090	0.00500	mg/L	1	9/14/2013 00:13
Boron	0.307		0.020	0.0500	mg/L	1	9/14/2013 00:13
Cadmium	U		0.00080	0.00200	mg/L	1	9/14/2013 00:13
Calcium	543		0.86	5.00	mg/L	10	9/17/2013 13:43
Chromium	U		0.0010	0.00500	mg/L	1	9/14/2013 00:13
Cobalt	U		0.00080	0.00500	mg/L	1	9/14/2013 00:13
Copper	U		0.0010	0.00500	mg/L	1	9/14/2013 00:13
Iron	U		0.078	0.200	mg/L	1	9/14/2013 00:13
Lead	U		0.00070	0.00500	mg/L	1	9/14/2013 00:13
Manganese	U		0.0025	0.00500	mg/L	1	9/14/2013 00:13
Molybdenum	0.0162		0.0015	0.00500	mg/L	1	9/14/2013 00:13
Nickel	0.00131	J	0.0010	0.00500	mg/L	1	9/14/2013 00:13
Potassium	7.69		0.084	0.200	mg/L	1	9/14/2013 00:13
Selenium	0.0129		0.0010	0.00500	mg/L	1	9/14/2013 00:13
Silver	U		0.00080	0.00500	mg/L	1	9/14/2013 00:13
Sodium	215		0.85	2.00	mg/L	10	9/17/2013 13:43
Uranium	0.0395		0.0050	0.00500	mg/L	1	9/14/2013 00:13
Zinc	U		0.0025	0.00500	mg/L	1	9/14/2013 00:13
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3510 / 9/10/13 Analyst: LG							
1-Methylnaphthalene	U		0.000030	0.00020	mg/L	1	9/13/2013 12:56
2-Methylnaphthalene	U		0.000034	0.00020	mg/L	1	9/13/2013 12:56
Benzo(a)pyrene	U		0.000030	0.00020	mg/L	1	9/13/2013 12:56
Naphthalene	U		0.000050	0.00020	mg/L	1	9/13/2013 12:56
Surr: 2,4,6-Tribromophenol	55.5			34-129	%REC	1	9/13/2013 12:56
Surr: 2-Fluorobiphenyl	57.3			40-125	%REC	1	9/13/2013 12:56

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

ALS Environmental

Date: 08-Oct-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118
Collection Date: 9/4/2013 12:00 PM

Work Order: 1309249
Lab ID: 1309249-05
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	57.6			20-120	%REC	1	9/13/2013 12:56
Surr: 4-Terphenyl-d14	78.1			40-135	%REC	1	9/13/2013 12:56
Surr: Nitrobenzene-d5	67.8			41-120	%REC	1	9/13/2013 12:56
Surr: Phenol-d6	61.9			20-120	%REC	1	9/13/2013 12:56

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 07:11
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	9/10/2013 07:11
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	9/10/2013 07:11
1,1-Dichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 07:11
1,1-Dichloroethene	U		0.00020	0.0010	mg/L	1	9/10/2013 07:11
1,2-Dibromoethane	U		0.00020	0.0010	mg/L	1	9/10/2013 07:11
1,2-Dichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 07:11
Benzene	U		0.00020	0.0010	mg/L	1	9/10/2013 07:11
Carbon tetrachloride	U		0.00050	0.0010	mg/L	1	9/10/2013 07:11
Chloroform	U		0.00020	0.0010	mg/L	1	9/10/2013 07:11
Ethylbenzene	U		0.00030	0.0010	mg/L	1	9/10/2013 07:11
Methylene chloride	U		0.00040	0.0020	mg/L	1	9/10/2013 07:11
Tetrachloroethene	U		0.00030	0.0010	mg/L	1	9/10/2013 07:11
Toluene	U		0.00020	0.0010	mg/L	1	9/10/2013 07:11
Trichloroethene	U		0.00020	0.0010	mg/L	1	9/10/2013 07:11
Vinyl chloride	U		0.00020	0.0010	mg/L	1	9/10/2013 07:11
Xylenes, Total	U		0.00050	0.0010	mg/L	1	9/10/2013 07:11
Surr: 1,2-Dichloroethane-d4	106			71-125	%REC	1	9/10/2013 07:11
Surr: 4-Bromofluorobenzene	90.3			70-125	%REC	1	9/10/2013 07:11
Surr: Dibromofluoromethane	105			74-125	%REC	1	9/10/2013 07:11
Surr: Toluene-d8	109			75-125	%REC	1	9/10/2013 07:11

MISCELLANEOUS ANALYSIS			Method: NA			Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	9/25/2013

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	132		10	25.0	mg/L	50	9/16/2013 14:45
Fluoride	4.48		0.050	0.100	mg/L	1	9/16/2013 08:53
Nitrogen, Nitrate (As N)	0.325	H	0.030	0.100	mg/L	1	9/16/2013 08:53
Nitrogen, Nitrite (As N)	U	H	0.030	0.100	mg/L	1	9/16/2013 08:53
Sulfate	2,310		10	25.0	mg/L	50	9/16/2013 14:45
Nitrate/Nitrite (as N)	0.325	H	0.030	0.200	mg/L	1	9/16/2013 08:53

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	U		0.0050	0.0200	mg/L	1	9/13/2013 10:15

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

ALS Environmental

Date: 08-Oct-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118
Collection Date: 9/4/2013 12:00 PM

Work Order: 1309249
Lab ID: 1309249-05
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PH - SM4500H+ B	Method: SM4500H+ B						Analyst: KL
pH	7.10	H	0.10	0.100	pH Units	1	9/8/2013 11:27
Temp Deg C @pH	23.5	H	0		°C	1	9/8/2013 11:27
TOTAL DISSOLVED SOLIDS	Method: M2540C						Analyst: KAH
Total Dissolved Solids (Residue, Filterable)	4,550		5.0	10.0	mg/L	1	9/9/2013 11:00

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

ALS Environmental

Date: 08-Oct-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119
Collection Date: 9/4/2013 01:30 PM

Work Order: 1309249
Lab ID: 1309249-06
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO 8015C		Method: SW8015M		Prep: SW3511 / 9/10/13		Analyst: RPM	
TPH (Diesel Range)	U		0.021	0.052	mg/L	1	9/11/2013 12:25
TPH (Oil Range)	U		0.042	0.10	mg/L	1	9/11/2013 12:25
Surr: 2-Fluorobiphenyl	63.6			60-135	%REC	1	9/11/2013 12:25
GASOLINE RANGE ORGANICS - SW8015C		Method: SW8015		Prep: SW7470 / 9/13/13		Analyst: KKP	
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	9/12/2013 18:50
Surr: 4-Bromofluorobenzene	98.3			70-130	%REC	1	9/12/2013 18:50
DISSOLVED MERCURY BY 7470A		Method: SW7470		Prep: SW7470 / 9/13/13		Analyst: OFO	
Mercury	U		0.000042	0.000200	mg/L	1	9/13/2013 16:58
DISSOLVED METALS		Method: SW6020		Prep: SW3010A / 9/13/13		Analyst: ALR	
Aluminum	0.0113		0.0040	0.0100	mg/L	1	9/14/2013 00:18
Arsenic	0.00595		0.0010	0.00500	mg/L	1	9/14/2013 00:18
Barium	0.00864		0.00090	0.00500	mg/L	1	9/14/2013 00:18
Boron	0.183		0.020	0.0500	mg/L	1	9/14/2013 00:18
Cadmium	U		0.00080	0.00200	mg/L	1	9/14/2013 00:18
Calcium	635		0.86	5.00	mg/L	10	9/17/2013 13:46
Chromium	U		0.0010	0.00500	mg/L	1	9/14/2013 00:18
Cobalt	U		0.00080	0.00500	mg/L	1	9/14/2013 00:18
Copper	U		0.0010	0.00500	mg/L	1	9/14/2013 00:18
Iron	U		0.078	0.200	mg/L	1	9/14/2013 00:18
Lead	U		0.00070	0.00500	mg/L	1	9/14/2013 00:18
Manganese	U		0.0025	0.00500	mg/L	1	9/14/2013 00:18
Molybdenum	0.00846		0.0015	0.00500	mg/L	1	9/14/2013 00:18
Nickel	0.00140	J	0.0010	0.00500	mg/L	1	9/14/2013 00:18
Potassium	0.993		0.084	0.200	mg/L	1	9/14/2013 00:18
Selenium	0.00660		0.0010	0.00500	mg/L	1	9/14/2013 00:18
Silver	U		0.00080	0.00500	mg/L	1	9/14/2013 00:18
Sodium	133		0.085	0.200	mg/L	1	9/14/2013 00:18
Uranium	0.0275		0.0050	0.00500	mg/L	1	9/14/2013 00:18
Zinc	U		0.0025	0.00500	mg/L	1	9/14/2013 00:18
LOW-LEVEL SEMIVOLATILES		Method: SW8270		Prep: SW3510 / 9/10/13		Analyst: LG	
1-Methylnaphthalene	U		0.000030	0.00020	mg/L	1	9/12/2013 22:40
2-Methylnaphthalene	U		0.000034	0.00020	mg/L	1	9/12/2013 22:40
Benzo(a)pyrene	U		0.000030	0.00020	mg/L	1	9/12/2013 22:40
Naphthalene	U		0.000050	0.00020	mg/L	1	9/12/2013 22:40
Surr: 2,4,6-Tribromophenol	55.3			34-129	%REC	1	9/12/2013 22:40
Surr: 2-Fluorobiphenyl	58.9			40-125	%REC	1	9/12/2013 22:40

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

ALS Environmental

Date: 08-Oct-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119
Collection Date: 9/4/2013 01:30 PM

Work Order: 1309249
Lab ID: 1309249-06
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	47.0			20-120	%REC	1	9/12/2013 22:40
Surr: 4-Terphenyl-d14	80.5			40-135	%REC	1	9/12/2013 22:40
Surr: Nitrobenzene-d5	58.6			41-120	%REC	1	9/12/2013 22:40
Surr: Phenol-d6	56.5			20-120	%REC	1	9/12/2013 22:40

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 07:36
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	9/10/2013 07:36
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	9/10/2013 07:36
1,1-Dichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 07:36
1,1-Dichloroethene	U		0.00020	0.0010	mg/L	1	9/10/2013 07:36
1,2-Dibromoethane	U		0.00020	0.0010	mg/L	1	9/10/2013 07:36
1,2-Dichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 07:36
Benzene	U		0.00020	0.0010	mg/L	1	9/10/2013 07:36
Carbon tetrachloride	U		0.00050	0.0010	mg/L	1	9/10/2013 07:36
Chloroform	U		0.00020	0.0010	mg/L	1	9/10/2013 07:36
Ethylbenzene	U		0.00030	0.0010	mg/L	1	9/10/2013 07:36
Methylene chloride	U		0.00040	0.0020	mg/L	1	9/10/2013 07:36
Tetrachloroethene	U		0.00030	0.0010	mg/L	1	9/10/2013 07:36
Toluene	U		0.00020	0.0010	mg/L	1	9/10/2013 07:36
Trichloroethene	U		0.00020	0.0010	mg/L	1	9/10/2013 07:36
Vinyl chloride	U		0.00020	0.0010	mg/L	1	9/10/2013 07:36
Xylenes, Total	U		0.00050	0.0010	mg/L	1	9/10/2013 07:36
Surr: 1,2-Dichloroethane-d4	110			71-125	%REC	1	9/10/2013 07:36
Surr: 4-Bromofluorobenzene	91.9			70-125	%REC	1	9/10/2013 07:36
Surr: Dibromofluoromethane	108			74-125	%REC	1	9/10/2013 07:36
Surr: Toluene-d8	110			75-125	%REC	1	9/10/2013 07:36

MISCELLANEOUS ANALYSIS			Method: NA			Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	9/25/2013

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	244		10	25.0	mg/L	50	9/16/2013 15:11
Fluoride	2.28		0.050	0.100	mg/L	1	9/16/2013 10:46
Nitrogen, Nitrate (As N)	0.228	H	0.030	0.100	mg/L	1	9/16/2013 10:46
Nitrogen, Nitrite (As N)	U	H	0.030	0.100	mg/L	1	9/16/2013 10:46
Sulfate	1,940		10	25.0	mg/L	50	9/16/2013 15:11
Nitrate/Nitrite (as N)	0.228	H	0.030	0.200	mg/L	1	9/16/2013 10:46

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	U		0.0050	0.0200	mg/L	1	9/13/2013 10:15

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

ALS Environmental

Date: 08-Oct-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119
Collection Date: 9/4/2013 01:30 PM

Work Order: 1309249
Lab ID: 1309249-06
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PH - SM4500H+ B	Method: SM4500H+ B						Analyst: KL
pH	7.30	H	0.10	0.100	pH Units	1	9/8/2013 11:30
Temp Deg C @pH	23.5	H	0		°C	1	9/8/2013 11:30
TOTAL DISSOLVED SOLIDS	Method: M2540C						Analyst: KAH
Total Dissolved Solids (Residue, Filterable)	4,030		5.0	10.0	mg/L	1	9/9/2013 11:00

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

ALS Environmental

Date: 08-Oct-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO DISCHARGE
Collection Date: 9/5/2013 11:00 AM

Work Order: 1309249
Lab ID: 1309249-07
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO 8015C Method: SW8015M Prep: SW3511 / 9/10/13 Analyst: RPM							
TPH (Diesel Range)	U		0.021	0.052	mg/L	1	9/11/2013 12:52
TPH (Oil Range)	U		0.042	0.10	mg/L	1	9/11/2013 12:52
Surr: 2-Fluorobiphenyl	64.4			60-135	%REC	1	9/11/2013 12:52
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: KKP							
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	9/12/2013 19:26
Surr: 4-Bromofluorobenzene	98.2			70-130	%REC	1	9/12/2013 19:26
DISSOLVED MERCURY BY 7470A Method: SW7470 Prep: SW7470 / 9/13/13 Analyst: OFO							
Mercury	U		0.000042	0.000200	mg/L	1	9/13/2013 16:59
DISSOLVED METALS Method: SW6020 Prep: SW3010A / 9/13/13 Analyst: ALR							
Aluminum	0.00809	J	0.0040	0.0100	mg/L	1	9/14/2013 00:23
Arsenic	0.00244	J	0.0010	0.00500	mg/L	1	9/14/2013 00:23
Barium	0.0553		0.00090	0.00500	mg/L	1	9/14/2013 00:23
Boron	0.0934		0.020	0.0500	mg/L	1	9/14/2013 00:23
Cadmium	U		0.00080	0.00200	mg/L	1	9/14/2013 00:23
Calcium	410		0.86	5.00	mg/L	10	9/17/2013 13:53
Chromium	0.00114	J	0.0010	0.00500	mg/L	1	9/14/2013 00:23
Cobalt	U		0.00080	0.00500	mg/L	1	9/14/2013 00:23
Copper	U		0.0010	0.00500	mg/L	1	9/14/2013 00:23
Iron	U		0.078	0.200	mg/L	1	9/14/2013 00:23
Lead	U		0.00070	0.00500	mg/L	1	9/14/2013 00:23
Manganese	U		0.0025	0.00500	mg/L	1	9/14/2013 00:23
Molybdenum	0.00604		0.0015	0.00500	mg/L	1	9/14/2013 00:23
Nickel	0.00329	J	0.0010	0.00500	mg/L	1	9/14/2013 00:23
Potassium	2.72		0.084	0.200	mg/L	1	9/14/2013 00:23
Selenium	0.00669		0.0010	0.00500	mg/L	1	9/14/2013 00:23
Silver	U		0.00080	0.00500	mg/L	1	9/14/2013 00:23
Sodium	45.7		0.085	0.200	mg/L	1	9/14/2013 00:23
Uranium	U		0.0050	0.00500	mg/L	1	9/14/2013 00:23
Zinc	0.00672		0.0025	0.00500	mg/L	1	9/14/2013 00:23
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3510 / 9/10/13 Analyst: LG							
1-Methylnaphthalene	U		0.000030	0.00020	mg/L	1	9/13/2013 13:36
2-Methylnaphthalene	U		0.000034	0.00020	mg/L	1	9/13/2013 13:36
Benzo(a)pyrene	U		0.000030	0.00020	mg/L	1	9/13/2013 13:36
Naphthalene	U		0.000050	0.00020	mg/L	1	9/13/2013 13:36
Surr: 2,4,6-Tribromophenol	72.0			34-129	%REC	1	9/13/2013 13:36
Surr: 2-Fluorobiphenyl	65.0			40-125	%REC	1	9/13/2013 13:36

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

ALS Environmental

Date: 08-Oct-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO DISCHARGE
Collection Date: 9/5/2013 11:00 AM

Work Order: 1309249
Lab ID: 1309249-07
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	68.2			20-120	%REC	1	9/13/2013 13:36
Surr: 4-Terphenyl-d14	85.3			40-135	%REC	1	9/13/2013 13:36
Surr: Nitrobenzene-d5	81.7			41-120	%REC	1	9/13/2013 13:36
Surr: Phenol-d6	72.8			20-120	%REC	1	9/13/2013 13:36

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 08:01
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	9/10/2013 08:01
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	9/10/2013 08:01
1,1-Dichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 08:01
1,1-Dichloroethene	U		0.00020	0.0010	mg/L	1	9/10/2013 08:01
1,2-Dibromoethane	U		0.00020	0.0010	mg/L	1	9/10/2013 08:01
1,2-Dichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 08:01
Benzene	U		0.00020	0.0010	mg/L	1	9/10/2013 08:01
Carbon tetrachloride	U		0.00050	0.0010	mg/L	1	9/10/2013 08:01
Chloroform	U		0.00020	0.0010	mg/L	1	9/10/2013 08:01
Ethylbenzene	U		0.00030	0.0010	mg/L	1	9/10/2013 08:01
Methylene chloride	U		0.00040	0.0020	mg/L	1	9/10/2013 08:01
Tetrachloroethene	U		0.00030	0.0010	mg/L	1	9/10/2013 08:01
Toluene	U		0.00020	0.0010	mg/L	1	9/10/2013 08:01
Trichloroethene	U		0.00020	0.0010	mg/L	1	9/10/2013 08:01
Vinyl chloride	U		0.00020	0.0010	mg/L	1	9/10/2013 08:01
Xylenes, Total	U		0.00050	0.0010	mg/L	1	9/10/2013 08:01
Surr: 1,2-Dichloroethane-d4	111			71-125	%REC	1	9/10/2013 08:01
Surr: 4-Bromofluorobenzene	90.5			70-125	%REC	1	9/10/2013 08:01
Surr: Dibromofluoromethane	110			74-125	%REC	1	9/10/2013 08:01
Surr: Toluene-d8	111			75-125	%REC	1	9/10/2013 08:01

MISCELLANEOUS ANALYSIS			Method: NA			Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	9/25/2013

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	61.1		0.20	0.500	mg/L	1	9/16/2013 11:12
Fluoride	2.26		0.050	0.100	mg/L	1	9/16/2013 11:12
Nitrogen, Nitrate (As N)	1.56	H	0.030	0.100	mg/L	1	9/16/2013 11:12
Nitrogen, Nitrite (As N)	U	H	0.030	0.100	mg/L	1	9/16/2013 11:12
Sulfate	1,030		10	25.0	mg/L	50	9/16/2013 15:37
Nitrate/Nitrite (as N)	1.56	H	0.030	0.200	mg/L	1	9/16/2013 11:12

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	U		0.0050	0.0200	mg/L	1	9/13/2013 10:15

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

ALS Environmental

Date: 08-Oct-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO DISCHARGE
Collection Date: 9/5/2013 11:00 AM

Work Order: 1309249
Lab ID: 1309249-07
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PH - SM4500H+ B	Method: SM4500H+ B						Analyst: KL
pH	7.82	H	0.10	0.100	pH Units	1	9/8/2013 11:33
Temp Deg C @pH	23.6	H	0		°C	1	9/8/2013 11:33
TOTAL DISSOLVED SOLIDS	Method: M2540C						Analyst: KAH
Total Dissolved Solids (Residue, Filterable)	2,290		5.0	10.0	mg/L	1	9/11/2013 18:55

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

ALS Environmental

Date: 08-Oct-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: DUP-01
Collection Date: 9/4/2013

Work Order: 1309249
Lab ID: 1309249-08
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO 8015C Method: SW8015M Prep: SW3511 / 9/10/13 Analyst: RPM							
TPH (Diesel Range)	U		0.021	0.052	mg/L	1	9/11/2013 13:18
TPH (Oil Range)	U		0.041	0.10	mg/L	1	9/11/2013 13:18
Surr: 2-Fluorobiphenyl	63.4			60-135	%REC	1	9/11/2013 13:18
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Analyst: KKP							
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	9/12/2013 19:44
Surr: 4-Bromofluorobenzene	97.1			70-130	%REC	1	9/12/2013 19:44
DISSOLVED MERCURY BY 7470A Method: SW7470 Prep: SW7470 / 9/13/13 Analyst: OFO							
Mercury	0.0000600	J	0.000042	0.000200	mg/L	1	9/13/2013 17:01
DISSOLVED METALS Method: SW6020 Prep: SW3010A / 9/13/13 Analyst: ALR							
Aluminum	0.0118		0.0040	0.0100	mg/L	1	9/14/2013 00:28
Arsenic	0.00467	J	0.0010	0.00500	mg/L	1	9/14/2013 00:28
Barium	0.00946		0.00090	0.00500	mg/L	1	9/14/2013 00:28
Boron	0.281		0.020	0.0500	mg/L	1	9/14/2013 00:28
Cadmium	U		0.00080	0.00200	mg/L	1	9/14/2013 00:28
Calcium	631		0.86	5.00	mg/L	10	9/17/2013 13:55
Chromium	U		0.0010	0.00500	mg/L	1	9/14/2013 00:28
Cobalt	U		0.00080	0.00500	mg/L	1	9/14/2013 00:28
Copper	U		0.0010	0.00500	mg/L	1	9/14/2013 00:28
Iron	U		0.078	0.200	mg/L	1	9/14/2013 00:28
Lead	U		0.00070	0.00500	mg/L	1	9/14/2013 00:28
Manganese	0.00366	J	0.0025	0.00500	mg/L	1	9/14/2013 00:28
Molybdenum	0.00300	J	0.0015	0.00500	mg/L	1	9/14/2013 00:28
Nickel	0.00112	J	0.0010	0.00500	mg/L	1	9/14/2013 00:28
Potassium	1.22		0.084	0.200	mg/L	1	9/14/2013 00:28
Selenium	0.00558		0.0010	0.00500	mg/L	1	9/14/2013 00:28
Silver	U		0.00080	0.00500	mg/L	1	9/14/2013 00:28
Sodium	230		0.85	2.00	mg/L	10	9/17/2013 13:55
Uranium	0.0388		0.0050	0.00500	mg/L	1	9/14/2013 00:28
Zinc	U		0.0025	0.00500	mg/L	1	9/14/2013 00:28
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3510 / 9/10/13 Analyst: LG							
1-Methylnaphthalene	U		0.000030	0.00020	mg/L	1	9/13/2013 13:55
2-Methylnaphthalene	U		0.000034	0.00020	mg/L	1	9/13/2013 13:55
Benzo(a)pyrene	U		0.000030	0.00020	mg/L	1	9/13/2013 13:55
Naphthalene	U		0.000050	0.00020	mg/L	1	9/13/2013 13:55
Surr: 2,4,6-Tribromophenol	36.2			34-129	%REC	1	9/13/2013 13:55
Surr: 2-Fluorobiphenyl	43.5			40-125	%REC	1	9/13/2013 13:55

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

ALS Environmental

Date: 08-Oct-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: DUP-01
Collection Date: 9/4/2013

Work Order: 1309249
Lab ID: 1309249-08
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	38.5			20-120	%REC	1	9/13/2013 13:55
Surr: 4-Terphenyl-d14	64.0			40-135	%REC	1	9/13/2013 13:55
Surr: Nitrobenzene-d5	54.3			41-120	%REC	1	9/13/2013 13:55
Surr: Phenol-d6	45.4			20-120	%REC	1	9/13/2013 13:55

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 08:26
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	9/10/2013 08:26
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	9/10/2013 08:26
1,1-Dichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 08:26
1,1-Dichloroethene	U		0.00020	0.0010	mg/L	1	9/10/2013 08:26
1,2-Dibromoethane	U		0.00020	0.0010	mg/L	1	9/10/2013 08:26
1,2-Dichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 08:26
Benzene	U		0.00020	0.0010	mg/L	1	9/10/2013 08:26
Carbon tetrachloride	U		0.00050	0.0010	mg/L	1	9/10/2013 08:26
Chloroform	U		0.00020	0.0010	mg/L	1	9/10/2013 08:26
Ethylbenzene	U		0.00030	0.0010	mg/L	1	9/10/2013 08:26
Methylene chloride	U		0.00040	0.0020	mg/L	1	9/10/2013 08:26
Tetrachloroethene	U		0.00030	0.0010	mg/L	1	9/10/2013 08:26
Toluene	U		0.00020	0.0010	mg/L	1	9/10/2013 08:26
Trichloroethene	U		0.00020	0.0010	mg/L	1	9/10/2013 08:26
Vinyl chloride	U		0.00020	0.0010	mg/L	1	9/10/2013 08:26
Xylenes, Total	U		0.00050	0.0010	mg/L	1	9/10/2013 08:26
Surr: 1,2-Dichloroethane-d4	107			71-125	%REC	1	9/10/2013 08:26
Surr: 4-Bromofluorobenzene	90.2			70-125	%REC	1	9/10/2013 08:26
Surr: Dibromofluoromethane	109			74-125	%REC	1	9/10/2013 08:26
Surr: Toluene-d8	111			75-125	%REC	1	9/10/2013 08:26

MISCELLANEOUS ANALYSIS			Method: NA			Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	9/25/2013

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	339		10	25.0	mg/L	50	9/16/2013 16:10
Fluoride	1.11		0.050	0.100	mg/L	1	9/16/2013 11:38
Nitrogen, Nitrate (As N)	0.450	H	0.030	0.100	mg/L	1	9/16/2013 11:38
Nitrogen, Nitrite (As N)	U	H	0.030	0.100	mg/L	1	9/16/2013 11:38
Sulfate	2,140		10	25.0	mg/L	50	9/16/2013 16:10
Nitrate/Nitrite (as N)	0.450	H	0.030	0.200	mg/L	1	9/16/2013 11:38

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: EDG	
Cyanide	U		0.0050	0.0200	mg/L	1	9/13/2013 10:15

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

ALS Environmental

Date: 08-Oct-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: DUP-01
Collection Date: 9/4/2013

Work Order: 1309249
Lab ID: 1309249-08
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PH - SM4500H+ B	Method: SM4500H+ B						Analyst: KL
pH	7.19	H	0.10	0.100	pH Units	1	9/8/2013 11:36
Temp Deg C @pH	23.6	H	0		°C	1	9/8/2013 11:36
TOTAL DISSOLVED SOLIDS	Method: M2540C						Analyst: KAH
Total Dissolved Solids (Residue, Filterable)	4,470		5.0	10.0	mg/L	1	9/9/2013 11:00

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

ALS Environmental

Date: 08-Oct-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: TRIP BLANKS-1
Collection Date: 9/4/2013

Work Order: 1309249
Lab ID: 1309249-09
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 03:01
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	9/10/2013 03:01
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	9/10/2013 03:01
1,1-Dichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 03:01
1,1-Dichloroethene	U		0.00020	0.0010	mg/L	1	9/10/2013 03:01
1,2-Dibromoethane	U		0.00020	0.0010	mg/L	1	9/10/2013 03:01
1,2-Dichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 03:01
Benzene	U		0.00020	0.0010	mg/L	1	9/10/2013 03:01
Carbon tetrachloride	U		0.00050	0.0010	mg/L	1	9/10/2013 03:01
Chloroform	U		0.00020	0.0010	mg/L	1	9/10/2013 03:01
Ethylbenzene	U		0.00030	0.0010	mg/L	1	9/10/2013 03:01
Methylene chloride	U		0.00040	0.0020	mg/L	1	9/10/2013 03:01
Tetrachloroethene	U		0.00030	0.0010	mg/L	1	9/10/2013 03:01
Toluene	U		0.00020	0.0010	mg/L	1	9/10/2013 03:01
Trichloroethene	U		0.00020	0.0010	mg/L	1	9/10/2013 03:01
Vinyl chloride	U		0.00020	0.0010	mg/L	1	9/10/2013 03:01
Xylenes, Total	U		0.00050	0.0010	mg/L	1	9/10/2013 03:01
Surr: 1,2-Dichloroethane-d4	106			71-125	%REC	1	9/10/2013 03:01
Surr: 4-Bromofluorobenzene	90.1			70-125	%REC	1	9/10/2013 03:01
Surr: Dibromofluoromethane	107			74-125	%REC	1	9/10/2013 03:01
Surr: Toluene-d8	107			75-125	%REC	1	9/10/2013 03:01

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

ALS Environmental

Date: 08-Oct-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: TRIP BLANKS-2
Collection Date: 9/4/2013

Work Order: 1309249
Lab ID: 1309249-10
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 03:26
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	9/10/2013 03:26
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	9/10/2013 03:26
1,1-Dichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 03:26
1,1-Dichloroethene	U		0.00020	0.0010	mg/L	1	9/10/2013 03:26
1,2-Dibromoethane	U		0.00020	0.0010	mg/L	1	9/10/2013 03:26
1,2-Dichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 03:26
Benzene	U		0.00020	0.0010	mg/L	1	9/10/2013 03:26
Carbon tetrachloride	U		0.00050	0.0010	mg/L	1	9/10/2013 03:26
Chloroform	U		0.00020	0.0010	mg/L	1	9/10/2013 03:26
Ethylbenzene	U		0.00030	0.0010	mg/L	1	9/10/2013 03:26
Methylene chloride	U		0.00040	0.0020	mg/L	1	9/10/2013 03:26
Tetrachloroethene	U		0.00030	0.0010	mg/L	1	9/10/2013 03:26
Toluene	U		0.00020	0.0010	mg/L	1	9/10/2013 03:26
Trichloroethene	U		0.00020	0.0010	mg/L	1	9/10/2013 03:26
Vinyl chloride	U		0.00020	0.0010	mg/L	1	9/10/2013 03:26
Xylenes, Total	U		0.00050	0.0010	mg/L	1	9/10/2013 03:26
Surr: 1,2-Dichloroethane-d4	106			71-125	%REC	1	9/10/2013 03:26
Surr: 4-Bromofluorobenzene	89.7			70-125	%REC	1	9/10/2013 03:26
Surr: Dibromofluoromethane	107			74-125	%REC	1	9/10/2013 03:26
Surr: Toluene-d8	108			75-125	%REC	1	9/10/2013 03:26

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

ALS Environmental

Date: 08-Oct-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: TRIP BLANKS-3
Collection Date: 9/4/2013

Work Order: 1309249
Lab ID: 1309249-11
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 03:51
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	9/10/2013 03:51
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	9/10/2013 03:51
1,1-Dichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 03:51
1,1-Dichloroethene	U		0.00020	0.0010	mg/L	1	9/10/2013 03:51
1,2-Dibromoethane	U		0.00020	0.0010	mg/L	1	9/10/2013 03:51
1,2-Dichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 03:51
Benzene	U		0.00020	0.0010	mg/L	1	9/10/2013 03:51
Carbon tetrachloride	U		0.00050	0.0010	mg/L	1	9/10/2013 03:51
Chloroform	U		0.00020	0.0010	mg/L	1	9/10/2013 03:51
Ethylbenzene	U		0.00030	0.0010	mg/L	1	9/10/2013 03:51
Methylene chloride	U		0.00040	0.0020	mg/L	1	9/10/2013 03:51
Tetrachloroethene	U		0.00030	0.0010	mg/L	1	9/10/2013 03:51
Toluene	U		0.00020	0.0010	mg/L	1	9/10/2013 03:51
Trichloroethene	U		0.00020	0.0010	mg/L	1	9/10/2013 03:51
Vinyl chloride	U		0.00020	0.0010	mg/L	1	9/10/2013 03:51
Xylenes, Total	U		0.00050	0.0010	mg/L	1	9/10/2013 03:51
Surr: 1,2-Dichloroethane-d4	110			71-125	%REC	1	9/10/2013 03:51
Surr: 4-Bromofluorobenzene	92.5			70-125	%REC	1	9/10/2013 03:51
Surr: Dibromofluoromethane	111			74-125	%REC	1	9/10/2013 03:51
Surr: Toluene-d8	114			75-125	%REC	1	9/10/2013 03:51

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

ALS Environmental

Date: 08-Oct-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: TRIP BLANKS
Collection Date: 9/4/2013

Work Order: 1309249
Lab ID: 1309249-12
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 04:16
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	9/10/2013 04:16
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	9/10/2013 04:16
1,1-Dichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 04:16
1,1-Dichloroethene	U		0.00020	0.0010	mg/L	1	9/10/2013 04:16
1,2-Dibromoethane	U		0.00020	0.0010	mg/L	1	9/10/2013 04:16
1,2-Dichloroethane	U		0.00020	0.0010	mg/L	1	9/10/2013 04:16
Benzene	U		0.00020	0.0010	mg/L	1	9/10/2013 04:16
Carbon tetrachloride	U		0.00050	0.0010	mg/L	1	9/10/2013 04:16
Chloroform	U		0.00020	0.0010	mg/L	1	9/10/2013 04:16
Ethylbenzene	U		0.00030	0.0010	mg/L	1	9/10/2013 04:16
Methylene chloride	U		0.00040	0.0020	mg/L	1	9/10/2013 04:16
Tetrachloroethene	U		0.00030	0.0010	mg/L	1	9/10/2013 04:16
Toluene	U		0.00020	0.0010	mg/L	1	9/10/2013 04:16
Trichloroethene	U		0.00020	0.0010	mg/L	1	9/10/2013 04:16
Vinyl chloride	U		0.00020	0.0010	mg/L	1	9/10/2013 04:16
Xylenes, Total	U		0.00050	0.0010	mg/L	1	9/10/2013 04:16
Surr: 1,2-Dichloroethane-d4	105			71-125	%REC	1	9/10/2013 04:16
Surr: 4-Bromofluorobenzene	89.5			70-125	%REC	1	9/10/2013 04:16
Surr: Dibromofluoromethane	106			74-125	%REC	1	9/10/2013 04:16
Surr: Toluene-d8	108			75-125	%REC	1	9/10/2013 04:16

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

Work Order: 1309249
Client: Navajo Refining Company
Project: RO Discharge Sampling

DATES REPORT

Sample ID	Client Sample ID	Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
<u>Batch ID 72927</u> <u>Test Name:</u> <u>Low-Level Semivolatiles</u>						
1309249-01G	MW-114	Water	9/5/2013 9:30:00 AM		9/10/2013 10:00 AM	9/13/2013 11:57 AM
1309249-02G	MW-115		9/4/2013 5:10:00 PM		9/10/2013 10:00 AM	9/13/2013 12:17 PM
1309249-03G	MW-116		9/4/2013 3:20:00 PM		9/10/2013 10:00 AM	9/10/2013 11:28 PM
1309249-04G	MW-117		9/4/2013 9:50:00 AM		9/10/2013 10:00 AM	9/13/2013 12:36 PM
1309249-05G	MW-118		9/4/2013 12:00:00 PM		9/10/2013 10:00 AM	9/13/2013 12:56 PM
1309249-06G	MW-119		9/4/2013 1:30:00 PM		9/10/2013 10:00 AM	9/12/2013 10:40 PM
1309249-07G	RO DISCHARGE		9/5/2013 11:00:00 AM		9/10/2013 10:00 AM	9/13/2013 01:36 PM
1309249-08G	DUP-01		9/4/2013		9/10/2013 10:00 AM	9/13/2013 01:55 PM
<u>Batch ID 72948</u> <u>Test Name:</u> <u>TPH DRO/ORO 8015C</u>						
1309249-01C	MW-114	Water	9/5/2013 9:30:00 AM		9/10/2013 02:08 PM	9/11/2013 10:12 AM
1309249-02C	MW-115		9/4/2013 5:10:00 PM		9/10/2013 02:08 PM	9/11/2013 10:39 AM
1309249-03C	MW-116		9/4/2013 3:20:00 PM		9/10/2013 02:08 PM	9/11/2013 11:06 AM
1309249-04C	MW-117		9/4/2013 9:50:00 AM		9/10/2013 02:08 PM	9/11/2013 11:32 AM
1309249-05C	MW-118		9/4/2013 12:00:00 PM		9/10/2013 02:08 PM	9/11/2013 11:59 AM
1309249-06C	MW-119		9/4/2013 1:30:00 PM		9/10/2013 02:08 PM	9/11/2013 12:25 PM
1309249-07C	RO DISCHARGE		9/5/2013 11:00:00 AM		9/10/2013 02:08 PM	9/11/2013 12:52 PM
1309249-08C	DUP-01		9/4/2013		9/10/2013 02:08 PM	9/11/2013 01:18 PM

Work Order: 1309249
Client: Navajo Refining Company
Project: RO Discharge Sampling

DATES REPORT

Sample ID	Client Sample ID	Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
<u>Batch ID</u> 73032	<u>Test Name:</u> Dissolved Mercury by 7470A					
1309249-01E	MW-114	Water	9/5/2013 9:30:00 AM		9/13/2013 11:23 AM	9/13/2013 04:49 PM
1309249-02E	MW-115		9/4/2013 5:10:00 PM		9/13/2013 11:23 AM	9/13/2013 04:51 PM
1309249-03E	MW-116		9/4/2013 3:20:00 PM		9/13/2013 11:23 AM	9/13/2013 04:53 PM
1309249-04E	MW-117		9/4/2013 9:50:00 AM		9/13/2013 11:23 AM	9/13/2013 04:54 PM
1309249-05E	MW-118		9/4/2013 12:00:00 PM		9/13/2013 11:23 AM	9/13/2013 04:56 PM
1309249-06E	MW-119		9/4/2013 1:30:00 PM		9/13/2013 11:23 AM	9/13/2013 04:58 PM
1309249-07E	RO DISCHARGE		9/5/2013 11:00:00 AM		9/13/2013 11:23 AM	9/13/2013 04:59 PM
1309249-08E	DUP-01		9/4/2013		9/13/2013 11:23 AM	9/13/2013 05:01 PM

Work Order: 1309249
Client: Navajo Refining Company
Project: RO Discharge Sampling

DATES REPORT

Sample ID	Client Sample ID	Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
<u>Batch ID</u> 73040		<u>Test Name:</u> Dissolved Metals				
1309249-01E	MW-114	Water	9/5/2013 9:30:00 AM		9/13/2013 10:00 AM	9/13/2013 11:53 PM
					9/13/2013 10:00 AM	9/17/2013 01:34 PM
1309249-02E	MW-115		9/4/2013 5:10:00 PM		9/13/2013 10:00 AM	9/13/2013 11:58 PM
					9/13/2013 10:00 AM	9/17/2013 01:36 PM
1309249-03E	MW-116		9/4/2013 3:20:00 PM		9/13/2013 10:00 AM	9/14/2013 12:03 AM
					9/13/2013 10:00 AM	9/17/2013 01:39 PM
1309249-04E	MW-117		9/4/2013 9:50:00 AM		9/13/2013 10:00 AM	9/14/2013 12:08 AM
					9/13/2013 10:00 AM	9/17/2013 01:41 PM
1309249-05E	MW-118		9/4/2013 12:00:00 PM		9/13/2013 10:00 AM	9/14/2013 12:13 AM
					9/13/2013 10:00 AM	9/17/2013 01:43 PM
1309249-06E	MW-119		9/4/2013 1:30:00 PM		9/13/2013 10:00 AM	9/14/2013 12:18 AM
					9/13/2013 10:00 AM	9/17/2013 01:46 PM
1309249-07E	RO DISCHARGE		9/5/2013 11:00:00 AM		9/13/2013 10:00 AM	9/14/2013 12:23 AM
					9/13/2013 10:00 AM	9/17/2013 01:53 PM
1309249-08E	DUP-01		9/4/2013		9/13/2013 10:00 AM	9/14/2013 12:28 AM
					9/13/2013 10:00 AM	9/17/2013 01:55 PM

Work Order: 1309249
Client: Navajo Refining Company
Project: RO Discharge Sampling

DATES REPORT

Sample ID	Client Sample ID	Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
<u>Batch ID R153357</u> <u>Test Name: pH - SM4500H+ B</u>						
1309249-01F	MW-114	Water	9/5/2013 9:30:00 AM			9/8/2013 11:16 AM
1309249-02F	MW-115		9/4/2013 5:10:00 PM			9/8/2013 11:19 AM
1309249-03F	MW-116		9/4/2013 3:20:00 PM			9/8/2013 11:21 AM
1309249-04F	MW-117		9/4/2013 9:50:00 AM			9/8/2013 11:24 AM
1309249-05F	MW-118		9/4/2013 12:00:00 PM			9/8/2013 11:27 AM
1309249-06F	MW-119		9/4/2013 1:30:00 PM			9/8/2013 11:30 AM
1309249-07F	RO DISCHARGE		9/5/2013 11:00:00 AM			9/8/2013 11:33 AM
1309249-08F	DUP-01		9/4/2013			9/8/2013 11:36 AM
<u>Batch ID R153431</u> <u>Test Name: Low Level Volatiles - SW8260C</u>						
1309249-01A	MW-114	Water	9/5/2013 9:30:00 AM			9/9/2013 11:41 PM
1309249-02A	MW-115		9/4/2013 5:10:00 PM			9/10/2013 12:06 AM
<u>Batch ID R153436</u> <u>Test Name: Low Level Volatiles - SW8260C</u>						
1309249-03A	MW-116	Water	9/4/2013 3:20:00 PM			9/10/2013 06:21 AM
1309249-04A	MW-117		9/4/2013 9:50:00 AM			9/10/2013 06:46 AM
1309249-05A	MW-118		9/4/2013 12:00:00 PM			9/10/2013 07:11 AM
1309249-06A	MW-119		9/4/2013 1:30:00 PM			9/10/2013 07:36 AM
1309249-07A	RO DISCHARGE		9/5/2013 11:00:00 AM			9/10/2013 08:01 AM
1309249-08A	DUP-01		9/4/2013			9/10/2013 08:26 AM
1309249-09A	TRIP BLANKS-1					9/10/2013 03:01 AM
1309249-10A	TRIP BLANKS-2					9/10/2013 03:26 AM
1309249-11A	TRIP BLANKS-3					9/10/2013 03:51 AM
1309249-12A	TRIP BLANKS					9/10/2013 04:16 AM

Work Order: 1309249
Client: Navajo Refining Company
Project: RO Discharge Sampling

DATES REPORT

Sample ID	Client Sample ID	Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
<u>Batch ID R153508</u> <u>Test Name:</u> <u>Total Dissolved Solids</u>						
1309249-04F	MW-117	Water	9/4/2013 9:50:00 AM			9/9/2013 11:00 AM
1309249-05F	MW-118		9/4/2013 12:00:00 PM			9/9/2013 11:00 AM
1309249-06F	MW-119		9/4/2013 1:30:00 PM			9/9/2013 11:00 AM
1309249-08F	DUP-01		9/4/2013			9/9/2013 11:00 AM
<u>Batch ID R153658</u> <u>Test Name:</u> <u>Gasoline Range Organics - SW8015C</u>						
1309249-01B	MW-114	Water	9/5/2013 9:30:00 AM			9/12/2013 05:18 PM
1309249-02B	MW-115		9/4/2013 5:10:00 PM			9/12/2013 05:36 PM
1309249-03B	MW-116		9/4/2013 3:20:00 PM			9/12/2013 05:54 PM
1309249-04B	MW-117		9/4/2013 9:50:00 AM			9/12/2013 06:13 PM
1309249-05B	MW-118		9/4/2013 12:00:00 PM			9/12/2013 06:31 PM
1309249-06B	MW-119		9/4/2013 1:30:00 PM			9/12/2013 06:50 PM
1309249-07B	RO DISCHARGE		9/5/2013 11:00:00 AM			9/12/2013 07:26 PM
1309249-08B	DUP-01		9/4/2013			9/12/2013 07:44 PM
<u>Batch ID R153690</u> <u>Test Name:</u> <u>Cyanide - SM4500CN E</u>						
1309249-01D	MW-114	Water	9/5/2013 9:30:00 AM			9/13/2013 10:15 AM
1309249-02D	MW-115		9/4/2013 5:10:00 PM			9/13/2013 10:15 AM
1309249-03D	MW-116		9/4/2013 3:20:00 PM			9/13/2013 10:15 AM
1309249-04D	MW-117		9/4/2013 9:50:00 AM			9/13/2013 10:15 AM
1309249-05D	MW-118		9/4/2013 12:00:00 PM			9/13/2013 10:15 AM
1309249-06D	MW-119		9/4/2013 1:30:00 PM			9/13/2013 10:15 AM
1309249-07D	RO DISCHARGE		9/5/2013 11:00:00 AM			9/13/2013 10:15 AM
1309249-08D	DUP-01		9/4/2013			9/13/2013 10:15 AM

Work Order: 1309249
Client: Navajo Refining Company
Project: RO Discharge Sampling

DATES REPORT

Sample ID	Client Sample ID	Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
<u>Batch ID</u> R153693 <u>Test Name:</u> Total Dissolved Solids						
1309249-01F	MW-114	Water	9/5/2013 9:30:00 AM			9/11/2013 06:55 PM
1309249-02F	MW-115		9/4/2013 5:10:00 PM			9/11/2013 06:55 PM
1309249-03F	MW-116		9/4/2013 3:20:00 PM			9/11/2013 06:55 PM
1309249-07F	RO DISCHARGE		9/5/2013 11:00:00 AM			9/11/2013 06:55 PM
<u>Batch ID</u> R153808 <u>Test Name:</u> Anions - EPA 300.0 (1993)						
1309249-01F	MW-114	Water	9/5/2013 9:30:00 AM			9/16/2013 07:09 AM
						9/16/2013 12:13 PM
1309249-02F	MW-115		9/4/2013 5:10:00 PM			9/16/2013 07:35 AM
						9/16/2013 12:39 PM
1309249-03F	MW-116		9/4/2013 3:20:00 PM			9/16/2013 08:01 AM
						9/16/2013 01:05 PM
1309249-04F	MW-117		9/4/2013 9:50:00 AM			9/16/2013 08:27 AM
						9/16/2013 02:20 PM
1309249-05F	MW-118		9/4/2013 12:00:00 PM			9/16/2013 08:53 AM
						9/16/2013 02:45 PM
1309249-06F	MW-119		9/4/2013 1:30:00 PM			9/16/2013 10:46 AM
						9/16/2013 03:11 PM
1309249-07F	RO DISCHARGE		9/5/2013 11:00:00 AM			9/16/2013 11:12 AM
						9/16/2013 03:37 PM
1309249-08F	DUP-01		9/4/2013			9/16/2013 11:38 AM
						9/16/2013 04:10 PM

Work Order: 1309249
Client: Navajo Refining Company
Project: RO Discharge Sampling

DATES REPORT

Sample ID	Client Sample ID	Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
<u>Batch ID</u> R154303	<u>Test Name:</u> Miscellaneous Analysis					
1309249-01H	MW-114	Water	9/5/2013 9:30:00 AM			9/25/2013
1309249-02H	MW-115		9/4/2013 5:10:00 PM			9/25/2013
1309249-03H	MW-116		9/4/2013 3:20:00 PM			9/25/2013
1309249-04H	MW-117		9/4/2013 9:50:00 AM			9/25/2013
1309249-05H	MW-118		9/4/2013 12:00:00 PM			9/25/2013
1309249-06H	MW-119		9/4/2013 1:30:00 PM			9/25/2013
1309249-07H	RO DISCHARGE		9/5/2013 11:00:00 AM			9/25/2013
1309249-08H	DUP-01		9/4/2013			9/25/2013

ALS Environmental

Date: 08-Oct-13

Client: Navajo Refining Company
Work Order: 1309249
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **72948** Instrument ID **FID-16** Method: **SW8015M**

MBLK	Sample ID: LBLKW-130910-72948				Units: mg/L		Analysis Date: 9/11/2013 08:53 AM			
Client ID:	Run ID: FID-16_130910A				SeqNo: 3354458		Prep Date: 9/10/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	U	0.050								
TPH (Oil Range)	U	0.10								
<i>Surr: 2-Fluorobiphenyl</i>	0.04011	0.0050	0.06061	0	66.2	60-135	0			

LCS	Sample ID: LLCSW-130910-72948				Units: mg/L		Analysis Date: 9/11/2013 09:19 AM			
Client ID:	Run ID: FID-16_130910A				SeqNo: 3354459		Prep Date: 9/10/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.6152	0.050	0.6061	0	102	70-130				
TPH (Oil Range)	0.4856	0.10	0.6061	0	80.1	70-130				
<i>Surr: 2-Fluorobiphenyl</i>	0.03812	0.0050	0.06061	0	62.9	60-135	0			

LCSD	Sample ID: LLCSDW-130910-72948				Units: mg/L		Analysis Date: 9/11/2013 09:46 AM			
Client ID:	Run ID: FID-16_130910A				SeqNo: 3354460		Prep Date: 9/10/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.6263	0.050	0.6061	0	103	70-130	0.6152	1.79	20	
TPH (Oil Range)	0.5252	0.10	0.6061	0	86.7	70-130	0.4856	7.84	20	
<i>Surr: 2-Fluorobiphenyl</i>	0.05009	0.0050	0.06061	0	82.6	60-135	0.03812	27.1	20	R

The following samples were analyzed in this batch:

1309249-01C	1309249-02C	1309249-03C
1309249-04C	1309249-05C	1309249-06C
1309249-07C	1309249-08C	

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

QC Page: 1 of 24

Client: Navajo Refining Company
Work Order: 1309249
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R153658** Instrument ID **FID-9** Method: **SW8015**

MBLK	Sample ID: GBLKW-130912-R153658				Units: mg/L		Analysis Date: 9/12/2013 05:00 PM			
Client ID:	Run ID: FID-9_130912A				SeqNo: 3354058		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	0.0500								
<i>Surr: 4-Bromofluorobenzene</i>	0.1049	0.00500	0.1	0	105	70-130	0			

LCS	Sample ID: GLCSW-130912-R153658				Units: mg/L		Analysis Date: 9/12/2013 04:23 PM			
Client ID:	Run ID: FID-9_130912A				SeqNo: 3354056		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	0.8961	0.0500	1	0	89.6	70-130				
<i>Surr: 4-Bromofluorobenzene</i>	0.1176	0.00500	0.1	0	118	70-130	0			

MS	Sample ID: 1309249-08BMS				Units: mg/L		Analysis Date: 9/12/2013 08:02 PM			
Client ID: DUP-01	Run ID: FID-9_130912A				SeqNo: 3354068		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	0.8614	0.0500	1	0	86.1	70-130				
<i>Surr: 4-Bromofluorobenzene</i>	0.09992	0.00500	0.1	0	99.9	70-130	0			

MSD	Sample ID: 1309249-08BMSD				Units: mg/L		Analysis Date: 9/12/2013 08:21 PM			
Client ID: DUP-01	Run ID: FID-9_130912A				SeqNo: 3354069		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	0.8464	0.0500	1	0	84.6	70-130	0.8614	1.75	30	
<i>Surr: 4-Bromofluorobenzene</i>	0.09882	0.00500	0.1	0	98.8	70-130	0.09992	1.1	30	

The following samples were analyzed in this batch:

1309249-01B	1309249-02B	1309249-03B
1309249-04B	1309249-05B	1309249-06B
1309249-07B	1309249-08B	

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

Client: Navajo Refining Company
Work Order: 1309249
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **73032** Instrument ID **HG03** Method: **SW7470** (**Dissolve**)

MBLK Sample ID: **GBLKW3-091313-73032** Units: **mg/L** Analysis Date: **9/13/2013 04:29 PM**
Client ID: Run ID: **HG03_130913A** SeqNo: **3354956** Prep Date: **9/13/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	0.000200								

LCS Sample ID: **GLCSW3-091313-73032** Units: **mg/L** Analysis Date: **9/13/2013 04:30 PM**
Client ID: Run ID: **HG03_130913A** SeqNo: **3354957** Prep Date: **9/13/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0052	0.000200	0.005	0	104	80-120				

MS Sample ID: **1309408-01LMS** Units: **mg/L** Analysis Date: **9/13/2013 04:36 PM**
Client ID: Run ID: **HG03_130913A** SeqNo: **3354960** Prep Date: **9/13/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00491	0.000200	0.005	-0.000009	98.4	80-120				

MSD Sample ID: **1309408-01LMSD** Units: **mg/L** Analysis Date: **9/13/2013 04:37 PM**
Client ID: Run ID: **HG03_130913A** SeqNo: **3354961** Prep Date: **9/13/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00483	0.000200	0.005	-0.000009	96.8	80-120	0.00491	1.64	20	

DUP Sample ID: **1309408-01LDUP** Units: **mg/L** Analysis Date: **9/13/2013 04:34 PM**
Client ID: Run ID: **HG03_130913A** SeqNo: **3354959** Prep Date: **9/13/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	0.000200					-0.000009	0	20	

The following samples were analyzed in this batch:

1309249-01E	1309249-02E	1309249-03E
1309249-04E	1309249-05E	1309249-06E
1309249-07E	1309249-08E	

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

Client: Navajo Refining Company
Work Order: 1309249
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **73040** Instrument ID **ICP7500** Method: **SW6020** **(Dissolve)**

MBLK Sample ID: **MBLKW5-091313-73040** Units: **mg/L** Analysis Date: **9/13/2013 11:04 PM**

Client ID: Run ID: **ICP7500_130913A** SeqNo: **3356450** Prep Date: **9/13/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	U	0.0100								
Arsenic	U	0.00500								
Barium	U	0.00500								
Boron	U	0.0500								
Cadmium	U	0.00200								
Calcium	U	0.500								
Chromium	U	0.00500								
Cobalt	U	0.00500								
Copper	U	0.00500								
Iron	U	0.200								
Lead	U	0.00500								
Manganese	U	0.00500								
Molybdenum	U	0.00500								
Nickel	U	0.00500								
Potassium	U	0.200								
Selenium	U	0.00500								
Silver	U	0.00500								
Sodium	U	0.200								
Uranium	U	0.00500								
Zinc	U	0.00500								

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

Client: Navajo Refining Company
Work Order: 1309249
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **73040** Instrument ID **ICP7500** Method: **SW6020** **(Dissolve)**

LCS Sample ID: **MLCSW5-091313-73040** Units: **mg/L** Analysis Date: **9/13/2013 11:09 PM**

Client ID: Run ID: **ICP7500_130913A** SeqNo: **3356451** Prep Date: **9/13/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09845	0.0100	0.1	0	98.4	80-120				
Arsenic	0.04872	0.00500	0.05	0	97.4	80-120				
Barium	0.05042	0.00500	0.05	0	101	80-120				
Boron	0.4684	0.0500	0.5	0	93.7	80-120				
Cadmium	0.04889	0.00200	0.05	0	97.8	80-120				
Calcium	4.865	0.500	5	0	97.3	80-120				
Chromium	0.049	0.00500	0.05	0	98	80-120				
Cobalt	0.04923	0.00500	0.05	0	98.5	80-120				
Copper	0.05007	0.00500	0.05	0	100	80-120				
Iron	4.915	0.200	5	0	98.3	80-120				
Lead	0.04892	0.00500	0.05	0	97.8	80-120				
Manganese	0.04922	0.00500	0.05	0	98.4	80-120				
Molybdenum	0.04754	0.00500	0.05	0	95.1	80-120				
Nickel	0.04931	0.00500	0.05	0	98.6	80-120				
Potassium	4.995	0.200	5	0	99.9	80-120				
Selenium	0.0489	0.00500	0.05	0	97.8	80-120				
Silver	0.04891	0.00500	0.05	0	97.8	80-120				
Sodium	4.708	0.200	5	0	94.2	80-120				
Uranium	0.09781	0.00500	0.1	0	97.8	80-120				
Zinc	0.05241	0.00500	0.05	0	105	80-120				

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

Client: Navajo Refining Company
Work Order: 1309249
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **73040** Instrument ID **ICP7500** Method: **SW6020** **(Dissolve)**

MS		Sample ID: 1309411-01LMS				Units: mg/L		Analysis Date: 9/13/2013 11:29 PM		
Client ID:		Run ID: ICP7500_130913A				SeqNo: 3356455		Prep Date: 9/13/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1192	0.0100	0.1	0.03002	89.2	75-125				
Arsenic	0.0613	0.00500	0.05	0.01119	100	75-125				
Barium	0.1092	0.00500	0.05	0.05874	101	75-125				
Boron	0.5297	0.0500	0.5	0.05887	94.2	75-125				
Cadmium	0.04973	0.00200	0.05	0.0003378	98.8	75-125				
Calcium	25.08	0.500	5	20.04	101	75-125				O
Chromium	0.04939	0.00500	0.05	0.00008956	98.6	75-125				
Cobalt	0.05155	0.00500	0.05	0.001474	100	75-125				
Copper	0.05207	0.00500	0.05	0.002172	99.8	75-125				
Iron	4.977	0.200	5	0.006766	99.4	75-125				
Lead	0.05044	0.00500	0.05	0.000449	100	75-125				
Manganese	0.4936	0.00500	0.05	0.4508	85.6	75-125				O
Molybdenum	0.04858	0.00500	0.05	0.00165	93.9	75-125				
Nickel	0.05377	0.00500	0.05	0.004889	97.8	75-125				
Potassium	30.22	0.200	5	25.69	90.6	75-125				O
Selenium	0.04976	0.00500	0.05	0.0005943	98.3	75-125				
Silver	0.04791	0.00500	0.05	-7.088E-06	95.8	75-125				
Sodium	6.327	0.200	5	1.725	92	75-125				
Uranium	0.101	0.00500	0.1	0.0006939	100	75-125				
Zinc	0.05405	0.00500	0.05	0.004301	99.5	75-125				

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

Client: Navajo Refining Company
Work Order: 1309249
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **73040** Instrument ID **ICP7500** Method: **SW6020** **(Dissolve)**

MSD		Sample ID: 1309411-01LMSD				Units: mg/L		Analysis Date: 9/13/2013 11:33 PM		
Client ID:		Run ID: ICP7500_130913A				SeqNo: 3356456		Prep Date: 9/13/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1239	0.0100	0.1	0.03002	93.9	75-125	0.1192	3.87	25	
Arsenic	0.06101	0.00500	0.05	0.01119	99.6	75-125	0.0613	0.474	25	
Barium	0.1093	0.00500	0.05	0.05874	101	75-125	0.1092	0.0915	25	
Boron	0.5423	0.0500	0.5	0.05887	96.7	75-125	0.5297	2.35	25	
Cadmium	0.05158	0.00200	0.05	0.0003378	102	75-125	0.04973	3.65	25	
Calcium	24.84	0.500	5	20.04	96	75-125	25.08	0.962	25	O
Chromium	0.04911	0.00500	0.05	0.00008956	98	75-125	0.04939	0.569	25	
Cobalt	0.05177	0.00500	0.05	0.001474	101	75-125	0.05155	0.426	25	
Copper	0.05177	0.00500	0.05	0.002172	99.2	75-125	0.05207	0.578	25	
Iron	5.05	0.200	5	0.006766	101	75-125	4.977	1.46	25	
Lead	0.05132	0.00500	0.05	0.000449	102	75-125	0.05044	1.73	25	
Manganese	0.4875	0.00500	0.05	0.4508	73.4	75-125	0.4936	1.24	25	SO
Molybdenum	0.04966	0.00500	0.05	0.00165	96	75-125	0.04858	2.2	25	
Nickel	0.05335	0.00500	0.05	0.004889	96.9	75-125	0.05377	0.784	25	
Potassium	30.42	0.200	5	25.69	94.6	75-125	30.22	0.66	25	O
Selenium	0.04955	0.00500	0.05	0.0005943	97.9	75-125	0.04976	0.423	25	
Silver	0.04983	0.00500	0.05	-7.088E-06	99.7	75-125	0.04791	3.93	25	
Sodium	6.404	0.200	5	1.725	93.6	75-125	6.327	1.21	25	
Uranium	0.103	0.00500	0.1	0.0006939	102	75-125	0.101	1.96	25	
Zinc	0.05326	0.00500	0.05	0.004301	97.9	75-125	0.05405	1.47	25	

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

Client: Navajo Refining Company
Work Order: 1309249
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **73040** Instrument ID **ICP7500** Method: **SW6020** (**Dissolve**)

DUP		Sample ID: 1309411-01LDUP				Units: mg/L		Analysis Date: 9/13/2013 11:19 PM		
Client ID:		Run ID: ICP7500_130913A				SeqNo: 3356453		Prep Date: 9/13/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.02774	0.0100					0.03002	7.89	25	
Arsenic	0.01174	0.00500					0.01119	4.8	25	
Barium	0.06055	0.00500					0.05874	3.03	25	
Boron	0.05881	0.0500					0.05887	0.102	25	
Cadmium	U	0.00200					0.0003378	0	25	
Calcium	20.29	0.500					20.04	1.24	25	
Chromium	U	0.00500					0.00008956	0	25	
Cobalt	0.001422	0.00500					0.001474	0	25	J
Copper	0.002179	0.00500					0.002172	0	25	J
Iron	U	0.200					0.006766	0	25	
Lead	U	0.00500					0.000449	0	25	
Manganese	0.457	0.00500					0.4508	1.37	25	
Molybdenum	U	0.00500					0.00165	0	25	
Nickel	0.005085	0.00500					0.004889	3.93	25	
Potassium	26.46	0.200					25.69	2.95	25	
Selenium	U	0.00500					0.0005943	0	25	
Silver	U	0.00500					-7.088E-06	0	25	
Sodium	1.77	0.200					1.725	2.58	25	
Uranium	U	0.00500					0.0006939	0	25	
Zinc	0.003776	0.00500					0.004301	0	25	J

The following samples were analyzed in this batch:

1309249-01E	1309249-02E	1309249-03E
1309249-04E	1309249-05E	1309249-06E
1309249-07E	1309249-08E	

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

Client: Navajo Refining Company
Work Order: 1309249
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **72927** Instrument ID **SV-4** Method: **SW8270**

MBLK Sample ID: **SBLKW3-130910-72927** Units: **µg/L** Analysis Date: **9/10/2013 02:11 PM**
 Client ID: Run ID: **SV-4_130910B** SeqNo: **3354476** Prep Date: **9/10/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	U	0.20								
2-Methylnaphthalene	U	0.20								
Benzo(a)pyrene	U	0.20								
Naphthalene	U	0.20								
Surr: 2,4,6-Tribromophenol	3.946	0.20	5	0	78.9	34-129	0			
Surr: 2-Fluorobiphenyl	3.674	0.20	5	0	73.5	40-125	0			
Surr: 2-Fluorophenol	3	0.20	5	0	60	20-120	0			
Surr: 4-Terphenyl-d14	4.077	0.20	5	0	81.5	40-135	0			
Surr: Nitrobenzene-d5	3.371	0.20	5	0	67.4	41-120	0			
Surr: Phenol-d6	3.134	0.20	5	0	62.7	20-120	0			

LCS Sample ID: **SLCSW3-130910-72927** Units: **µg/L** Analysis Date: **9/10/2013 02:32 PM**
 Client ID: Run ID: **SV-4_130910B** SeqNo: **3354477** Prep Date: **9/10/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	3.575	0.20	5	0	71.5	45-120				
2-Methylnaphthalene	3.263	0.20	5	0	65.3	50-120				
Benzo(a)pyrene	4.074	0.20	5	0	81.5	45-120				
Naphthalene	3.362	0.20	5	0	67.2	45-120				
Surr: 2,4,6-Tribromophenol	4.1	0.20	5	0	82	34-129	0			
Surr: 2-Fluorobiphenyl	3.555	0.20	5	0	71.1	40-125	0			
Surr: 2-Fluorophenol	3	0.20	5	0	60	20-120	0			
Surr: 4-Terphenyl-d14	4.133	0.20	5	0	82.7	40-135	0			
Surr: Nitrobenzene-d5	3.038	0.20	5	0	60.8	41-120	0			
Surr: Phenol-d6	3.128	0.20	5	0	62.6	20-120	0			

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

Client: Navajo Refining Company
Work Order: 1309249
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **72927** Instrument ID **SV-4** Method: **SW8270**

LCSD		Sample ID: SLCSDW3-130910-72927				Units: µg/L		Analysis Date: 9/10/2013 02:53 PM		
Client ID:		Run ID: SV-4_130910B				SeqNo: 3354478		Prep Date: 9/10/2013		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	3.72	0.20	5	0	74.4	45-120	3.575	3.99	20	
2-Methylnaphthalene	3.437	0.20	5	0	68.7	50-120	3.263	5.18	20	
Benzo(a)pyrene	4.241	0.20	5	0	84.8	45-120	4.074	4.01	20	
Naphthalene	3.573	0.20	5	0	71.5	45-120	3.362	6.1	20	
Surr: 2,4,6-Tribromophenol	4.3	0.20	5	0	86	34-129	4.1	4.76	0	
Surr: 2-Fluorobiphenyl	3.718	0.20	5	0	74.4	40-125	3.555	4.48	0	
Surr: 2-Fluorophenol	2.88	0.20	5	0	57.6	20-120	3	4.09	0	
Surr: 4-Terphenyl-d14	4.357	0.20	5	0	87.1	40-135	4.133	5.28	0	
Surr: Nitrobenzene-d5	3.122	0.20	5	0	62.4	41-120	3.038	2.75	0	
Surr: Phenol-d6	3.095	0.20	5	0	61.9	20-120	3.128	1.07	0	

The following samples were analyzed in this batch:

1309249-01G	1309249-02G	1309249-03G
1309249-04G	1309249-05G	1309249-06G
1309249-07G	1309249-08G	

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

Client: Navajo Refining Company
Work Order: 1309249
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R153431** Instrument ID **VOA4** Method: **SW8260**

MBLK Sample ID: **VBLKW-130909-R153431** Units: **µg/L** Analysis Date: **9/9/2013 02:26 PM**

Client ID: Run ID: **VOA4_130909A** SeqNo: **3348366** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichloroethane	U	1.0								
Benzene	U	1.0								
Carbon tetrachloride	U	1.0								
Chloroform	U	1.0								
Ethylbenzene	U	1.0								
Methylene chloride	U	2.0								
Tetrachloroethene	U	1.0								
Toluene	U	1.0								
Trichloroethene	U	1.0								
Vinyl chloride	U	1.0								
Xylenes, Total	U	3.0								
Surr: 1,2-Dichloroethane-d4	55.51	1.0	50	0	111	71-125	0			
Surr: 4-Bromofluorobenzene	49.3	1.0	50	0	98.6	70-125	0			
Surr: Dibromofluoromethane	54.82	1.0	50	0	110	74-125	0			
Surr: Toluene-d8	57.16	1.0	50	0	114	75-125	0			

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

Client: Navajo Refining Company
Work Order: 1309249
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R153431** Instrument ID **VOA4** Method: **SW8260**

LCS Sample ID: **VLCSW-130909-R153431** Units: **µg/L** Analysis Date: **9/9/2013 01:35 PM**

Client ID: Run ID: **VOA4_130909A** SeqNo: **3348365** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	57.98	1.0	50	0	116	75-130				
1,1,2,2-Tetrachloroethane	58.95	1.0	50	0	118	74-123				
1,1,2-Trichloroethane	51.83	1.0	50	0	104	80-120				
1,1-Dichloroethane	54.29	1.0	50	0	109	80-120				
1,1-Dichloroethene	56.75	1.0	50	0	113	75-130				
1,2-Dibromoethane	56.59	1.0	50	0	113	80-120				
1,2-Dichloroethane	53.38	1.0	50	0	107	79-120				
Benzene	52.59	1.0	50	0	105	80-120				
Carbon tetrachloride	53.55	1.0	50	0	107	75-125				
Chloroform	52.62	1.0	50	0	105	70-130				
Ethylbenzene	53.43	1.0	50	0	107	80-120				
Methylene chloride	50.16	2.0	50	0	100	65-133				
Tetrachloroethene	54.71	1.0	50	0	109	75-130				
Toluene	52.68	1.0	50	0	105	80-121				
Trichloroethene	54.42	1.0	50	0	109	75-125				
Vinyl chloride	56.52	1.0	50	0	113	70-135				
Xylenes, Total	162.2	3.0	150	0	108	80-124				
Surr: 1,2-Dichloroethane-d4	53.14	1.0	50	0	106	71-125	0			
Surr: 4-Bromofluorobenzene	55.46	1.0	50	0	111	70-125	0			
Surr: Dibromofluoromethane	54.93	1.0	50	0	110	74-125	0			
Surr: Toluene-d8	54.16	1.0	50	0	108	75-125	0			

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

Client: Navajo Refining Company
Work Order: 1309249
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R153431** Instrument ID **VOA4** Method: **SW8260**

MS Sample ID: **1309205-01AMS** Units: **µg/L** Analysis Date: **9/9/2013 04:08 PM**

Client ID: Run ID: **VOA4_130909A** SeqNo: **3348369** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	57.97	1.0	50	0	116	75-130				
1,1,2,2-Tetrachloroethane	54.96	1.0	50	0	110	74-123				
1,1,2-Trichloroethane	49.56	1.0	50	0	99.1	80-120				
1,1-Dichloroethane	53.26	1.0	50	0	107	80-120				
1,1-Dichloroethene	57.21	1.0	50	0	114	75-130				
1,2-Dibromoethane	53.32	1.0	50	0	107	80-120				
1,2-Dichloroethane	51.54	1.0	50	0	103	79-120				
Benzene	50.64	1.0	50	0	101	80-120				
Carbon tetrachloride	53.61	1.0	50	0	107	79-120				
Chloroform	52.05	1.0	50	0	104	70-130				
Ethylbenzene	52	1.0	50	0	104	80-120				
Methylene chloride	48.94	2.0	50	0	97.9	65-133				
Tetrachloroethene	52.85	1.0	50	0	106	75-130				
Toluene	51.15	1.0	50	0	102	80-121				
Trichloroethene	53.27	1.0	50	0	107	75-125				
Vinyl chloride	56.96	1.0	50	0	114	70-135				
Xylenes, Total	156.2	3.0	150	0	104	80-124				
Surr: 1,2-Dichloroethane-d4	52.29	1.0	50	0	105	71-125	0			
Surr: 4-Bromofluorobenzene	53.37	1.0	50	0	107	70-125	0			
Surr: Dibromofluoromethane	54.32	1.0	50	0	109	74-125	0			
Surr: Toluene-d8	52.34	1.0	50	0	105	75-125	0			

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

Client: Navajo Refining Company
Work Order: 1309249
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R153431** Instrument ID **VOA4** Method: **SW8260**

MSD		Sample ID: 1309205-01AMSD				Units: µg/L		Analysis Date: 9/9/2013 04:34 PM		
Client ID:		Run ID: VOA4_130909A				SeqNo: 3348370		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	58.41	1.0	50	0	117	75-130	57.97	0.757	20	
1,1,2,2-Tetrachloroethane	55.31	1.0	50	0	111	74-123	54.96	0.646	20	
1,1,2-Trichloroethane	49.76	1.0	50	0	99.5	80-120	49.56	0.415	20	
1,1-Dichloroethane	53.55	1.0	50	0	107	80-120	53.26	0.553	20	
1,1-Dichloroethene	56.43	1.0	50	0	113	75-130	57.21	1.37	20	
1,2-Dibromoethane	53.54	1.0	50	0	107	80-120	53.32	0.406	20	
1,2-Dichloroethane	51.85	1.0	50	0	104	79-120	51.54	0.602	20	
Benzene	51.56	1.0	50	0	103	80-120	50.64	1.79	20	
Carbon tetrachloride	53.77	1.0	50	0	108	75-125	53.61	0.287	20	
Chloroform	51.32	1.0	50	0	103	70-130	52.05	1.4	20	
Ethylbenzene	52.71	1.0	50	0	105	80-120	52	1.36	20	
Methylene chloride	48.15	2.0	50	0	96.3	65-133	48.94	1.64	20	
Tetrachloroethene	54.29	1.0	50	0	109	75-130	52.85	2.69	20	
Toluene	51.98	1.0	50	0	104	80-121	51.15	1.61	20	
Trichloroethene	53.71	1.0	50	0	107	75-120	53.27	0.825	20	
Vinyl chloride	57.58	1.0	50	0	115	70-135	56.96	1.07	20	
Xylenes, Total	159.4	3.0	150	0	106	80-124	156.2	2.06	20	
Surr: 1,2-Dichloroethane-d4	51.1	1.0	50	0	102	71-125	52.29	2.3	20	
Surr: 4-Bromofluorobenzene	54.25	1.0	50	0	108	70-125	53.37	1.63	20	
Surr: Dibromofluoromethane	53.47	1.0	50	0	107	74-125	54.32	1.58	20	
Surr: Toluene-d8	53.38	1.0	50	0	107	75-125	52.34	1.98	20	

The following samples were analyzed in this batch:

1309249-01A 1309249-02A

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

Client: Navajo Refining Company
Work Order: 1309249
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R153436** Instrument ID **VOA4** Method: **SW8260**

MBLK Sample ID: **VBLKW-130909-R153436** Units: **µg/L** Analysis Date: **9/10/2013 02:36 AM**
Client ID: Run ID: **VOA4_130909B** SeqNo: **3348577** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichloroethane	U	1.0								
Benzene	U	1.0								
Carbon tetrachloride	U	1.0								
Chloroform	U	1.0								
Ethylbenzene	U	1.0								
Methylene chloride	U	2.0								
Tetrachloroethene	U	1.0								
Toluene	U	1.0								
Trichloroethene	U	1.0								
Vinyl chloride	U	1.0								
Xylenes, Total	U	3.0								
Surr: 1,2-Dichloroethane-d4	52.23	1.0	50	0	104	71-125	0			
Surr: 4-Bromofluorobenzene	45.28	1.0	50	0	90.6	70-125	0			
Surr: Dibromofluoromethane	52.05	1.0	50	0	104	74-125	0			
Surr: Toluene-d8	53.48	1.0	50	0	107	75-125	0			

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

Client: Navajo Refining Company
Work Order: 1309249
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R153436** Instrument ID **VOA4** Method: **SW8260**

LCS		Sample ID: VLCSW-130909-R153436				Units: µg/L		Analysis Date: 9/10/2013 01:46 AM		
Client ID:		Run ID: VOA4_130909B				SeqNo: 3348576		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	56.44	1.0	50	0	113	75-130				
1,1,2,2-Tetrachloroethane	50.9	1.0	50	0	102	74-123				
1,1,2-Trichloroethane	50.27	1.0	50	0	101	80-120				
1,1-Dichloroethane	53.71	1.0	50	0	107	80-120				
1,1-Dichloroethene	53.51	1.0	50	0	107	75-130				
1,2-Dibromoethane	53.93	1.0	50	0	108	80-120				
1,2-Dichloroethane	52.01	1.0	50	0	104	79-120				
Benzene	52.02	1.0	50	0	104	80-120				
Carbon tetrachloride	52	1.0	50	0	104	75-125				
Chloroform	52.39	1.0	50	0	105	70-130				
Ethylbenzene	52.21	1.0	50	0	104	80-120				
Methylene chloride	51.16	2.0	50	0	102	65-133				
Tetrachloroethene	53.48	1.0	50	0	107	75-130				
Toluene	51.99	1.0	50	0	104	80-121				
Trichloroethene	57	1.0	50	0	114	75-125				
Vinyl chloride	55.79	1.0	50	0	112	70-135				
Xylenes, Total	158.5	3.0	150	0	106	80-124				
Surr: 1,2-Dichloroethane-d4	50.74	1.0	50	0	101	71-125		0		
Surr: 4-Bromofluorobenzene	53.55	1.0	50	0	107	70-125		0		
Surr: Dibromofluoromethane	53.78	1.0	50	0	108	74-125		0		
Surr: Toluene-d8	53.31	1.0	50	0	107	75-125		0		

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

Client: Navajo Refining Company
Work Order: 1309249
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R153436** Instrument ID **VOA4** Method: **SW8260**

MS		Sample ID: 1309196-01AMS				Units: µg/L		Analysis Date: 9/10/2013 05:06 AM		
Client ID:		Run ID: VOA4_130909B				SeqNo: 3348583		Prep Date:		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	509.8	10	500	0	102	75-130				
1,1,2,2-Tetrachloroethane	467.1	10	500	0	93.4	74-123				
1,1,2-Trichloroethane	448.7	10	500	0	89.7	80-120				
1,1-Dichloroethane	495.7	10	500	8.87	97.4	80-120				
1,1-Dichloroethene	538.8	10	500	41.27	99.5	75-130				
1,2-Dibromoethane	473.8	10	500	0	94.8	80-120				
1,2-Dichloroethane	471.7	10	500	0	94.3	79-120				
Benzene	474.9	10	500	0	95	80-120				
Carbon tetrachloride	469.3	10	500	0	93.9	79-120				
Chloroform	474.3	10	500	0	94.9	70-130				
Ethylbenzene	471	10	500	0	94.2	80-120				
Methylene chloride	462.3	20	500	24.95	87.5	65-133				
Tetrachloroethene	476.7	10	500	0	95.3	75-130				
Toluene	471.8	10	500	0	94.4	80-121				
Trichloroethene	900.8	10	500	390.6	102	75-125				
Vinyl chloride	530.1	10	500	0	106	70-135				
Xylenes, Total	1438	30	1500	0	95.9	80-124				
Surr: 1,2-Dichloroethane-d4	492.5	10	500	0	98.5	71-125	0			
Surr: 4-Bromofluorobenzene	517.9	10	500	0	104	70-125	0			
Surr: Dibromofluoromethane	527.3	10	500	0	105	74-125	0			
Surr: Toluene-d8	512.5	10	500	0	103	75-125	0			

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

Client: Navajo Refining Company
Work Order: 1309249
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R153436** Instrument ID **VOA4** Method: **SW8260**

MSD		Sample ID: 1309196-01AMSD				Units: µg/L		Analysis Date: 9/10/2013 05:31 AM		
Client ID:		Run ID: VOA4_130909B				SeqNo: 3348584		Prep Date:		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	517.9	10	500	0	104	75-130	509.8	1.59	20	
1,1,2,2-Tetrachloroethane	509	10	500	0	102	74-123	467.1	8.58	20	
1,1,2-Trichloroethane	468.5	10	500	0	93.7	80-120	448.7	4.31	20	
1,1-Dichloroethane	503.6	10	500	8.87	99	80-120	495.7	1.59	20	
1,1-Dichloroethene	553.4	10	500	41.27	102	75-130	538.8	2.68	20	
1,2-Dibromoethane	493.7	10	500	0	98.7	80-120	473.8	4.12	20	
1,2-Dichloroethane	484.7	10	500	0	96.9	79-120	471.7	2.72	20	
Benzene	478.5	10	500	0	95.7	80-120	474.9	0.743	20	
Carbon tetrachloride	470.2	10	500	0	94	75-125	469.3	0.18	20	
Chloroform	490.1	10	500	0	98	70-130	474.3	3.27	20	
Ethylbenzene	482.3	10	500	0	96.5	80-120	471	2.37	20	
Methylene chloride	480.1	20	500	24.95	91	65-133	462.3	3.76	20	
Tetrachloroethene	486.9	10	500	0	97.4	75-130	476.7	2.11	20	
Toluene	477.9	10	500	0	95.6	80-121	471.8	1.28	20	
Trichloroethene	899.6	10	500	390.6	102	75-120	900.8	0.138	20	
Vinyl chloride	531.7	10	500	0	106	70-135	530.1	0.303	20	
Xylenes, Total	1456	30	1500	0	97.1	80-124	1438	1.22	20	
Surr: 1,2-Dichloroethane-d4	524.7	10	500	0	105	71-125	492.5	6.34	20	
Surr: 4-Bromofluorobenzene	537	10	500	0	107	70-125	517.9	3.62	20	
Surr: Dibromofluoromethane	542.2	10	500	0	108	74-125	527.3	2.78	20	
Surr: Toluene-d8	535	10	500	0	107	75-125	512.5	4.3	20	

The following samples were analyzed in this batch:

1309249-03A	1309249-04A	1309249-05A
1309249-06A	1309249-07A	1309249-08A
1309249-09A	1309249-10A	1309249-11A
1309249-12A		

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

Client: Navajo Refining Company
Work Order: 1309249
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R153357** Instrument ID **ManTech01** Method: **SM4500H+ B (Dissolve)**

LCS	Sample ID: LCS-PH-R153357				Units: pH Units			Analysis Date: 9/8/2013 10:45 AM		
Client ID:	Run ID: MANTECH01_130908A				SeqNo: 3346657		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6	0.100	6	0	100	90-110				

DUP	Sample ID: 1309264-01ZDUP				Units: pH Units			Analysis Date: 9/8/2013 11:03 AM		
Client ID:	Run ID: MANTECH01_130908A				SeqNo: 3346661		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	8.13	0.100					8.05	0.989	20	
Temp Deg C @pH	23.75	0					23.54	0.888		

The following samples were analyzed in this batch:

1309249-01F	1309249-02F	1309249-03F
1309249-04F	1309249-05F	1309249-06F
1309249-07F	1309249-08F	

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

Client: Navajo Refining Company
Work Order: 1309249
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R153508** Instrument ID **Balance1** Method: **M2540C** **(Dissolve)**

MBLK Sample ID: **WBLK-090913-R153508** Units: **mg/L** Analysis Date: **9/9/2013 11:00 AM**

Client ID: Run ID: **BALANCE1_130909E** SeqNo: **3349975** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	U	10.0								

LCS Sample ID: **WLCS-090913-R153508** Units: **mg/L** Analysis Date: **9/9/2013 11:00 AM**

Client ID: Run ID: **BALANCE1_130909E** SeqNo: **3349976** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1008	10.0	1000	0	101	85-115				

DUP Sample ID: **1309061-01BDUP** Units: **mg/L** Analysis Date: **9/9/2013 11:00 AM**

Client ID: Run ID: **BALANCE1_130909E** SeqNo: **3349972** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	344	10.0					334	2.95	20	

DUP Sample ID: **1309249-06FDUP** Units: **mg/L** Analysis Date: **9/9/2013 11:00 AM**

Client ID: **MW-119** Run ID: **BALANCE1_130909E** SeqNo: **3351809** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	4020	10.0					4030	0.248	20	

The following samples were analyzed in this batch:

1309249-04F	1309249-05F	1309249-06F
1309249-08F		

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

Client: Navajo Refining Company
Work Order: 1309249
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R153690** Instrument ID **Gall01** Method: **M4500CN E&G (Dissolve)**

MBLK	Sample ID: WBLKW1-091313-R153690				Units: mg/L		Analysis Date: 9/13/2013 10:15 AM			
Client ID:	Run ID: GALL01_130913A				SeqNo: 3354600		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	U	0.0200								

LCS	Sample ID: WLCSW1-091313-R153690				Units: mg/L		Analysis Date: 9/13/2013 10:15 AM			
Client ID:	Run ID: GALL01_130913A				SeqNo: 3354601		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.187	0.0200	0.2	0	93.5	80-120				

MS	Sample ID: 1309232-07DMS				Units: mg/L		Analysis Date: 9/13/2013 10:15 AM			
Client ID:	Run ID: GALL01_130913A				SeqNo: 3354607		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.1776	0.0200	0.2	0.00159	88	80-120				

MSD	Sample ID: 1309232-07DMSD				Units: mg/L		Analysis Date: 9/13/2013 10:15 AM			
Client ID:	Run ID: GALL01_130913A				SeqNo: 3354608		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.1788	0.0200	0.2	0.00159	88.6	80-120	0.1776	0.684	20	

The following samples were analyzed in this batch:

1309249-01D	1309249-02D	1309249-03D
1309249-04D	1309249-05D	1309249-06D
1309249-07D	1309249-08D	

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

Client: Navajo Refining Company
Work Order: 1309249
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R153693** Instrument ID **Balance1** Method: **M2540C** **(Dissolve)**

MBLK	Sample ID: WBLK-091113-R153693				Units: mg/L		Analysis Date: 9/11/2013 06:55 PM			
Client ID:	Run ID: BALANCE1_130911F				SeqNo: 3354688		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	U	10.0								

LCS	Sample ID: WLCS-091113-R153693				Units: mg/L		Analysis Date: 9/11/2013 06:55 PM			
Client ID:	Run ID: BALANCE1_130911F				SeqNo: 3354689		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1004	10.0	1000		0	100	85-115			

DUP	Sample ID: 1309249-03FDUP				Units: mg/L		Analysis Date: 9/11/2013 06:55 PM			
Client ID: MW-116	Run ID: BALANCE1_130911F				SeqNo: 3354678		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	4376	10.0					4438	1.41	20	

DUP	Sample ID: 1309311-01BDUP				Units: mg/L		Analysis Date: 9/11/2013 06:55 PM			
Client ID:	Run ID: BALANCE1_130911F				SeqNo: 3354686		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	368	10.0					362	1.64	20	

The following samples were analyzed in this batch:

1309249-01F	1309249-02F	1309249-03F
1309249-07F		

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

Client: Navajo Refining Company
Work Order: 1309249
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R153808** Instrument ID **ICS3000** Method: **E300** **(Dissolve)**

MBLK Sample ID: **WBLKW1-R153808** Units: **mg/L** Analysis Date: **9/15/2013 11:51 PM**
 Client ID: Run ID: **ICS3000_130915A** SeqNo: **3357186** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	0.500								
Fluoride	U	0.100								
Nitrogen, Nitrate (As N)	U	0.100								
Nitrogen, Nitrite (As N)	U	0.100								
Sulfate	U	0.500								
Nitrate/Nitrite (as N)	U	0.200								

LCS Sample ID: **WLCSW1-R153808** Units: **mg/L** Analysis Date: **9/16/2013 12:16 AM**
 Client ID: Run ID: **ICS3000_130915A** SeqNo: **3357187** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	21.23	0.500	20	0	106	90-110				
Fluoride	4.143	0.100	4	0	104	90-110				
Nitrogen, Nitrate (As N)	4.38	0.100	4	0	109	90-110				
Nitrogen, Nitrite (As N)	4.126	0.100	4	0	103	90-110				
Sulfate	20.51	0.500	20	0	103	90-110				
Nitrate/Nitrite (as N)	8.506	0.200	8	0	106	90-110				

MS Sample ID: **1309232-07EMS** Units: **mg/L** Analysis Date: **9/16/2013 05:52 AM**
 Client ID: Run ID: **ICS3000_130915A** SeqNo: **3357200** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	73.98	0.500	10	65.32	86.7	80-120				O
Fluoride	2.868	0.100	2	0.979	94.4	80-120				
Nitrogen, Nitrate (As N)	1.843	0.100	2	0	92.2	80-120				H
Nitrogen, Nitrite (As N)	1.91	0.100	2	0	95.5	80-120				H
Sulfate	10.84	0.500	10	1.897	89.4	80-120				
Nitrate/Nitrite (as N)	3.753	0.200	4	0	93.8	80-120				H

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

Client: Navajo Refining Company
Work Order: 1309249
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R153808** Instrument ID **ICS3000** Method: **E300** **(Dissolve)**

MSD Sample ID: **1309232-07EMSD** Units: **mg/L** Analysis Date: **9/16/2013 06:18 AM**

Client ID: Run ID: **ICS3000_130915A** SeqNo: **3357201** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	74.44	0.500	10	65.32	91.3	80-120	73.98	0.62	20	O
Fluoride	2.89	0.100	2	0.979	95.6	80-120	2.868	0.764	20	
Nitrogen, Nitrate (As N)	1.852	0.100	2	0	92.6	80-120	1.843	0.487	20	H
Nitrogen, Nitrite (As N)	1.921	0.100	2	0	96	80-120	1.91	0.574	20	H
Sulfate	10.93	0.500	10	1.897	90.4	80-120	10.84	0.836	20	
Nitrate/Nitrite (as N)	3.773	0.200	4	0	94.3	80-120	3.753	0.531	20	H

The following samples were analyzed in this batch:

1309249-01F	1309249-02F	1309249-03F
1309249-04F	1309249-05F	1309249-06F
1309249-07F	1309249-08F	

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

Client: Navajo Refining Company
Project: RO Discharge Sampling
WorkOrder: 1309249

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>
°C	Celsius degrees
mg/L	Milligrams per Liter
pH Units	

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**

Date/Time Received: **06-Sep-13 09:40**

Work Order: **1309249**

Received by: **WTJ**

Checklist completed by William Jenkins
eSignature

07-Sep-13
Date

Reviewed by: Senia West
eSignature

10-Sep-13
Date

Matrices: **WATER**

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):	4.6C/4.6C, 5.0C/5.0C, 5.3C/5.3C, 4.7C/4.7C C/U		IR1
Cooler(s)/Kit(s):	4208,4341,4312,2753		
Date/Time sample(s) sent to storage:	9/7/13 08:45		
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:

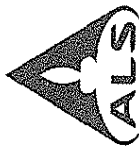
Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



Cincinnati, OH
+1 513 733 5336
Everett, WA
+1 425 356 2600

Fort Collins, CO
+1 970 490 1511
Holland, MI
+1 616 399 6070

Chain of Custody Form

Page 1 of 1
COC ID: 92127

1309249

NAVAJO REFINING: Navajo Refining Company

Project: RO Discharge Sampling

Environmental

Customer Information

Purchase Order	Project Name	RO Discharge/Sampling	ALS Project Manager:	
Work Order	Project Number			
Company Name	Bill To Company	Navajo Refining Company		
Send Report To	Invoice Attn	Robert Combs		
Address	Address	501 East Main		
City/State/Zip	City/State/Zip	Artesia, NM 88211		
Phone	Phone	(575) 746-5382		
Fax	Fax	(575) 746-5421		
e-Mail Address	e-Mail Address			

Project Information

A	VOC (8260) NM GW List
B	GRO (8015M)
C	DRO, ORO (8015M) LVI
D	LL SVOC (8270) NM GW List
E	Dissolved Metals (6020/7000) Select List
F	Anions (300) Cl, F, SO ₄
G	Total Cyanide (SM 4500)
H	pH
I	TDS
J	Radium 226/228

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-114	9/5/13	0930	WATER		10	X	X	X	X	X	X	X	X	X	X	
2	MW-115	9/4/13	1710	WATER		10	X	X	X	X	X	X	X	X	X	X	
3	MW-116	9/4/13	1520	WATER		10	X	X	X	X	X	X	X	X	X	X	
4	MW-117	9/4/13	0950	WATER		10	X	X	X	X	X	X	X	X	X	X	
5	MW-118	9/4/13	1200	WATER		10	X	X	X	X	X	X	X	X	X	X	
6	MW-119	9/4/13	1330	WATER		10	X	X	X	X	X	X	X	X	X	X	
7	RO DISCHARGE	9/5/13	1100	WATER		10	X	X	X	X	X	X	X	X	X	X	
8	DUP-01	9/4/13	0000	WATER		10	X	X	X	X	X	X	X	X	X	X	
9	TRIP BLANKS			WATER		4	X										
10																	

Sampler(s) Please Print & Sign	Shipment Method	Required Turnaround Time: (Check Box)	Results Due Date:
Mallory Bailey	FED-EX	☒ Std 10 WK Days ☐ 5 WK Days ☐ 2 WK Days ☐ 24 Hour	
Relinquished by: <u>Mallory Bailey</u>	Date: <u>9/5/13</u>	Time: <u>10:00</u>	Received by: <u>[Signature]</u>
Relinquished by: <u>[Signature]</u>	Date: <u>9/5/13</u>	Time: <u>10:00</u>	Received by (Laboratory): <u>[Signature]</u>
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035			

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

FedEx Package
Express *US Airbill*

FedEx
Tracking
Number

8041 1922 6986

Form ID No. 0215

1 From
Date 9/5/13
Sender's Name MALLORY BAILEY Phone 713 944 1450
Company ARCADIS US
Address 2929 ARCADIA PARK DR 300
City HOUSTON State TX ZIP 77042
Dept./Floor/Suite/Room

2 Your Internal Billing Reference

3 To
Recipient's Name CLIENT SERVICES Phone 281 530-5656
Company ALS LABORATORY GROUP
Address 10450 STANCLIFF RD STE 210
We cannot deliver to P.O. boxes or P.O. ZIP codes. Dept./Floor/Suite/Room
Address _____
Use this line for the HOLD location address or for continuation of your shipping address.
City HOUSTON State TX ZIP 77099-4338

HOLD Weekday
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.

HOLD Saturday
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.

4 Express Package Service *To most locations.
NOTE: Service order has changed. Please select carefully.

Next Business Day

☐ **FedEx First Overnight**
Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

☒ **FedEx Priority Overnight**
Next business morning. *Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

☐ **FedEx Standard Overnight**
Next business afternoon. *Saturday Delivery NOT available.

2 or 3 Business Days

☐ **FedEx 2Day A.M.**
Second business morning. *Saturday Delivery NOT available.

☐ **FedEx 2Day**
Second business afternoon. *Thursday will be delivered on Monday unless S Delivery is selected.

☐ **FedEx Express Saver**
Third business day. *Saturday Delivery NOT available.

5 Packaging *Declared value limit \$500.

☐ **FedEx Envelope*** ☐ **FedEx Pak*** ☐ **FedEx Box** ☐ **FedEx Tube**

6 Special Handling and Delivery Signature Options

☐ **SATURDAY Delivery**
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐ **No Signature Required**
Package may be left without obtaining a signature for delivery.

☐ **Direct Signature**
Someone at recipient's address may sign for delivery. Fee applies.

☐ **Indirect S**
If no one is at address, some address may be residential del.

Does this shipment contain dangerous goods?

One box must be checked.
☒ **No** ☐ **Yes** As per attached Shipper's Declaration. ☐ **Yes** Shipper's Declaration not required.

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

☐ **Dry Ice**
Dry ice, 9 UN 1845

☐ **Cargo Aircrat**

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below.
☐ **Sender** Acct. No. in Section I will be billed. ☒ **Recipient** ☐ **Third Party** ☐ **Credit Card**
Total Packages _____ Total Weight _____
Credit Card Auth. _____
RS. _____

Your liability is limited to US\$100 unless you declare a higher value. See the current FedEx Shipping Guide for details.

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8041 1922 6986



ALS Environmental

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

CUSTODY SEAL

Date: 9/11/13 Time: 1600
Name: KERGERSEN
Company: ARCADIS

Seal Broken By:

Date:

36

30

FedEx Package
Express *US Airbill*

FedEx
Tracking
Number

8041 1922 7022

MUR3

Form 0215

1 From

Date

9/5/13

Sender's
Name

MALLORY BAILEY

Phone

713 494 1450

Company

ARCADIS US

Address

2929 BRIAR PARK DR.

300

Dept./Floor/Suite/Room

City

HOUSTON

State

TX

ZIP

77042

2 Your Internal Billing Reference

3 To

Recipient's
Name

CLIENT SERVICES

Phone

281 530-5656

Company

ALS LABORATORY GROUP

Address

10450 STANCLIFF RD STE 210

Dept./Floor/Suite/Room

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City

HOUSTON

State

TX

ZIP

77099-4338

HOLD Weekday

FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.

HOLD Saturday

FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.

4 Express Package Service

* To most locations.

NOTE: Service order has changed. Please select carefully.

Packages up to 150 lb.
For packages over 68 lbs., use
FedEx Express Freight US Air

Next Business Day

☐ FedEx First Overnight
Earliest next business morning delivery to select
locations. Friday shipments will be delivered on
Monday unless SATURDAY Delivery is selected.

☒ FedEx Priority Overnight
Next business morning. * Friday shipments will be
delivered on Monday unless SATURDAY Delivery
is selected.

☐ FedEx Standard Overnight
Next business afternoon. *
Saturday Delivery NOT available.

2 or 3 Business Days

☐ FedEx 2Day A.M.
Second business morning. *
Saturday Delivery NOT available.

☐ FedEx 2Day
Second business afternoon. * Thursday shipments
will be delivered on Monday unless SATURDAY
Delivery is selected.

☐ FedEx Express Saver
Third business day. *
Saturday Delivery NOT available.

5 Packaging

* Declared value limit \$500.

☐ FedEx Envelope*

☐ FedEx Pak*

☐ FedEx
Box

☐ FedEx
Tube

☒ 0

6 Special Handling and Delivery Signature Options

☐ SATURDAY Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐ No Signature Required
Package may be left without
obtaining a signature for delivery.

☐ Direct Signature
Someone at recipient's address
may sign for delivery. Fee applies.

☐ Indirect Signature
If no one is available at recipient
address, someone at a neighbor
address may sign for delivery. A
residential delivery only. Fee a

Does this shipment contain dangerous goods?

☒ No ☐ Yes
As per attached
Shipper's Declaration.

☐ Yes
Shipper's Declaration
not required.

☐ Dry Ice
Dry ice, 9 UN 1845

☐ Cargo Aircraft Only

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging
or placed in a FedEx Express Drop Box.

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below.

Obtain recip.
Acct. No.

☐ Sender
Acct. No. in Section
1 will be billed.

☒ Recipient

☐ Third Party

☐ Credit Card

☐ Cash/

Total Packages

Total Weight

Credit Card Auth.

lbs.

*Our liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

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611



ALS Environmental

10450 Stancliff Rd., Suite 210

Houston, Texas 77099

Tel. +1 281 530 5656

Fax. +1 281 530 5887

2753

CUSTOMER

Date:

9/5/13

Name:

GERSEN

Company:

ARCADIS

BODY SEAL

Time:

1600

GERSEN

Seal Broken

Date:

9/5/13

FedEx
Tracking
Number

8041 1922 6997

Part
ID No. 0215

MON 2

February 13, 2013

From [Redacted]
Date 9/13/12
Sender's Name MALLORY BAILEY Phone 713 699-1100
Company ALCOA US
Address 724 BRIDGEMAN DR
City HOUSTON State TX ZIP 77064

2 Your Internal Billing Reference

3 To Recipient's Name CLIENT SERVICES Phone 281 530-5454
Company ALCO LABORATORY GROUP
Address 10450 STANCLIFF RD STE 210
We cannot deliver to P.O. boxes or P.O. ZIP codes.
City HOUSTON State TX ZIP 77069-4338

HOLD Weekday
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.

HOLD Saturday
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.



8041 1922 6997

4 Express Package Service

* To most locations

NOTE: Service order has changed. Please select carefully.

Packages up to 150 lbs.
For packages over 150 lbs. use the
FedEx Express Freight US Airbill.

Next Business Day

☐ FedEx First Overnight
Earliest next business morning delivery to select
locations. Friday shipments will be delivered on
Monday unless SATURDAY Delivery is selected.

☐ FedEx Priority Overnight
Next business morning. Friday shipments will be
delivered on Monday unless SATURDAY Delivery
is selected.

☐ FedEx Standard Overnight
Next business afternoon.
Saturday Delivery NOT available.

2 or 3 Business Days

☐ FedEx 2Day A.M.
Second business morning.
Saturday Delivery NOT available.

☐ FedEx 2Day
Second business afternoon. Thursday shipments
will be delivered on Monday unless SATURDAY
Delivery is selected.

☐ FedEx Express Saver
Third business day.
Saturday Delivery NOT available.

5 Packaging

* Declared value limit \$500.

☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☐ Other

6 Special Handling and Delivery Signature Options

☐ SATURDAY Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐ No Signature Required
Package may be left without
obtaining a signature for delivery.

☐ Direct Signature
Recipient at recipient's address
may sign for delivery. Fee applies.

☐ Indirect Signature
If no one is available at recipient's
address, someone at a neighboring
address may sign for delivery. For
residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?

One box must be checked.
☐ No ☐ Yes As per attached Shipper's Declaration ☐ Yes Shipper's Declaration not required
Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.
☐ Dry Ice Dry Ice, 9 UN 1845 X kg
☐ Cargo Aircraft Only

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below:

Sender ☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

Total Packages Total Weight

Credit Card Auth.

*Our liability is limited to \$5000 unless you declare a higher value. See the current FedEx Service Guide for details.



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ALS Environmental

10450 Stancliff Rd., Ste. 210

Houston, TX 77069

Tel. +1 281 530 5887

Fax. +1 281 530 5887

CUS

Date: 9/15/13
Name: B
Company:

TODY SEAL

Time: 1:00

ERGARSON
ARCADIS

JPB
9/15/13



Package
US Airbill

FedEx
Tracking
Number

8020 3307 1054

1 From
Date 5/15/13
Sender's Name MALLOREY BAILEY
Phone 713 999-1420
Company ARCADIS US
Address 2489 BRIARWALK DR.
City HOUSTON State TX ZIP 77042

2 Your Internal Billing Reference

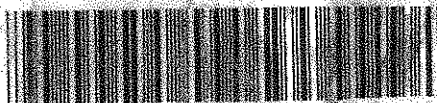
3 To
Recipient's Name CLIENT SERVICES
Phone 281 530-3656

Company ALS LABORATORY GROUP

Address 10450 STANCLIFF RD STE 210
Dept./Floor/Suite/Room

City HOUSTON State TX ZIP 77099-4335

HOLD Weekday
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.
HOLD Saturday
FedEx location address
REQUIRED. Available only for
FedEx Priority Overnight and
FedEx 2Day to select locations.



8020 3307 1054

0215

Recipient's Copy

4 Express Package Service
NOTE: Service order has changed. Please select carefully.
Packages up to 150 lbs.
For packages over 150 lbs., use the
FedEx Express Freight US Airbill.

Next Business Day
FedEx First Overnight
FedEx Priority Overnight
FedEx Standard Overnight
2nd Business Day
FedEx 2Day A.M.
FedEx 2Day
FedEx Express Saver

5 Packaging
FedEx Envelope
FedEx Pak
FedEx Box
FedEx Tube
Other

6 Special Handling and Delivery Signature Options

SATURDAY Delivery
No Signature Required
Direct Signature
Indirect Signature

Does this shipment contain dangerous goods?
No
Yes
Dry Ice
Cargo Aircraft Only

7 Payment Bill to:

Sender
Recipient
Third Party
Credit Card
Cash/Check

Total Packages
Total Weight
Credit Card Auth.

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31
CUSTODY SEAL
Date: 5/15/13 Time: 11:00
Name: BERGERSEN
Company: ARCADIS

ALS Environmental
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel: 281 530 5656
Fax: 281 530 5857



September 25, 2013

Ms. Sonja West
ALS Environmental
10450 Stancliff Rd, Suite 210
Houston, TX 77099

Re: ALS Workorder: 13-09-098
Project Name: None Submitted
Project Number: 1309249

Dear Ms. West:

Eight water samples were received from ALS Environmental on September 10, 2013. The samples were scheduled for the following analyses:

Radium-226
Radium-228

The results for these analyses are contained in the enclosed report.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Jeff Kujawa
Project Manager

JRK/mlc
Enclosure (s): Report

ADDRESS 225 Commerce Drive, Fort Collins, Colorado, USA 80524 PHONE +1 970 490 1511 FAX +1 970 490 1522

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

ALS Environmental

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER
70 of 88



1309098

Radium-228:

The samples were analyzed for the presence of ^{228}Ra by low background gas flow proportional counting of ^{228}Ac , which is the ingrown progeny of ^{228}Ra , according to the current revision of SOP 724.

All acceptance criteria were met.

Radium-226:

The samples were prepared and analyzed according to the current revision of SOP 783.

All acceptance criteria were met.

ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Laboratory Certifications	
Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri	175
Nebraska	NE-OS-24-13
Nevada (NV)	CO000782008A
New Jersey (NJ)	CO003
North Dakota (ND)	R-057
Oklahoma	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241-09-1
Utah (UT)	CO01099
Washington	C1280

Revised 8/15/2013

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1309098

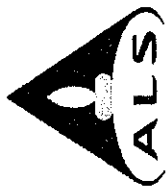
Client Name: ALS Environmental

Client Project Name:

Client Project Number: 1309249

Client PO Number: 10-1309249

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
MW-114	1309098-1		WATER	05-Sep-13	9:30
MW-115	1309098-2		WATER	04-Sep-13	17:10
MW-116	1309098-3		WATER	04-Sep-13	15:20
MW-117	1309098-4		WATER	04-Sep-13	9:50
MW-118	1309098-5		WATER	04-Sep-13	12:00
MW-119	1309098-6		WATER	04-Sep-13	13:30
RO-DISCHARGE	1309098-7		WATER	05-Sep-13	11:00
DUP-01	1309098-8		WATER	04-Sep-13	



Subcontractor:
ALS Environmental
225 Commerce Drive
Fort Collins, CO 80524

TEL: (800) 443-1511
FAX: (970) 490-1522
Acct #:

Salesperson Houston House Acct

CHAIN-OF-CUSTODY RECORD

Date: 07-Sep-13
COC ID: 14873
Due Date 13-Sep-13

Page 1 of 1
1309098

Customer Information		Project Information		Parameter/Method Request for Analysis												
Purchase Order	WO#1309249	Project Name	1309249	A Radium 226 228 Sub to ALS Ft. Collins												
Work Order		Project Number		B												
Company Name	ALS Group USA, Corp.	Bill To Company	ALS Group USA, Corp.	C												
Send Report To	Sonia West	Inv Attn	Accounts Payable	D												
Address	10450 Stancliff Rd, Suite 210	Address	10450 Stancliff Rd, Suite 210	E												
				F												
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G												
Phone	(281) 530-5656	Phone	(281) 530-5656	H												
Fax	(281) 530-5887	Fax	(281) 530-5887	I												
eMail Address	Sonia.West@alsglobal.com	eMail CC	jumoke.lawal@alsglobal.com	J												
Sample ID	Matrix	Collection Date	24hr	Bottle	A	B	C	D	E	F	G	H	I	J		
1309249-01H (MW-114)	Water	5/Sep/2013	9:30	(2) 1LPHNO3	X											
1309249-02H (MW-115)	Water	4/Sep/2013	17:10	(2) 1LPHNO3	X											
1309249-03H (MW-116)	Water	4/Sep/2013	15:20	(2) 1LPHNO3	X											
1309249-04H (MW-117)	Water	4/Sep/2013	9:50	(2) 1LPHNO3	X											
1309249-05H (MW-118)	Water	4/Sep/2013	12:00	(2) 1LPHNO3	X											
1309249-06H (MW-119)	Water	4/Sep/2013	13:30	(2) 1LPHNO3	X											
1309249-07H (RO DISCHARGE)	Water	5/Sep/2013	11:00	(2) 1LPHNO3	X											
1309249-08H (DUP-01)	Water	4/Sep/2013		(2) 1LPHNO3	X											

Comments:

Wo#1309249. Due on 9/13/13. Please analyze for Radium 226/228.

Relinquished by:

Date/Time

Received by:

Date/Time

Cooler IDs

Report/QC Level

Relinquished by:

Date/Time

Received by:

Date/Time

Cooler IDs

Report/QC Level



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS-TX
Project Manager: JK

Workorder No: 1309098
Initials: CDT Date: 9-10-13

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<u>NO</u>
2. Are custody seals on shipping containers intact?	<u>NONE</u>	<u>YES</u>	NO
3. Are Custody seals on sample containers intact?	<u>NONE</u>	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<u>YES</u>	NO
5. Are the COC and bottle labels complete and legible?		<u>YES</u>	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<u>YES</u>	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<u>YES</u>	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	<u>YES</u>	NO
9. Are all aqueous non-preserved samples pH 4-9?	<u>N/A</u>	YES	NO
10. Is there sufficient sample for the requested analyses?		<u>YES</u>	NO
11. Were all samples placed in the proper containers for the requested analyses?		<u>YES</u>	NO
12. Are all samples within holding times for the requested analyses?		<u>YES</u>	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<u>YES</u>	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<u>N/A</u>	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	<u>NO</u>
16. Were the samples shipped on ice?		YES	<u>NO</u>
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	<u>RAD ONLY</u>	YES	<u>NO</u>
Cooler #: <u>1</u>			
Temperature (°C): <u>Am b</u>			
No. of custody seals on cooler: <u>2</u>			
External µR/hr reading: <u>11</u>			
Background µR/hr reading: <u>10</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <u>YES</u> NO / NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / NA Contact: _____ Date/Time: _____

Project Manager Signature / Date: _____

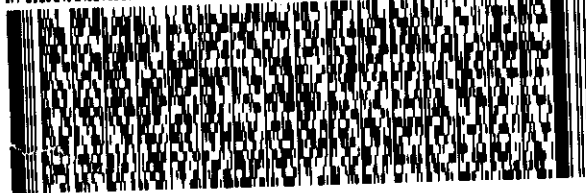
JK 9-11-13

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

SHIP DATE
ACTWGT: 50
CAD: 300130
DIMS: 26x14x
BILL SENDER

FORT COLLINS CO 80524
(970) 490-1511
REF: (SUBCONTRACT) PMG

ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED DATE 01-10-2001 BY 60322 UCBAW/STP



FedEx
Express



TRK# 4340 2177 2911
0201

TUE - 10 SEP 10:30A
PRIORITY OVERNIGHT

AG FTCA

80524
CO - US DEN



Client: ALS Environmental
Project: 1309249
Sample ID: MW-114
Legal Location:
Collection Date: 9/5/2013 09:30

Date: 25-Sep-13
Work Order: 1309098
Lab ID: 1309098-1
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	0.37 (+/- 0.24)	LT	0.21	pCi/l	NA	9/24/2013 12:51
Carr: BARIUM	90.1		40-110	%REC	NA	9/24/2013 12:51
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	0.62 (+/- 0.3)	LT	0.52	pCi/l	NA	9/17/2013 11:24
Carr: BARIUM	90.1		40-110	%REC	NA	9/17/2013 11:24

Client: ALS Environmental
Project: 1309249
Sample ID: MW-115
Legal Location:
Collection Date: 9/4/2013 17:10

Date: 25-Sep-13
Work Order: 1309098
Lab ID: 1309098-2
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	ND (+/- 0.15)	U	0.26	pCi/l	NA	9/24/2013 12:51
Carr: BARIUM	95.8		40-110	%REC	NA	9/24/2013 12:51
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	ND (+/- 0.22)	U	0.47	pCi/l	NA	9/17/2013 11:24
Carr: BARIUM	95.8		40-110	%REC	NA	9/17/2013 11:24

Client: ALS Environmental
Project: 1309249
Sample ID: MW-116
Legal Location:
Collection Date: 9/4/2013 15:20

Date: 25-Sep-13
Work Order: 1309098
Lab ID: 1309098-3
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	ND (+/- 0.17)	U	0.25	pCi/l	NA	9/24/2013 12:51
Carr: BARIUM	87		40-110	%REC	NA	9/24/2013 12:51
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	ND (+/- 0.26)	U	0.53	pCi/l	NA	9/17/2013 11:24
Carr: BARIUM	87		40-110	%REC	NA	9/17/2013 11:24

Client: ALS Environmental
Project: 1309249
Sample ID: MW-117
Legal Location:
Collection Date: 9/4/2013 09:50

Date: 25-Sep-13
Work Order: 1309098
Lab ID: 1309098-4
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	0.2 (+/- 0.16)	LT	0.08	pCi/l	NA	9/24/2013 12:51
Carr: BARIUM	93.6		40-110	%REC	NA	9/24/2013 12:51
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	0.74 (+/- 0.36)	LT	0.62	pCi/l	NA	9/17/2013 11:41
Carr: BARIUM	93.6		40-110	%REC	NA	9/17/2013 11:41

Client: ALS Environmental
 Project: 1309249
 Sample ID: MW-118
 Legal Location:
 Collection Date: 9/4/2013 12:00

Date: 25-Sep-13
 Work Order: 1309098
 Lab ID: 1309098-5
 Matrix: WATER
 Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	ND (+/- 0.14)	U	0.21	pCi/l	NA	9/24/2013 12:51
Carr: BARIUM	88.1		40-110	%REC	NA	9/24/2013 12:51
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	0.64 (+/- 0.34)	LT	0.6	pCi/l	NA	9/17/2013 11:41
Carr: BARIUM	88.1		40-110	%REC	NA	9/17/2013 11:41

Client: ALS Environmental
 Project: 1309249
 Sample ID: MW-119
 Legal Location:
 Collection Date: 9/4/2013 13:30

Date: 25-Sep-13
 Work Order: 1309098
 Lab ID: 1309098-6
 Matrix: WATER
 Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	0.17 (+/- 0.15)	LT	0.08	pCi/l	NA	9/24/2013 12:51
Carr: BARIUM	93.3		40-110	%REC	NA	9/24/2013 12:51
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	ND (+/- 0.28)	U	0.64	pCi/l	NA	9/17/2013 11:41
Carr: BARIUM	93.3		40-110	%REC	NA	9/17/2013 11:41

Client: ALS Environmental
Project: 1309249
Sample ID: RO-DISCHARGE
Legal Location:
Collection Date: 9/5/2013 11:00

Date: 25-Sep-13
Work Order: 1309098
Lab ID: 1309098-7
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	0.46 (+/- 0.28)	LT	0.23	pCi/l	NA	9/24/2013 12:51
Carr: BARIUM	90.5		40-110	%REC	NA	9/24/2013 12:51
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	ND (+/- 0.29)	U	0.57	pCi/l	NA	9/17/2013 11:41
Carr: BARIUM	90.5		40-110	%REC	NA	9/17/2013 11:41

Client: ALS Environmental
Project: 1309249
Sample ID: DUP-01
Legal Location:
Collection Date: 9/4/2013

Date: 25-Sep-13
Work Order: 1309098
Lab ID: 1309098-8
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	0.28 (+/- 0.22)	LT	0.26	pCi/l	NA	9/24/2013 12:51
Carr: BARIUM	91.5		40-110	%REC	NA	9/24/2013 12:51
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	ND (+/- 0.25)	U	0.54	pCi/l	NA	9/17/2013 11:41
Carr: BARIUM	91.5		40-110	%REC	NA	9/17/2013 11:41

Client: ALS Environmental
 Project: 1309249
 Sample ID: DUP-01
 Legal Location:
 Collection Date: 9/4/2013

Date: 25-Sep-13
 Work Order: 1309098
 Lab ID: 1309098-8
 Matrix: WATER
 Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Explanation of Qualifiers						

Radiochemistry:

U or ND - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

G - Sample density differs by more than 15% of LCS density.

D - DER is greater than Control Limit

M - Requested MDC not met.

LT - Result is less than requested MDC but greater than achieved MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).

U or ND - Indicates that the compound was analyzed for but not detected.

E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.

M - Duplicate injection precision was not met.

N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.

Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.

* - Duplicate analysis (relative percent difference) not within control limits.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.

B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.

E - Analyte concentration exceeds the upper level of the calibration range.

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

A - A tentatively identified compound is a suspected aldol-condensation product.

X - The analyte was diluted below an accurate quantitation level.

* - The spike recovery is equal to or outside the control criteria used.

+ - The relative percent difference (RPD) equals or exceeds the control criteria.

Diesel Range Organics:

Client: ALS Environmental
Project: 1309249
Sample ID: DUP-01
Legal Location:
Collection Date: 9/4/2013

Date: 25-Sep-13
Work Order: 1309098
Lab ID: 1309098-8
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
G - A pattern resembling gasoline was detected in this sample.						
D - A pattern resembling diesel was detected in this sample.						
M - A pattern resembling motor oil was detected in this sample.						
C - A pattern resembling crude oil was detected in this sample.						
4 - A pattern resembling JP-4 was detected in this sample.						
5 - A pattern resembling JP-5 was detected in this sample.						
H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.						
L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.						
Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:						
- gasoline						
- JP-8						
- diesel						
- mineral spirits						
- motor oil						
- Stoddard solvent						
- bunker C						

ALS Environmental -- FC

Date: 9/25/2013 9:24:

Client: ALS Environmental
 Work Order: 1309098
 Project: 1309249

QC BATCH REPORT

Batch ID: **RE130916-1-1** Instrument ID: **Alpha Scin** Method: **Ra-226 by Radon Emanation - Me**

LCS	Sample ID: RE130916-1				Units: pCi/l		Analysis Date: 9/24/2013 12:51			
Client ID:	Run ID: RE130916-1A				Prep Date: 9/16/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	26.2 (+/- 6.7)	0.2	29.99		87.4	67-120				P
Carr: BARIUM	32620		34440		94.7	40-110				

LCSD	Sample ID: RE130916-1				Units: pCi/l		Analysis Date: 9/24/2013 13:07			
Client ID:	Run ID: RE130916-1A				Prep Date: 9/16/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	26 (+/- 6.6)	0.3	29.99		86.8	67-120	26.2	0.0202	2.13	P
Carr: BARIUM	31760		34430		92.2	40-110	32620			

MB	Sample ID: RE130916-1				Units: pCi/l		Analysis Date: 9/24/2013 12:51			
Client ID:	Run ID: RE130916-1A				Prep Date: 9/16/2013			DF: NA		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	ND	0.37								U
Carr: BARIUM	30200		34430		87.7	40-110				

The following samples were analyzed in this batch:

1309098-1	1309098-2	1309098-3
1309098-4	1309098-5	1309098-6
1309098-7	1309098-8	

Client: ALS Environmental
Work Order: 1309098
Project: 1309249

QC BATCH REPORT

Batch ID: **RA130912-1-2** Instrument ID: **LB4100-B** Method: **Radium-228 Analysis by GFPC**

LCS	Sample ID: RA130912-1				Units: pCi/l		Analysis Date: 9/17/2013 11:24			
Client ID:	Run ID: RA130912-1A				Prep Date: 9/14/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	10.1 (+/- 2.4)	0.5	9.511		106	70-130				P
Carr: BARIUM	32620		34440		94.7	40-110				

LCSD	Sample ID: RA130912-1				Units: pCi/l		Analysis Date: 9/17/2013 11:24			
Client ID:	Run ID: RA130912-1A				Prep Date: 9/14/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	10.6 (+/- 2.5)	0.5	9.511		112	70-130	10.1	0.152	2.13	P
Carr: BARIUM	31760		34430		92.2	40-110	32620			

MB	Sample ID: RA130912-1				Units: pCi/l		Analysis Date: 9/17/2013 11:41			
Client ID:	Run ID: RA130912-1A						Prep Date: 9/14/2013		DF: NA	
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	ND	0.57								U
Carr: BARIUM	30200		34430		87.7	40-110				

The following samples were analyzed in this batch:

1309098-1	1309098-2	1309098-3
1309098-4	1309098-5	1309098-6
1309098-7	1309098-8	



07-Jan-2014

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

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

Re: RO Discharge Sampling

Work Order: **13111096**

Dear Robert,

ALS Environmental received 3 samples on 21-Nov-2013 09:15 AM for the analyses presented in the following report.

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

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

The total number of pages in this report is 48.

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

Sincerely,

A handwritten signature in cursive script that reads "Sonia West".

Electronically approved by: Jumoke M. Lawal

Sonia West
Project Manager



Certificate No: T104704231-13-12

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

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RIGHT SOLUTIONS RIGHT PARTNER

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 13111096

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>
13111096-01	MW-117	Water		11/20/2013 14:30	11/21/2013 09:15	☐
13111096-02	MW-118	Water		11/20/2013 13:00	11/21/2013 09:15	☐
13111096-03	Trip Blank 110613-72	Water		11/20/2013	11/21/2013 09:15	☒

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 13111096

Case Narrative

The analyses for Radium 226 and Radium 228 were subcontracted to ALS Environmental in Ft. Collins, CO.

Sample received outside method holding time for pH. pH is an immediate test. Sample results are flagged with an "H" qualifier.

Batch 74937, Dissolved Metals 6020, Sample 13111133-11D: MS/MSD are for an unrelated sample.

Batch 74973, Semivolatile Organics 8270, Sample SLCSW1-131126: Insufficient sample was received for MS/MSD.

Batch R157966, Volatile Organics 8260, Sample 13111133-18A: MS/MSD are for an unrelated sample.

ALS Environmental

Date: 07-Jan-14

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117
Collection Date: 11/20/2013 02:30 PM

Work Order: 13111096
Lab ID: 13111096-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO 8015C		Method: SW8015M		Prep: SW3511 / 11/27/13		Analyst: RPM	
TPH (Diesel Range)	U		0.020	0.051	mg/L	1	12/3/2013 16:36
TPH (Oil Range)	U		0.041	0.10	mg/L	1	12/3/2013 16:36
Surr: 2-Fluorobiphenyl	120			60-135	%REC	1	12/3/2013 16:36
GASOLINE RANGE ORGANICS - SW8015C		Method: SW8015		Prep: SW7470 / 12/3/13		Analyst: DNR	
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	11/25/2013 19:31
Surr: 4-Bromofluorobenzene	100			70-130	%REC	1	11/25/2013 19:31
DISSOLVED MERCURY BY 7470A		Method: SW7470		Prep: SW7470 / 12/3/13		Analyst: OFO	
Mercury	U		0.000042	0.000200	mg/L	1	12/3/2013 14:24
DISSOLVED METALS		Method: SW6020		Prep: SW3010A / 11/25/13		Analyst: JCJ	
Aluminum	0.0298		0.0040	0.0100	mg/L	1	11/26/2013 02:12
Arsenic	0.00347	J	0.0010	0.00500	mg/L	1	11/26/2013 02:12
Barium	0.0108		0.00090	0.00500	mg/L	1	11/26/2013 02:12
Boron	0.204		0.020	0.0500	mg/L	1	11/27/2013 17:12
Cadmium	U		0.00080	0.00200	mg/L	1	11/26/2013 02:12
Calcium	556		0.86	5.00	mg/L	10	11/26/2013 19:38
Chromium	U		0.0010	0.00500	mg/L	1	11/26/2013 02:12
Cobalt	U		0.00080	0.00500	mg/L	1	11/26/2013 02:12
Copper	0.00345	J	0.0010	0.00500	mg/L	1	11/26/2013 02:12
Iron	0.110	J	0.078	0.200	mg/L	1	11/26/2013 19:57
Lead	0.00125	J	0.00070	0.00500	mg/L	1	11/26/2013 02:12
Manganese	0.00982		0.0025	0.00500	mg/L	1	11/26/2013 02:12
Molybdenum	0.0114		0.0015	0.00500	mg/L	1	11/26/2013 02:12
Nickel	0.00305	J	0.0010	0.00500	mg/L	1	11/26/2013 02:12
Potassium	7.54		0.084	0.200	mg/L	1	11/26/2013 02:12
Selenium	0.00380	J	0.0010	0.00500	mg/L	1	11/26/2013 02:12
Silver	U		0.00080	0.00500	mg/L	1	11/26/2013 19:57
Sodium	115		0.085	0.200	mg/L	1	11/26/2013 19:57
Uranium	0.0182		0.0050	0.00500	mg/L	1	11/26/2013 19:57
Zinc	0.0343		0.0025	0.00500	mg/L	1	11/26/2013 02:12
LOW-LEVEL SEMIVOLATILES		Method: SW8270		Prep: SW3510 / 11/26/13		Analyst: ACN	
1-Methylnaphthalene	U		0.000030	0.00020	mg/L	1	11/26/2013 15:05
2-Methylnaphthalene	U		0.000034	0.00020	mg/L	1	11/26/2013 15:05
Benzo(a)pyrene	U		0.000030	0.00020	mg/L	1	11/26/2013 15:05
Naphthalene	U		0.000050	0.00020	mg/L	1	11/26/2013 15:05
Surr: 2,4,6-Tribromophenol	36.7			34-129	%REC	1	11/26/2013 15:05
Surr: 2-Fluorobiphenyl	46.5			40-125	%REC	1	11/26/2013 15:05

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

ALS Environmental

Date: 07-Jan-14

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117
Collection Date: 11/20/2013 02:30 PM

Work Order: 13111096
Lab ID: 13111096-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	31.2			20-120	%REC	1	11/26/2013 15:05
Surr: 4-Terphenyl-d14	51.2			40-135	%REC	1	11/26/2013 15:05
Surr: Nitrobenzene-d5	42.1			41-120	%REC	1	11/26/2013 15:05
Surr: Phenol-d6	32.0			20-120	%REC	1	11/26/2013 15:05

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00020	0.0010	mg/L	1	12/3/2013 01:33
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	12/3/2013 01:33
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	12/3/2013 01:33
1,1-Dichloroethane	U		0.00020	0.0010	mg/L	1	12/3/2013 01:33
1,1-Dichloroethene	U		0.00020	0.0010	mg/L	1	12/3/2013 01:33
1,2-Dibromoethane	U		0.00020	0.0010	mg/L	1	12/3/2013 01:33
1,2-Dichloroethane	U		0.00020	0.0010	mg/L	1	12/3/2013 01:33
Benzene	U		0.00020	0.0010	mg/L	1	12/3/2013 01:33
Carbon tetrachloride	U		0.00050	0.0010	mg/L	1	12/3/2013 01:33
Chloroform	U		0.00020	0.0010	mg/L	1	12/3/2013 01:33
Ethylbenzene	U		0.00030	0.0010	mg/L	1	12/3/2013 01:33
Methylene chloride	U		0.00040	0.0020	mg/L	1	12/3/2013 01:33
Tetrachloroethene	U		0.00030	0.0010	mg/L	1	12/3/2013 01:33
Toluene	U		0.00020	0.0010	mg/L	1	12/3/2013 01:33
Trichloroethene	U		0.00020	0.0010	mg/L	1	12/3/2013 01:33
Vinyl chloride	U		0.00020	0.0010	mg/L	1	12/3/2013 01:33
Xylenes, Total	U		0.00050	0.0010	mg/L	1	12/3/2013 01:33
Surr: 1,2-Dichloroethane-d4	122			71-125	%REC	1	12/3/2013 01:33
Surr: 4-Bromofluorobenzene	112			70-125	%REC	1	12/3/2013 01:33
Surr: Dibromofluoromethane	116			74-125	%REC	1	12/3/2013 01:33
Surr: Toluene-d8	113			75-125	%REC	1	12/3/2013 01:33

MISCELLANEOUS ANALYSIS			Method: NA			Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	1/7/2014

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	92.4		0.20	0.500	mg/L	1	12/3/2013 10:01
Fluoride	3.95		0.050	0.100	mg/L	1	12/3/2013 10:01
Sulfate	2,190		20	50.0	mg/L	100	12/3/2013 10:59
Nitrate/Nitrite (as N)	U		0.15	1.00	mg/L	5	12/2/2013 22:18

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: KKB	
Cyanide	U		0.0050	0.0200	mg/L	1	12/3/2013 08:45

PH - SM4500H+ B			Method: SM4500H+ B			Analyst: KL	
pH	6.75	H	0.10	0.100	pH Units	1	11/26/2013 09:00

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

ALS Environmental

Date: 07-Jan-14

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-117
Collection Date: 11/20/2013 02:30 PM

Work Order: 13111096
Lab ID: 13111096-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Temp Deg C @pH	20.4	H	0		°C	1	11/26/2013 09:00
TOTAL DISSOLVED SOLIDS		Method: M2540C				Analyst: KAH	
Total Dissolved Solids (Residue, Filterable)	4,150		5.0	10.0	mg/L	1	11/26/2013 17:30

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

ALS Environmental

Date: 07-Jan-14

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118
Collection Date: 11/20/2013 01:00 PM

Work Order: 13111096
Lab ID: 13111096-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO 8015C Method: SW8015M Prep: SW3511 / 11/27/13 Analyst: RPM							
TPH (Diesel Range)	U		0.021	0.052	mg/L	1	12/3/2013 17:03
TPH (Oil Range)	U		0.042	0.10	mg/L	1	12/3/2013 17:03
Surr: 2-Fluorobiphenyl	122			60-135	%REC	1	12/3/2013 17:03
GASOLINE RANGE ORGANICS - SW8015C Method: SW8015 Prep: SW3511 / 11/27/13 Analyst: DNR							
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	11/25/2013 19:49
Surr: 4-Bromofluorobenzene	100			70-130	%REC	1	11/25/2013 19:49
DISSOLVED MERCURY BY 7470A Method: SW7470 Prep: SW7470 / 12/3/13 Analyst: OFO							
Mercury	U		0.000042	0.000200	mg/L	1	12/3/2013 14:35
DISSOLVED METALS Method: SW6020 Prep: SW3010A / 11/25/13 Analyst: JCJ							
Aluminum	0.0103		0.0040	0.0100	mg/L	1	11/26/2013 02:16
Arsenic	0.0125		0.0010	0.00500	mg/L	1	11/26/2013 02:16
Barium	0.00964		0.00090	0.00500	mg/L	1	11/26/2013 02:16
Boron	0.288		0.020	0.0500	mg/L	1	11/27/2013 17:14
Cadmium	U		0.00080	0.00200	mg/L	1	11/26/2013 02:16
Calcium	532		0.86	5.00	mg/L	10	11/26/2013 19:43
Chromium	0.00105	J	0.0010	0.00500	mg/L	1	11/26/2013 02:16
Cobalt	U		0.00080	0.00500	mg/L	1	11/26/2013 02:16
Copper	0.00338	J	0.0010	0.00500	mg/L	1	11/26/2013 02:16
Iron	0.179	J	0.078	0.200	mg/L	1	11/26/2013 20:02
Lead	0.00107	J	0.00070	0.00500	mg/L	1	11/26/2013 02:16
Manganese	0.00526		0.0025	0.00500	mg/L	1	11/26/2013 02:16
Molybdenum	0.0141		0.0015	0.00500	mg/L	1	11/26/2013 02:16
Nickel	0.00214	J	0.0010	0.00500	mg/L	1	11/26/2013 02:16
Potassium	6.92		0.084	0.200	mg/L	1	11/26/2013 02:16
Selenium	0.00327	J	0.0010	0.00500	mg/L	1	11/26/2013 02:16
Silver	U		0.00080	0.00500	mg/L	1	11/26/2013 20:02
Sodium	163		0.085	0.200	mg/L	1	11/26/2013 20:02
Uranium	0.0311		0.0050	0.00500	mg/L	1	11/26/2013 20:02
Zinc	0.0407		0.0025	0.00500	mg/L	1	11/26/2013 02:16
LOW-LEVEL SEMIVOLATILES Method: SW8270 Prep: SW3510 / 11/26/13 Analyst: ACN							
1-Methylnaphthalene	U		0.000030	0.00020	mg/L	1	11/26/2013 15:24
2-Methylnaphthalene	U		0.000034	0.00020	mg/L	1	11/26/2013 15:24
Benzo(a)pyrene	U		0.000030	0.00020	mg/L	1	11/26/2013 15:24
Naphthalene	U		0.000050	0.00020	mg/L	1	11/26/2013 15:24
Surr: 2,4,6-Tribromophenol	37.5			34-129	%REC	1	11/26/2013 15:24
Surr: 2-Fluorobiphenyl	47.4			40-125	%REC	1	11/26/2013 15:24

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

ALS Environmental

Date: 07-Jan-14

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118
Collection Date: 11/20/2013 01:00 PM

Work Order: 13111096
Lab ID: 13111096-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	38.5			20-120	%REC	1	11/26/2013 15:24
Surr: 4-Terphenyl-d14	72.4			40-135	%REC	1	11/26/2013 15:24
Surr: Nitrobenzene-d5	42.6			41-120	%REC	1	11/26/2013 15:24
Surr: Phenol-d6	35.7			20-120	%REC	1	11/26/2013 15:24

LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00020	0.0010	mg/L	1	12/3/2013 01:58
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	12/3/2013 01:58
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	12/3/2013 01:58
1,1-Dichloroethane	U		0.00020	0.0010	mg/L	1	12/3/2013 01:58
1,1-Dichloroethene	U		0.00020	0.0010	mg/L	1	12/3/2013 01:58
1,2-Dibromoethane	U		0.00020	0.0010	mg/L	1	12/3/2013 01:58
1,2-Dichloroethane	U		0.00020	0.0010	mg/L	1	12/3/2013 01:58
Benzene	U		0.00020	0.0010	mg/L	1	12/3/2013 01:58
Carbon tetrachloride	U		0.00050	0.0010	mg/L	1	12/3/2013 01:58
Chloroform	U		0.00020	0.0010	mg/L	1	12/3/2013 01:58
Ethylbenzene	U		0.00030	0.0010	mg/L	1	12/3/2013 01:58
Methylene chloride	U		0.00040	0.0020	mg/L	1	12/3/2013 01:58
Tetrachloroethene	U		0.00030	0.0010	mg/L	1	12/3/2013 01:58
Toluene	U		0.00020	0.0010	mg/L	1	12/3/2013 01:58
Trichloroethene	U		0.00020	0.0010	mg/L	1	12/3/2013 01:58
Vinyl chloride	U		0.00020	0.0010	mg/L	1	12/3/2013 01:58
Xylenes, Total	U		0.00050	0.0010	mg/L	1	12/3/2013 01:58
Surr: 1,2-Dichloroethane-d4	121			71-125	%REC	1	12/3/2013 01:58
Surr: 4-Bromofluorobenzene	112			70-125	%REC	1	12/3/2013 01:58
Surr: Dibromofluoromethane	115			74-125	%REC	1	12/3/2013 01:58
Surr: Toluene-d8	112			75-125	%REC	1	12/3/2013 01:58

MISCELLANEOUS ANALYSIS			Method: NA			Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	1/7/2014

ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	90.1		0.20	0.500	mg/L	1	12/3/2013 10:16
Fluoride	6.78		0.050	0.100	mg/L	1	12/3/2013 10:16
Sulfate	2,470		20	50.0	mg/L	100	12/3/2013 11:13
Nitrate/Nitrite (as N)	U		0.15	1.00	mg/L	5	12/2/2013 22:33

CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: KKB	
Cyanide	U		0.0050	0.0200	mg/L	1	12/3/2013 08:45

PH - SM4500H+ B			Method: SM4500H+ B			Analyst: KL	
pH	6.50	H	0.10	0.100	pH Units	1	11/26/2013 09:00

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

ALS Environmental

Date: 07-Jan-14

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-118
Collection Date: 11/20/2013 01:00 PM

Work Order: 13111096
Lab ID: 13111096-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Temp Deg C @pH	20.4	H	0		°C	1	11/26/2013 09:00
TOTAL DISSOLVED SOLIDS		Method: M2540C				Analyst: KAH	
Total Dissolved Solids (Residue, Filterable)	4,640		5.0	10.0	mg/L	1	11/26/2013 17:30

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

Work Order: 13111096
Client: Navajo Refining Company
Project: RO Discharge Sampling

DATES REPORT

Sample ID	Client Sample ID	Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
<u>Batch ID</u> 74937		<u>Test Name:</u> Dissolved Metals				
13111096-01E	MW-117	Water	11/20/2013 2:30:00 PM		11/25/2013 10:00 AM	11/26/2013 02:12 AM
					11/25/2013 10:00 AM	11/26/2013 07:38 PM
					11/25/2013 10:00 AM	11/26/2013 07:57 PM
					11/25/2013 10:00 AM	11/27/2013 05:12 PM
13111096-02E	MW-118		11/20/2013 1:00:00 PM		11/25/2013 10:00 AM	11/26/2013 02:16 AM
					11/25/2013 10:00 AM	11/26/2013 07:43 PM
					11/25/2013 10:00 AM	11/26/2013 08:02 PM
					11/25/2013 10:00 AM	11/27/2013 05:14 PM
<u>Batch ID</u> 74973		<u>Test Name:</u> Low-Level Semivolatiles				
13111096-01	MW-117	Water	11/20/2013 2:30:00 PM		11/26/2013 07:34 AM	11/26/2013 03:05 PM
13111096-02	MW-118		11/20/2013 1:00:00 PM		11/26/2013 07:34 AM	11/26/2013 03:24 PM
<u>Batch ID</u> 75019		<u>Test Name:</u> TPH DRO/ORO 8015C				
13111096-01	MW-117	Water	11/20/2013 2:30:00 PM		11/27/2013 09:52 AM	12/3/2013 04:36 PM
13111096-02	MW-118		11/20/2013 1:00:00 PM		11/27/2013 09:52 AM	12/3/2013 05:03 PM
<u>Batch ID</u> 75070		<u>Test Name:</u> Dissolved Mercury by 7470A				
13111096-01E	MW-117	Water	11/20/2013 2:30:00 PM		12/3/2013 09:59 AM	12/3/2013 02:24 PM
13111096-02E	MW-118		11/20/2013 1:00:00 PM		12/3/2013 09:59 AM	12/3/2013 02:35 PM
<u>Batch ID</u> R157757		<u>Test Name:</u> Gasoline Range Organics - SW8015C				
13111096-01	MW-117	Water	11/20/2013 2:30:00 PM			11/25/2013 07:31 PM
13111096-02	MW-118		11/20/2013 1:00:00 PM			11/25/2013 07:49 PM

Work Order: 13111096
Client: Navajo Refining Company
Project: RO Discharge Sampling

DATES REPORT

Sample ID	Client Sample ID	Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
<u>Batch ID R157787</u> <u>Test Name: pH - SM4500H+ B</u>						
13111096-01F	MW-117	Water	11/20/2013 2:30:00 PM			11/26/2013 09:00 AM
13111096-02F	MW-118		11/20/2013 1:00:00 PM			11/26/2013 09:00 AM
<u>Batch ID R157905</u> <u>Test Name: Total Dissolved Solids</u>						
13111096-01F	MW-117	Water	11/20/2013 2:30:00 PM			11/26/2013 05:30 PM
13111096-02F	MW-118		11/20/2013 1:00:00 PM			11/26/2013 05:30 PM
<u>Batch ID R157956</u> <u>Test Name: Anions - EPA 300.0 (1993)</u>						
13111096-01	MW-117	Water	11/20/2013 2:30:00 PM			12/2/2013 10:18 PM
13111096-02	MW-118		11/20/2013 1:00:00 PM			12/2/2013 10:33 PM
<u>Batch ID R157966</u> <u>Test Name: Low Level Volatiles - SW8260C</u>						
13111096-01	MW-117	Water	11/20/2013 2:30:00 PM			12/3/2013 01:33 AM
13111096-02	MW-118		11/20/2013 1:00:00 PM			12/3/2013 01:58 AM
<u>Batch ID R158006</u> <u>Test Name: Anions - EPA 300.0 (1993)</u>						
13111096-01F	MW-117	Water	11/20/2013 2:30:00 PM			12/3/2013 10:01 AM
						12/3/2013 10:59 AM
13111096-02F	MW-118		11/20/2013 1:00:00 PM			12/3/2013 10:16 AM
						12/3/2013 11:13 AM
<u>Batch ID R158074</u> <u>Test Name: Cyanide - SM4500CN E</u>						
13111096-01	MW-117	Water	11/20/2013 2:30:00 PM			12/3/2013 08:45 AM
13111096-02	MW-118		11/20/2013 1:00:00 PM			12/3/2013 08:45 AM

Work Order: 13111096
Client: Navajo Refining Company
Project: RO Discharge Sampling

DATES REPORT

Sample ID	Client Sample ID	Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
<u>Batch ID</u> R159590 <u>Test Name:</u> <u>Miscellaneous Analysis</u>						
13111096-01I	MW-117	Water	11/20/2013 2:30:00 PM			1/7/2014
13111096-02I	MW-118		11/20/2013 1:00:00 PM			1/7/2014

ALS Environmental

Date: 07-Jan-14

Client: Navajo Refining Company
Work Order: 13111096
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **75019** Instrument ID **FID-16** Method: **SW8015M**

MBLK	Sample ID: LBLKW-131127-75019				Units: mg/L		Analysis Date: 12/3/2013 03:17 PM			
Client ID:	Run ID: FID-16_131127A				SeqNo: 3457707		Prep Date: 11/27/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	U	0.050								
TPH (Oil Range)	U	0.10								
<i>Surr: 2-Fluorobiphenyl</i>	0.06882	0.0050	0.06061	0	114	60-135	0			

LCS	Sample ID: LLCSW-131127-75019				Units: mg/L		Analysis Date: 12/3/2013 03:43 PM			
Client ID:	Run ID: FID-16_131127A				SeqNo: 3457709		Prep Date: 11/27/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.7182	0.050	0.6061	0	119	70-130				
TPH (Oil Range)	0.6655	0.10	0.6061	0	110	70-130				
<i>Surr: 2-Fluorobiphenyl</i>	0.0758	0.0050	0.06061	0	125	60-135	0			

LCSD	Sample ID: LLCSDW-131127-75019				Units: mg/L		Analysis Date: 12/3/2013 04:10 PM			
Client ID:	Run ID: FID-16_131127A				SeqNo: 3457711		Prep Date: 11/27/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.6627	0.050	0.6061	0	109	70-130	0.7182	8.04	20	
TPH (Oil Range)	0.6411	0.10	0.6061	0	106	70-130	0.6655	3.75	20	
<i>Surr: 2-Fluorobiphenyl</i>	0.07659	0.0050	0.06061	0	126	60-135	0.0758	1.04	20	

The following samples were analyzed in this batch:

13111096-01C	13111096-02C
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 13111096
 Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157757** Instrument ID **FID-9** Method: **SW8015**

MBLK Sample ID: **GBLKW1-131125-R157757** Units: **mg/L** Analysis Date: **11/25/2013 01:46 PM**

Client ID: Run ID: **FID-9_131125A** SeqNo: **3449261** 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	0.0500								
Surr: 4-Bromofluorobenzene	0.1047	0.00500	0.1	0	105	70-130	0			

LCS Sample ID: **GLCSW1-131125-R157757** Units: **mg/L** Analysis Date: **11/25/2013 12:36 PM**

Client ID: Run ID: **FID-9_131125A** SeqNo: **3449259** 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	0.9583	0.0500	1	0	95.8	70-130				
Surr: 4-Bromofluorobenzene	0.1087	0.00500	0.1	0	109	70-130	0			

MS Sample ID: **13111127-04BMS** Units: **mg/L** Analysis Date: **11/25/2013 09:01 PM**

Client ID: Run ID: **FID-9_131125A** SeqNo: **3449275** 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	0.9683	0.0500	1	0	96.8	70-130				
Surr: 4-Bromofluorobenzene	0.1012	0.00500	0.1	0	101	70-130	0			

MSD Sample ID: **13111127-04BMSD** Units: **mg/L** Analysis Date: **11/25/2013 09:19 PM**

Client ID: Run ID: **FID-9_131125A** SeqNo: **3449276** 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	0.9651	0.0500	1	0	96.5	70-130	0.9683	0.326	30	
Surr: 4-Bromofluorobenzene	0.1021	0.00500	0.1	0	102	70-130	0.1012	0.868	30	

The following samples were analyzed in this batch:

13111096-01B	13111096-02B
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13111096
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **74937** Instrument ID **ICPMS05** Method: **SW6020** **(Dissolve)**

MBLK Sample ID: **MBLKW5-112513-74937** Units: **mg/L** Analysis Date: **11/27/2013 04:48 PM**

Client ID: Run ID: **ICPMS05_131127A** SeqNo: **3452534** Prep Date: **11/25/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	U	0.0100								
Arsenic	U	0.00500								
Barium	U	0.00500								
Boron	U	0.0500								
Cadmium	U	0.00200								
Calcium	U	0.500								
Chromium	U	0.00500								
Cobalt	U	0.00500								
Copper	U	0.00500								
Iron	U	0.200								
Lead	U	0.00500								
Manganese	U	0.00500								
Molybdenum	U	0.00500								
Nickel	U	0.00500								
Potassium	U	0.200								
Selenium	U	0.00500								
Silver	U	0.00500								
Sodium	0.09841	0.200								J
Uranium	U	0.00500								
Zinc	U	0.00500								

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

Client: Navajo Refining Company
Work Order: 13111096
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **74937** Instrument ID **ICPMS05** Method: **SW6020** (Dissolve)

LCS Sample ID: **MLCSW5-112513-74937** Units: **mg/L** Analysis Date: **11/26/2013 02:07 AM**

Client ID: Run ID: **ICPMS04_131125A** SeqNo: **3449183** Prep Date: **11/25/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.102	0.0100	0.1	0	102	80-120				
Arsenic	0.05014	0.00500	0.05	0	100	80-120				
Barium	0.05287	0.00500	0.05	0	106	80-120				
Cadmium	0.05071	0.00200	0.05	0	101	80-120				
Chromium	0.04917	0.00500	0.05	0	98.3	80-120				
Cobalt	0.04899	0.00500	0.05	0	98	80-120				
Copper	0.0494	0.00500	0.05	0	98.8	80-120				
Lead	0.0477	0.00500	0.05	0	95.4	80-120				
Manganese	0.0517	0.00500	0.05	0	103	80-120				
Molybdenum	0.04833	0.00500	0.05	0	96.7	80-120				
Nickel	0.0491	0.00500	0.05	0	98.2	80-120				
Potassium	4.584	0.200	5	0	91.7	80-120				
Selenium	0.05055	0.00500	0.05	0	101	80-120				
Zinc	0.0526	0.00500	0.05	0	105	80-120				

LCS Sample ID: **MLCSW5-112513-74937** Units: **mg/L** Analysis Date: **11/26/2013 04:49 PM**

Client ID: Run ID: **ICPMS04_131126A** SeqNo: **3452022** Prep Date: **11/25/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	5.2	0.500	5	0	104	80-120				
Iron	5.14	0.200	5	0	103	80-120				
Silver	0.04833	0.00500	0.05	0	96.7	80-120				
Sodium	4.836	0.200	5	0	96.7	80-120				
Uranium	0.09245	0.00500	0.1	0	92.4	80-120				

LCS Sample ID: **MLCSW5-112513-74937** Units: **mg/L** Analysis Date: **11/27/2013 04:50 PM**

Client ID: Run ID: **ICPMS05_131127A** SeqNo: **3452535** Prep Date: **11/25/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.4788	0.0500	0.5	0	95.8	80-120				

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

Client: Navajo Refining Company
Work Order: 13111096
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **74937** Instrument ID **ICPMS05** Method: **SW6020** **(Dissolve)**

MS Sample ID: **13111133-11DMS** Units: **mg/L** Analysis Date: **11/27/2013 04:57 PM**

Client ID: Run ID: **ICPMS05_131127A** SeqNo: **3452538** Prep Date: **11/25/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.116	0.0100	0.1	0.005542	110	75-125				
Arsenic	0.08293	0.00500	0.05	0.03331	99.2	75-125				
Barium	0.6868	0.00500	0.05	0.6627	48.2	75-125				SO
Boron	0.6871	0.0500	0.5	0.2289	91.6	75-125				
Cadmium	0.0525	0.00200	0.05	0.00034	104	75-125				
Calcium	217	0.500	5	224.4	-147	75-125				SEO
Chromium	0.05293	0.00500	0.05	0.001062	104	75-125				
Cobalt	0.05193	0.00500	0.05	0.000403	103	75-125				
Copper	0.05102	0.00500	0.05	-0.000985	104	75-125				
Iron	50.17	0.200	5	46.79	67.6	75-125				SO
Lead	0.05385	0.00500	0.05	0.000599	106	75-125				
Manganese	1.895	0.00500	0.05	1.901	-11	75-125				SEO
Molybdenum	0.05397	0.00500	0.05	0.002996	102	75-125				
Nickel	0.05185	0.00500	0.05	0.00082	102	75-125				
Potassium	11.36	0.200	5	6.616	95	75-125				
Selenium	0.05608	0.00500	0.05	-0.000761	114	75-125				
Silver	0.05374	0.00500	0.05	0.000201	107	75-125				
Sodium	23.18	0.200	5	19.16	80.3	75-125				
Uranium	0.1036	0.00500	0.1	0.000808	103	75-125				
Zinc	0.05467	0.00500	0.05	0.003439	102	75-125				

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

Client: Navajo Refining Company
 Work Order: 13111096
 Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: 74937 Instrument ID ICPMS05 Method: SW6020 (Dissolve)

MSD Sample ID: 13111133-11DMSD Units: mg/L Analysis Date: 11/27/2013 05:00 PM

Client ID: Run ID: ICPMS05_131127A SeqNo: 3452539 Prep Date: 11/25/2013 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.2342	0.0100	0.1	0.005542	229	75-125	0.116	67.5	25	SR
Arsenic	0.08694	0.00500	0.05	0.03331	107	75-125	0.08293	4.72	25	
Barium	0.7052	0.00500	0.05	0.6627	84.9	75-125	0.6868	2.64	25	O
Boron	0.6994	0.0500	0.5	0.2289	94.1	75-125	0.6871	1.77	25	
Cadmium	0.05189	0.00200	0.05	0.00034	103	75-125	0.0525	1.16	25	
Calcium	222	0.500	5	224.4	-47.3	75-125	217	2.26	25	SEO
Chromium	0.05579	0.00500	0.05	0.001062	109	75-125	0.05293	5.26	25	
Cobalt	0.05259	0.00500	0.05	0.000403	104	75-125	0.05193	1.26	25	
Copper	0.05331	0.00500	0.05	-0.000985	109	75-125	0.05102	4.4	25	
Iron	51.84	0.200	5	46.79	101	75-125	50.17	3.29	25	O
Lead	0.05621	0.00500	0.05	0.000599	111	75-125	0.05385	4.28	25	
Manganese	1.942	0.00500	0.05	1.901	83.1	75-125	1.895	2.45	25	EO
Molybdenum	0.05606	0.00500	0.05	0.002996	106	75-125	0.05397	3.79	25	
Nickel	0.05346	0.00500	0.05	0.00082	105	75-125	0.05185	3.06	25	
Potassium	11.74	0.200	5	6.616	102	75-125	11.36	3.25	25	
Selenium	0.05687	0.00500	0.05	-0.000761	115	75-125	0.05608	1.39	25	
Silver	0.05433	0.00500	0.05	0.000201	108	75-125	0.05374	1.1	25	
Sodium	23.42	0.200	5	19.16	85.1	75-125	23.18	1.02	25	
Uranium	0.1052	0.00500	0.1	0.000808	104	75-125	0.1036	1.54	25	
Zinc	0.09266	0.00500	0.05	0.003439	178	75-125	0.05467	51.6	25	SR

DUP Sample ID: 13111133-11DDUP Units: mg/L Analysis Date: 11/26/2013 06:00 PM

Client ID: Run ID: ICPMS04_131126A SeqNo: 3452036 Prep Date: 11/25/2013 DF: 10

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	182.6	5.00					164.8	10.3	25	
Manganese	1.556	0.0500					1.362	13.3	25	

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

Client: Navajo Refining Company
Work Order: 13111096
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **74937** Instrument ID **ICPMS05** Method: **SW6020** (**Dissolve**)

DUP Sample ID: **13111133-11DDUP** Units: **mg/L** Analysis Date: **11/27/2013 04:55 PM**

Client ID: Run ID: **ICPMS05_131127A** SeqNo: **3452537** Prep Date: **11/25/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.006905	0.0100					0.005542	0	25	J
Arsenic	0.03154	0.00500					0.03331	5.45	25	
Barium	0.6584	0.00500					0.6627	0.657	25	
Boron	0.2266	0.0500					0.2289	1.02	25	
Cadmium	U	0.00200					0.00034	0	25	
Chromium	U	0.00500					0.001062	0	25	
Cobalt	U	0.00500					0.000403	0	25	
Copper	U	0.00500					-0.000985	0	25	
Iron	46.98	0.200					46.79	0.407	25	
Lead	U	0.00500					0.000599	0	25	
Molybdenum	0.002269	0.00500					0.002996	0	25	J
Nickel	U	0.00500					0.00082	0	25	
Potassium	6.498	0.200					6.616	1.79	25	
Selenium	U	0.00500					-0.000761	0	25	
Silver	U	0.00500					0.000201	0	25	
Sodium	18.63	0.200					19.16	2.85	25	
Uranium	U	0.00500					0.000808	0	25	
Zinc	U	0.00500					0.003439	0	25	

The following samples were analyzed in this batch:

13111096-01E	13111096-02E
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 13111096
 Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: 75070 Instrument ID HG03 Method: SW7470 (Dissolve)

MBLK	Sample ID: GBLKW1-120313-75070				Units: mg/L		Analysis Date: 12/3/2013 02:17 PM			
Client ID:	Run ID: HG03_131203A				SeqNo: 3456164		Prep Date: 12/3/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	0.000200								

LCS	Sample ID: GLCSW1-120313-75070				Units: mg/L		Analysis Date: 12/3/2013 02:22 PM			
Client ID:	Run ID: HG03_131203A				SeqNo: 3456165		Prep Date: 12/3/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00504	0.000200	0.005	0	101	80-120				

MS	Sample ID: 13111096-01EMS				Units: mg/L		Analysis Date: 12/3/2013 02:27 PM			
Client ID: MW-117	Run ID: HG03_131203A				SeqNo: 3456168		Prep Date: 12/3/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00529	0.000200	0.005	-0.000008	106	80-120				

MSD	Sample ID: 13111096-01EMSD				Units: mg/L		Analysis Date: 12/3/2013 02:30 PM			
Client ID: MW-117	Run ID: HG03_131203A				SeqNo: 3456169		Prep Date: 12/3/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00543	0.000200	0.005	-0.000008	109	80-120	0.00529	2.61	20	

DUP	Sample ID: 13111096-01EDUP				Units: mg/L		Analysis Date: 12/3/2013 02:25 PM			
Client ID: MW-117	Run ID: HG03_131203A				SeqNo: 3456167		Prep Date: 12/3/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	0.000200					-0.000008	0	20	

The following samples were analyzed in this batch:

13111096-01E	13111096-02E
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13111096
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **74973** Instrument ID **SV-4** Method: **SW8270**

MBLK Sample ID: **SBLKW1-131126-74973** Units: **µg/L** Analysis Date: **11/26/2013 05:05 PM**

Client ID: Run ID: **SV-4_131126A** SeqNo: **3451914** Prep Date: **11/26/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	U	0.20								
2-Methylnaphthalene	U	0.20								
Benzo(a)pyrene	U	0.20								
Naphthalene	U	0.20								
Surr: 2,4,6-Tribromophenol	3.583	0.20	5	0	71.7	34-129	0			
Surr: 2-Fluorobiphenyl	3.466	0.20	5	0	69.3	40-125	0			
Surr: 2-Fluorophenol	3.106	0.20	5	0	62.1	20-120	0			
Surr: 4-Terphenyl-d14	4.479	0.20	5	0	89.6	40-135	0			
Surr: Nitrobenzene-d5	3.192	0.20	5	0	63.8	41-120	0			
Surr: Phenol-d6	2.816	0.20	5	0	56.3	20-120	0			

LCS Sample ID: **SLCSW1-131126-74973** Units: **µg/L** Analysis Date: **11/26/2013 05:25 PM**

Client ID: Run ID: **SV-4_131126A** SeqNo: **3451915** Prep Date: **11/26/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	3.803	0.20	5	0	76.1	45-120				
2-Methylnaphthalene	3.701	0.20	5	0	74	50-120				
Benzo(a)pyrene	4.305	0.20	5	0	86.1	45-120				
Naphthalene	3.749	0.20	5	0	75	45-120				
Surr: 2,4,6-Tribromophenol	4.877	0.20	5	0	97.5	34-129	0			
Surr: 2-Fluorobiphenyl	3.823	0.20	5	0	76.5	40-125	0			
Surr: 2-Fluorophenol	3.367	0.20	5	0	67.3	20-120	0			
Surr: 4-Terphenyl-d14	3.983	0.20	5	0	79.7	40-135	0			
Surr: Nitrobenzene-d5	3.45	0.20	5	0	69	41-120	0			
Surr: Phenol-d6	3.572	0.20	5	0	71.4	20-120	0			

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

Client: Navajo Refining Company
Work Order: 13111096
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **74973** Instrument ID **SV-4** Method: **SW8270**

LCSD Sample ID: **SLCSDW1-131126-74973** Units: **µg/L** Analysis Date: **11/26/2013 05:46 PM**

Client ID: Run ID: **SV-4_131126A** SeqNo: **3451916** Prep Date: **11/26/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	4.143	0.20	5	0	82.9	45-120	3.803	8.56	20	
2-Methylnaphthalene	4.022	0.20	5	0	80.4	50-120	3.701	8.3	20	
Benzo(a)pyrene	4.867	0.20	5	0	97.3	45-120	4.305	12.2	20	
Naphthalene	3.815	0.20	5	0	76.3	45-120	3.749	1.74	20	
Surr: 2,4,6-Tribromophenol	4.519	0.20	5	0	90.4	34-129	4.877	7.63	0	
Surr: 2-Fluorobiphenyl	3.597	0.20	5	0	71.9	40-125	3.823	6.09	0	
Surr: 2-Fluorophenol	3.41	0.20	5	0	68.2	20-120	3.367	1.28	0	
Surr: 4-Terphenyl-d14	4.253	0.20	5	0	85.1	40-135	3.983	6.55	0	
Surr: Nitrobenzene-d5	3.315	0.20	5	0	66.3	41-120	3.45	3.98	0	
Surr: Phenol-d6	3.376	0.20	5	0	67.5	20-120	3.572	5.65	0	

The following samples were analyzed in this batch:

13111096-01D	13111096-02D
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13111096
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157966** Instrument ID **VOA4** Method: **SW8260**

MBLK		Sample ID: VBLKW-131202-R157966				Units: µg/L		Analysis Date: 12/2/2013 10:17 PM		
Client ID:		Run ID: VOA4_131202B				SeqNo: 3455017		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichloroethane	U	1.0								
Benzene	U	1.0								
Carbon tetrachloride	U	1.0								
Chloroform	U	1.0								
Ethylbenzene	U	1.0								
Methylene chloride	U	2.0								
Tetrachloroethene	U	1.0								
Toluene	U	1.0								
Trichloroethene	U	1.0								
Vinyl chloride	U	1.0								
Xylenes, Total	U	3.0								
Surr: 1,2-Dichloroethane-d4	59.36	1.0	50	0	119	71-125	0			
Surr: 4-Bromofluorobenzene	55.31	1.0	50	0	111	70-125	0			
Surr: Dibromofluoromethane	56.59	1.0	50	0	113	74-125	0			
Surr: Toluene-d8	55.93	1.0	50	0	112	75-125	0			

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

Client: Navajo Refining Company

Work Order: 13111096

Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157966**

Instrument ID **VOA4**

Method: **SW8260**

LCS		Sample ID: VLCSW-131202-R157966				Units: µg/L		Analysis Date: 12/2/2013 09:28 PM		
Client ID:		Run ID: VOA4_131202B				SeqNo: 3455016		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	57.14	1.0	50	0	114	75-130				
1,1,2,2-Tetrachloroethane	49.37	1.0	50	0	98.7	74-123				
1,1,2-Trichloroethane	49.71	1.0	50	0	99.4	80-120				
1,1-Dichloroethane	55.07	1.0	50	0	110	80-120				
1,1-Dichloroethene	57.83	1.0	50	0	116	75-130				
1,2-Dibromoethane	51.15	1.0	50	0	102	80-120				
1,2-Dichloroethane	51.47	1.0	50	0	103	79-120				
Benzene	52.69	1.0	50	0	105	80-120				
Carbon tetrachloride	52.57	1.0	50	0	105	75-125				
Chloroform	52.9	1.0	50	0	106	70-130				
Ethylbenzene	49.65	1.0	50	0	99.3	80-120				
Methylene chloride	56.01	2.0	50	0	112	65-133				
Tetrachloroethene	49.35	1.0	50	0	98.7	75-130				
Toluene	49.5	1.0	50	0	99	80-121				
Trichloroethene	52.09	1.0	50	0	104	75-125				
Vinyl chloride	58.74	1.0	50	0	117	70-135				
Xylenes, Total	148.7	3.0	150	0	99.1	80-124				
Surr: 1,2-Dichloroethane-d4	56.08	1.0	50	0	112	71-125		0		
Surr: 4-Bromofluorobenzene	57.29	1.0	50	0	115	70-125		0		
Surr: Dibromofluoromethane	58.81	1.0	50	0	118	74-125		0		
Surr: Toluene-d8	54.41	1.0	50	0	109	75-125		0		

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

Client: Navajo Refining Company
Work Order: 13111096
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157966** Instrument ID **VOA4** Method: **SW8260**

MS	Sample ID: 13111133-18AMS				Units: µg/L		Analysis Date: 12/2/2013 11:55 PM			
Client ID:	Run ID: VOA4_131202B				SeqNo: 3455094		Prep Date:		DF: 50	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	3155	50	2500	0	126	75-130				
1,1,2,2-Tetrachloroethane	2666	50	2500	0	107	74-123				
1,1,2-Trichloroethane	2735	50	2500	0	109	80-120				
1,1-Dichloroethane	3070	50	2500	0	123	80-120				S
1,1-Dichloroethene	3219	50	2500	0	129	75-130				
1,2-Dibromoethane	2732	50	2500	0	109	80-120				
1,2-Dichloroethane	2864	50	2500	0	115	79-120				
Benzene	3496	50	2500	594.7	116	80-120				
Carbon tetrachloride	2951	50	2500	0	118	79-120				
Chloroform	2976	50	2500	0	119	70-130				
Ethylbenzene	2839	50	2500	85.48	110	80-120				
Methylene chloride	3128	100	2500	0	125	65-133				
Tetrachloroethene	2714	50	2500	0	109	75-130				
Toluene	2769	50	2500	24.06	110	80-121				
Trichloroethene	2827	50	2500	0	113	75-125				
Vinyl chloride	3229	50	2500	0	129	70-135				
Xylenes, Total	8364	150	7500	157.3	109	80-124				
Surr: 1,2-Dichloroethane-d4	2902	50	2500	0	116	71-125		0		
Surr: 4-Bromofluorobenzene	2930	50	2500	0	117	70-125		0		
Surr: Dibromofluoromethane	2992	50	2500	0	120	74-125		0		
Surr: Toluene-d8	2772	50	2500	0	111	75-125		0		

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

Client: Navajo Refining Company
Work Order: 13111096
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157966** Instrument ID **VOA4** Method: **SW8260**

MSD				Sample ID: 13111133-18AMSD			Units: µg/L		Analysis Date: 12/3/2013 12:20 AM		
Client ID:		Run ID: VOA4_131202B			SeqNo: 3455095		Prep Date:		DF: 50		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
1,1,1-Trichloroethane	3089	50	2500	0	124	75-130	3155	2.12	20		
1,1,2,2-Tetrachloroethane	2652	50	2500	0	106	74-123	2666	0.529	20		
1,1,2-Trichloroethane	2695	50	2500	0	108	80-120	2735	1.46	20		
1,1-Dichloroethane	2965	50	2500	0	119	80-120	3070	3.49	20		
1,1-Dichloroethene	3103	50	2500	0	124	75-130	3219	3.66	20		
1,2-Dibromoethane	2731	50	2500	0	109	80-120	2732	0.0308	20		
1,2-Dichloroethane	2758	50	2500	0	110	79-120	2864	3.75	20		
Benzene	3376	50	2500	594.7	111	80-120	3496	3.49	20		
Carbon tetrachloride	2791	50	2500	0	112	75-125	2951	5.57	20		
Chloroform	2880	50	2500	0	115	70-130	2976	3.27	20		
Ethylbenzene	2748	50	2500	85.48	106	80-120	2839	3.27	20		
Methylene chloride	3032	100	2500	0	121	65-133	3128	3.11	20		
Tetrachloroethene	2615	50	2500	0	105	75-130	2714	3.7	20		
Toluene	2670	50	2500	24.06	106	80-121	2769	3.61	20		
Trichloroethene	2736	50	2500	0	109	75-120	2827	3.26	20		
Vinyl chloride	3146	50	2500	0	126	70-135	3229	2.63	20		
Xylenes, Total	8081	150	7500	157.3	106	80-124	8364	3.44	20		
Surr: 1,2-Dichloroethane-d4	2870	50	2500	0	115	71-125	2902	1.11	20		
Surr: 4-Bromofluorobenzene	2914	50	2500	0	117	70-125	2930	0.566	20		
Surr: Dibromofluoromethane	2964	50	2500	0	119	74-125	2992	0.949	20		
Surr: Toluene-d8	2769	50	2500	0	111	75-125	2772	0.136	20		

The following samples were analyzed in this batch:

13111096-01A	13111096-02A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13111096
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157787** Instrument ID **WetChem** Method: **SM4500H+ B (Dissolve)**

LCS Sample ID: **WLCS-W11126-R157787** Units: **pH Units** Analysis Date: **11/26/2013 09:00 AM**

Client ID: Run ID: **WETCHEM_131126B** SeqNo: **3450021** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6	0.100	6	0	100	98-102				

DUP Sample ID: **13111121-01EDup** Units: **pH Units** Analysis Date: **11/26/2013 09:00 AM**

Client ID: Run ID: **WETCHEM_131126B** SeqNo: **3450073** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.4	0.100					7.42	0.27	10	H
Temp Deg C @pH	20	0					20.1	0.499		H

The following samples were analyzed in this batch:

13111096-01F 13111096-02F

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

Client: Navajo Refining Company
Work Order: 13111096
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157905** Instrument ID **BALANCE1** Method: **M2540C** **(Dissolve)**

MBLK Sample ID: **WBLK-112613-R157905** Units: **mg/L** Analysis Date: **11/26/2013 05:30 PM**

Client ID: Run ID: **BALANCE1_131126C** SeqNo: **3453367** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	U	10.0								

LCS Sample ID: **WLCS-112613-R157905** Units: **mg/L** Analysis Date: **11/26/2013 05:30 PM**

Client ID: Run ID: **BALANCE1_131126C** SeqNo: **3453368** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1016	10.0	1000	0	102	85-115				

DUP Sample ID: **13111054-05CDUP** Units: **mg/L** Analysis Date: **11/26/2013 05:30 PM**

Client ID: Run ID: **BALANCE1_131126C** SeqNo: **3453347** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	213600	10.0					207500	2.9	10	

DUP Sample ID: **13111187-01FDUP** Units: **mg/L** Analysis Date: **11/26/2013 05:30 PM**

Client ID: Run ID: **BALANCE1_131126C** SeqNo: **3453366** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	4586	10.0					4570	0.349	10	

The following samples were analyzed in this batch:

13111096-01F	13111096-02F
--------------	--------------

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

Client: Navajo Refining Company
Work Order: 13111096
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157956** Instrument ID **ICS2100** Method: **E300** **(Dissolve)**

MBLK	Sample ID: WBLKW2-R157956				Units: mg/L		Analysis Date: 12/2/2013 07:09 PM			
Client ID:	Run ID: ICS2100_131202D				SeqNo: 3454587		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrate/Nitrite (as N)	U	0.200								

LCS	Sample ID: WLCSW2-R157956				Units: mg/L		Analysis Date: 12/2/2013 07:24 PM			
Client ID:	Run ID: ICS2100_131202D				SeqNo: 3454588		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrate/Nitrite (as N)	7.891	0.200	8	0	98.6	90-110				

MS	Sample ID: 13111093-01FMSZ				Units: mg/L		Analysis Date: 12/2/2013 07:53 PM			
Client ID:	Run ID: ICS2100_131202D				SeqNo: 3454590		Prep Date:		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrate/Nitrite (as N)	19.69	1.00	20	0	98.4	80-120				

MSD	Sample ID: 13111093-01FMSDZ				Units: mg/L		Analysis Date: 12/2/2013 08:07 PM			
Client ID:	Run ID: ICS2100_131202D				SeqNo: 3454591		Prep Date:		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrate/Nitrite (as N)	19.36	1.00	20	0	96.8	80-120	19.69	1.66	20	

The following samples were analyzed in this batch:

13111096-01G	13111096-02G
--------------	--------------

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

Client: Navajo Refining Company

Work Order: 13111096

Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R158006** Instrument ID **ICS2100** Method: **E300** (Dissolve)

MBLK	Sample ID: WBLKW1-R158006				Units: mg/L		Analysis Date: 12/3/2013 08:45 AM			
Client ID:	Run ID: ICS2100_131203A				SeqNo: 3455869		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	0.500								
Fluoride	U	0.100								
Sulfate	U	0.500								

LCS	Sample ID: WLCSW1-R158006				Units: mg/L		Analysis Date: 12/3/2013 08:59 AM			
Client ID:	Run ID: ICS2100_131203A				SeqNo: 3455870		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	21.69	0.500	20	0	108	90-110				
Fluoride	4.341	0.100	4	0	109	90-110				
Sulfate	20.81	0.500	20	0	104	90-110				

MS	Sample ID: 13111096-02FMS				Units: mg/L		Analysis Date: 12/3/2013 11:28 AM			
Client ID: MW-118	Run ID: ICS2100_131203A				SeqNo: 3455875		Prep Date:		DF: 100	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1174	50.0	1000	65.73	111	80-120				
Fluoride	210.9	10.0	200	4.37	103	80-120				
Sulfate	3421	50.0	1000	2467	95.5	80-120				

MSD	Sample ID: 13111096-02FMSD				Units: mg/L		Analysis Date: 12/3/2013 11:42 AM			
Client ID: MW-118	Run ID: ICS2100_131203A				SeqNo: 3455876		Prep Date:		DF: 100	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1177	50.0	1000	65.73	111	80-120	1174	0.221	20	
Fluoride	211.2	10.0	200	4.37	103	80-120	210.9	0.128	20	
Sulfate	3428	50.0	1000	2467	96.1	80-120	3421	0.2	20	

The following samples were analyzed in this batch:

13111096-01F 13111096-02F

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

Client: Navajo Refining Company
Work Order: 13111096
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R158074** Instrument ID **Gall01** Method: **M4500CN E&G (Dissolve)**

MBLK	Sample ID: MB-R158074-R158074				Units: mg/L		Analysis Date: 12/3/2013 08:45 AM			
Client ID:	Run ID: GALL01_131203B				SeqNo: 3457369		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	U	0.0200								

LCS	Sample ID: LCS-R158074-R158074				Units: mg/L		Analysis Date: 12/3/2013 08:45 AM			
Client ID:	Run ID: GALL01_131203B				SeqNo: 3457370		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.1872	0.0200	0.2	0	93.6	80-120				

LCSD	Sample ID: WLCSDW1120313-R158074				Units: mg/L		Analysis Date: 12/3/2013 08:45 AM			
Client ID:	Run ID: GALL01_131203B				SeqNo: 3457378		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.1917	0.0200	0.2	0	95.9	80-120	0.1872	2.36	20	

MS	Sample ID: 13111251-01ams				Units: mg/L		Analysis Date: 12/3/2013 08:45 AM			
Client ID:	Run ID: GALL01_131203B				SeqNo: 3457374		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.208	0.0200	0.2	0.0035	102	80-120				

The following samples were analyzed in this batch:

13111096-01H	13111096-02H
--------------	--------------

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

Client: Navajo Refining Company
Project: RO Discharge Sampling
WorkOrder: 13111096

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>
°C	Celsius degrees
mg/L	Milligrams per Liter
pH Units	

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**

Date/Time Received: **21-Nov-13 09:15**

Work Order: **13111096**

Received by: **NDR**

Checklist completed by Johanna B. Allen
eSignature

22-Nov-13
Date

Reviewed by: Lithany McDaniel
eSignature

27-Nov-13
Date

Matrices: **water**

Carrier name: **FedEx Priority Overnight**

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>1.9 C/1.9 C u/c</u> <u>IR 1</u>		
Cooler(s)/Kit(s):	<u>3139</u>		
Date/Time sample(s) sent to storage:	<u>11/22/13 07:05</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:	<u>-</u>		
Login Notes:	<u>Trip Blank logged in w/out test codes</u>		

Client Contacted:

Date Contacted:

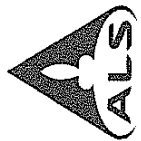
Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



Cincinnati, OH
+1 513 733 5336
Everett, WA
+1 425 356 2600

Fort Collins, CO
+1 970 490 1511
Holland, MI
+1 616 399 6070

Chain of Custody Form

Page 1 of 1

COC ID: 94265

13111096

NAVAJO REFINING: Navajo Refining Company

Project: RO Discharge Sampling

Environmental



Customer Information				Project Information													
Purchase Order	Project Name			RO Discharge/Sampling													
Work Order	Project Number			VOC													
Company Name	Navajo Refining Company			GRO (8015M)													
Send Report To	Robert Combs			DRO, ORO (8015M) LVI													
Address	501 East Main			LL SVOC (3270) NM GW List													
	Artesia, NM 88211			Dissolved Metals (6020/7000) Select List													
City/State/Zip	Artesia, NM 88211			Anions (300) Cl, F, SO4													
Phone	(575) 746-5382			Total Cyanide (SM 4500)													
Fax	(575) 746-5421			pH, TDS													
e-Mail Address				Nitrate-Nitrite as N (Preserved)													
				Radium 228/228													
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-117	11/20/13	1430	Liquid		17	/	/	/	/	/	/	/	/	/	/	/
2	MW-118	11/20/13	1300	"		"	/	/	/	/	/	/	/	/	/	/	/
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign		Shipment Method		Required Turnaround Time: (Check Box)		Results Due Date:	
E. Bergersen [Signature]				☒ Std 10 WK Days ☐ 5 WK Days ☐ 2 WK Days ☐ 24 Hour			
Relinquished by: [Signature]		Received by: [Signature]		Notes: 10 Day TAT, CC Pam Krueger with Arcadis			
Relinquished Date: 11/20/13		Received Date: 11/20/13		Cooler ID:		Cooler Temp:	
Logged by (Laboratory):		Checked by (Laboratory):		QC Package: (Check One Box Below)		Level I Std QC ☒ TRRP Check List	
				Level II Std QC ☐ Level III Std QC Raw Data ☐ Level IV SW846/CLP ☐ Other / EDD			
Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4°C 9-5035							

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

Copyright 2011 by ALS Environmental.



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

tal	CUSTODY SEAL		Seal Broken By:
	Date: 11/20/13	Time: 1500	NA
	Name: Eric Bergersen	Company: ARCADE	Date: 11/24/13

3139 -19°

435
 000

FedEx
 Express

Package
 US Airbill

FedEx
 Tracking
 Number

8042 4829 2151

1 From

Date

Sender's
 Name

Eric Bergersen

Phone

281 787-1234

Company

ARCADE

12929 Birchpark

Suite 300



December 16, 2013

Ms. Sonia West
ALS Environmental
10450 Stancliff Rd, Suite 210
Houston, TX 77099

Re: ALS Workorder: 13-11-471
Project Name: None Submitted
Project Number: 13111096

Dear Ms. West:

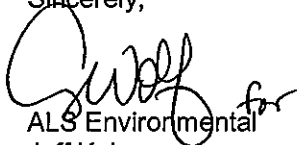
Two water samples were received from ALS Environmental on November 25, 2013. The samples were scheduled for the following analyses:

Radium-226
Radium-228

The results for these analyses are contained in the enclosed reports.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,


ALS Environmental
Jeff Kujawa
Project Manager

JRK/jl
Enclosure (s): Report

ADDRESS 225 Commerce Drive, Fort Collins, Colorado, USA 80524 | PHONE +1 970 490 1511 | FAX +1 970 490 1522

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

Environmental 

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER
36 of 48



1311471

Case Narrative

Radium-228:

The samples were analyzed for the presence of ^{228}Ra by low background gas flow proportional counting of ^{228}Ac , which is the ingrown progeny of ^{228}Ra , according to the current revision of SOP 724.

All acceptance criteria were met.

Radium-226:

The samples were prepared and analyzed according to the current revision of SOP 783.

All acceptance criteria were met.

ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Laboratory Certifications	
Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri	175
Nebraska	NE-OS-24-13
Nevada (NV)	CO000782008A
New Jersey (NJ)	CO003
North Dakota (ND)	R-057
Oklahoma	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241-09-1
Utah (UT)	CO01099
Washington	C1280

Revised 8/15/2013

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1311471

Client Name: ALS Environmental

Client Project Name:

Client Project Number: 13111096

Client PO Number: 10-13111096

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
MW-117	1311471-1		WATER	20-Nov-13	14:30
MW-118	1311471-2		WATER	20-Nov-13	13:00



Subcontractor:
ALS Environmental
225 Commerce Drive

Fort Collins, CO 80524

TEL: (800) 443-1511
FAX: (970) 490-1522
Acct #:

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Date: 22-Nov-13
COC ID: 15488
Due Date 05-Dec-13

Customer Information		Houston House Acct		Project Information		Parameter/Method Request for Analysis												
Purchase Order	10-13111096	Project Name	13111096	Project Number	13111096	A	B	C	D	E	F	G	H	I	J			
Work Order		Bill To Company	ALS Group USA, Corp.	Inv Attn	Accounts Payable	B												
Company Name	ALS Group USA, Corp.	Address	10450 Stanciliff Rd, Suite 210	City/State/Zip	Houston, Texas 77099-4338	C												
Send Report To	Sonia West	Phone	(281) 530-5656	Fax	(281) 530-5887	D												
Address	10450 Stanciliff Rd, Suite 210	eMail CC	sonia.west@alsglobal.com	Collection Date 24hr	20/Nov/2013 14:30	E												
City/State/Zip	Houston, Texas 77099-4338	Matrix	Water	Bottle	(2) 1LPHNO3	F												
Phone	(281) 530-5656		Water		(2) 1LPHNO3	G												
Fax	(281) 530-5887					H												
eMail Address	Sonia.West@alsglobal.com					I												
Sample ID	13111096-011 (MW-117)					J												
	13111096-021 (MW-118)																	

Comments:

WO 13111096- Please analyze for Radium 226/228

Relinquished by:	Date/Time	Received by:	Date/Time	Relinquished by:	Date/Time	Received by:	Date/Time
	22 Nov 13		11/25/13 0900				

Report/QC Level
Std

Cooler IDs



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS TX

Workorder No: 1311471

Project Manager: JRK

Initials: JRK Date: 11/25/13

1. Does this project require any special handling in addition to standard ALS procedures?		YES	☒ NO
2. Are custody seals on shipping containers intact?	NONE	YES	NO
3. Are Custody seals on sample containers intact?	NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		☒ YES	NO
5. Are the COC and bottle labels complete and legible?		☒ YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		☒ YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	☒ YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	☒ YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	☒ N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		☒ YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		☒ YES	NO
12. Are all samples within holding times for the requested analyses?		☒ YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		☒ YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	☒ N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	☒ NO
16. Were the samples shipped on ice?		YES	☒ NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	☒ R.A.D.	YES	☒ NO
Cooler #: <u>1</u>			
Temperature (°C): <u>AMB</u>			
No. of custody seals on cooler: <u>0</u>			
External µR/hr reading: <u>12</u>			
Background µR/hr reading: <u>10</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? ☒ YES / NO / NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / NA Contact: _____ Date/Time: _____

Project Manager Signature / Date: [Signature] 11-25-13

1311471

Ref: BFSW/JBAGKUKH
Dep: Environmental

Date: 22Nov13
Wgt: 30.75 LBS

SHIPPING: 58.8
SPECIAL: 6.1
HANDLING: 5.0
TOTAL: 70.0

Svc: PRIORITY OVERNIGHT
TRK: 5813 7984 9778

ORIGIN ID:SGRA (281) 530-5656
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

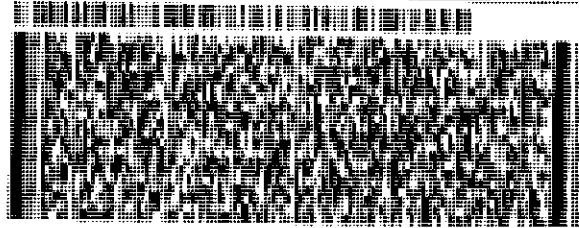
SHIP DATE: 22NOV13
ACTWGT: 30.8 LB
CAD: 300130/CAFE2704
DIMS: 26x14x14 IN
BILL SENDER

TO ROY FRENCH SAMPLE CONTROL.
ALS ENVIRONMENTAL
225 COMMERCE DRIVE

FORT COLLINS CO 80524

(970) 490-1611
DEPT: ENVIRONMENTAL

REF: BFSW/JBAGRORA



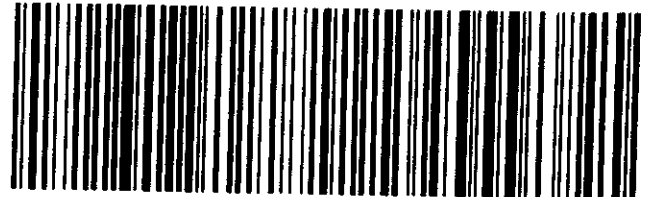
TRK# 5813 7984 9778
0201

MON - 25 NOV 10:30A
PRIORITY OVERNIGHT

XH FTCA

80524
CO-US DEN

Part # 156148-454 RIT2 04/13



12
0

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 13111096
Sample ID: MW-117
Legal Location:
Collection Date: 11/20/2013 14:30

Date: 13-Dec-13
Work Order: 1311471
Lab ID: 1311471-1
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	0.15 (+/- 0.1)	LT	PAI 783	0.1 pCi/l	NA	Prep Date: 11/26/2013 PrepBy: PJW
Carr: BARIUM	95.3		40-110	%REC	NA	12/4/2013 13:06
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	1.25 (+/- 0.5)		PAI 724	0.76 pCi/l	NA	Prep Date: 12/5/2013 PrepBy: JTL
Carr: BARIUM	93.2		40-110	%REC	NA	12/10/2013 11:41

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 13111096
Sample ID: MW-118
Legal Location:
Collection Date: 11/20/2013 13:00

Date: 13-Dec-13
Work Order: 1311471
Lab ID: 1311471-2
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	0.16 (+/- 0.11)	LT	PAI 783	0.09 pCi/l	NA	Prep Date: 11/26/2013 PrepBy: PJW
Carr: BARIUM	95.2		40-110	%REC	NA	12/4/2013 13:06
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	1.23 (+/- 0.51)		PAI 724	0.83 pCi/l	NA	Prep Date: 12/5/2013 PrepBy: JTL
Carr: BARIUM	94.6		40-110	%REC	NA	12/10/2013 11:41

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 13111096
Sample ID: MW-118
Legal Location:
Collection Date: 11/20/2013 13:00

Date: 13-Dec-13
Work Order: 1311471
Lab ID: 1311471-2
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
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Explanation of Qualifiers

Radiochemistry:

U or ND - Result is less than the sample specific MDC.	M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.	L - LCS Recovery below lower control limit.
Y2 - Chemical Yield outside default limits.	H - LCS Recovery above upper control limit.
W - DER is greater than Warning Limit of 1.42	P - LCS, Matrix Spike Recovery within control limits.
* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.	N - Matrix Spike Recovery outside control limits
# - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.	NC - Not Calculated for duplicate results less than 5 times MDC
G - Sample density differs by more than 15% of LCS density.	B - Analyte concentration greater than MDC.
D - DER is greater than Control Limit	B3 - Analyte concentration greater than MDC but less than Requested MDC.
M - Requested MDC not met.	
LT - Result is less than requested MDC but greater than achieved MDC.	

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).
 U or ND - Indicates that the compound was analyzed for but not detected.
 E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.
 M - Duplicate injection precision was not met.
 N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.
 Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.
 * - Duplicate analysis (relative percent difference) not within control limits.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.
 B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.
 E - Analyte concentration exceeds the upper level of the calibration range.
 J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).
 A - A tentatively identified compound is a suspected aldol-condensation product.
 X - The analyte was diluted below an accurate quantitation level.
 * - The spike recovery is equal to or outside the control criteria used.
 + - The relative percent difference (RPD) equals or exceeds the control criteria.

Diesel Range Organics:

ALS Environmental -- FC**SAMPLE SUMMARY REPORT****Client:** ALS Environmental**Date:** 13-Dec-13**Project:** 13111096**Work Order:** 1311471**Sample ID:** MW-118**Lab ID:** 1311471-2**Legal Location:****Matrix:** WATER**Collection Date:** 11/20/2013 13:00**Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
G - A pattern resembling gasoline was detected in this sample.						
D - A pattern resembling diesel was detected in this sample.						
M - A pattern resembling motor oil was detected in this sample.						
C - A pattern resembling crude oil was detected in this sample.						
4 - A pattern resembling JP-4 was detected in this sample.						
5 - A pattern resembling JP-5 was detected in this sample.						
H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.						
L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.						
Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:						
- gasoline						
- JP-8						
- diesel						
- mineral spirits						
- motor oil						
- Stoddard solvent						
- bunker C						

ALS Environmental -- FC

Date: 12/13/2013 4:26

Client: ALS Environmental

Work Order: 1311471

Project: 13111096

QC BATCH REPORT

Batch ID: RE131126-1-2 Instrument ID: Alpha Scin Method: Ra-226 by Radon Emanation - Me

LCS	Sample ID: RE131126-1				Units: pCi/l		Analysis Date: 12/4/2013 13:44			
Client ID:	Run ID: RE131126-1A				Prep Date: 11/26/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	49 (+/- 12)	0	45.31		108	67-120				P
Carr: BARIUM	14690		15800		93	40-110				

LCSD	Sample ID: RE131126-1				Units: pCi/l		Analysis Date: 12/4/2013 13:44			
Client ID:	Run ID: RE131126-1A				Prep Date: 11/26/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	49 (+/- 12)	0	45.31		109	67-120	49	0.0219	2.13	P
Carr: BARIUM	15010		15800		95	40-110	14690			

MB	Sample ID: RE131126-1				Units: pCi/l		Analysis Date: 12/4/2013 13:06			
Client ID:	Run ID: RE131126-1A				Prep Date: 11/26/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	ND	0.04								U
Carr: BARIUM	14170		15800		89.7	40-110				

The following samples were analyzed in this batch:

1311471-1 1311471-2

Client: ALS Environmental

Work Order: 1311471

Project: 13111096

QC BATCH REPORT

Batch ID: **RA131204-1-2**

Instrument ID: **LB4100-C**

Method: **Radium-228 Analysis by GFPC**

LCS	Sample ID: RA131204-1				Units: pCi/l		Analysis Date: 12/10/2013 11:01			
Client ID:	Run ID: RA131204-1A				Prep Date: 12/5/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	8.6 (+/- 2.2)	0.8	9.251		93.3	70-130				P
Carr: BARIUM	32650		33400		97.8	40-110				

LCSD	Sample ID: RA131204-1				Units: pCi/l		Analysis Date: 12/10/2013 11:01			
Client ID:	Run ID: RA131204-1A				Prep Date: 12/5/2013			DF: NA		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	9.6 (+/- 2.4)	0.9	9.251		104	70-130	8.6	0.291	2.13	P
Carr: BARIUM	31700		33400		94.9	40-110	32650			

MB	Sample ID: RA131204-1				Units: pCi/l		Analysis Date: 12/10/2013 13:22			
Client ID:	Run ID: RA131204-1A				Prep Date: 12/5/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	ND	0.64								U
Carr: BARIUM	32180		33400		96.3	40-110				

The following samples were analyzed in this batch:

1311471-1 1311471-2



07-Jan-2014

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

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

Re: RO Discharge Sampling

Work Order: **13111097**

Dear Robert,

ALS Environmental received 3 samples on 21-Nov-2013 through 22-Nov-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 48.

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

Sincerely,

A handwritten signature in cursive script that reads "Sonia West".

Electronically approved by: Jumoke M. Lawal

Sonia West
Project Manager



Certificate No: T104704231-13-12

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

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www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 13111097

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>
13111097-01	RO South	Water		11/20/2013 11:00	11/21/2013 09:15	☐
13111097-02	MW-119	Water		11/20/2013 10:00	11/21/2013 09:15	☐
13111097-03	Trip Blank 110613-88	Water		11/22/2013	11/22/2013	☐

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 13111097

Case Narrative

The analyses for Radium 226 and Radium 228 were subcontracted to ALS Environmental in Ft. Collins, CO.

Sample received outside method holding time for pH. pH is an immediate test. Sample results are flagged with an "H" qualifier.

Batch 74990B, TPH DRO/ORO 8015, Sample LLCSDW-131126: The LCSD surrogate RPD was outside of the control limits. The LCS/LCSD surrogate recoveries were within the control limits.

Batch 74937, Dissolved Metals 6020, Sample 13111133-11D: MS/MSD are for an unrelated sample.

Batch 74973, Semivolatile Organics 8270, Sample SLCSW1-131126: Insufficient sample was received for MS/MSD.

Batch R157966, Volatile Organics 8260, Sample 13111133-18A: MS/MSD are for an unrelated sample.

ALS Environmental

Date: 07-Jan-14

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO South
Collection Date: 11/20/2013 11:00 AM

Work Order: 13111097
Lab ID: 13111097-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO 8015C							
			Method: SW8015M		Prep: SW3511 / 11/26/13		Analyst: RPM
TPH (Diesel Range)	U		0.021	0.053	mg/L	1	11/27/2013 07:23
TPH (Oil Range)	U		0.042	0.11	mg/L	1	11/27/2013 07:23
Surr: 2-Fluorobiphenyl	114			60-135	%REC	1	11/27/2013 07:23
GASOLINE RANGE ORGANICS - SW8015C							
			Method: SW8015				Analyst: DNR
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	11/25/2013 20:07
Surr: 4-Bromofluorobenzene	101			70-130	%REC	1	11/25/2013 20:07
DISSOLVED METALS							
			Method: SW6020		Prep: SW3010A / 11/25/13		Analyst: JCJ
Aluminum	0.0567		0.0040	0.0100	mg/L	1	11/26/2013 02:31
Arsenic	0.00125	J	0.0010	0.00500	mg/L	1	11/26/2013 02:31
Barium	0.0533		0.00090	0.00500	mg/L	1	11/26/2013 02:31
Boron	0.109		0.020	0.0500	mg/L	1	11/27/2013 17:17
Cadmium	U		0.00080	0.00200	mg/L	1	11/26/2013 02:31
Calcium	459		0.86	5.00	mg/L	10	11/26/2013 19:47
Chromium	U		0.0010	0.00500	mg/L	1	11/26/2013 02:31
Cobalt	U		0.00080	0.00500	mg/L	1	11/26/2013 02:31
Copper	0.00218	J	0.0010	0.00500	mg/L	1	11/26/2013 02:31
Iron	0.113	J	0.078	0.200	mg/L	1	11/26/2013 20:06
Lead	U		0.00070	0.00500	mg/L	1	11/26/2013 02:31
Manganese	0.0111		0.0025	0.00500	mg/L	1	11/26/2013 02:31
Molybdenum	0.00815		0.0015	0.00500	mg/L	1	11/26/2013 02:31
Nickel	0.00127	J	0.0010	0.00500	mg/L	1	11/26/2013 02:31
Potassium	3.04		0.084	0.200	mg/L	1	11/26/2013 02:31
Selenium	0.00481	J	0.0010	0.00500	mg/L	1	11/26/2013 02:31
Silver	U		0.00080	0.00500	mg/L	1	11/26/2013 20:06
Sodium	83.9		0.085	0.200	mg/L	1	11/26/2013 20:06
Uranium	U		0.0050	0.00500	mg/L	1	11/26/2013 20:06
Zinc	0.00909		0.0025	0.00500	mg/L	1	11/26/2013 02:31
LOW-LEVEL SEMIVOLATILES							
			Method: SW8270		Prep: SW3510 / 11/26/13		Analyst: ACN
1-Methylnaphthalene	U		0.000030	0.00020	mg/L	1	11/26/2013 15:43
2-Methylnaphthalene	U		0.000034	0.00020	mg/L	1	11/26/2013 15:43
Benzo(a)pyrene	U		0.000030	0.00020	mg/L	1	11/26/2013 15:43
Naphthalene	U		0.000050	0.00020	mg/L	1	11/26/2013 15:43
Surr: 2,4,6-Tribromophenol	58.6			34-129	%REC	1	11/26/2013 15:43
Surr: 2-Fluorobiphenyl	68.4			40-125	%REC	1	11/26/2013 15:43
Surr: 2-Fluorophenol	54.3			20-120	%REC	1	11/26/2013 15:43
Surr: 4-Terphenyl-d14	77.4			40-135	%REC	1	11/26/2013 15:43
Surr: Nitrobenzene-d5	57.3			41-120	%REC	1	11/26/2013 15:43

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

ALS Environmental

Date: 07-Jan-14

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO South
Collection Date: 11/20/2013 11:00 AM

Work Order: 13111097
Lab ID: 13111097-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Phenol-d6	54.1			20-120	%REC	1	11/26/2013 15:43
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00020	0.0010	mg/L	1	12/3/2013 02:22
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	12/3/2013 02:22
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	12/3/2013 02:22
1,1-Dichloroethane	U		0.00020	0.0010	mg/L	1	12/3/2013 02:22
1,1-Dichloroethene	U		0.00020	0.0010	mg/L	1	12/3/2013 02:22
1,2-Dibromoethane	U		0.00020	0.0010	mg/L	1	12/3/2013 02:22
1,2-Dichloroethane	U		0.00020	0.0010	mg/L	1	12/3/2013 02:22
Benzene	U		0.00020	0.0010	mg/L	1	12/3/2013 02:22
Carbon tetrachloride	U		0.00050	0.0010	mg/L	1	12/3/2013 02:22
Chloroform	U		0.00020	0.0010	mg/L	1	12/3/2013 02:22
Ethylbenzene	U		0.00030	0.0010	mg/L	1	12/3/2013 02:22
Methylene chloride	U		0.00040	0.0020	mg/L	1	12/3/2013 02:22
Tetrachloroethene	U		0.00030	0.0010	mg/L	1	12/3/2013 02:22
Toluene	U		0.00020	0.0010	mg/L	1	12/3/2013 02:22
Trichloroethene	U		0.00020	0.0010	mg/L	1	12/3/2013 02:22
Vinyl chloride	U		0.00020	0.0010	mg/L	1	12/3/2013 02:22
Xylenes, Total	U		0.00050	0.0010	mg/L	1	12/3/2013 02:22
Surr: 1,2-Dichloroethane-d4	123			71-125	%REC	1	12/3/2013 02:22
Surr: 4-Bromofluorobenzene	114			70-125	%REC	1	12/3/2013 02:22
Surr: Dibromofluoromethane	118			74-125	%REC	1	12/3/2013 02:22
Surr: Toluene-d8	114			75-125	%REC	1	12/3/2013 02:22
MISCELLANEOUS ANALYSIS			Method: NA			Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	1/7/2014
ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	134		10	25.0	mg/L	50	12/4/2013 15:11
Fluoride	2.67		0.050	0.100	mg/L	1	12/4/2013 13:03
Sulfate	1,240		10	25.0	mg/L	50	12/4/2013 15:11
Nitrate/Nitrite (as N)	1.06		0.15	1.00	mg/L	5	12/2/2013 22:47
CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: KKB	
Cyanide	U		0.0050	0.0200	mg/L	1	12/3/2013 08:45
PH - SM4500H+ B			Method: SM4500H+ B			Analyst: KL	
pH	7.54	H	0.10	0.100	pH Units	1	11/26/2013 09:00
Temp Deg C @pH	20.5	H	0		°C	1	11/26/2013 09:00
TOTAL DISSOLVED SOLIDS			Method: M2540C			Analyst: KAH	

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

ALS Environmental

Date: 07-Jan-14

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: RO South
Collection Date: 11/20/2013 11:00 AM

Work Order: 13111097
Lab ID: 13111097-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Total Dissolved Solids (Residue, Filterable)	2,770		5.0	10.0	mg/L	1	11/26/2013 17:30

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

ALS Environmental

Date: 07-Jan-14

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119
Collection Date: 11/20/2013 10:00 AM

Work Order: 13111097
Lab ID: 13111097-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO 8015C		Method: SW8015M		Prep: SW3511 / 11/26/13		Analyst: RPM	
TPH (Diesel Range)	U		0.021	0.053	mg/L	1	11/27/2013 08:41
TPH (Oil Range)	U		0.042	0.11	mg/L	1	11/27/2013 08:41
Surr: 2-Fluorobiphenyl	88.9			60-135	%REC	1	11/27/2013 08:41
GASOLINE RANGE ORGANICS - SW8015C		Method: SW8015		Prep: SW3010A / 11/25/13		Analyst: DNR	
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	11/25/2013 20:25
Surr: 4-Bromofluorobenzene	98.8			70-130	%REC	1	11/25/2013 20:25
DISSOLVED METALS		Method: SW6020		Prep: SW3010A / 11/25/13		Analyst: JCJ	
Aluminum	0.0149		0.0040	0.0100	mg/L	1	11/26/2013 02:36
Arsenic	0.00438	J	0.0010	0.00500	mg/L	1	11/26/2013 02:36
Barium	0.00973		0.00090	0.00500	mg/L	1	11/26/2013 02:36
Boron	0.219		0.020	0.0500	mg/L	1	11/27/2013 17:19
Cadmium	U		0.00080	0.00200	mg/L	1	11/26/2013 02:36
Calcium	551		0.86	5.00	mg/L	10	11/26/2013 19:52
Chromium	0.00116	J	0.0010	0.00500	mg/L	1	11/26/2013 02:36
Cobalt	U		0.00080	0.00500	mg/L	1	11/26/2013 02:36
Copper	0.00311	J	0.0010	0.00500	mg/L	1	11/26/2013 02:36
Iron	0.185	J	0.078	0.200	mg/L	1	11/26/2013 20:11
Lead	U		0.00070	0.00500	mg/L	1	11/26/2013 02:36
Manganese	0.00459	J	0.0025	0.00500	mg/L	1	11/26/2013 02:36
Molybdenum	0.00861		0.0015	0.00500	mg/L	1	11/26/2013 02:36
Nickel	0.00222	J	0.0010	0.00500	mg/L	1	11/26/2013 02:36
Potassium	1.10		0.084	0.200	mg/L	1	11/26/2013 02:36
Selenium	0.00144	J	0.0010	0.00500	mg/L	1	11/26/2013 02:36
Silver	U		0.00080	0.00500	mg/L	1	11/26/2013 20:11
Sodium	98.8		0.085	0.200	mg/L	1	11/26/2013 20:11
Uranium	0.0213		0.0050	0.00500	mg/L	1	11/26/2013 20:11
Zinc	0.0241		0.0025	0.00500	mg/L	1	11/26/2013 02:36
LOW-LEVEL SEMIVOLATILES		Method: SW8270		Prep: SW3510 / 11/26/13		Analyst: ACN	
1-Methylnaphthalene	U		0.000030	0.00020	mg/L	1	11/26/2013 16:02
2-Methylnaphthalene	U		0.000034	0.00020	mg/L	1	11/26/2013 16:02
Benzo(a)pyrene	U		0.000030	0.00020	mg/L	1	11/26/2013 16:02
Naphthalene	U		0.000050	0.00020	mg/L	1	11/26/2013 16:02
Surr: 2,4,6-Tribromophenol	37.8			34-129	%REC	1	11/26/2013 16:02
Surr: 2-Fluorobiphenyl	45.6			40-125	%REC	1	11/26/2013 16:02
Surr: 2-Fluorophenol	35.9			20-120	%REC	1	11/26/2013 16:02
Surr: 4-Terphenyl-d14	62.5			40-135	%REC	1	11/26/2013 16:02
Surr: Nitrobenzene-d5	42.7			41-120	%REC	1	11/26/2013 16:02

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

ALS Environmental

Date: 07-Jan-14

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119
Collection Date: 11/20/2013 10:00 AM

Work Order: 13111097
Lab ID: 13111097-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Phenol-d6	35.2			20-120	%REC	1	11/26/2013 16:02
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00020	0.0010	mg/L	1	12/3/2013 02:47
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	12/3/2013 02:47
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	12/3/2013 02:47
1,1-Dichloroethane	U		0.00020	0.0010	mg/L	1	12/3/2013 02:47
1,1-Dichloroethene	U		0.00020	0.0010	mg/L	1	12/3/2013 02:47
1,2-Dibromoethane	U		0.00020	0.0010	mg/L	1	12/3/2013 02:47
1,2-Dichloroethane	U		0.00020	0.0010	mg/L	1	12/3/2013 02:47
Benzene	U		0.00020	0.0010	mg/L	1	12/3/2013 02:47
Carbon tetrachloride	U		0.00050	0.0010	mg/L	1	12/3/2013 02:47
Chloroform	U		0.00020	0.0010	mg/L	1	12/3/2013 02:47
Ethylbenzene	U		0.00030	0.0010	mg/L	1	12/3/2013 02:47
Methylene chloride	U		0.00040	0.0020	mg/L	1	12/3/2013 02:47
Tetrachloroethene	U		0.00030	0.0010	mg/L	1	12/3/2013 02:47
Toluene	U		0.00020	0.0010	mg/L	1	12/3/2013 02:47
Trichloroethene	U		0.00020	0.0010	mg/L	1	12/3/2013 02:47
Vinyl chloride	U		0.00020	0.0010	mg/L	1	12/3/2013 02:47
Xylenes, Total	U		0.00050	0.0010	mg/L	1	12/3/2013 02:47
Surr: 1,2-Dichloroethane-d4	122			71-125	%REC	1	12/3/2013 02:47
Surr: 4-Bromofluorobenzene	114			70-125	%REC	1	12/3/2013 02:47
Surr: Dibromofluoromethane	118			74-125	%REC	1	12/3/2013 02:47
Surr: Toluene-d8	114			75-125	%REC	1	12/3/2013 02:47
MISCELLANEOUS ANALYSIS			Method: NA			Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	1/7/2014
ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: JKP	
Chloride	185		10	25.0	mg/L	50	12/4/2013 16:33
Fluoride	3.17		0.050	0.100	mg/L	1	12/4/2013 13:17
Sulfate	2,210		10	25.0	mg/L	50	12/4/2013 16:33
Nitrate/Nitrite (as N)	U		0.15	1.00	mg/L	5	12/2/2013 23:02
CYANIDE - SM4500CN E			Method: M4500CN E&G			Analyst: KKB	
Cyanide	U		0.0050	0.0200	mg/L	1	12/3/2013 08:45
PH - SM4500H+ B			Method: SM4500H+ B			Analyst: KL	
pH	6.87	H	0.10	0.100	pH Units	1	11/26/2013 09:00
Temp Deg C @pH	20.7	H	0		°C	1	11/26/2013 09:00
TOTAL DISSOLVED SOLIDS			Method: M2540C			Analyst: KAH	

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

ALS Environmental

Date: 07-Jan-14

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-119
Collection Date: 11/20/2013 10:00 AM

Work Order: 13111097
Lab ID: 13111097-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Total Dissolved Solids (Residue, Filterable)	4,130		5.0	10.0	mg/L	1	11/26/2013 17:30

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

Work Order: 13111097
Client: Navajo Refining Company
Project: RO Discharge Sampling

DATES REPORT

Sample ID	Client Sample ID	Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
<u>Batch ID 74937</u> <u>Test Name: Dissolved Metals</u>						
13111097-01E	RO South	Water	11/20/2013 11:00:00 AM		11/25/2013 10:00 AM	11/26/2013 02:31 AM
					11/25/2013 10:00 AM	11/26/2013 07:47 PM
					11/25/2013 10:00 AM	11/26/2013 08:06 PM
					11/25/2013 10:00 AM	11/27/2013 05:17 PM
13111097-02E	MW-119		11/20/2013 10:00:00 AM		11/25/2013 10:00 AM	11/26/2013 02:36 AM
					11/25/2013 10:00 AM	11/26/2013 07:52 PM
					11/25/2013 10:00 AM	11/26/2013 08:11 PM
					11/25/2013 10:00 AM	11/27/2013 05:19 PM
<u>Batch ID 74973</u> <u>Test Name: Low-Level Semivolatiles</u>						
13111097-01	RO South	Water	11/20/2013 11:00:00 AM		11/26/2013 07:34 AM	11/26/2013 03:43 PM
13111097-02	MW-119		11/20/2013 10:00:00 AM		11/26/2013 07:34 AM	11/26/2013 04:02 PM
<u>Batch ID 74990B</u> <u>Test Name: TPH DRO/ORO 8015C</u>						
13111097-01	RO South	Water	11/20/2013 11:00:00 AM		11/26/2013 01:33 PM	11/27/2013 07:23 AM
13111097-02	MW-119		11/20/2013 10:00:00 AM		11/26/2013 01:33 PM	11/27/2013 08:41 AM
<u>Batch ID R157757</u> <u>Test Name: Gasoline Range Organics - SW8015C</u>						
13111097-01	RO South	Water	11/20/2013 11:00:00 AM			11/25/2013 08:07 PM
13111097-02	MW-119		11/20/2013 10:00:00 AM			11/25/2013 08:25 PM
<u>Batch ID R157787</u> <u>Test Name: pH - SM4500H+ B</u>						
13111097-01F	RO South	Water	11/20/2013 11:00:00 AM			11/26/2013 09:00 AM
13111097-02F	MW-119		11/20/2013 10:00:00 AM			11/26/2013 09:00 AM

Work Order: 13111097
Client: Navajo Refining Company
Project: RO Discharge Sampling

DATES REPORT

Sample ID	Client Sample ID	Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
<u>Batch ID</u> R157905 <u>Test Name:</u> Total Dissolved Solids						
13111097-01F	RO South	Water	11/20/2013 11:00:00 AM			11/26/2013 05:30 PM
13111097-02F	MW-119		11/20/2013 10:00:00 AM			11/26/2013 05:30 PM
<u>Batch ID</u> R157956 <u>Test Name:</u> Anions - EPA 300.0 (1993)						
13111097-01	RO South	Water	11/20/2013 11:00:00 AM			12/2/2013 10:47 PM
13111097-02	MW-119		11/20/2013 10:00:00 AM			12/2/2013 11:02 PM
<u>Batch ID</u> R157966 <u>Test Name:</u> Low Level Volatiles - SW8260C						
13111097-01	RO South	Water	11/20/2013 11:00:00 AM			12/3/2013 02:22 AM
13111097-02	MW-119		11/20/2013 10:00:00 AM			12/3/2013 02:47 AM
<u>Batch ID</u> R158074 <u>Test Name:</u> Cyanide - SM4500CN E						
13111097-01	RO South	Water	11/20/2013 11:00:00 AM			12/3/2013 08:45 AM
13111097-02	MW-119		11/20/2013 10:00:00 AM			12/3/2013 08:45 AM
<u>Batch ID</u> R158112 <u>Test Name:</u> Anions - EPA 300.0 (1993)						
13111097-01F	RO South	Water	11/20/2013 11:00:00 AM			12/4/2013 01:03 PM
						12/4/2013 03:11 PM
13111097-02F	MW-119		11/20/2013 10:00:00 AM			12/4/2013 01:17 PM
						12/4/2013 04:33 PM
<u>Batch ID</u> R159590 <u>Test Name:</u> Miscellaneous Analysis						
13111097-01I	RO South	Water	11/20/2013 11:00:00 AM			1/7/2014
13111097-02I	MW-119		11/20/2013 10:00:00 AM			1/7/2014

ALS Environmental

Date: 07-Jan-14

Client: Navajo Refining Company
Work Order: 13111097
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **74990B** Instrument ID **FID-16** Method: **SW8015M**

MBLK	Sample ID: LBLKW-131126-74990B				Units: mg/L		Analysis Date: 11/27/2013 03:29 AM			
Client ID:	Run ID: FID-16_131126A				SeqNo: 3457741		Prep Date: 11/26/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	U	0.050								
TPH (Oil Range)	U	0.10								
<i>Surr: 2-Fluorobiphenyl</i>	0.07386	0.0050	0.06061	0	122	60-135	0			

LCS	Sample ID: LLCSW-131126-74990B				Units: mg/L		Analysis Date: 11/27/2013 03:55 AM			
Client ID:	Run ID: FID-16_131126A				SeqNo: 3457742		Prep Date: 11/26/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.5893	0.050	0.6061	0	97.2	70-130				
TPH (Oil Range)	0.5302	0.10	0.6061	0	87.5	70-130				
<i>Surr: 2-Fluorobiphenyl</i>	0.07808	0.0050	0.06061	0	129	60-135	0			

LCSD	Sample ID: LLCSDW-131126-74990B				Units: mg/L		Analysis Date: 11/27/2013 04:21 AM			
Client ID:	Run ID: FID-16_131126A				SeqNo: 3457743		Prep Date: 11/26/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.5356	0.050	0.6061	0	88.4	70-130	0.5893	9.55	20	
TPH (Oil Range)	0.5714	0.10	0.6061	0	94.3	70-130	0.5302	7.49	20	
<i>Surr: 2-Fluorobiphenyl</i>	0.05932	0.0050	0.06061	0	97.9	60-135	0.07808	27.3	20	R

The following samples were analyzed in this batch:

13111097-01C	13111097-02C
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 13111097
 Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157757** Instrument ID **FID-9** Method: **SW8015**

MBLK Sample ID: **GBLKW1-131125-R157757** Units: **mg/L** Analysis Date: **11/25/2013 01:46 PM**

Client ID: Run ID: **FID-9_131125A** SeqNo: **3449261** 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	0.0500								
Surr: 4-Bromofluorobenzene	0.1047	0.00500	0.1	0	105	70-130	0			

LCS Sample ID: **GLCSW1-131125-R157757** Units: **mg/L** Analysis Date: **11/25/2013 12:36 PM**

Client ID: Run ID: **FID-9_131125A** SeqNo: **3449259** 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	0.9583	0.0500	1	0	95.8	70-130				
Surr: 4-Bromofluorobenzene	0.1087	0.00500	0.1	0	109	70-130	0			

MS Sample ID: **13111127-04BMS** Units: **mg/L** Analysis Date: **11/25/2013 09:01 PM**

Client ID: Run ID: **FID-9_131125A** SeqNo: **3449275** 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	0.9683	0.0500	1	0	96.8	70-130				
Surr: 4-Bromofluorobenzene	0.1012	0.00500	0.1	0	101	70-130	0			

MSD Sample ID: **13111127-04BMSD** Units: **mg/L** Analysis Date: **11/25/2013 09:19 PM**

Client ID: Run ID: **FID-9_131125A** SeqNo: **3449276** 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	0.9651	0.0500	1	0	96.5	70-130	0.9683	0.326	30	
Surr: 4-Bromofluorobenzene	0.1021	0.00500	0.1	0	102	70-130	0.1012	0.868	30	

The following samples were analyzed in this batch:

13111097-01B	13111097-02B
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13111097
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **74937** Instrument ID **ICPMS05** Method: **SW6020** **(Dissolve)**

MBLK Sample ID: **MBLKW5-112513-74937** Units: **mg/L** Analysis Date: **11/27/2013 04:48 PM**

Client ID: Run ID: **ICPMS05_131127A** SeqNo: **3452534** Prep Date: **11/25/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	U	0.0100								
Arsenic	U	0.00500								
Barium	U	0.00500								
Boron	U	0.0500								
Cadmium	U	0.00200								
Calcium	U	0.500								
Chromium	U	0.00500								
Cobalt	U	0.00500								
Copper	U	0.00500								
Iron	U	0.200								
Lead	U	0.00500								
Manganese	U	0.00500								
Molybdenum	U	0.00500								
Nickel	U	0.00500								
Potassium	U	0.200								
Selenium	U	0.00500								
Silver	U	0.00500								
Sodium	0.09841	0.200								J
Uranium	U	0.00500								
Zinc	U	0.00500								

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

Client: Navajo Refining Company
Work Order: 13111097
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **74937** Instrument ID **ICPMS05** Method: **SW6020** (Dissolve)

LCS Sample ID: **MLCSW5-112513-74937** Units: **mg/L** Analysis Date: **11/26/2013 02:07 AM**

Client ID: Run ID: **ICPMS04_131125A** SeqNo: **3449183** Prep Date: **11/25/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.102	0.0100	0.1	0	102	80-120				
Arsenic	0.05014	0.00500	0.05	0	100	80-120				
Barium	0.05287	0.00500	0.05	0	106	80-120				
Cadmium	0.05071	0.00200	0.05	0	101	80-120				
Chromium	0.04917	0.00500	0.05	0	98.3	80-120				
Cobalt	0.04899	0.00500	0.05	0	98	80-120				
Copper	0.0494	0.00500	0.05	0	98.8	80-120				
Lead	0.0477	0.00500	0.05	0	95.4	80-120				
Manganese	0.0517	0.00500	0.05	0	103	80-120				
Molybdenum	0.04833	0.00500	0.05	0	96.7	80-120				
Nickel	0.0491	0.00500	0.05	0	98.2	80-120				
Potassium	4.584	0.200	5	0	91.7	80-120				
Selenium	0.05055	0.00500	0.05	0	101	80-120				
Zinc	0.0526	0.00500	0.05	0	105	80-120				

LCS Sample ID: **MLCSW5-112513-74937** Units: **mg/L** Analysis Date: **11/26/2013 04:49 PM**

Client ID: Run ID: **ICPMS04_131126A** SeqNo: **3452022** Prep Date: **11/25/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	5.2	0.500	5	0	104	80-120				
Iron	5.14	0.200	5	0	103	80-120				
Silver	0.04833	0.00500	0.05	0	96.7	80-120				
Sodium	4.836	0.200	5	0	96.7	80-120				
Uranium	0.09245	0.00500	0.1	0	92.4	80-120				

LCS Sample ID: **MLCSW5-112513-74937** Units: **mg/L** Analysis Date: **11/27/2013 04:50 PM**

Client ID: Run ID: **ICPMS05_131127A** SeqNo: **3452535** Prep Date: **11/25/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.4788	0.0500	0.5	0	95.8	80-120				

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

Client: Navajo Refining Company
Work Order: 13111097
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **74937** Instrument ID **ICPMS05** Method: **SW6020** **(Dissolve)**

MS Sample ID: **13111133-11DMS** Units: **mg/L** Analysis Date: **11/27/2013 04:57 PM**

Client ID: Run ID: **ICPMS05_131127A** SeqNo: **3452538** Prep Date: **11/25/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.116	0.0100	0.1	0.005542	110	75-125				
Arsenic	0.08293	0.00500	0.05	0.03331	99.2	75-125				
Barium	0.6868	0.00500	0.05	0.6627	48.2	75-125				SO
Boron	0.6871	0.0500	0.5	0.2289	91.6	75-125				
Cadmium	0.0525	0.00200	0.05	0.00034	104	75-125				
Calcium	217	0.500	5	224.4	-147	75-125				SEO
Chromium	0.05293	0.00500	0.05	0.001062	104	75-125				
Cobalt	0.05193	0.00500	0.05	0.000403	103	75-125				
Copper	0.05102	0.00500	0.05	-0.000985	104	75-125				
Iron	50.17	0.200	5	46.79	67.6	75-125				SO
Lead	0.05385	0.00500	0.05	0.000599	106	75-125				
Manganese	1.895	0.00500	0.05	1.901	-11	75-125				SEO
Molybdenum	0.05397	0.00500	0.05	0.002996	102	75-125				
Nickel	0.05185	0.00500	0.05	0.00082	102	75-125				
Potassium	11.36	0.200	5	6.616	95	75-125				
Selenium	0.05608	0.00500	0.05	-0.000761	114	75-125				
Silver	0.05374	0.00500	0.05	0.000201	107	75-125				
Sodium	23.18	0.200	5	19.16	80.3	75-125				
Uranium	0.1036	0.00500	0.1	0.000808	103	75-125				
Zinc	0.05467	0.00500	0.05	0.003439	102	75-125				

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

Client: Navajo Refining Company
 Work Order: 13111097
 Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: 74937 Instrument ID ICPMS05 Method: SW6020 (Dissolve)

MSD Sample ID: 13111133-11DMSD Units: mg/L Analysis Date: 11/27/2013 05:00 PM

Client ID: Run ID: ICPMS05_131127A SeqNo: 3452539 Prep Date: 11/25/2013 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.2342	0.0100	0.1	0.005542	229	75-125	0.116	67.5	25	SR
Arsenic	0.08694	0.00500	0.05	0.03331	107	75-125	0.08293	4.72	25	
Barium	0.7052	0.00500	0.05	0.6627	84.9	75-125	0.6868	2.64	25	O
Boron	0.6994	0.0500	0.5	0.2289	94.1	75-125	0.6871	1.77	25	
Cadmium	0.05189	0.00200	0.05	0.00034	103	75-125	0.0525	1.16	25	
Calcium	222	0.500	5	224.4	-47.3	75-125	217	2.26	25	SEO
Chromium	0.05579	0.00500	0.05	0.001062	109	75-125	0.05293	5.26	25	
Cobalt	0.05259	0.00500	0.05	0.000403	104	75-125	0.05193	1.26	25	
Copper	0.05331	0.00500	0.05	-0.000985	109	75-125	0.05102	4.4	25	
Iron	51.84	0.200	5	46.79	101	75-125	50.17	3.29	25	O
Lead	0.05621	0.00500	0.05	0.000599	111	75-125	0.05385	4.28	25	
Manganese	1.942	0.00500	0.05	1.901	83.1	75-125	1.895	2.45	25	EO
Molybdenum	0.05606	0.00500	0.05	0.002996	106	75-125	0.05397	3.79	25	
Nickel	0.05346	0.00500	0.05	0.00082	105	75-125	0.05185	3.06	25	
Potassium	11.74	0.200	5	6.616	102	75-125	11.36	3.25	25	
Selenium	0.05687	0.00500	0.05	-0.000761	115	75-125	0.05608	1.39	25	
Silver	0.05433	0.00500	0.05	0.000201	108	75-125	0.05374	1.1	25	
Sodium	23.42	0.200	5	19.16	85.1	75-125	23.18	1.02	25	
Uranium	0.1052	0.00500	0.1	0.000808	104	75-125	0.1036	1.54	25	
Zinc	0.09266	0.00500	0.05	0.003439	178	75-125	0.05467	51.6	25	SR

DUP Sample ID: 13111133-11DDUP Units: mg/L Analysis Date: 11/26/2013 06:00 PM

Client ID: Run ID: ICPMS04_131126A SeqNo: 3452036 Prep Date: 11/25/2013 DF: 10

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	182.6	5.00					164.8	10.3	25	
Manganese	1.556	0.0500					1.362	13.3	25	

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

Client: Navajo Refining Company
Work Order: 13111097
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **74937** Instrument ID **ICPMS05** Method: **SW6020** **(Dissolve)**

DUP Sample ID: **13111133-11DDUP** Units: **mg/L** Analysis Date: **11/27/2013 04:55 PM**

Client ID: Run ID: **ICPMS05_131127A** SeqNo: **3452537** Prep Date: **11/25/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.006905	0.0100					0.005542	0	25	J
Arsenic	0.03154	0.00500					0.03331	5.45	25	
Barium	0.6584	0.00500					0.6627	0.657	25	
Boron	0.2266	0.0500					0.2289	1.02	25	
Cadmium	U	0.00200					0.00034	0	25	
Chromium	U	0.00500					0.001062	0	25	
Cobalt	U	0.00500					0.000403	0	25	
Copper	U	0.00500					-0.000985	0	25	
Iron	46.98	0.200					46.79	0.407	25	
Lead	U	0.00500					0.000599	0	25	
Molybdenum	0.002269	0.00500					0.002996	0	25	J
Nickel	U	0.00500					0.00082	0	25	
Potassium	6.498	0.200					6.616	1.79	25	
Selenium	U	0.00500					-0.000761	0	25	
Silver	U	0.00500					0.000201	0	25	
Sodium	18.63	0.200					19.16	2.85	25	
Uranium	U	0.00500					0.000808	0	25	
Zinc	U	0.00500					0.003439	0	25	

The following samples were analyzed in this batch:

13111097-01E	13111097-02E
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13111097
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **74973** Instrument ID **SV-4** Method: **SW8270**

MBLK Sample ID: **SBLKW1-131126-74973** Units: **µg/L** Analysis Date: **11/26/2013 05:05 PM**

Client ID: Run ID: **SV-4_131126A** SeqNo: **3451914** Prep Date: **11/26/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	U	0.20								
2-Methylnaphthalene	U	0.20								
Benzo(a)pyrene	U	0.20								
Naphthalene	U	0.20								
Surr: 2,4,6-Tribromophenol	3.583	0.20	5	0	71.7	34-129	0			
Surr: 2-Fluorobiphenyl	3.466	0.20	5	0	69.3	40-125	0			
Surr: 2-Fluorophenol	3.106	0.20	5	0	62.1	20-120	0			
Surr: 4-Terphenyl-d14	4.479	0.20	5	0	89.6	40-135	0			
Surr: Nitrobenzene-d5	3.192	0.20	5	0	63.8	41-120	0			
Surr: Phenol-d6	2.816	0.20	5	0	56.3	20-120	0			

LCS Sample ID: **SLCSW1-131126-74973** Units: **µg/L** Analysis Date: **11/26/2013 05:25 PM**

Client ID: Run ID: **SV-4_131126A** SeqNo: **3451915** Prep Date: **11/26/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	3.803	0.20	5	0	76.1	45-120				
2-Methylnaphthalene	3.701	0.20	5	0	74	50-120				
Benzo(a)pyrene	4.305	0.20	5	0	86.1	45-120				
Naphthalene	3.749	0.20	5	0	75	45-120				
Surr: 2,4,6-Tribromophenol	4.877	0.20	5	0	97.5	34-129	0			
Surr: 2-Fluorobiphenyl	3.823	0.20	5	0	76.5	40-125	0			
Surr: 2-Fluorophenol	3.367	0.20	5	0	67.3	20-120	0			
Surr: 4-Terphenyl-d14	3.983	0.20	5	0	79.7	40-135	0			
Surr: Nitrobenzene-d5	3.45	0.20	5	0	69	41-120	0			
Surr: Phenol-d6	3.572	0.20	5	0	71.4	20-120	0			

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

Client: Navajo Refining Company
Work Order: 13111097
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **74973** Instrument ID **SV-4** Method: **SW8270**

LCSD Sample ID: **SLCSDW1-131126-74973** Units: **µg/L** Analysis Date: **11/26/2013 05:46 PM**

Client ID: Run ID: **SV-4_131126A** SeqNo: **3451916** Prep Date: **11/26/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	4.143	0.20	5	0	82.9	45-120	3.803	8.56	20	
2-Methylnaphthalene	4.022	0.20	5	0	80.4	50-120	3.701	8.3	20	
Benzo(a)pyrene	4.867	0.20	5	0	97.3	45-120	4.305	12.2	20	
Naphthalene	3.815	0.20	5	0	76.3	45-120	3.749	1.74	20	
Surr: 2,4,6-Tribromophenol	4.519	0.20	5	0	90.4	34-129	4.877	7.63	0	
Surr: 2-Fluorobiphenyl	3.597	0.20	5	0	71.9	40-125	3.823	6.09	0	
Surr: 2-Fluorophenol	3.41	0.20	5	0	68.2	20-120	3.367	1.28	0	
Surr: 4-Terphenyl-d14	4.253	0.20	5	0	85.1	40-135	3.983	6.55	0	
Surr: Nitrobenzene-d5	3.315	0.20	5	0	66.3	41-120	3.45	3.98	0	
Surr: Phenol-d6	3.376	0.20	5	0	67.5	20-120	3.572	5.65	0	

The following samples were analyzed in this batch:

13111097-01D	13111097-02D
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13111097
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157966** Instrument ID **VOA4** Method: **SW8260**

MBLK		Sample ID: VBLKW-131202-R157966				Units: µg/L		Analysis Date: 12/2/2013 10:17 PM		
Client ID:		Run ID: VOA4_131202B				SeqNo: 3455017		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichloroethane	U	1.0								
Benzene	U	1.0								
Carbon tetrachloride	U	1.0								
Chloroform	U	1.0								
Ethylbenzene	U	1.0								
Methylene chloride	U	2.0								
Tetrachloroethene	U	1.0								
Toluene	U	1.0								
Trichloroethene	U	1.0								
Vinyl chloride	U	1.0								
Xylenes, Total	U	3.0								
Surr: 1,2-Dichloroethane-d4	59.36	1.0	50	0	119	71-125	0			
Surr: 4-Bromofluorobenzene	55.31	1.0	50	0	111	70-125	0			
Surr: Dibromofluoromethane	56.59	1.0	50	0	113	74-125	0			
Surr: Toluene-d8	55.93	1.0	50	0	112	75-125	0			

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

Client: Navajo Refining Company
Work Order: 13111097
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157966** Instrument ID **VOA4** Method: **SW8260**

LCS				Sample ID: VLCSW-131202-R157966			Units: µg/L		Analysis Date: 12/2/2013 09:28 PM		
Client ID:		Run ID: VOA4_131202B			SeqNo: 3455016		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
1,1,1-Trichloroethane	57.14	1.0	50	0	114	75-130					
1,1,2,2-Tetrachloroethane	49.37	1.0	50	0	98.7	74-123					
1,1,2-Trichloroethane	49.71	1.0	50	0	99.4	80-120					
1,1-Dichloroethane	55.07	1.0	50	0	110	80-120					
1,1-Dichloroethene	57.83	1.0	50	0	116	75-130					
1,2-Dibromoethane	51.15	1.0	50	0	102	80-120					
1,2-Dichloroethane	51.47	1.0	50	0	103	79-120					
Benzene	52.69	1.0	50	0	105	80-120					
Carbon tetrachloride	52.57	1.0	50	0	105	75-125					
Chloroform	52.9	1.0	50	0	106	70-130					
Ethylbenzene	49.65	1.0	50	0	99.3	80-120					
Methylene chloride	56.01	2.0	50	0	112	65-133					
Tetrachloroethene	49.35	1.0	50	0	98.7	75-130					
Toluene	49.5	1.0	50	0	99	80-121					
Trichloroethene	52.09	1.0	50	0	104	75-125					
Vinyl chloride	58.74	1.0	50	0	117	70-135					
Xylenes, Total	148.7	3.0	150	0	99.1	80-124					
Surr: 1,2-Dichloroethane-d4	56.08	1.0	50	0	112	71-125		0			
Surr: 4-Bromofluorobenzene	57.29	1.0	50	0	115	70-125		0			
Surr: Dibromofluoromethane	58.81	1.0	50	0	118	74-125		0			
Surr: Toluene-d8	54.41	1.0	50	0	109	75-125		0			

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

Client: Navajo Refining Company
Work Order: 13111097
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157966** Instrument ID **VOA4** Method: **SW8260**

MS	Sample ID: 13111133-18AMS					Units: µg/L		Analysis Date: 12/2/2013 11:55 PM		
Client ID:		Run ID: VOA4_131202B			SeqNo: 3455094		Prep Date:		DF: 50	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	3155	50	2500	0	126	75-130				
1,1,2,2-Tetrachloroethane	2666	50	2500	0	107	74-123				
1,1,2-Trichloroethane	2735	50	2500	0	109	80-120				
1,1-Dichloroethane	3070	50	2500	0	123	80-120				S
1,1-Dichloroethene	3219	50	2500	0	129	75-130				
1,2-Dibromoethane	2732	50	2500	0	109	80-120				
1,2-Dichloroethane	2864	50	2500	0	115	79-120				
Benzene	3496	50	2500	594.7	116	80-120				
Carbon tetrachloride	2951	50	2500	0	118	79-120				
Chloroform	2976	50	2500	0	119	70-130				
Ethylbenzene	2839	50	2500	85.48	110	80-120				
Methylene chloride	3128	100	2500	0	125	65-133				
Tetrachloroethene	2714	50	2500	0	109	75-130				
Toluene	2769	50	2500	24.06	110	80-121				
Trichloroethene	2827	50	2500	0	113	75-125				
Vinyl chloride	3229	50	2500	0	129	70-135				
Xylenes, Total	8364	150	7500	157.3	109	80-124				
Surr: 1,2-Dichloroethane-d4	2902	50	2500	0	116	71-125		0		
Surr: 4-Bromofluorobenzene	2930	50	2500	0	117	70-125		0		
Surr: Dibromofluoromethane	2992	50	2500	0	120	74-125		0		
Surr: Toluene-d8	2772	50	2500	0	111	75-125		0		

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

Client: Navajo Refining Company
 Work Order: 13111097
 Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157966** Instrument ID **VOA4** Method: **SW8260**

MSD	Sample ID: 13111133-18AMSD				Units: µg/L		Analysis Date: 12/3/2013 12:20 AM			
Client ID:	Run ID: VOA4_131202B				SeqNo: 3455095		Prep Date:		DF: 50	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	3089	50	2500	0	124	75-130	3155	2.12	20	
1,1,2,2-Tetrachloroethane	2652	50	2500	0	106	74-123	2666	0.529	20	
1,1,2-Trichloroethane	2695	50	2500	0	108	80-120	2735	1.46	20	
1,1-Dichloroethane	2965	50	2500	0	119	80-120	3070	3.49	20	
1,1-Dichloroethene	3103	50	2500	0	124	75-130	3219	3.66	20	
1,2-Dibromoethane	2731	50	2500	0	109	80-120	2732	0.0308	20	
1,2-Dichloroethane	2758	50	2500	0	110	79-120	2864	3.75	20	
Benzene	3376	50	2500	594.7	111	80-120	3496	3.49	20	
Carbon tetrachloride	2791	50	2500	0	112	75-125	2951	5.57	20	
Chloroform	2880	50	2500	0	115	70-130	2976	3.27	20	
Ethylbenzene	2748	50	2500	85.48	106	80-120	2839	3.27	20	
Methylene chloride	3032	100	2500	0	121	65-133	3128	3.11	20	
Tetrachloroethene	2615	50	2500	0	105	75-130	2714	3.7	20	
Toluene	2670	50	2500	24.06	106	80-121	2769	3.61	20	
Trichloroethene	2736	50	2500	0	109	75-120	2827	3.26	20	
Vinyl chloride	3146	50	2500	0	126	70-135	3229	2.63	20	
Xylenes, Total	8081	150	7500	157.3	106	80-124	8364	3.44	20	
Surr: 1,2-Dichloroethane-d4	2870	50	2500	0	115	71-125	2902	1.11	20	
Surr: 4-Bromofluorobenzene	2914	50	2500	0	117	70-125	2930	0.566	20	
Surr: Dibromofluoromethane	2964	50	2500	0	119	74-125	2992	0.949	20	
Surr: Toluene-d8	2769	50	2500	0	111	75-125	2772	0.136	20	

The following samples were analyzed in this batch:

13111097-01A	13111097-02A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13111097
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157787** Instrument ID **WetChem** Method: **SM4500H+ B (Dissolve)**

LCS Sample ID: **WLCS-W11126-R157787** Units: **pH Units** Analysis Date: **11/26/2013 09:00 AM**

Client ID: Run ID: **WETCHEM_131126B** SeqNo: **3450021** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6	0.100	6	0	100	98-102				

DUP Sample ID: **13111121-01EDup** Units: **pH Units** Analysis Date: **11/26/2013 09:00 AM**

Client ID: Run ID: **WETCHEM_131126B** SeqNo: **3450073** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.4	0.100					7.42	0.27	10	H
Temp Deg C @pH	20	0					20.1	0.499		H

The following samples were analyzed in this batch:

13111097-01F 13111097-02F

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

Client: Navajo Refining Company
Work Order: 13111097
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157905** Instrument ID **BALANCE1** Method: **M2540C** **(Dissolve)**

MBLK Sample ID: **WBLK-112613-R157905** Units: **mg/L** Analysis Date: **11/26/2013 05:30 PM**

Client ID: Run ID: **BALANCE1_131126C** SeqNo: **3453367** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	U	10.0								

LCS Sample ID: **WLCS-112613-R157905** Units: **mg/L** Analysis Date: **11/26/2013 05:30 PM**

Client ID: Run ID: **BALANCE1_131126C** SeqNo: **3453368** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1016	10.0	1000	0	102	85-115				

DUP Sample ID: **13111054-05CDUP** Units: **mg/L** Analysis Date: **11/26/2013 05:30 PM**

Client ID: Run ID: **BALANCE1_131126C** SeqNo: **3453347** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	213600	10.0					207500	2.9	10	

DUP Sample ID: **13111187-01FDUP** Units: **mg/L** Analysis Date: **11/26/2013 05:30 PM**

Client ID: Run ID: **BALANCE1_131126C** SeqNo: **3453366** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	4586	10.0					4570	0.349	10	

The following samples were analyzed in this batch:

13111097-01F	13111097-02F
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13111097
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157956** Instrument ID **ICS2100** Method: **E300** **(Dissolve)**

MBLK	Sample ID: WBLKW2-R157956				Units: mg/L		Analysis Date: 12/2/2013 07:09 PM			
Client ID:	Run ID: ICS2100_131202D				SeqNo: 3454587		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrate/Nitrite (as N)	U	0.200								

LCS	Sample ID: WLCSW2-R157956				Units: mg/L		Analysis Date: 12/2/2013 07:24 PM			
Client ID:	Run ID: ICS2100_131202D				SeqNo: 3454588		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrate/Nitrite (as N)	7.891	0.200	8	0	98.6	90-110				

MS	Sample ID: 13111093-01FMSZ				Units: mg/L		Analysis Date: 12/2/2013 07:53 PM			
Client ID:	Run ID: ICS2100_131202D				SeqNo: 3454590		Prep Date:		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrate/Nitrite (as N)	19.69	1.00	20	0	98.4	80-120				

MSD	Sample ID: 13111093-01FMSDZ				Units: mg/L		Analysis Date: 12/2/2013 08:07 PM			
Client ID:	Run ID: ICS2100_131202D				SeqNo: 3454591		Prep Date:		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrate/Nitrite (as N)	19.36	1.00	20	0	96.8	80-120	19.69	1.66	20	

The following samples were analyzed in this batch:

13111097-01G	13111097-02G
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13111097
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R158074** Instrument ID **Gall01** Method: **M4500CN E&G (Dissolve)**

MBLK	Sample ID: MB-R158074-R158074				Units: mg/L		Analysis Date: 12/3/2013 08:45 AM			
Client ID:	Run ID: GALL01_131203B				SeqNo: 3457369		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	U	0.0200								

LCS	Sample ID: LCS-R158074-R158074				Units: mg/L		Analysis Date: 12/3/2013 08:45 AM			
Client ID:	Run ID: GALL01_131203B				SeqNo: 3457370		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.1872	0.0200	0.2	0	93.6	80-120				

LCSD	Sample ID: WLCSDW1120313-R158074				Units: mg/L		Analysis Date: 12/3/2013 08:45 AM			
Client ID:	Run ID: GALL01_131203B				SeqNo: 3457378		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.1917	0.0200	0.2	0	95.9	80-120	0.1872	2.36	20	

MS	Sample ID: 13111251-01ams				Units: mg/L		Analysis Date: 12/3/2013 08:45 AM			
Client ID:	Run ID: GALL01_131203B				SeqNo: 3457374		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.208	0.0200	0.2	0.0035	102	80-120				

The following samples were analyzed in this batch:

13111097-01H	13111097-02H
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13111097
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R158112** Instrument ID **ICS2100** Method: **E300** **(Dissolve)**

MBLK	Sample ID: WBLKW1-R158112				Units: mg/L		Analysis Date: 12/4/2013 09:28 AM			
Client ID:	Run ID: ICS2100_131204A				SeqNo: 3457845		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	0.500								
Fluoride	U	0.100								
Sulfate	U	0.500								

LCS	Sample ID: WLCSW1-R158112				Units: mg/L		Analysis Date: 12/4/2013 09:42 AM			
Client ID:	Run ID: ICS2100_131204A				SeqNo: 3457846		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	21.17	0.500	20	0	106	90-110				
Fluoride	4.291	0.100	4	0	107	90-110				
Sulfate	20.15	0.500	20	0	101	90-110				

MS	Sample ID: 1312062-06CMS				Units: mg/L		Analysis Date: 12/4/2013 11:35 AM			
Client ID:	Run ID: ICS2100_131204A				SeqNo: 3457853		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	18.64	0.500	10	7.306	113	80-120				
Fluoride	3.347	0.100	2	1.01	117	80-120				
Sulfate	72.56	0.500	10	62.16	104	80-120				O

MSD	Sample ID: 1312062-06CMSD				Units: mg/L		Analysis Date: 12/4/2013 11:50 AM			
Client ID:	Run ID: ICS2100_131204A				SeqNo: 3457854		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	18.58	0.500	10	7.306	113	80-120	18.64	0.328	20	
Fluoride	3.335	0.100	2	1.01	116	80-120	3.347	0.359	20	
Sulfate	72.36	0.500	10	62.16	102	80-120	72.56	0.275	20	O

The following samples were analyzed in this batch:

13111097-01F 13111097-02F

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

Client: Navajo Refining Company
Project: RO Discharge Sampling
WorkOrder: 13111097

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>
°C	Celsius degrees
mg/L	Milligrams per Liter
pH Units	

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**

Date/Time Received: **21-Nov-13 09:15**

Work Order: **13111097**

Received by: **NDR**

Checklist completed by Johanna B. Allen
eSignature

22-Nov-13
Date

Reviewed by:

eSignature

Date

Matrices: **water**

Carrier name: **FedEx Priority Overnight**

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Container/Temp Blank temperature in compliance?

Yes ☒

No ☐

Temperature(s)/Thermometer(s):

2.3 C/2.3 C u/c

IR 1

Cooler(s)/Kit(s):

3730

Date/Time sample(s) sent to storage:

11/22/13 07:12

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: **Trip Blank logged in w/out test codes**

Client Contacted:

Date Contacted:

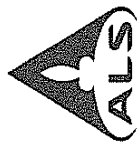
Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



Cincinnati, OH
+1 513 733 5336
Everett, WA
+1 425 356 2600

Fort Collins, CO
+1 970 490 1511
Holland, MI
+1 616 399 6070

Chain of Custody Form

Page 1 of 1

COC ID: 94265

Environmental

ALS Project Manager:

Customer Information

Project Information

Purchase Order	Project Name	RO Discharge/Sampling	A	VOC (8260) NM GW List
Work Order	Project Number		B	GRO (8015M)
Company Name	Bill To Company	Navajo Refining Company	C	DRO, ORO (8015M) LVI
Send Report To	Invoice Attn	Robert Combs	D	LL SVOC (8270) NM GW List
Address	Address	501 East Main	E	Dissolved Metals (6020/7000) Select List
City/State/Zip	City/State/Zip	Artesia, NM 88211	F	Anions (300) Cl, F, SO4
Phone	Phone	(575) 746-5382	G	Total Cyanide (SM 4500)
Fax	Fax	(575) 746-5421	H	pH, TDS
e-Mail Address	e-Mail Address		I	Nitrate-Nitrite as N (Preserved)
			J	Radium 226/228

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-117	11/20/13	1430	Liquid		17	/	/	/	/	/	/	/	/	/	/	/
2	MW-118	11/20/13	1300	"		"	/	/	/	/	/	/	/	/	/	/	/
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign	Shipment Method	Required Turnaround Time: (Check Box)	Results Due Date:
E. Bergersen		☒ Std 10 WK Days ☐ 5 WK Days ☐ 2 WK Days ☐ Other	
Relinquished by:	Received by:	Notes:	
11/20/13 1500	NW 11/20/13 9:15	10 Day TAT - CC Pam Krueger with Arcadis	
Relinquished by:	Checked by (Laboratory):	Cooler ID	Cooler Temp.
Logged by (Laboratory):			
Preservative Key:	1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035		

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

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

tal	CUSTODY SEAL		Seal Broken By: <u>NA</u>
	Date: <u>11/20/13</u>	Time: <u>1500</u>	Date: <u>11/21/13</u>
	Name: <u>Eric Bergesen</u>		
	Company: <u>ARCADIS</u>		

3139 -19%

483

000 **FedEx** Package Express **US Airbill** FedEx Tracking Number **8042 4829 2151**

1 From: [Redacted]

Date: 11/20/13

Sender's Name: Eric Bergesen Phone: 281 787-1234

Company: ARCADIS

12929 Riverpark Suite 300



Cincinnati, OH
+1 513 733 5336

Evarett, WA
+1 425 356 2680

Fort Collins, CO
+1 970 490 1511

Holland, MI
+1 616 399 6070

Chain of Custody Form

Houston, TX
+1 281 530 5656

Middletown, PA
+1 717 944 5541

Spring City, PA
+1 610 948 4903

Salt Lake City, UT
+1 801 266 7760

South Charleston, WV
+1 304 356 3168

York, PA
+1 717 505 5280

Environmental

Page 1 of 1

COC ID: 94264

Customer Information				ALS Project Manager:		ALS Work Order #:								
Project Information				Parameter/Method Request for Analysis										
Purchase Order	Project Name	RO Discharge/Sampling	A	VOC (8260) NM GW List										
Work Order	Project Number		B	GRO (8015M)										
Company Name	Bill To Company	Navajo Refining Company	C	DRO, ORO (8015M) LVI										
Send Report To	Invoice Attn	Robert Combs	D	LL SVOC (8270) NM GW List										
Address	Address	501 East Main	E	Dissolved Metals (6020/7000) Select List										
City/State/Zip	City/State/Zip	Artesia, NM 88211	F	Anions (300) Cl, F, SO4										
Phone	Phone	(575) 746-5382	H	Total Cyanide (SM 4500)										
Fax	Fax	(575) 746-5421	I	pH, TDS										
e-Mail Address	e-Mail Address		J	Nitrate-Nitrite as N (Preserved)										
				Radium 226/228										
1	Ro South	11/20/13	17	A	B	C	D	E	F	G	H	I	J	Hold
2	Mw-119	"	17											
3														
4														
5														
6														
7														
8														
9														
10														

NAVAJO REFINING: Navajo Refining Company

Project: RO Discharge Sampling



Sample(s) Please Print & Sign	Shipment Method	Required Turnaround Time: (Check Box)	Other	Results Due Date:
Eric Bergeron [Signature]		☒ Std 10 WK Days	☐ 5 WK Days	☐ 24 Hour
Received by:		Notes: 10 Day TAT, CC Pam Krueger with Arcadis		
Date: 11/20/13		Cooler ID: 3730	Cooler Temp: 23	QC Package: (Check One Box Below)
Time: 1500				☒ Level II Std QC
				☐ Level III Std QC/Raw Data
				☐ Level IV SWAG/CLP
				☐ Other / EDO

Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO3 7-Other 8-4°C 9-ED35

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

2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.

3. The Chain of Custody is a legal document. All information must be completed accurately.

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	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: <u>AK</u>
Date: <u>11/20/13</u>	Time: <u>1500</u>	Date: <u>11/21/13</u>
Name: <u>E. Bergersen</u>		
Company: <u>ARCADIS</u>		

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Form ID No. ☐

4 Express I
NOTE: Service

Next Business Day

☐ FedEx First
Earliest next business day
Monday unless

☒ FedEx Priority
Next business day
if selected.

☐ FedEx Stop
At business address

FedEx

TRK# 8042 4829 2221

0215

AB SGRA



FID 891856 20NOV13 ROWA 51AC1/05E6/66DD

redEx Box ☐ redEx Tube ☐

THU - 21
PRIORITY

3130

Special Handling and Delivery Signature Options

URGENT Delivery
Available for FedEx Standard Overnight, FedEx 2Day, FedEx, or FedEx Express Delivery.

☒ Signature Required
Signature required for delivery.

☐ Direct Signature
Someone at recipient's address
may sign for delivery. Fee applies.

☐ Indirect Signature
If no one is available at recipient's address, someone at a nearby address may sign for delivery. Fee applies.

Are there dangerous goods?

3130



December 16, 2013

Ms. Sonia West
ALS Environmental
10450 Stancliff Rd, Suite 210
Houston, TX 77099

Re: ALS Workorder: 13-11-470
Project Name: None Submitted
Project Number: 13111097

Dear Ms. West:

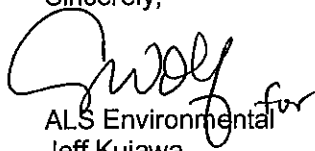
Two water samples were received from ALS Environmental on November 25, 2013. The samples were scheduled for the following analyses:

Radium-226
Radium-228

The results for these analyses are contained in the enclosed reports.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,



ALS Environmental
Jeff Kujawa
Project Manager

JRK/jl
Enclosure (s): Report

ADDRESS 225 Commerce Drive, Fort Collins, Colorado, USA 80524 | PHONE +1 970 490 1511 | FAX +1 970 490 1522

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Environmental 

www.alsglobal.com

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36 of 48



1311470

Case Narrative

Radium-228:

The samples were analyzed for the presence of ^{228}Ra by low background gas flow proportional counting of ^{228}Ac , which is the ingrown progeny of ^{228}Ra , according to the current revision of SOP 724.

All acceptance criteria were met.

Radium-226:

The samples were prepared and analyzed according to the current revision of SOP 783.

All acceptance criteria were met.

ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Laboratory Certifications	
Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri	175
Nebraska	NE-OS-24-13
Nevada (NV)	CO000782008A
New Jersey (NJ)	CO003
North Dakota (ND)	R-057
Oklahoma	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241-09-1
Utah (UT)	CO01099
Washington	C1280

Revised 8/15/2013

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1311470

Client Name: ALS Environmental

Client Project Name:

Client Project Number: 13111097

Client PO Number: 10-13111097

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
RO South	1311470-1		WATER	20-Nov-13	11:00
MW-119	1311470-2		WATER	20-Nov-13	10:00



CHAIN-OF-CUSTODY RECORD

Date: **22-Nov-13**
COC ID: **15485**
Due Date **05-Dec-13**

Page 1 of 1

TEL: (800) 443-1511
FAX: (970) 490-1522
Acct #:

Fort Collins, CO 80524

Salesperson **Houston House Acct**

Customer Information			Project Information			Parameter/Method Request for Analysis											
Purchase Order	10-13111097	Project Name	13111097	A	Radium 226_228 Sub to ALS Ft. Collins												
Work Order		Project Number		B													
Company Name	ALS Group USA, Corp.	Bill To Company	ALS Group USA, Corp.	C													
Send Report To	Sonia West	Inv Attn	Accounts Payable	D													
Address	10450 Standcliff Rd, Suite 210	Address	10450 Standcliff Rd, Suite 210	E													
				F													
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G													
Phone	(281) 530-5656	Phone	(281) 530-5656	H													
Fax	(281) 530-5887	Fax	(281) 530-5887	I													
eMail Address	Sonia.West@alsglobal.com	eMail CC	jumoke.lawa@alsglobal.com	J													
Sample ID		Matrix	Collection Date 24hr			A	B	C	D	E	F	G	H	I	J		
13111097-01 (RO South)	①	Water	20/Nov/2013 11:00		(1) 1LPHNO3	X											
13111097-02 (MW-119)	②	Water	20/Nov/2013 10:00		(1) 1LPHNO3	X											

Comments:

WO 13111097- Please analyze for Radium 226/228

Relinquished by: <i>[Signature]</i>	Date/Time: 22 Nov 13	Received by: <i>[Signature]</i>	Date/Time: 22 Nov 13
-------------------------------------	----------------------	---------------------------------	----------------------

Report/QC Level	Std
-----------------	-----

Cooler IDs

Date/Time 11/25/13 0900



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS TX

Workorder No: 1311470

Project Manager: JRK

Initials: JRK Date: 11/25/13

1. Does this project require any special handling in addition to standard ALS procedures?		YES	☒ NO
2. Are custody seals on shipping containers intact?	NONE	YES	NO
3. Are Custody seals on sample containers intact?	NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		☒ YES	NO
5. Are the COC and bottle labels complete and legible?		☒ YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		☒ YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	☒ YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	☒ YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		☒ YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		☒ YES	NO
12. Are all samples within holding times for the requested analyses?		☒ YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		☒ YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	☒ NO
16. Were the samples shipped on ice?		YES	☒ NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	☒ RAD ONLY	YES	☒ NO
Cooler #: <u>1</u>			
Temperature (°C): <u>AMB</u>			
No. of custody seals on cooler: <u>0</u>			
External µR/hr reading: <u>12</u>			
Background µR/hr reading: <u>10</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? ☒ YES / NO / NA (If no, see Form 008.)			

DOT Survey
Acceptance
Information

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / NA Contact: _____ Date/Time: _____

Project Manager Signature / Date: [Signature] 11-25-13

SHIPPING:	58.82
SPECIAL:	6.18
HANDLING:	5.00
TOTAL:	70.00

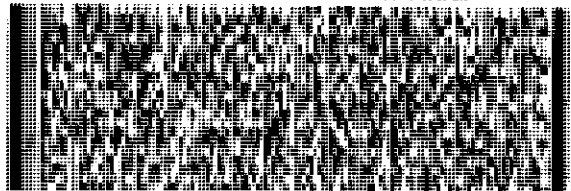
0.00 TOTAL:

SHIP DATE: 22NOV13
ACTWGT: 30.8 LB
CAQ: 300130/CAFE2704
DIMS: 26x14x14 IN

BILL SENDER

(970) 480-1511
DEPT: ENVIRONMENTAL

REF: BFSW/JBAGRORA



FedEx
Express



TRK# 5813 7984 9778
0201

MON - 25 NOV 10:30A
PRIORITY OVERNIGHT

XH FTCA

80524
CO-US DEN

Part # 156348-434 RIT2 04/13 •



120

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 13111097
Sample ID: RO South
Legal Location:
Collection Date: 11/20/2013 11:00

Date: 13-Dec-13
Work Order: 1311470
Lab ID: 1311470-1
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	0.78 (+/- 0.28)	LT	PAI 783	0.1 pCi/l	NA	Prep Date: 11/26/2013 PrepBy: PJW
Carr: BARIUM	95.6		40-110	%REC	NA	12/4/2013 13:06
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	1.08 (+/- 0.43)		PAI 724	0.66 pCi/l	NA	Prep Date: 12/5/2013 PrepBy: JTL
Carr: BARIUM	96.7		40-110	%REC	NA	12/10/2013 11:41

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 13111097
Sample ID: MW-119
Legal Location:
Collection Date: 11/20/2013 10:00

Date: 13-Dec-13
Work Order: 1311470
Lab ID: 1311470-2
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	ND (+/- 0.11)	U	0.19	pCi/l	NA	12/4/2013 13:06
Carr: BARIUM	93.6		40-110	%REC	NA	12/4/2013 13:06
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	1.08 (+/- 0.43)		0.66	pCi/l	NA	12/10/2013 11:41
Carr: BARIUM	96.7		40-110	%REC	NA	12/10/2013 11:41

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 13111097
Sample ID: MW-119
Legal Location:
Collection Date: 11/20/2013 10:00

Date: 13-Dec-13
Work Order: 1311470
Lab ID: 1311470-2
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
----------	--------	------	--------------	-------	-----------------	---------------

Explanation of Qualifiers

Radiochemistry:

U or ND - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.
- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.
G - Sample density differs by more than 15% of LCS density.
D - DER is greater than Control Limit
M - Requested MDC not met.
LT - Result is less than requested MDC but greater than achieved MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits
NC - Not Calculated for duplicate results less than 5 times MDC
B - Analyte concentration greater than MDC.
B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).
U or ND - Indicates that the compound was analyzed for but not detected.
E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.
M - Duplicate injection precision was not met.
N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.
Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.
* - Duplicate analysis (relative percent difference) not within control limits.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.
B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.
E - Analyte concentration exceeds the upper level of the calibration range.
J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).
A - A tentatively identified compound is a suspected aldol-condensation product.
X - The analyte was diluted below an accurate quantitation level.
* - The spike recovery is equal to or outside the control criteria used.
+ - The relative percent difference (RPD) equals or exceeds the control criteria.

Diesel Range Organics:

ALS Environmental -- FC**SAMPLE SUMMARY REPORT****Client:** ALS Environmental**Date:** 13-Dec-13**Project:** 13111097**Work Order:** 1311470**Sample ID:** MW-119**Lab ID:** 1311470-2**Legal Location:****Matrix:** WATER**Collection Date:** 11/20/2013 10:00**Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
G - A pattern resembling gasoline was detected in this sample.						
D - A pattern resembling diesel was detected in this sample.						
M - A pattern resembling motor oil was detected in this sample.						
C - A pattern resembling crude oil was detected in this sample.						
4 - A pattern resembling JP-4 was detected in this sample.						
5 - A pattern resembling JP-5 was detected in this sample.						
H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.						
L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.						
Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:						
- gasoline						
- JP-8						
- diesel						
- mineral spirits						
- motor oil						
- Stoddard solvent						
- bunker C						

ALS Environmental -- FC

Date: 12/13/2013 4:03

Client: ALS Environmental

Work Order: 1311470

Project: 13111097

QC BATCH REPORT

Batch ID: RE131126-1-2 Instrument ID: Alpha Scin Method: Ra-226 by Radon Emanation - Me

LCS	Sample ID: RE131126-1				Units: pCi/l		Analysis Date: 12/4/2013 13:44			
Client ID:	Run ID: RE131126-1A						Prep Date: 11/26/2013		DF: NA	
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	49 (+/- 12)	0	45.31		108	67-120				P
Carr: BARIUM	14690		15800		93	40-110				

LCSD	Sample ID: RE131126-1				Units: pCi/l		Analysis Date: 12/4/2013 13:44			
Client ID:	Run ID: RE131126-1A						Prep Date: 11/26/2013		DF: NA	
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	49 (+/- 12)	0	45.31		109	67-120	49	0.0219	2.13	P
Carr: BARIUM	15010		15800		95	40-110	14690			

MB	Sample ID: RE131126-1				Units: pCi/l		Analysis Date: 12/4/2013 13:06			
Client ID:	Run ID: RE131126-1A						Prep Date: 11/26/2013		DF: NA	
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	ND	0.04								U
Carr: BARIUM	14170		15800		89.7	40-110				

The following samples were analyzed in this batch:

1311470-1 1311470-2

Client: ALS Environmental

Work Order: 1311470

Project: 13111097

QC BATCH REPORT

Batch ID: **RA131204-1-2**

Instrument ID: **LB4100-C**

Method: **Radium-228 Analysis by GFPC**

LCS	Sample ID: RA131204-1				Units: pCi/l		Analysis Date: 12/10/2013 11:01			
Client ID:	Run ID: RA131204-1A				Prep Date: 12/5/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	8.6 (+/- 2.2)	0.8	9.251		93.3	70-130				P
Carr: BARIUM	32650		33400		97.8	40-110				

LCSD	Sample ID: RA131204-1				Units: pCi/l		Analysis Date: 12/10/2013 11:01			
Client ID:	Run ID: RA131204-1A				Prep Date: 12/5/2013			DF: NA		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	9.6 (+/- 2.4)	0.9	9.251		104	70-130	8.6	0.291	2.13	P
Carr: BARIUM	31700		33400		94.9	40-110	32650			

MB	Sample ID: RA131204-1				Units: pCi/l		Analysis Date: 12/10/2013 13:22			
Client ID:	Run ID: RA131204-1A				Prep Date: 12/5/2013			DF: NA		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	ND	0.64								U
Carr: BARIUM	32180		33400		96.3	40-110				

The following samples were analyzed in this batch:

1311470-1 1311470-2



18-Dec-2013

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

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

Re: RO Discharge Sampling

Work Order: **13111187**

Dear Robert,

ALS Environmental received 3 samples on 22-Nov-2013 02:00 PM 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 53.

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

Sincerely,

A handwritten signature in cursive script that reads "Sonia West".

Electronically approved by: Dayna.Fisher

Sonia West
Project Manager



Certificate No: T104704231-13-12

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

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RIGHT SOLUTIONS RIGHT PARTNER

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 13111187

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>
13111187-01	MW-116	Water		11/20/2013 16:30	11/22/2013 14:00	☐
13111187-02	DUP-01	Water		11/20/2013	11/22/2013 14:00	☐
13111187-03	Trip Blank 110613-73	Water		11/23/2013	11/22/2013 14:00	☐

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 13111187

Case Narrative

The analyses for Radium 226 and Radium 228 were subcontracted to ALS Environmental in Ft. Collins, CO.

Sample received outside method holding time for pH. pH is an immediate test. Sample results are flagged with an "H" qualifier.

The temperature at the time of pH is reported. Please note that all pH results are already normalized to a temperature of 25 degrees C.

Batch 74990B, TPH DRO/ORO 8015, Sample LLCSDW-131126: The LCSD RPD for surrogate 2-Fluorobiphenyl was outside of the control limits. The surrogate recoveries were within the control limits for the LCS and LCSD.

Batch 74938, Dissolved Metals 6020, Sample 1311934-06C: MS/MSD are for an unrelated sample.

Batch 74973, Semivolatiles 8270, Sample SLCSW1-131126: Insufficient sample was received for MS/MSD.

Batch R157973, Volatiles 8260, Sample 13111059-52A: MS/MSD are for an unrelated sample.

Batch R158097, Volatiles 8260, Sample 13111198-01A: MS/MSD are for an unrelated sample.

ALS Environmental

Date: 18-Dec-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116
Collection Date: 11/20/2013 04:30 PM

Work Order: 13111187
Lab ID: 13111187-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO 8015C Method:SW8015M Prep: SW3511 / 11/27/13 Analyst: RPM							
TPH (Diesel Range)	U		0.021	0.054	mg/L	1	12/3/2013 21:28
TPH (Oil Range)	U		0.043	0.11	mg/L	1	12/3/2013 21:28
Surr: 2-Fluorobiphenyl	110			60-135	%REC	1	12/3/2013 21:28
GASOLINE RANGE ORGANICS - SW8015C Method:SW8015 Analyst: KKP							
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	12/3/2013 03:25
Surr: 4-Bromofluorobenzene	98.2			70-130	%REC	1	12/3/2013 03:25
DISSOLVED METALS Method:SW6020 Prep: SW3010A / 11/25/13 Analyst: ALR							
Aluminum	0.00814	J	0.0040	0.0100	mg/L	1	11/26/2013 18:50
Arsenic	0.00525		0.0010	0.00500	mg/L	1	11/26/2013 05:10
Barium	0.00989		0.00090	0.00500	mg/L	1	11/26/2013 18:50
Boron	0.312		0.020	0.0500	mg/L	1	11/27/2013 13:17
Cadmium	U		0.00080	0.00200	mg/L	1	11/26/2013 18:50
Calcium	606		4.3	25.0	mg/L	50	11/26/2013 17:24
Chromium	U		0.0010	0.00500	mg/L	1	11/26/2013 05:10
Cobalt	U		0.00080	0.00500	mg/L	1	11/26/2013 05:10
Copper	U		0.0010	0.00500	mg/L	1	11/26/2013 05:10
Iron	U		0.078	0.200	mg/L	1	11/26/2013 05:10
Lead	U		0.00070	0.00500	mg/L	1	11/26/2013 18:50
Manganese	0.00920		0.0025	0.00500	mg/L	1	11/26/2013 05:10
Molybdenum	0.00350	J	0.0015	0.00500	mg/L	1	11/26/2013 18:50
Nickel	0.00245	J	0.0010	0.00500	mg/L	1	11/26/2013 05:10
Potassium	1.30		0.084	0.200	mg/L	1	11/26/2013 18:50
Selenium	0.00611		0.0010	0.00500	mg/L	1	11/26/2013 05:10
Silver	U		0.00080	0.00500	mg/L	1	11/26/2013 18:50
Sodium	235		4.2	10.0	mg/L	50	11/26/2013 17:24
Uranium	0.0391		0.0050	0.00500	mg/L	1	11/26/2013 18:50
Zinc	0.0311		0.0025	0.00500	mg/L	1	11/26/2013 05:10
LOW-LEVEL SEMIVOLATILES Method:SW8270 Prep: SW3510 / 11/26/13 Analyst: ACN							
1-Methylnaphthalene	U		0.000030	0.00020	mg/L	1	11/26/2013 16:40
2-Methylnaphthalene	U		0.000034	0.00020	mg/L	1	11/26/2013 16:40
Benzo(a)pyrene	U		0.000030	0.00020	mg/L	1	11/26/2013 16:40
Naphthalene	U		0.000050	0.00020	mg/L	1	11/26/2013 16:40
Surr: 2,4,6-Tribromophenol	37.0			34-129	%REC	1	11/26/2013 16:40
Surr: 2-Fluorobiphenyl	45.8			40-125	%REC	1	11/26/2013 16:40
Surr: 2-Fluorophenol	36.6			20-120	%REC	1	11/26/2013 16:40
Surr: 4-Terphenyl-d14	55.3			40-135	%REC	1	11/26/2013 16:40
Surr: Nitrobenzene-d5	41.6			41-120	%REC	1	11/26/2013 16:40

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

ALS Environmental

Date: 18-Dec-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116
Collection Date: 11/20/2013 04:30 PM

Work Order: 13111187
Lab ID: 13111187-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Phenol-d6	38.5			20-120	%REC	1	11/26/2013 16:40
LOW LEVEL VOLATILES - SW8260C			Method:SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00020	0.0010	mg/L	1	12/3/2013 18:14
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	12/3/2013 18:14
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	12/3/2013 18:14
1,1-Dichloroethane	U		0.00020	0.0010	mg/L	1	12/3/2013 18:14
1,1-Dichloroethene	U		0.00020	0.0010	mg/L	1	12/3/2013 18:14
1,2-Dibromoethane	U		0.00020	0.0010	mg/L	1	12/3/2013 18:14
1,2-Dichloroethane	U		0.00020	0.0010	mg/L	1	12/3/2013 18:14
Benzene	U		0.00020	0.0010	mg/L	1	12/3/2013 18:14
Carbon tetrachloride	U		0.00050	0.0010	mg/L	1	12/3/2013 18:14
Chloroform	U		0.00020	0.0010	mg/L	1	12/3/2013 18:14
Ethylbenzene	U		0.00030	0.0010	mg/L	1	12/3/2013 18:14
Methylene chloride	U		0.00040	0.0020	mg/L	1	12/3/2013 18:14
Tetrachloroethene	U		0.00030	0.0010	mg/L	1	12/3/2013 18:14
Toluene	U		0.00020	0.0010	mg/L	1	12/3/2013 18:14
Trichloroethene	U		0.00020	0.0010	mg/L	1	12/3/2013 18:14
Vinyl chloride	U		0.00020	0.0010	mg/L	1	12/3/2013 18:14
Xylenes, Total	U		0.00050	0.0010	mg/L	1	12/3/2013 18:14
Surr: 1,2-Dichloroethane-d4	125			71-125	%REC	1	12/3/2013 18:14
Surr: 4-Bromofluorobenzene	114			70-125	%REC	1	12/3/2013 18:14
Surr: Dibromofluoromethane	120			74-125	%REC	1	12/3/2013 18:14
Surr: Toluene-d8	116			75-125	%REC	1	12/3/2013 18:14
MISCELLANEOUS ANALYSIS			Method:NA			Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	12/18/2013
ANIONS - EPA 300.0 (1993)			Method:E300			Analyst: JKP	
Chloride	331		10	25.0	mg/L	50	12/4/2013 16:47
Fluoride	1.61		0.050	0.100	mg/L	1	12/4/2013 13:32
Sulfate	2,470		10	25.0	mg/L	50	12/4/2013 16:47
Nitrate/Nitrite (as N)	0.457	J	0.15	1.00	mg/L	5	12/2/2013 23:46
CYANIDE - SM4500CN E			Method:M4500CN E&G			Analyst: KKB	
Cyanide	U		0.0050	0.0200	mg/L	1	12/3/2013 08:45
PH - SM4500H+ B			Method:SM4500H+ B			Analyst: KL	
pH	6.81	H	0.10	0.100	pH Units	1	11/26/2013 09:00
Temp Deg C @pH	20.1	H	0		°C	1	11/26/2013 09:00
TOTAL DISSOLVED SOLIDS			Method:M2540C			Analyst: KAH	

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

ALS Environmental

Date: 18-Dec-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-116
Collection Date: 11/20/2013 04:30 PM

Work Order: 13111187
Lab ID: 13111187-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Total Dissolved Solids (Residue, Filterable)	4,570		5.0	10.0	mg/L	1	11/26/2013 17:30

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

ALS Environmental

Date: 18-Dec-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: DUP-01
Collection Date: 11/20/2013

Work Order: 13111187
Lab ID: 13111187-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO 8015C							
			Method: SW8015M		Prep: SW3511 / 11/26/13		Analyst: RPM
TPH (Diesel Range)	U		0.021	0.053	mg/L	1	11/27/2013 14:19
TPH (Oil Range)	U		0.043	0.11	mg/L	1	11/27/2013 14:19
Surr: 2-Fluorobiphenyl	114			60-135	%REC	1	11/27/2013 14:19
GASOLINE RANGE ORGANICS - SW8015C							
			Method: SW8015				Analyst: KKP
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	12/3/2013 03:43
Surr: 4-Bromofluorobenzene	98.1			70-130	%REC	1	12/3/2013 03:43
DISSOLVED METALS							
			Method: SW6020		Prep: SW3010A / 11/25/13		Analyst: ALR
Aluminum	0.00730	J	0.0040	0.0100	mg/L	1	11/26/2013 05:14
Arsenic	0.00526		0.0010	0.00500	mg/L	1	11/26/2013 05:14
Barium	0.0110		0.00090	0.00500	mg/L	1	11/26/2013 05:14
Boron	0.307		0.020	0.0500	mg/L	1	11/27/2013 13:20
Cadmium	U		0.00080	0.00200	mg/L	1	11/26/2013 05:14
Calcium	616		4.3	25.0	mg/L	50	11/26/2013 17:29
Chromium	U		0.0010	0.00500	mg/L	1	11/26/2013 05:14
Cobalt	U		0.00080	0.00500	mg/L	1	11/26/2013 05:14
Copper	U		0.0010	0.00500	mg/L	1	11/26/2013 05:14
Iron	0.132	J	0.078	0.200	mg/L	1	11/26/2013 05:14
Lead	U		0.00070	0.00500	mg/L	1	11/26/2013 05:14
Manganese	0.00576		0.0025	0.00500	mg/L	1	11/26/2013 05:14
Molybdenum	0.00336	J	0.0015	0.00500	mg/L	1	11/26/2013 05:14
Nickel	0.00144	J	0.0010	0.00500	mg/L	1	11/26/2013 05:14
Potassium	1.37		0.084	0.200	mg/L	1	11/26/2013 05:14
Selenium	0.00582		0.0010	0.00500	mg/L	1	11/26/2013 05:14
Silver	U		0.00080	0.00500	mg/L	1	11/26/2013 05:14
Sodium	235		4.2	10.0	mg/L	50	11/26/2013 17:29
Uranium	0.0387		0.0050	0.00500	mg/L	1	11/26/2013 05:14
Zinc	0.0218		0.0025	0.00500	mg/L	1	11/26/2013 05:14
LOW-LEVEL SEMIVOLATILES							
			Method: SW8270		Prep: SW3510 / 11/26/13		Analyst: ACN
1-Methylnaphthalene	U		0.000030	0.00020	mg/L	1	11/26/2013 17:22
2-Methylnaphthalene	U		0.000034	0.00020	mg/L	1	11/26/2013 17:22
Benzo(a)pyrene	U		0.000030	0.00020	mg/L	1	11/26/2013 17:22
Naphthalene	U		0.000050	0.00020	mg/L	1	11/26/2013 17:22
Surr: 2,4,6-Tribromophenol	39.3			34-129	%REC	1	11/26/2013 17:22
Surr: 2-Fluorobiphenyl	46.4			40-125	%REC	1	11/26/2013 17:22
Surr: 2-Fluorophenol	37.5			20-120	%REC	1	11/26/2013 17:22
Surr: 4-Terphenyl-d14	68.5			40-135	%REC	1	11/26/2013 17:22
Surr: Nitrobenzene-d5	42.4			41-120	%REC	1	11/26/2013 17:22

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

ALS Environmental

Date: 18-Dec-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: DUP-01
Collection Date: 11/20/2013

Work Order: 13111187
Lab ID: 13111187-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Phenol-d6	38.2			20-120	%REC	1	11/26/2013 17:22
LOW LEVEL VOLATILES - SW8260C			Method:SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00020	0.0010	mg/L	1	12/3/2013 18:38
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	12/3/2013 18:38
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	12/3/2013 18:38
1,1-Dichloroethane	U		0.00020	0.0010	mg/L	1	12/3/2013 18:38
1,1-Dichloroethene	U		0.00020	0.0010	mg/L	1	12/3/2013 18:38
1,2-Dibromoethane	U		0.00020	0.0010	mg/L	1	12/3/2013 18:38
1,2-Dichloroethane	U		0.00020	0.0010	mg/L	1	12/3/2013 18:38
Benzene	U		0.00020	0.0010	mg/L	1	12/3/2013 18:38
Carbon tetrachloride	U		0.00050	0.0010	mg/L	1	12/3/2013 18:38
Chloroform	U		0.00020	0.0010	mg/L	1	12/3/2013 18:38
Ethylbenzene	U		0.00030	0.0010	mg/L	1	12/3/2013 18:38
Methylene chloride	U		0.00040	0.0020	mg/L	1	12/3/2013 18:38
Tetrachloroethene	U		0.00030	0.0010	mg/L	1	12/3/2013 18:38
Toluene	U		0.00020	0.0010	mg/L	1	12/3/2013 18:38
Trichloroethene	U		0.00020	0.0010	mg/L	1	12/3/2013 18:38
Vinyl chloride	U		0.00020	0.0010	mg/L	1	12/3/2013 18:38
Xylenes, Total	U		0.00050	0.0010	mg/L	1	12/3/2013 18:38
Surr: 1,2-Dichloroethane-d4	124			71-125	%REC	1	12/3/2013 18:38
Surr: 4-Bromofluorobenzene	111			70-125	%REC	1	12/3/2013 18:38
Surr: Dibromofluoromethane	120			74-125	%REC	1	12/3/2013 18:38
Surr: Toluene-d8	116			75-125	%REC	1	12/3/2013 18:38
MISCELLANEOUS ANALYSIS			Method:NA			Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	12/18/2013
ANIONS - EPA 300.0 (1993)			Method:E300			Analyst: JKP	
Chloride	331		10	25.0	mg/L	50	12/4/2013 17:02
Fluoride	1.51		0.050	0.100	mg/L	1	12/4/2013 13:46
Sulfate	2,470		10	25.0	mg/L	50	12/4/2013 17:02
Nitrate/Nitrite (as N)	0.487	J	0.15	1.00	mg/L	5	12/3/2013
CYANIDE - SM4500CN E			Method:M4500CN E&G			Analyst: KKB	
Cyanide	U		0.0050	0.0200	mg/L	1	12/3/2013 08:45
PH - SM4500H+ B			Method:SM4500H+ B			Analyst: KL	
pH	6.86	H	0.10	0.100	pH Units	1	11/26/2013 09:00
Temp Deg C @pH	19.3	H	0		°C	1	11/26/2013 09:00
TOTAL DISSOLVED SOLIDS			Method:M2540C			Analyst: KAH	

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

ALS Environmental

Date: 18-Dec-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: DUP-01
Collection Date: 11/20/2013

Work Order: 13111187
Lab ID: 13111187-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Total Dissolved Solids (Residue, Filterable)	4,210		5.0	10.0	mg/L	1	11/25/2013 11:40

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

ALS Environmental

Date: 18-Dec-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: Trip Blank 110613-73
Collection Date: 11/23/2013

Work Order: 13111187
Lab ID: 13111187-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00020	0.0010	mg/L	1	12/4/2013 16:34
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	12/4/2013 16:34
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	12/4/2013 16:34
1,1-Dichloroethane	U		0.00020	0.0010	mg/L	1	12/4/2013 16:34
1,1-Dichloroethene	U		0.00020	0.0010	mg/L	1	12/4/2013 16:34
1,2-Dibromoethane	U		0.00020	0.0010	mg/L	1	12/4/2013 16:34
1,2-Dichloroethane	U		0.00020	0.0010	mg/L	1	12/4/2013 16:34
Benzene	U		0.00020	0.0010	mg/L	1	12/4/2013 16:34
Carbon tetrachloride	U		0.00050	0.0010	mg/L	1	12/4/2013 16:34
Chloroform	U		0.00020	0.0010	mg/L	1	12/4/2013 16:34
Ethylbenzene	U		0.00030	0.0010	mg/L	1	12/4/2013 16:34
Methylene chloride	U		0.00040	0.0020	mg/L	1	12/4/2013 16:34
Tetrachloroethene	U		0.00030	0.0010	mg/L	1	12/4/2013 16:34
Toluene	U		0.00020	0.0010	mg/L	1	12/4/2013 16:34
Trichloroethene	U		0.00020	0.0010	mg/L	1	12/4/2013 16:34
Vinyl chloride	U		0.00020	0.0010	mg/L	1	12/4/2013 16:34
Xylenes, Total	U		0.00050	0.0010	mg/L	1	12/4/2013 16:34
Surr: 1,2-Dichloroethane-d4	119			71-125	%REC	1	12/4/2013 16:34
Surr: 4-Bromofluorobenzene	106			70-125	%REC	1	12/4/2013 16:34
Surr: Dibromofluoromethane	114			74-125	%REC	1	12/4/2013 16:34
Surr: Toluene-d8	109			75-125	%REC	1	12/4/2013 16:34

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

Work Order: 13111187
Client: Navajo Refining Company
Project: RO Discharge Sampling

DATES REPORT

Sample ID	Client Sample ID	Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
<u>Batch ID</u> 74938		<u>Test Name:</u> Dissolved Metals				
13111187-01E	MW-116	Water	11/20/2013 4:30:00 PM		11/25/2013 10:00 AM	11/26/2013 05:10 AM
					11/25/2013 10:00 AM	11/26/2013 05:24 PM
					11/25/2013 10:00 AM	11/26/2013 06:50 PM
					11/25/2013 10:00 AM	11/27/2013 01:17 PM
13111187-02E	DUP-01		11/20/2013		11/25/2013 10:00 AM	11/26/2013 05:14 AM
					11/25/2013 10:00 AM	11/26/2013 05:29 PM
					11/25/2013 10:00 AM	11/27/2013 01:20 PM
<u>Batch ID</u> 74973		<u>Test Name:</u> Low-Level Semivolatiles				
13111187-01	MW-116	Water	11/20/2013 4:30:00 PM		11/26/2013 07:34 AM	11/26/2013 04:40 PM
13111187-02	DUP-01		11/20/2013		11/26/2013 07:34 AM	11/26/2013 05:22 PM
<u>Batch ID</u> 74990B		<u>Test Name:</u> TPH DRO/ORO 8015C				
13111187-02C	DUP-01	Water	11/20/2013		11/26/2013 01:33 PM	11/27/2013 02:19 PM
<u>Batch ID</u> 75019		<u>Test Name:</u> TPH DRO/ORO 8015C				
13111187-01C	MW-116	Water	11/20/2013 4:30:00 PM		11/27/2013 09:52 AM	12/3/2013 09:28 PM
<u>Batch ID</u> R157759		<u>Test Name:</u> Total Dissolved Solids				
13111187-02F	DUP-01	Water	11/20/2013			11/25/2013 11:40 AM
<u>Batch ID</u> R157787		<u>Test Name:</u> pH - SM4500H+ B				
13111187-01F	MW-116	Water	11/20/2013 4:30:00 PM			11/26/2013 09:00 AM
13111187-02F	DUP-01		11/20/2013			11/26/2013 09:00 AM
<u>Batch ID</u> R157905		<u>Test Name:</u> Total Dissolved Solids				
13111187-01F	MW-116	Water	11/20/2013 4:30:00 PM			11/26/2013 05:30 PM

Work Order: 13111187
Client: Navajo Refining Company
Project: RO Discharge Sampling

DATES REPORT

Sample ID	Client Sample ID	Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
<u>Batch ID R157956</u> <u>Test Name:</u> Anions - EPA 300.0 (1993)						
13111187-01G	MW-116	Water	11/20/2013 4:30:00 PM			12/2/2013 11:46 PM
13111187-02G	DUP-01		11/20/2013			12/3/2013
<u>Batch ID R157973</u> <u>Test Name:</u> Low Level Volatiles - SW8260C						
13111187-01A	MW-116	Water	11/20/2013 4:30:00 PM			12/3/2013 06:14 PM
13111187-02A	DUP-01		11/20/2013			12/3/2013 06:38 PM
<u>Batch ID R158023</u> <u>Test Name:</u> Gasoline Range Organics - SW8015C						
13111187-01B	MW-116	Water	11/20/2013 4:30:00 PM			12/3/2013 03:25 AM
13111187-02B	DUP-01		11/20/2013			12/3/2013 03:43 AM
<u>Batch ID R158074</u> <u>Test Name:</u> Cyanide - SM4500CN E						
13111187-01	MW-116	Water	11/20/2013 4:30:00 PM			12/3/2013 08:45 AM
13111187-02	DUP-01		11/20/2013			12/3/2013 08:45 AM
<u>Batch ID R158097</u> <u>Test Name:</u> Low Level Volatiles - SW8260C						
13111187-03A	Trip Blank 110613-73	Water	11/23/2013			12/4/2013 04:34 PM
<u>Batch ID R158112</u> <u>Test Name:</u> Anions - EPA 300.0 (1993)						
13111187-01F	MW-116	Water	11/20/2013 4:30:00 PM			12/4/2013 01:32 PM
						12/4/2013 04:47 PM
13111187-02F	DUP-01		11/20/2013			12/4/2013 01:46 PM
						12/4/2013 05:02 PM
<u>Batch ID R158719</u> <u>Test Name:</u> Miscellaneous Analysis						
13111187-01I	MW-116	Water	11/20/2013 4:30:00 PM			12/18/2013
13111187-02I	DUP-01		11/20/2013			12/18/2013

ALS Environmental

Date: 18-Dec-13

Client: Navajo Refining Company
Work Order: 13111187
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **74990B** Instrument ID **FID-16** Method: **SW8015M**

MBLK	Sample ID: LBLKW-131126-74990B				Units: mg/L		Analysis Date: 11/27/2013 03:29 AM			
Client ID:	Run ID: FID-16_131126A				SeqNo: 3457741		Prep Date: 11/26/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	U	0.050								
TPH (Oil Range)	U	0.10								
<i>Surr: 2-Fluorobiphenyl</i>	0.07386	0.0050	0.06061	0	122	60-135	0			

LCS	Sample ID: LLCSW-131126-74990B				Units: mg/L		Analysis Date: 11/27/2013 03:55 AM			
Client ID:	Run ID: FID-16_131126A				SeqNo: 3457742		Prep Date: 11/26/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.5893	0.050	0.6061	0	97.2	70-130				
TPH (Oil Range)	0.5302	0.10	0.6061	0	87.5	70-130				
<i>Surr: 2-Fluorobiphenyl</i>	0.07808	0.0050	0.06061	0	129	60-135	0			

LCSD	Sample ID: LLCSDW-131126-74990B				Units: mg/L		Analysis Date: 11/27/2013 04:21 AM			
Client ID:	Run ID: FID-16_131126A				SeqNo: 3457743		Prep Date: 11/26/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.5356	0.050	0.6061	0	88.4	70-130	0.5893	9.55	20	
TPH (Oil Range)	0.5714	0.10	0.6061	0	94.3	70-130	0.5302	7.49	20	
<i>Surr: 2-Fluorobiphenyl</i>	0.05932	0.0050	0.06061	0	97.9	60-135	0.07808	27.3	20	R

The following samples were analyzed in this batch:

13111187-02C

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

QC Page: 1 of 24

Client: Navajo Refining Company
Work Order: 13111187
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **75019** Instrument ID **FID-16** Method: **SW8015M**

MBLK	Sample ID: LBLKW-131127-75019				Units: mg/L		Analysis Date: 12/3/2013 03:17 PM			
Client ID:	Run ID: FID-16_131127A				SeqNo: 3457707		Prep Date: 11/27/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	U	0.050								
TPH (Oil Range)	U	0.10								
<i>Surr: 2-Fluorobiphenyl</i>	0.06882	0.0050	0.06061	0	114	60-135	0			

LCS	Sample ID: LLCSW-131127-75019				Units: mg/L		Analysis Date: 12/3/2013 03:43 PM			
Client ID:	Run ID: FID-16_131127A				SeqNo: 3457709		Prep Date: 11/27/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.7182	0.050	0.6061	0	119	70-130				
TPH (Oil Range)	0.6655	0.10	0.6061	0	110	70-130				
<i>Surr: 2-Fluorobiphenyl</i>	0.0758	0.0050	0.06061	0	125	60-135	0			

LCSD	Sample ID: LLCSDW-131127-75019				Units: mg/L		Analysis Date: 12/3/2013 04:10 PM			
Client ID:	Run ID: FID-16_131127A				SeqNo: 3457711		Prep Date: 11/27/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.6627	0.050	0.6061	0	109	70-130	0.7182	8.04	20	
TPH (Oil Range)	0.6411	0.10	0.6061	0	106	70-130	0.6655	3.75	20	
<i>Surr: 2-Fluorobiphenyl</i>	0.07659	0.0050	0.06061	0	126	60-135	0.0758	1.04	20	

The following samples were analyzed in this batch:

13111187-01C

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

Client: Navajo Refining Company
 Work Order: 13111187
 Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R158023** Instrument ID **FID-9** Method: **SW8015**

MBLK	Sample ID: GBLKW2-131202-R158023				Units: mg/L		Analysis Date: 12/2/2013 08:31 PM			
Client ID:	Run ID: FID-9_131202C				SeqNo: 3456298		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	0.0500								
Surr: 4-Bromofluorobenzene	0.09923	0.00500	0.1	0	99.2	70-130	0			

LCS	Sample ID: GLCSW2-131202-R158023				Units: mg/L		Analysis Date: 12/2/2013 07:54 PM			
Client ID:	Run ID: FID-9_131202C				SeqNo: 3456297		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	1.033	0.0500	1	0	103	70-130				
Surr: 4-Bromofluorobenzene	0.1002	0.00500	0.1	0	100	70-130	0			

MS	Sample ID: 13111253-02BMS				Units: mg/L		Analysis Date: 12/3/2013 12:24 AM			
Client ID:	Run ID: FID-9_131202C				SeqNo: 3456311		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	1.049	0.0500	1	0	105	70-130				
Surr: 4-Bromofluorobenzene	0.09964	0.00500	0.1	0	99.6	70-130	0			

MSD	Sample ID: 13111253-02BMSD				Units: mg/L		Analysis Date: 12/3/2013 12:42 AM			
Client ID:	Run ID: FID-9_131202C				SeqNo: 3456312		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	0.9905	0.0500	1	0	99.1	70-130	1.049	5.7	30	
Surr: 4-Bromofluorobenzene	0.09991	0.00500	0.1	0	99.9	70-130	0.09964	0.277	30	

The following samples were analyzed in this batch:

13111187-01B	13111187-02B
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13111187
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **74938** Instrument ID **ICP7500** Method: **SW6020** **(Dissolve)**

MBLK Sample ID: **MBLKW6-112513-74938** Units: **mg/L** Analysis Date: **11/26/2013 03:51 PM**

Client ID: Run ID: **ICP7500_131126A** SeqNo: **3450394** Prep Date: **11/25/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.005079	0.0100								J
Arsenic	U	0.00500								
Barium	U	0.00500								
Boron	U	0.0500								
Cadmium	U	0.00200								
Calcium	U	0.500								
Chromium	U	0.00500								
Cobalt	U	0.00500								
Copper	U	0.00500								
Iron	U	0.200								
Lead	U	0.00500								
Manganese	U	0.00500								
Molybdenum	U	0.00500								
Nickel	U	0.00500								
Potassium	U	0.200								
Selenium	U	0.00500								
Silver	U	0.00500								
Sodium	U	0.200								
Uranium	U	0.00500								
Zinc	0.00409	0.00500								J

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

Client: Navajo Refining Company
Work Order: 13111187
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **74938** Instrument ID **ICP7500** Method: **SW6020** **(Dissolve)**

LCS Sample ID: **MLCSW6-112513-74938** Units: **mg/L** Analysis Date: **11/26/2013 04:21 AM**

Client ID: Run ID: **ICP7500_131125A** SeqNo: **3449549** Prep Date: **11/25/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1099	0.0100	0.1	0	110	80-120				
Arsenic	0.05141	0.00500	0.05	0	103	80-120				
Barium	0.05065	0.00500	0.05	0	101	80-120				
Boron	0.4911	0.0500	0.5	0	98.2	80-120				
Cadmium	0.04961	0.00200	0.05	0	99.2	80-120				
Calcium	5.056	0.500	5	0	101	80-120				
Chromium	0.0519	0.00500	0.05	0	104	80-120				
Cobalt	0.05168	0.00500	0.05	0	103	80-120				
Copper	0.05218	0.00500	0.05	0	104	80-120				
Iron	5.202	0.200	5	0	104	80-120				
Lead	0.05065	0.00500	0.05	0	101	80-120				
Manganese	0.05367	0.00500	0.05	0	107	80-120				
Molybdenum	0.0493	0.00500	0.05	0	98.6	80-120				
Nickel	0.05122	0.00500	0.05	0	102	80-120				
Potassium	4.989	0.200	5	0	99.8	80-120				
Selenium	0.05042	0.00500	0.05	0	101	80-120				
Silver	0.05165	0.00500	0.05	0	103	80-120				
Uranium	0.09498	0.00500	0.1	0	95	80-120				
Zinc	0.05473	0.00500	0.05	0	109	80-120				

LCS Sample ID: **MLCSW6-112513-74938** Units: **mg/L** Analysis Date: **11/26/2013 03:56 PM**

Client ID: Run ID: **ICP7500_131126A** SeqNo: **3450395** Prep Date: **11/25/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	5.183	0.200	5	0	104	80-120				

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

Client: Navajo Refining Company
Work Order: 13111187
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **74938** Instrument ID **ICP7500** Method: **SW6020** (Dissolve)

MS Sample ID: **1311934-06CMS** Units: **mg/L** Analysis Date: **11/26/2013 04:40 AM**

Client ID: Run ID: **ICP7500_131125A** SeqNo: **3449553** Prep Date: **11/25/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1146	0.0100	0.1	0.007725	107	75-125				
Barium	36.63	0.00500	0.05	38.83	-4400	75-125				SEO
Boron	12.36	0.0500	0.5	12.27	18	75-125				SEO
Cadmium	0.04905	0.00200	0.05	0.00008766	97.9	75-125				
Lead	0.05122	0.00500	0.05	-0.0001674	103	75-125				
Molybdenum	0.05261	0.00500	0.05	0.0007769	104	75-125				
Potassium	9.723	0.200	5	4.865	97.2	75-125				
Silver	0.04794	0.00500	0.05	-0.0004062	96.7	75-125				
Sodium	U	0.200	5	0	0	75-125				SX
Uranium	0.1013	0.00500	0.1	-0.0001365	101	75-125				

MS Sample ID: **1311934-06CMS** Units: **mg/L** Analysis Date: **11/26/2013 04:31 PM**

Client ID: Run ID: **ICP7500_131126A** SeqNo: **3450593** Prep Date: **11/25/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.0573	0.00500	0.05	0.005024	105	75-125				
Calcium	67.4	0.500	5	64.91	49.8	75-125				SO
Chromium	0.05177	0.00500	0.05	0	104	75-125				
Cobalt	0.04989	0.00500	0.05	0.0008988	98	75-125				
Copper	0.04791	0.00500	0.05	0	95.8	75-125				
Iron	6.283	0.200	5	1.625	93.2	75-125				
Manganese	0.09802	0.00500	0.05	0.05231	91.4	75-125				
Nickel	0.04913	0.00500	0.05	0	98.3	75-125				
Selenium	0.0515	0.00500	0.05	0	103	75-125				
Zinc	0.06288	0.00500	0.05	0.01235	101	75-125				

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

Client: Navajo Refining Company
Work Order: 13111187
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **74938** Instrument ID **ICP7500** Method: **SW6020** **(Dissolve)**

MSD Sample ID: **1311934-06CMSD** Units: **mg/L** Analysis Date: **11/26/2013 04:45 AM**

Client ID: Run ID: **ICP7500_131125A** SeqNo: **3449554** Prep Date: **11/25/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1108	0.0100	0.1	0.007725	103	75-125	0.1146	3.37	25	
Arsenic	0.05436	0.00500	0.05	0.005024	98.7	75-125	0.05636	3.61	25	
Barium	35.64	0.00500	0.05	38.83	-6380	75-125	36.63	2.74	25	SEO
Boron	12.21	0.0500	0.5	12.27	-12	75-125	12.36	1.22	25	SEO
Cadmium	0.0469	0.00200	0.05	0.00008766	93.6	75-125	0.04905	4.48	25	
Calcium	66.04	0.500	5	64.91	22.6	75-125	67.12	1.62	25	SO
Chromium	0.0486	0.00500	0.05	0.000705	95.8	75-125	0.05175	6.28	25	
Cobalt	0.04761	0.00500	0.05	0.0008988	93.4	75-125	0.05009	5.08	25	
Copper	0.04531	0.00500	0.05	-0.0003358	91.3	75-125	0.04751	4.74	25	
Iron	6.027	0.200	5	1.625	88	75-125	6.403	6.05	25	
Lead	0.04965	0.00500	0.05	-0.0001674	99.6	75-125	0.05122	3.11	25	
Manganese	0.09378	0.00500	0.05	0.05231	82.9	75-125	0.1004	6.82	25	
Molybdenum	0.05151	0.00500	0.05	0.0007769	101	75-125	0.05261	2.11	25	
Nickel	0.04559	0.00500	0.05	0.0007887	89.6	75-125	0.0489	7.01	25	
Potassium	9.507	0.200	5	4.865	92.8	75-125	9.723	2.25	25	
Selenium	0.04751	0.00500	0.05	0.0008209	93.4	75-125	0.05051	6.12	25	
Silver	0.047	0.00500	0.05	-0.0004062	94.8	75-125	0.04794	1.98	25	
Sodium	U	0.200	5	0	0	75-125	0	0	25	SX
Uranium	0.0989	0.00500	0.1	-0.0001365	99	75-125	0.1013	2.4	25	
Zinc	0.06053	0.00500	0.05	0.01235	96.4	75-125	0.06357	4.9	25	

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

Client: Navajo Refining Company
Work Order: 13111187
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **74938** Instrument ID **ICP7500** Method: **SW6020** (Dissolve)

DUP		Sample ID: 1311934-06CDUP		Units: mg/L		Analysis Date: 11/26/2013 04:30 AM				
Client ID:		Run ID: ICP7500_131125A		SeqNo: 3449551		Prep Date: 11/25/2013		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.00616	0.0100					0.007725	0	25	J
Arsenic	0.005234	0.00500					0.005024	4.09	25	
Cadmium	U	0.00200					0.00008766	0	25	
Calcium	63.59	0.500					64.91	2.05	25	
Chromium	U	0.00500					0.000705	0	25	
Cobalt	0.0008663	0.00500					0.0008988	0	25	J
Copper	U	0.00500					-0.0003358	0	25	
Iron	1.38	0.200					1.625	16.3	25	
Lead	U	0.00500					-0.0001674	0	25	
Manganese	0.04698	0.00500					0.05231	10.7	25	
Molybdenum	U	0.00500					0.0007769	0	25	
Nickel	U	0.00500					0.0007887	0	25	
Potassium	4.664	0.200					4.865	4.22	25	
Selenium	0.001275	0.00500					0.0008209	0	25	J
Silver	U	0.00500					-0.0004062	0	25	
Uranium	U	0.00500					-0.0001365	0	25	
Zinc	0.01187	0.00500					0.01235	3.96	25	

DUP		Sample ID: 1311934-06CDUP		Units: mg/L		Analysis Date: 11/26/2013 04:06 PM				
Client ID:		Run ID: ICP7500_131126A		SeqNo: 3450542		Prep Date: 11/25/2013		DF: 50		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	33.96	0.250					37.96	11.1	25	
Boron	10.02	2.50					11.28	11.8	25	

The following samples were analyzed in this batch:

13111187-01E 13111187-02E

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

Client: Navajo Refining Company
Work Order: 13111187
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **74973** Instrument ID **SV-4** Method: **SW8270**

MBLK Sample ID: **SBLKW1-131126-74973** Units: **µg/L** Analysis Date: **11/26/2013 05:05 PM**

Client ID: Run ID: **SV-4_131126A** SeqNo: **3451914** Prep Date: **11/26/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	U	0.20								
2-Methylnaphthalene	U	0.20								
Benzo(a)pyrene	U	0.20								
Naphthalene	U	0.20								
Surr: 2,4,6-Tribromophenol	3.583	0.20	5	0	71.7	34-129	0			
Surr: 2-Fluorobiphenyl	3.466	0.20	5	0	69.3	40-125	0			
Surr: 2-Fluorophenol	3.106	0.20	5	0	62.1	20-120	0			
Surr: 4-Terphenyl-d14	4.479	0.20	5	0	89.6	40-135	0			
Surr: Nitrobenzene-d5	3.192	0.20	5	0	63.8	41-120	0			
Surr: Phenol-d6	2.816	0.20	5	0	56.3	20-120	0			

LCS Sample ID: **SLCSW1-131126-74973** Units: **µg/L** Analysis Date: **11/26/2013 05:25 PM**

Client ID: Run ID: **SV-4_131126A** SeqNo: **3451915** Prep Date: **11/26/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	3.803	0.20	5	0	76.1	45-120				
2-Methylnaphthalene	3.701	0.20	5	0	74	50-120				
Benzo(a)pyrene	4.305	0.20	5	0	86.1	45-120				
Naphthalene	3.749	0.20	5	0	75	45-120				
Surr: 2,4,6-Tribromophenol	4.877	0.20	5	0	97.5	34-129	0			
Surr: 2-Fluorobiphenyl	3.823	0.20	5	0	76.5	40-125	0			
Surr: 2-Fluorophenol	3.367	0.20	5	0	67.3	20-120	0			
Surr: 4-Terphenyl-d14	3.983	0.20	5	0	79.7	40-135	0			
Surr: Nitrobenzene-d5	3.45	0.20	5	0	69	41-120	0			
Surr: Phenol-d6	3.572	0.20	5	0	71.4	20-120	0			

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

Client: Navajo Refining Company
Work Order: 13111187
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **74973** Instrument ID **SV-4** Method: **SW8270**

LCSD Sample ID: **SLCSDW1-131126-74973** Units: **µg/L** Analysis Date: **11/26/2013 05:46 PM**

Client ID: Run ID: **SV-4_131126A** SeqNo: **3451916** Prep Date: **11/26/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	4.143	0.20	5	0	82.9	45-120	3.803	8.56	20	
2-Methylnaphthalene	4.022	0.20	5	0	80.4	50-120	3.701	8.3	20	
Benzo(a)pyrene	4.867	0.20	5	0	97.3	45-120	4.305	12.2	20	
Naphthalene	3.815	0.20	5	0	76.3	45-120	3.749	1.74	20	
<i>Surr: 2,4,6-Tribromophenol</i>	4.519	0.20	5	0	90.4	34-129	4.877	7.63	0	
<i>Surr: 2-Fluorobiphenyl</i>	3.597	0.20	5	0	71.9	40-125	3.823	6.09	0	
<i>Surr: 2-Fluorophenol</i>	3.41	0.20	5	0	68.2	20-120	3.367	1.28	0	
<i>Surr: 4-Terphenyl-d14</i>	4.253	0.20	5	0	85.1	40-135	3.983	6.55	0	
<i>Surr: Nitrobenzene-d5</i>	3.315	0.20	5	0	66.3	41-120	3.45	3.98	0	
<i>Surr: Phenol-d6</i>	3.376	0.20	5	0	67.5	20-120	3.572	5.65	0	

The following samples were analyzed in this batch:

13111187-01D	13111187-02D
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13111187
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157973** Instrument ID **VOA4** Method: **SW8260**

MBLK		Sample ID: VBLKW-131203-R157973				Units: µg/L		Analysis Date: 12/3/2013 11:13 AM		
Client ID:		Run ID: VOA4_131203A				SeqNo: 3455211		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichloroethane	U	1.0								
Benzene	U	1.0								
Carbon tetrachloride	U	1.0								
Chloroform	U	1.0								
Ethylbenzene	U	1.0								
Methylene chloride	U	2.0								
Tetrachloroethene	U	1.0								
Toluene	U	1.0								
Trichloroethene	U	1.0								
Vinyl chloride	U	1.0								
Xylenes, Total	U	3.0								
<i>Surr: 1,2-Dichloroethane-d4</i>	59.13	1.0	50	0	118	71-125	0			
<i>Surr: 4-Bromofluorobenzene</i>	53.31	1.0	50	0	107	70-125	0			
<i>Surr: Dibromofluoromethane</i>	56.76	1.0	50	0	114	74-125	0			
<i>Surr: Toluene-d8</i>	55.64	1.0	50	0	111	75-125	0			

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

Client: Navajo Refining Company
Work Order: 13111187
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157973** Instrument ID **VOA4** Method: **SW8260**

LCS	Sample ID: VLCSW-131203-R157973					Units: µg/L	Analysis Date: 12/3/2013 10:24 AM			
Client ID:	Run ID: VOA4_131203A				SeqNo:3455210		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	59.56	1.0	50	0	119	75-130				
1,1,2,2-Tetrachloroethane	51.02	1.0	50	0	102	74-123				
1,1,2-Trichloroethane	51.66	1.0	50	0	103	80-120				
1,1-Dichloroethane	57.26	1.0	50	0	115	80-120				
1,1-Dichloroethene	60.43	1.0	50	0	121	75-130				
1,2-Dibromoethane	52.61	1.0	50	0	105	80-120				
1,2-Dichloroethane	52.48	1.0	50	0	105	79-120				
Benzene	54.13	1.0	50	0	108	80-120				
Carbon tetrachloride	54.33	1.0	50	0	109	75-125				
Chloroform	55.19	1.0	50	0	110	70-130				
Ethylbenzene	52.55	1.0	50	0	105	80-120				
Methylene chloride	58.04	2.0	50	0	116	65-133				
Tetrachloroethene	52.04	1.0	50	0	104	75-130				
Toluene	52.2	1.0	50	0	104	80-121				
Trichloroethene	53.23	1.0	50	0	106	75-125				
Vinyl chloride	60.81	1.0	50	0	122	70-135				
Xylenes, Total	155	3.0	150	0	103	80-124				
Surr: 1,2-Dichloroethane-d4	58.37	1.0	50	0	117	71-125		0		
Surr: 4-Bromofluorobenzene	57.61	1.0	50	0	115	70-125		0		
Surr: Dibromofluoromethane	59.15	1.0	50	0	118	74-125		0		
Surr: Toluene-d8	55.4	1.0	50	0	111	75-125		0		

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

Client: Navajo Refining Company
Work Order: 13111187
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157973** Instrument ID **VOA4** Method: **SW8260**

MS				Sample ID: 13111059-52AMS		Units: µg/L		Analysis Date: 12/3/2013 02:30 PM		
Client ID:		Run ID: VOA4_131203A			SeqNo: 3456152		Prep Date:		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	626.1	10	500	0	125	75-130				
1,1,2,2-Tetrachloroethane	541.3	10	500	0	108	74-123				
1,1,2-Trichloroethane	555.3	10	500	0	111	80-120				
1,1-Dichloroethane	606.3	10	500	0	121	80-120				S
1,1-Dichloroethene	635.9	10	500	0	127	75-130				
1,2-Dibromoethane	559.5	10	500	0	112	80-120				
1,2-Dichloroethane	578.5	10	500	0	116	79-120				
Benzene	1480	10	500	863	123	80-120				S
Carbon tetrachloride	578.7	10	500	0	116	79-120				
Chloroform	589	10	500	0	118	70-130				
Ethylbenzene	552.4	10	500	0	110	80-120				
Methylene chloride	614.1	20	500	0	123	65-133				
Tetrachloroethene	546.5	10	500	0	109	75-130				
Toluene	547.3	10	500	0	109	80-121				
Trichloroethene	560.1	10	500	0	112	75-125				
Vinyl chloride	646.2	10	500	0	129	70-135				
Xylenes, Total	1648	30	1500	0	110	80-124				
Surr: 1,2-Dichloroethane-d4	588	10	500	0	118	71-125		0		
Surr: 4-Bromofluorobenzene	575.5	10	500	0	115	70-125		0		
Surr: Dibromofluoromethane	601	10	500	0	120	74-125		0		
Surr: Toluene-d8	551.9	10	500	0	110	75-125		0		

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

Client: Navajo Refining Company
 Work Order: 13111187
 Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157973** Instrument ID **VOA4** Method: **SW8260**

MSD		Sample ID: 13111059-52AMSD				Units: µg/L		Analysis Date: 12/3/2013 02:55 PM		
Client ID:		Run ID: VOA4_131203A				SeqNo: 3456153		Prep Date:		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	600.4	10	500	0	120	75-130	626.1	4.2	20	
1,1,2,2-Tetrachloroethane	545.7	10	500	0	109	74-123	541.3	0.807	20	
1,1,2-Trichloroethane	543	10	500	0	109	80-120	555.3	2.25	20	
1,1-Dichloroethane	582.3	10	500	0	116	80-120	606.3	4.04	20	
1,1-Dichloroethene	615.2	10	500	0	123	75-130	635.9	3.3	20	
1,2-Dibromoethane	551.1	10	500	0	110	80-120	559.5	1.51	20	
1,2-Dichloroethane	561.4	10	500	0	112	79-120	578.5	3	20	
Benzene	1416	10	500	863	111	80-120	1480	4.41	20	
Carbon tetrachloride	552.9	10	500	0	111	75-125	578.7	4.56	20	
Chloroform	565.8	10	500	0	113	70-130	589	4.02	20	
Ethylbenzene	538.3	10	500	0	108	80-120	552.4	2.58	20	
Methylene chloride	597.4	20	500	0	119	65-133	614.1	2.75	20	
Tetrachloroethene	527.1	10	500	0	105	75-130	546.5	3.63	20	
Toluene	529.4	10	500	0	106	80-121	547.3	3.32	20	
Trichloroethene	543.2	10	500	0	109	75-120	560.1	3.06	20	
Vinyl chloride	622.9	10	500	0	125	70-135	646.2	3.68	20	
Xylenes, Total	1594	30	1500	0	106	80-124	1648	3.35	20	
Surr: 1,2-Dichloroethane-d4	583.2	10	500	0	117	71-125	588	0.823	20	
Surr: 4-Bromofluorobenzene	566.1	10	500	0	113	70-125	575.5	1.64	20	
Surr: Dibromofluoromethane	592.2	10	500	0	118	74-125	601	1.48	20	
Surr: Toluene-d8	550.2	10	500	0	110	75-125	551.9	0.308	20	

The following samples were analyzed in this batch:

13111187-01A 13111187-02A

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

Client: Navajo Refining Company
Work Order: 13111187
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R158097** Instrument ID **VOA4** Method: **SW8260**

MBLK		Sample ID: VBLKW-131203-R158097				Units: µg/L		Analysis Date: 12/4/2013 11:14 AM		
Client ID:		Run ID: VOA4_131204A				SeqNo: 3457811		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichloroethane	U	1.0								
Benzene	U	1.0								
Carbon tetrachloride	U	1.0								
Chloroform	U	1.0								
Ethylbenzene	U	1.0								
Methylene chloride	U	2.0								
Tetrachloroethene	U	1.0								
Toluene	U	1.0								
Trichloroethene	U	1.0								
Vinyl chloride	U	1.0								
Xylenes, Total	U	3.0								
<i>Surr: 1,2-Dichloroethane-d4</i>	59.21	1.0	50	0	118	71-125	0			
<i>Surr: 4-Bromofluorobenzene</i>	53.57	1.0	50	0	107	70-125	0			
<i>Surr: Dibromofluoromethane</i>	56.22	1.0	50	0	112	74-125	0			
<i>Surr: Toluene-d8</i>	54.63	1.0	50	0	109	75-125	0			

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

Client: Navajo Refining Company
Work Order: 13111187
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R158097** Instrument ID **VOA4** Method: **SW8260**

LCS				Sample ID: VLCSW-131203-R158097		Units: µg/L		Analysis Date: 12/4/2013 10:24 AM		
Client ID:		Run ID: VOA4_131204A			SeqNo: 3457810		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	52.63	1.0	50	0	105	75-130				
1,1,2,2-Tetrachloroethane	48.12	1.0	50	0	96.2	74-123				
1,1,2-Trichloroethane	47.64	1.0	50	0	95.3	80-120				
1,1-Dichloroethane	51.47	1.0	50	0	103	80-120				
1,1-Dichloroethene	54.46	1.0	50	0	109	75-130				
1,2-Dibromoethane	48.08	1.0	50	0	96.2	80-120				
1,2-Dichloroethane	48.27	1.0	50	0	96.5	79-120				
Benzene	49.75	1.0	50	0	99.5	80-120				
Carbon tetrachloride	48.69	1.0	50	0	97.4	75-125				
Chloroform	50.04	1.0	50	0	100	70-130				
Ethylbenzene	46.88	1.0	50	0	93.8	80-120				
Methylene chloride	54	2.0	50	0	108	65-133				
Tetrachloroethene	46.21	1.0	50	0	92.4	75-130				
Toluene	47.06	1.0	50	0	94.1	80-121				
Trichloroethene	48.1	1.0	50	0	96.2	75-125				
Vinyl chloride	54.76	1.0	50	0	110	70-135				
Xylenes, Total	138.9	3.0	150	0	92.6	80-124				
Surr: 1,2-Dichloroethane-d4	55.92	1.0	50	0	112	71-125		0		
Surr: 4-Bromofluorobenzene	55.89	1.0	50	0	112	70-125		0		
Surr: Dibromofluoromethane	57.37	1.0	50	0	115	74-125		0		
Surr: Toluene-d8	53.5	1.0	50	0	107	75-125		0		

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

Client: Navajo Refining Company
Work Order: 13111187
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R158097** Instrument ID **VOA4** Method: **SW8260**

MS	Sample ID: 13111198-01AMS					Units: µg/L	Analysis Date: 12/4/2013 12:28 PM			
Client ID:	Run ID: VOA4_131204A					SeqNo:3457814	Prep Date:	DF: 25		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	1565	25	1250	0	125	75-130				
1,1,2,2-Tetrachloroethane	1361	25	1250	0	109	74-123				
1,1,2-Trichloroethane	1429	25	1250	0	114	80-120				
1,1-Dichloroethane	1517	25	1250	0	121	80-120				S
1,1-Dichloroethene	1610	25	1250	0	129	75-130				
1,2-Dibromoethane	1365	25	1250	0	109	80-120				
1,2-Dichloroethane	1452	25	1250	0	116	79-120				
Benzene	3558	25	1250	1977	126	80-120				S
Carbon tetrachloride	1397	25	1250	0	112	79-120				
Chloroform	1470	25	1250	0	118	70-130				
Ethylbenzene	2723	25	1250	1058	133	80-120				S
Methylene chloride	1547	50	1250	0	124	65-133				
Tetrachloroethene	1260	25	1250	0	101	75-130				
Toluene	1499	25	1250	133.1	109	80-121				
Trichloroethene	1378	25	1250	0	110	75-125				
Vinyl chloride	1635	25	1250	0	131	70-135				
Xylenes, Total	11600	75	3750	5692	158	80-124				S
Surr: 1,2-Dichloroethane-d4	1441	25	1250	0	115	71-125		0		
Surr: 4-Bromofluorobenzene	1440	25	1250	0	115	70-125		0		
Surr: Dibromofluoromethane	1495	25	1250	0	120	74-125		0		
Surr: Toluene-d8	1390	25	1250	0	111	75-125		0		

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

Client: Navajo Refining Company
 Work Order: 13111187
 Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R158097** Instrument ID **VOA4** Method: **SW8260**

MSD		Sample ID: 13111198-01AMSD				Units: µg/L		Analysis Date: 12/4/2013 12:52 PM		
Client ID:		Run ID: VOA4_131204A				SeqNo: 3457815		Prep Date:		DF: 25
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	1520	25	1250	0	122	75-130	1565	2.94	20	
1,1,2,2-Tetrachloroethane	1357	25	1250	0	109	74-123	1361	0.296	20	
1,1,2-Trichloroethane	1370	25	1250	0	110	80-120	1429	4.2	20	
1,1-Dichloroethane	1478	25	1250	0	118	80-120	1517	2.59	20	
1,1-Dichloroethene	1550	25	1250	0	124	75-130	1610	3.84	20	
1,2-Dibromoethane	1342	25	1250	0	107	80-120	1365	1.71	20	
1,2-Dichloroethane	1420	25	1250	0	114	79-120	1452	2.27	20	
Benzene	3437	25	1250	1977	117	80-120	3558	3.46	20	
Carbon tetrachloride	1414	25	1250	0	113	75-125	1397	1.2	20	
Chloroform	1438	25	1250	0	115	70-130	1470	2.17	20	
Ethylbenzene	2521	25	1250	1058	117	80-120	2723	7.73	20	
Methylene chloride	1513	50	1250	0	121	65-133	1547	2.19	20	
Tetrachloroethene	1246	25	1250	0	99.6	75-130	1260	1.15	20	
Toluene	1447	25	1250	133.1	105	80-121	1499	3.53	20	
Trichloroethene	1353	25	1250	0	108	75-120	1378	1.84	20	
Vinyl chloride	1598	25	1250	0	128	70-135	1635	2.3	20	
Xylenes, Total	10640	75	3750	5692	132	80-124	11600	8.62	20	S
Surr: 1,2-Dichloroethane-d4	1420	25	1250	0	114	71-125	1441	1.51	20	
Surr: 4-Bromofluorobenzene	1417	25	1250	0	113	70-125	1440	1.67	20	
Surr: Dibromofluoromethane	1473	25	1250	0	118	74-125	1495	1.43	20	
Surr: Toluene-d8	1345	25	1250	0	108	75-125	1390	3.33	20	

The following samples were analyzed in this batch:

13111187-03A

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

Client: Navajo Refining Company
Work Order: 13111187
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157759** Instrument ID **Balance1** Method: **M2540C** **(Dissolve)**

MBLK Sample ID: **WBLK-112513-R157759** Units: **mg/L** Analysis Date: **11/25/2013 11:40 AM**

Client ID: Run ID: **BALANCE1_131125D** SeqNo: **3449363** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	U	10.0								

LCS Sample ID: **WLCS-112513-R157759** Units: **mg/L** Analysis Date: **11/25/2013 11:40 AM**

Client ID: Run ID: **BALANCE1_131125D** SeqNo: **3449364** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	980	10.0	1000		0	98	85-115			

DUP Sample ID: **13111054-04CDUP** Units: **mg/L** Analysis Date: **11/25/2013 11:40 AM**

Client ID: Run ID: **BALANCE1_131125D** SeqNo: **3452230** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	200700	10.0					199300	0.73	10	

The following samples were analyzed in this batch:

13111187-02F

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

Client: Navajo Refining Company
Work Order: 13111187
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157787** Instrument ID **WetChem** Method: **SM4500H+ B (Dissolve)**

LCS Sample ID: **WLCS-W11126-R157787** Units: **pH Units** Analysis Date: **11/26/2013 09:00 AM**

Client ID: Run ID: **WETCHEM_131126B** SeqNo: **3450021** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6	0.100	6	0	100	98-102				

DUP Sample ID: **13111121-01EDup** Units: **pH Units** Analysis Date: **11/26/2013 09:00 AM**

Client ID: Run ID: **WETCHEM_131126B** SeqNo: **3450073** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.4	0.100					7.42	0.27	10	H
Temp Deg C @pH	20	0					20.1	0.499		H

The following samples were analyzed in this batch:

13111187-01F 13111187-02F

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

Client: Navajo Refining Company
Work Order: 13111187
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157905** Instrument ID **Balance1** Method: **M2540C** **(Dissolve)**

MBLK Sample ID: **WBLK-112613-R157905** Units: **mg/L** Analysis Date: **11/26/2013 05:30 PM**

Client ID: Run ID: **BALANCE1_131126C** SeqNo: **3453367** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	U	10.0								

LCS Sample ID: **WLCS-112613-R157905** Units: **mg/L** Analysis Date: **11/26/2013 05:30 PM**

Client ID: Run ID: **BALANCE1_131126C** SeqNo: **3453368** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	1016	10.0	1000		0	102	85-115			

DUP Sample ID: **13111054-05CDUP** Units: **mg/L** Analysis Date: **11/26/2013 05:30 PM**

Client ID: Run ID: **BALANCE1_131126C** SeqNo: **3453347** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	213600	10.0					207500	2.9	10	

DUP Sample ID: **13111187-01FDUP** Units: **mg/L** Analysis Date: **11/26/2013 05:30 PM**

Client ID: **MW-116** Run ID: **BALANCE1_131126C** SeqNo: **3453366** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	4586	10.0					4570	0.349	10	

The following samples were analyzed in this batch:

13111187-01F

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

Client: Navajo Refining Company
Work Order: 13111187
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157956** Instrument ID **ICS2100** Method: **E300** **(Dissolve)**

MBLK	Sample ID: WBLKW2-R157956				Units: mg/L		Analysis Date: 12/2/2013 07:09 PM			
Client ID:	Run ID: ICS2100_131202D				SeqNo: 3454587		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrate/Nitrite (as N)	U	0.200								

LCS	Sample ID: WLCSW2-R157956				Units: mg/L		Analysis Date: 12/2/2013 07:24 PM			
Client ID:	Run ID: ICS2100_131202D				SeqNo: 3454588		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrate/Nitrite (as N)	7.891	0.200	8	0	98.6	90-110				

MS	Sample ID: 13111093-01FMSZ				Units: mg/L		Analysis Date: 12/2/2013 07:53 PM			
Client ID:	Run ID: ICS2100_131202D				SeqNo: 3454590		Prep Date:		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrate/Nitrite (as N)	19.69	1.00	20	0	98.4	80-120				

MSD	Sample ID: 13111093-01FMSDZ				Units: mg/L		Analysis Date: 12/2/2013 08:07 PM			
Client ID:	Run ID: ICS2100_131202D				SeqNo: 3454591		Prep Date:		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrate/Nitrite (as N)	19.36	1.00	20	0	96.8	80-120	19.69	1.66	20	

The following samples were analyzed in this batch:

13111187-01G	13111187-02G
--------------	--------------

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

Client: Navajo Refining Company
Work Order: 13111187
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R158074** Instrument ID **Gall01** Method: **M4500CN E&G (Dissolve)**

MBLK	Sample ID: MB-R158074-R158074				Units: mg/L		Analysis Date: 12/3/2013 08:45 AM			
Client ID:	Run ID: GALL01_131203B				SeqNo: 3457369		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	U	0.0200								

LCS	Sample ID: LCS-R158074-R158074				Units: mg/L		Analysis Date: 12/3/2013 08:45 AM			
Client ID:	Run ID: GALL01_131203B				SeqNo: 3457370		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.1872	0.0200	0.2	0	93.6	80-120				

LCSD	Sample ID: WLCSDW1120313-R158074				Units: mg/L		Analysis Date: 12/3/2013 08:45 AM			
Client ID:	Run ID: GALL01_131203B				SeqNo: 3457378		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.1917	0.0200	0.2	0	95.9	80-120	0.1872	2.36	20	

MS	Sample ID: 13111251-01ams				Units: mg/L		Analysis Date: 12/3/2013 08:45 AM			
Client ID:	Run ID: GALL01_131203B				SeqNo: 3457374		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.208	0.0200	0.2	0.0035	102	80-120				

The following samples were analyzed in this batch:

13111187-01H	13111187-02H
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13111187
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R158112** Instrument ID **ICS2100** Method: **E300** **(Dissolve)**

MBLK	Sample ID: WBLKW1-R158112				Units: mg/L		Analysis Date: 12/4/2013 09:28 AM			
Client ID:	Run ID: ICS2100_131204A				SeqNo: 3457845		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	0.500								
Fluoride	U	0.100								
Sulfate	U	0.500								

LCS	Sample ID: WLCSW1-R158112				Units: mg/L		Analysis Date: 12/4/2013 09:42 AM			
Client ID:	Run ID: ICS2100_131204A				SeqNo: 3457846		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	21.17	0.500	20	0	106	90-110				
Fluoride	4.291	0.100	4	0	107	90-110				
Sulfate	20.15	0.500	20	0	101	90-110				

MS	Sample ID: 1312062-06CMS				Units: mg/L		Analysis Date: 12/4/2013 11:35 AM			
Client ID:	Run ID: ICS2100_131204A				SeqNo: 3457853		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	18.64	0.500	10	7.306	113	80-120				
Fluoride	3.347	0.100	2	1.01	117	80-120				
Sulfate	72.56	0.500	10	62.16	104	80-120				O

MSD	Sample ID: 1312062-06CMSD				Units: mg/L		Analysis Date: 12/4/2013 11:50 AM			
Client ID:	Run ID: ICS2100_131204A				SeqNo: 3457854		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	18.58	0.500	10	7.306	113	80-120	18.64	0.328	20	
Fluoride	3.335	0.100	2	1.01	116	80-120	3.347	0.359	20	
Sulfate	72.36	0.500	10	62.16	102	80-120	72.56	0.275	20	O

The following samples were analyzed in this batch:

13111187-01F 13111187-02F

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

Client: Navajo Refining Company
Project: RO Discharge Sampling
WorkOrder: 13111187

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>
°C	Celsius degrees
mg/L	Milligrams per Liter
pH Units	

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**

Date/Time Received: **22-Nov-13 14:00**

Work Order: **13111187**

Received by: **TXY**

Checklist completed by Johannie B. Allen
eSignature

23-Nov-13
Date

Reviewed by: Sonia West
eSignature

04-Dec-13
Date

Matrices: **water**

Carrier name: **FedEx Priority Overnight**

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>2.2 C/2.2 C u/c</u> <u>IR 1</u>		
Cooler(s)/Kit(s):	<u>5564</u>		
Date/Time sample(s) sent to storage:	<u>11/23/13 09:30</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:	<u>-</u>		
Login Notes:	<u>Trip Blank logged in for analysis per historical events.</u>		

Client Contacted:

Date Contacted:

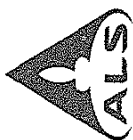
Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



Cincinnati, OH
+1 513 733 3336
Everett, WA
+1 425 356 2600

Fort Collins, CO
+1 970 490 1511
Holland, MI
+1 616 399 6070

Chain of Custody Form

Page of

COC ID: 87148

13111187

NAVAJO REFINING: Navajo Refining Company

Project: RO Discharge Sampling

Environmental

ALS Project Manager:

Customer Information				Project Information												
Purchase Order	Project Name			RO Discharge/Sampling												
Work Order	Project Number			VOG (10200) NRM CWP LISA												
Company Name	Navajo Refining Company			GRO (8015M)												
Send Report To	Robert Combs			DRO, QRO (8015M) LVI												
Address	501 East Main			LL SVOC (8270) NM GW List												
	501 East Main			Dissolved Metals (6020/7000) Select List												
City/State/Zip	Artesia, NM 88211			Anions (300) Cl, F, SO4												
Phone	(575) 746-5382			Total Cyanide (SM 4500)												
Fax	(575) 746-5421			pH, TDS												
e-Mail Address	e-Mail Address			Nitrate-Nitrite as N (Preserved)												
Time				Radium 226/228												
No.	Sample Description	Date	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-116	11/20/13	Liquid		17											
2	Dp-01	11/20/13	Liquid		17											
3																
4																
5																
6																
7																
8																
9																
10																

Sampler(s) Please Print & Sign		Shipment Method		Required Turnaround Time: (Check Box)		Results Due Date:	
Received by: <i>Eric Bergeson</i>	Date: 11/20/13	Time: 12:00	Received by: <i>Eric Bergeson</i>	Date: 11/20/13	Time: 12:00	10 Day TAT	CC Pam Krueger with Arcadis
Relinquished by: <i>Eric Bergeson</i>	Date: 11/20/13	Time: 12:00	Relinquished by: <i>Eric Bergeson</i>	Date: 11/20/13	Time: 12:00	2 WK Days	
Logged by (Laboratory):	Date:	Time:	Logged by (Laboratory):	Date:	Time:	5 WK Days	
Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4°C 9-5035	Notes: 10 Day TAT, CC Pam Krueger with Arcadis						
Cooler ID: 5504				Cooler Temp.			
QC Package: (Check One Box Below)				QC Package: (Check One Box Below)			
☒ Level II Std QC				☒ Level II Std QC			
☐ Level III Std QC/Raw Data				☐ Level III Std QC/Raw Data			
☐ Level IV SW846/CLP				☐ Level IV SW846/CLP			
☐ Other / EDD				☐ Other / EDD			

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

Copyright 2011 by ALS Environmental.

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

Date: 11/21/13
 Name:
 Company:

CUSTODY SEAL

11/3 Time: 1100

Eric Bergersen
 ARCADIS

Seal Broken By:

Date:

Del Prej Val

004971

01000

FedEx Package
 Express US Airbill

FedEx
 Tracking
 Number

8042 4829 2232

1 From

Date 11/21/13

Sender's Name Eric Bergersen

Phone 281 787-1234

Company ARCADIS

Address 2929 Braemar Suite 300

Dept./Floor/Suite/Room

City Houston

State TX ZIP 77021

2 Your Internal Billing Reference

to FedEx 1800.463.3339

3185

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

Date:
 Name:
 Co:

CUSTODY SEAL

11/21/13 Time: 1200

Eric Bergersen
 ARCADIS

Seal Broken By:

Date:

11/21/13

01000

redEx Package
 Express US Airbill

FedEx
 Tracking
 Number

8042 4829 2243

1 From

Date 11/21/13

Sender's Name Eric Bergersen

Phone 281 787-1234

Company ARCADIS

Address 2929 Braemar Suite 300

Dept./Floor/Suite/Room

City Houston

State TX ZIP 77021

2 Your Internal Billing Reference

FedEx 1800.463.3339

5564



December 17, 2013

Ms. Sonia West
ALS Environmental
10450 Standcliff Rd, Suite 210
Houston, TX 77099

Re: ALS Workorder: 13-11-497
Project Name: None Submitted
Project Number: 13111187

Dear Ms. West:

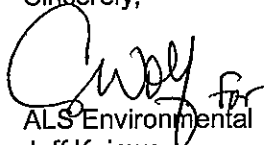
Two water samples were received from ALS Environmental on November 26, 2013. The samples were scheduled for the following analyses:

Radium-226
Radium-228

The results for these analyses are contained in the enclosed reports.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,


ALS Environmental
Jeff Kujawa
Project Manager

JRK/jl
Enclosure (s): Report

ADDRESS 225 Commerce Drive, Fort Collins, Colorado, USA 80524 | PHONE +1 970 490 1511 | FAX +1 970 490 1522

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Environmental 

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RIGHT SOLUTIONS RIGHT PARTNER

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1311497

Case Narrative

Radium-228:

The samples were analyzed for the presence of ^{228}Ra by low background gas flow proportional counting of ^{228}Ac , which is the ingrown progeny of ^{228}Ra , according to the current revision of SOP 724.

All acceptance criteria were met.

Radium-226:

The samples were prepared and analyzed according to the current revision of SOP 783.

All acceptance criteria were met.

ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Laboratory Certifications	
Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri	175
Nebraska	NE-OS-24-13
Nevada (NV)	CO000782008A
New Jersey (NJ)	CO003
North Dakota (ND)	R-057
Oklahoma	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241-09-1
Utah (UT)	CO01099
Washington	C1280

Revised 8/15/2013

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1311497

Client Name: ALS Environmental

Client Project Name:

Client Project Number: 13111187

Client PO Number: 10-13111187

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
MW-116	1311497-1		WATER	20-Nov-13	16:30
DUP-01	1311497-2		WATER	20-Nov-13	

1311497



CHAIN-OF-CUSTODY RECORD

Date: 23-Nov-13
COC ID: 15501
Due Date: 03-Dec-13

Subcontractor:
ALS Environmental
225 Commerce Drive
Fort Collins, CO 80524

TEL: (800) 443-1511
FAX: (970) 490-1522
Acct #:

Page 1 of 1

Customer Information		Houston House Acct		Parameter/Method Request for Analysis												
Purchase Order	10-1311187	Project Name	1311187	Radium 226 Sub to ALS Ft. Collins												
Work Order		Project Number		A	B	C	D	E	F	G	H	I	J			
Company Name	ALS Group USA, Corp.	Bill To Company	ALS Group USA, Corp.													
Send Report To	Sonia West	Inv Attn	Accounts Payable													
Address	10450 Stanciliff Rd, Suite 210	Address	10450 Stanciliff Rd, Suite 210													
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338													
Phone	(281) 530-5656	Phone	(281) 530-5656													
Fax	(281) 530-5887	Fax	(281) 530-5887													
eMail Address	Sonia.West@alsglobal.com	eMail CC	jumoke.lawal@alsglobal.com													
Matrix				Collection Date	24hr	Bottle										
Sample ID	1311187-01 (MW-116)	Water	20/Nov/2013 16:30	(2) 1LPHNO3	X											
	1311187-02 (DUP-01)	Water	20/Nov/2013	(2) 1LPHNO3	X											

Comments: WO 1311187 - Please analyze for Radium 226/228

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
	11/26/13		11/26/13		Std
Relinquished by:		Received by:			



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS TX

Workorder No: 1311497

Project Manager: JRK

Initials: JLR

Date: 11/26/13

1. Does this project require any special handling in addition to standard ALS procedures?		YES	☒ NO
2. Are custody seals on shipping containers intact?	NONE	☒ YES	NO
3. Are Custody seals on sample containers intact?	NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		☒ YES	NO
5. Are the COC and bottle labels complete and legible?		☒ YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		☒ YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	☒ YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	☒ YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	☒ N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		☒ YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		☒ YES	NO
12. Are all samples within holding times for the requested analyses?		☒ YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		☒ YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	☒ N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	☒ NO
16. Were the samples shipped on ice?		☒ YES	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 ☒ #4 ☒ RAD ONLY		☒ YES	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>0°</u>			
No. of custody seals on cooler: <u>2</u>			
External µR/hr reading: <u>10</u>			
Background µR/hr reading: <u>10</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? ☒ YES ☐ NO ☐ NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / ☒ NA Contact: _____ Date/Time: _____

Project Manager Signature / Date: [Signature] 11-26-13

1311497

Temp = 0°C

ORIGIN ID:SGRA (281) 530-5656
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 25NOV13
ACTWT: 51.6 LB
CRD: 3001302CARE2704
DIMS: 28x14x14 IN

BILL SENDER

TO ROY FRENCH SAMPLE CONTROL.
ALS ENVIRONMENTAL
225 COMMERCE DRIVE

FORT COLLINS CO 80524
(870) 480-1511
REF: VAR/BSGRD
DEPT: ENVIRONMENTAL



J13111305230126

TRK# 5813 7984 9929
0201

TUE - 26 NOV 10:30A
PRIORITY OVERNIGHT

NA FTCA

CO-US DEN
80524

of 53

Part # 156148-434 RIT2 04/13



51RC1/DSFA/RF03

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 13111187
Sample ID: MW-116
Legal Location:
Collection Date: 11/20/2013 16:30

Date: 16-Dec-13
Work Order: 1311497
Lab ID: 1311497-1
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	0.1 (+/- 0.16)	LT	PAI 783	0.09 pCi/l	NA	Prep Date: 12/3/2013 PrepBy: PJW
Carr: BARIUM	96		40-110 %REC		NA	12/12/2013 13:08
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	1.73 (+/- 0.49)		PAI 724	0.46 pCi/l	NA	Prep Date: 12/2/2013 PrepBy: JTL
Carr: BARIUM	96		40-110 %REC		NA	12/6/2013 10:45

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 13111187
Sample ID: DUP-01
Legal Location:
Collection Date: 11/20/2013

Date: 16-Dec-13
Work Order: 1311497
Lab ID: 1311497-2
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	ND (+/- 0.15)	U	0.23	pCi/l	NA	12/12/2013 13:08
Carr: BARIUM	96.3		40-110	%REC	NA	12/12/2013 13:08
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	1.23 (+/- 0.39)		0.47	pCi/l	NA	12/6/2013 10:45
Carr: BARIUM	96.3		40-110	%REC	NA	12/6/2013 10:45

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 13111187
Sample ID: DUP-01
Legal Location:
Collection Date: 11/20/2013

Date: 16-Dec-13
Work Order: 1311497
Lab ID: 1311497-2
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
----------	--------	------	--------------	-------	-----------------	---------------

Explanation of Qualifiers

Radiochemistry:

U or ND - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

G - Sample density differs by more than 15% of LCS density.

D - DER is greater than Control Limit

M - Requested MDC not met.

LT - Result is less than requested MDC but greater than achieved MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).

U or ND - Indicates that the compound was analyzed for but not detected.

E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.

M - Duplicate injection precision was not met.

N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.

Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.

* - Duplicate analysis (relative percent difference) not within control limits.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.

B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.

E - Analyte concentration exceeds the upper level of the calibration range.

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

A - A tentatively identified compound is a suspected aldol-condensation product.

X - The analyte was diluted below an accurate quantitation level.

* - The spike recovery is equal to or outside the control criteria used.

+ - The relative percent difference (RPD) equals or exceeds the control criteria.

Diesel Range Organics:

ALS Environmental -- FC**SAMPLE SUMMARY REPORT****Client:** ALS Environmental**Date:** 16-Dec-13**Project:** 13111187**Work Order:** 1311497**Sample ID:** DUP-01**Lab ID:** 1311497-2**Legal Location:****Matrix:** WATER**Collection Date:** 11/20/2013**Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
G - A pattern resembling gasoline was detected in this sample.						
D - A pattern resembling diesel was detected in this sample.						
M - A pattern resembling motor oil was detected in this sample.						
C - A pattern resembling crude oil was detected in this sample.						
4 - A pattern resembling JP-4 was detected in this sample.						
5 - A pattern resembling JP-5 was detected in this sample.						
H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.						
L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.						
Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:						
- gasoline						
- JP-8						
- diesel						
- mineral spirits						
- motor oil						
- Stoddard solvent						
- bunker C						

ALS Environmental -- FC

Date: 12/16/2013 12:3

Client: ALS Environmental

Work Order: 1311497

Project: 13111187

QC BATCH REPORT

Batch ID: RE131203-1-1

Instrument ID: Alpha Scin

Method: Ra-226 by Radon Emanation - Me

LCS		Sample ID: RE131203-1				Units: pCi/l		Analysis Date: 12/12/2013 13:42			
Client ID:		Run ID: RE131203-1A				Prep Date: 12/3/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual	
Ra-226	29.1 (+/- 7.4)	0.4	30.2		96.4	67-120				P	
Carr: BARIUM	31990		33300		96.1	40-110					

LCSD		Sample ID: RE131203-1				Units: pCi/l		Analysis Date: 12/12/2013 13:42			
Client ID:		Run ID: RE131203-1A				Prep Date: 12/3/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual	
Ra-226	29.3 (+/- 7.4)	0.3	30.2		97	67-120	29.1	0.0157	2.13	P	
Carr: BARIUM	31200		33300		93.7	40-110	31990				

MB		Sample ID: RE131203-1				Units: pCi/l		Analysis Date: 12/12/2013 13:42			
Client ID:		Run ID: RE131203-1A				Prep Date: 12/3/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual	
Ra-226	ND	0.37								U	
Carr: BARIUM	31950		33300		95.9	40-110					

The following samples were analyzed in this batch:

1311497-1 1311497-2

Client: ALS Environmental
Work Order: 1311497
Project: 13111187

QC BATCH REPORT

Batch ID: **RA131202-1-2** Instrument ID: **LB4100-A** Method: **Radium-228 Analysis by GFPC**

LCS	Sample ID: RA131202-1				Units: pCi/l		Analysis Date: 12/6/2013 10:56			
Client ID:	Run ID: RA131202-1A				Prep Date: 12/2/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	8.9 (+/- 2.1)	0.5	9.263		95.8	70-130				P
Carr: BARIUM	31990		33300		96.1	40-110				

LCSD	Sample ID: RA131202-1				Units: pCi/l		Analysis Date: 12/6/2013 10:56			
Client ID:	Run ID: RA131202-1A				Prep Date: 12/2/2013			DF: NA		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	9.3 (+/- 2.2)	0.6	9.263		100	70-130	8.9	0.128	2.13	P
Carr: BARIUM	31200		33300		93.7	40-110	31990			

MB	Sample ID: RA131202-1				Units: pCi/l		Analysis Date: 12/6/2013 10:56			
Client ID:	Run ID: RA131202-1A				Prep Date: 12/2/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	ND	0.57								U
Carr: BARIUM	31950		33300		95.9	40-110				

The following samples were analyzed in this batch:

1311497-1 1311497-2



18-Dec-2013

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

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

Re: RO Discharge Sampling

Work Order: **13111188**

Dear Robert,

ALS Environmental received 3 samples on 22-Nov-2013 02:00 PM 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 52.

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

Sincerely,

A handwritten signature in cursive script that reads "Sonia West".

Electronically approved by: Dayna.Fisher

Sonia West
Project Manager



Certificate No: T104704231-13-12

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

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

Environmental

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 13111188

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>
13111188-01	MW-114	Water		11/21/2013 09:30	11/22/2013 14:00	☐
13111188-02	MW-115	Water		11/21/2013 08:30	11/22/2013 14:00	☐
13111188-03	Trip Blank 110613-71	Water		11/21/2013	11/22/2013 14:00	☐

Client: Navajo Refining Company
Project: RO Discharge Sampling
Work Order: 13111188

Case Narrative

The analyses for Radium 226 and Radium 228 were subcontracted to ALS Environmental in Ft. Collins, CO.

Sample received outside method holding time for pH. pH is an immediate test. Sample results are flagged with an "H" qualifier.

The temperature at the time of pH is reported. Please note that all pH results are already normalized to a temperature of 25 degrees C.

Batch 74938, Dissolved Metals 6020, Sample 1311934-06C: MS/MSD are for an unrelated sample.

Batch 74973, Semivolatiles 8270, Sample SLCSW1-131126: Insufficient sample was received for MS/MSD.

Batch R157973, Volatiles 8260, Sample 13111059-52A: MS/MSD are for an unrelated sample.

Batch R158097, Volatiles 8260, Sample 13111198-01A: MS/MSD are for an unrelated sample.

ALS Environmental

Date: 18-Dec-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114
Collection Date: 11/21/2013 09:30 AM

Work Order: 13111188
Lab ID: 13111188-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO 8015C Method:SW8015M Prep: SW3511 / 11/27/13 Analyst: RPM							
TPH (Diesel Range)	U		0.021	0.053	mg/L	1	12/3/2013 21:54
TPH (Oil Range)	U		0.042	0.11	mg/L	1	12/3/2013 21:54
Surr: 2-Fluorobiphenyl	110			60-135	%REC	1	12/3/2013 21:54
GASOLINE RANGE ORGANICS - SW8015C Method:SW8015 Analyst: KKP							
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	12/3/2013 04:02
Surr: 4-Bromofluorobenzene	96.9			70-130	%REC	1	12/3/2013 04:02
DISSOLVED METALS Method:SW6020 Prep: SW3010A / 11/25/13 Analyst: ALR							
Aluminum	0.00813	J	0.0040	0.0100	mg/L	1	11/26/2013 05:19
Arsenic	0.00539		0.0010	0.00500	mg/L	1	11/26/2013 05:19
Barium	0.0112		0.00090	0.00500	mg/L	1	11/26/2013 05:19
Boron	0.816		0.040	0.100	mg/L	2	11/27/2013 13:22
Cadmium	U		0.00080	0.00200	mg/L	1	11/26/2013 05:19
Calcium	558		4.3	25.0	mg/L	50	11/26/2013 17:34
Chromium	0.00119	J	0.0010	0.00500	mg/L	1	11/26/2013 05:19
Cobalt	U		0.00080	0.00500	mg/L	1	11/26/2013 05:19
Copper	U		0.0010	0.00500	mg/L	1	11/26/2013 05:19
Iron	0.167	J	0.078	0.200	mg/L	1	11/26/2013 05:19
Lead	U		0.00070	0.00500	mg/L	1	11/26/2013 05:19
Manganese	0.0350		0.0025	0.00500	mg/L	1	11/26/2013 05:19
Molybdenum	0.00815		0.0015	0.00500	mg/L	1	11/26/2013 05:19
Nickel	0.00369	J	0.0010	0.00500	mg/L	1	11/26/2013 05:19
Potassium	0.678		0.084	0.200	mg/L	1	11/26/2013 05:19
Selenium	0.00451	J	0.0010	0.00500	mg/L	1	11/26/2013 05:19
Silver	U		0.00080	0.00500	mg/L	1	11/26/2013 05:19
Sodium	250		4.2	10.0	mg/L	50	11/26/2013 17:34
Uranium	0.0856		0.0050	0.00500	mg/L	1	11/26/2013 05:19
Zinc	0.0806		0.0025	0.00500	mg/L	1	11/26/2013 05:19
LOW-LEVEL SEMIVOLATILES Method:SW8270 Prep: SW3510 / 11/26/13 Analyst: ACN							
1-Methylnaphthalene	U		0.000030	0.00020	mg/L	1	11/26/2013 17:41
2-Methylnaphthalene	U		0.000034	0.00020	mg/L	1	11/26/2013 17:41
Benzo(a)pyrene	U		0.000030	0.00020	mg/L	1	11/26/2013 17:41
Naphthalene	U		0.000050	0.00020	mg/L	1	11/26/2013 17:41
Surr: 2,4,6-Tribromophenol	37.4			34-129	%REC	1	11/26/2013 17:41
Surr: 2-Fluorobiphenyl	46.8			40-125	%REC	1	11/26/2013 17:41
Surr: 2-Fluorophenol	37.3			20-120	%REC	1	11/26/2013 17:41
Surr: 4-Terphenyl-d14	58.6			40-135	%REC	1	11/26/2013 17:41
Surr: Nitrobenzene-d5	42.1			41-120	%REC	1	11/26/2013 17:41

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

ALS Environmental

Date: 18-Dec-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114
Collection Date: 11/21/2013 09:30 AM

Work Order: 13111188
Lab ID: 13111188-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Phenol-d6	35.9			20-120	%REC	1	11/26/2013 17:41
LOW LEVEL VOLATILES - SW8260C			Method:SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00020	0.0010	mg/L	1	12/3/2013 19:03
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	12/3/2013 19:03
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	12/3/2013 19:03
1,1-Dichloroethane	U		0.00020	0.0010	mg/L	1	12/3/2013 19:03
1,1-Dichloroethene	U		0.00020	0.0010	mg/L	1	12/3/2013 19:03
1,2-Dibromoethane	U		0.00020	0.0010	mg/L	1	12/3/2013 19:03
1,2-Dichloroethane	U		0.00020	0.0010	mg/L	1	12/3/2013 19:03
Benzene	U		0.00020	0.0010	mg/L	1	12/3/2013 19:03
Carbon tetrachloride	U		0.00050	0.0010	mg/L	1	12/3/2013 19:03
Chloroform	U		0.00020	0.0010	mg/L	1	12/3/2013 19:03
Ethylbenzene	U		0.00030	0.0010	mg/L	1	12/3/2013 19:03
Methylene chloride	U		0.00040	0.0020	mg/L	1	12/3/2013 19:03
Tetrachloroethene	U		0.00030	0.0010	mg/L	1	12/3/2013 19:03
Toluene	U		0.00020	0.0010	mg/L	1	12/3/2013 19:03
Trichloroethene	U		0.00020	0.0010	mg/L	1	12/3/2013 19:03
Vinyl chloride	U		0.00020	0.0010	mg/L	1	12/3/2013 19:03
Xylenes, Total	U		0.00050	0.0010	mg/L	1	12/3/2013 19:03
Surr: 1,2-Dichloroethane-d4	125			71-125	%REC	1	12/3/2013 19:03
Surr: 4-Bromofluorobenzene	113			70-125	%REC	1	12/3/2013 19:03
Surr: Dibromofluoromethane	120			74-125	%REC	1	12/3/2013 19:03
Surr: Toluene-d8	118			75-125	%REC	1	12/3/2013 19:03
MISCELLANEOUS ANALYSIS			Method:NA			Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	12/18/2013
ANIONS - EPA 300.0 (1993)			Method:E300			Analyst: JKP	
Chloride	422		10	25.0	mg/L	50	12/4/2013 18:57
Fluoride	1.37		0.050	0.100	mg/L	1	12/4/2013 14:01
Sulfate	3,060		10	25.0	mg/L	50	12/4/2013 18:57
Nitrate/Nitrite (as N)	U		0.15	1.00	mg/L	5	12/3/2013 00:15
CYANIDE - SM4500CN E			Method:M4500CN E&G			Analyst: KKB	
Cyanide	U		0.0050	0.0200	mg/L	1	12/3/2013 08:45
PH - SM4500H+ B			Method:SM4500H+ B			Analyst: KL	
pH	6.73	H	0.10	0.100	pH Units	1	11/26/2013 09:00
Temp Deg C @pH	20.6	H	0		°C	1	11/26/2013 09:00
TOTAL DISSOLVED SOLIDS			Method:M2540C			Analyst: KAH	

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

ALS Environmental

Date: 18-Dec-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-114
Collection Date: 11/21/2013 09:30 AM

Work Order: 13111188
Lab ID: 13111188-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Total Dissolved Solids (Residue, Filterable)	5,390		5.0	10.0	mg/L	1	11/27/2013 17:30

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

ALS Environmental

Date: 18-Dec-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-115
Collection Date: 11/21/2013 08:30 AM

Work Order: 13111188
Lab ID: 13111188-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TPH DRO/ORO 8015C							
			Method: SW8015M		Prep: SW3511 / 11/27/13		Analyst: RPM
TPH (Diesel Range)	U		0.020	0.051	mg/L	1	12/3/2013 22:21
TPH (Oil Range)	U		0.041	0.10	mg/L	1	12/3/2013 22:21
Surr: 2-Fluorobiphenyl	115			60-135	%REC	1	12/3/2013 22:21
GASOLINE RANGE ORGANICS - SW8015C							
			Method: SW8015				Analyst: KKP
Gasoline Range Organics	U		0.020	0.0500	mg/L	1	12/3/2013 05:52
Surr: 4-Bromofluorobenzene	99.3			70-130	%REC	1	12/3/2013 05:52
DISSOLVED METALS							
			Method: SW6020		Prep: SW3010A / 11/25/13		Analyst: ALR
Aluminum	0.00714	J	0.0040	0.0100	mg/L	1	11/26/2013 05:24
Arsenic	0.00616		0.0010	0.00500	mg/L	1	11/26/2013 05:24
Barium	0.0110		0.00090	0.00500	mg/L	1	11/26/2013 05:24
Boron	0.858		0.040	0.100	mg/L	2	11/27/2013 13:24
Cadmium	U		0.00080	0.00200	mg/L	1	11/26/2013 05:24
Calcium	606		4.3	25.0	mg/L	50	11/26/2013 17:39
Chromium	U		0.0010	0.00500	mg/L	1	11/26/2013 05:24
Cobalt	U		0.00080	0.00500	mg/L	1	11/26/2013 05:24
Copper	U		0.0010	0.00500	mg/L	1	11/26/2013 05:24
Iron	U		0.078	0.200	mg/L	1	11/26/2013 05:24
Lead	U		0.00070	0.00500	mg/L	1	11/26/2013 05:24
Manganese	0.0249		0.0025	0.00500	mg/L	1	11/26/2013 05:24
Molybdenum	0.00738		0.0015	0.00500	mg/L	1	11/26/2013 05:24
Nickel	0.00206	J	0.0010	0.00500	mg/L	1	11/26/2013 05:24
Potassium	0.709		0.084	0.200	mg/L	1	11/26/2013 05:24
Selenium	0.00506		0.0010	0.00500	mg/L	1	11/26/2013 05:24
Silver	U		0.00080	0.00500	mg/L	1	11/26/2013 05:24
Sodium	261		4.2	10.0	mg/L	50	11/26/2013 17:39
Uranium	0.0874		0.0050	0.00500	mg/L	1	11/26/2013 05:24
Zinc	0.0257		0.0025	0.00500	mg/L	1	11/26/2013 05:24
LOW-LEVEL SEMIVOLATILES							
			Method: SW8270		Prep: SW3510 / 11/26/13		Analyst: ACN
1-Methylnaphthalene	U		0.000030	0.00020	mg/L	1	11/26/2013 18:00
2-Methylnaphthalene	U		0.000034	0.00020	mg/L	1	11/26/2013 18:00
Benzo(a)pyrene	U		0.000030	0.00020	mg/L	1	11/26/2013 18:00
Naphthalene	U		0.000050	0.00020	mg/L	1	11/26/2013 18:00
Surr: 2,4,6-Tribromophenol	41.8			34-129	%REC	1	11/26/2013 18:00
Surr: 2-Fluorobiphenyl	57.3			40-125	%REC	1	11/26/2013 18:00
Surr: 2-Fluorophenol	43.5			20-120	%REC	1	11/26/2013 18:00
Surr: 4-Terphenyl-d14	72.9			40-135	%REC	1	11/26/2013 18:00
Surr: Nitrobenzene-d5	47.8			41-120	%REC	1	11/26/2013 18:00

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

ALS Environmental

Date: 18-Dec-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-115
Collection Date: 11/21/2013 08:30 AM

Work Order: 13111188
Lab ID: 13111188-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Phenol-d6	42.4			20-120	%REC	1	11/26/2013 18:00
LOW LEVEL VOLATILES - SW8260C			Method:SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00020	0.0010	mg/L	1	12/3/2013 19:28
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	12/3/2013 19:28
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	12/3/2013 19:28
1,1-Dichloroethane	U		0.00020	0.0010	mg/L	1	12/3/2013 19:28
1,1-Dichloroethene	U		0.00020	0.0010	mg/L	1	12/3/2013 19:28
1,2-Dibromoethane	U		0.00020	0.0010	mg/L	1	12/3/2013 19:28
1,2-Dichloroethane	U		0.00020	0.0010	mg/L	1	12/3/2013 19:28
Benzene	U		0.00020	0.0010	mg/L	1	12/3/2013 19:28
Carbon tetrachloride	U		0.00050	0.0010	mg/L	1	12/3/2013 19:28
Chloroform	U		0.00020	0.0010	mg/L	1	12/3/2013 19:28
Ethylbenzene	U		0.00030	0.0010	mg/L	1	12/3/2013 19:28
Methylene chloride	U		0.00040	0.0020	mg/L	1	12/3/2013 19:28
Tetrachloroethene	U		0.00030	0.0010	mg/L	1	12/3/2013 19:28
Toluene	U		0.00020	0.0010	mg/L	1	12/3/2013 19:28
Trichloroethene	U		0.00020	0.0010	mg/L	1	12/3/2013 19:28
Vinyl chloride	U		0.00020	0.0010	mg/L	1	12/3/2013 19:28
Xylenes, Total	U		0.00050	0.0010	mg/L	1	12/3/2013 19:28
Surr: 1,2-Dichloroethane-d4	123			71-125	%REC	1	12/3/2013 19:28
Surr: 4-Bromofluorobenzene	109			70-125	%REC	1	12/3/2013 19:28
Surr: Dibromofluoromethane	119			74-125	%REC	1	12/3/2013 19:28
Surr: Toluene-d8	114			75-125	%REC	1	12/3/2013 19:28
MISCELLANEOUS ANALYSIS			Method:NA			Analyst: SUB	
Miscellaneous Analysis	See Attached		0			1	12/18/2013
ANIONS - EPA 300.0 (1993)			Method:E300			Analyst: JKP	
Chloride	428		10	25.0	mg/L	50	12/4/2013 19:11
Fluoride	1.36		0.050	0.100	mg/L	1	12/4/2013 14:15
Sulfate	3,090		10	25.0	mg/L	50	12/4/2013 19:11
Nitrate/Nitrite (as N)	U		0.15	1.00	mg/L	5	12/3/2013 00:29
CYANIDE - SM4500CN E			Method:M4500CN E&G			Analyst: KKB	
Cyanide	U		0.0050	0.0200	mg/L	1	12/3/2013 08:45
PH - SM4500H+ B			Method:SM4500H+ B			Analyst: KL	
pH	6.73	H	0.10	0.100	pH Units	1	11/26/2013 09:00
Temp Deg C @pH	20.2	H	0		°C	1	11/26/2013 09:00
TOTAL DISSOLVED SOLIDS			Method:M2540C			Analyst: KAH	

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

ALS Environmental

Date: 18-Dec-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: MW-115
Collection Date: 11/21/2013 08:30 AM

Work Order: 13111188
Lab ID: 13111188-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Total Dissolved Solids (Residue, Filterable)	5,370		5.0	10.0	mg/L	1	11/27/2013 17:30

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

ALS Environmental

Date: 18-Dec-13

Client: Navajo Refining Company
Project: RO Discharge Sampling
Sample ID: Trip Blank 110613-71
Collection Date: 11/21/2013

Work Order: 13111188
Lab ID: 13111188-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
LOW LEVEL VOLATILES - SW8260C			Method: SW8260			Analyst: AKP	
1,1,1-Trichloroethane	U		0.00020	0.0010	mg/L	1	12/4/2013 16:58
1,1,2,2-Tetrachloroethane	U		0.00050	0.0010	mg/L	1	12/4/2013 16:58
1,1,2-Trichloroethane	U		0.00030	0.0010	mg/L	1	12/4/2013 16:58
1,1-Dichloroethane	U		0.00020	0.0010	mg/L	1	12/4/2013 16:58
1,1-Dichloroethene	U		0.00020	0.0010	mg/L	1	12/4/2013 16:58
1,2-Dibromoethane	U		0.00020	0.0010	mg/L	1	12/4/2013 16:58
1,2-Dichloroethane	U		0.00020	0.0010	mg/L	1	12/4/2013 16:58
Benzene	U		0.00020	0.0010	mg/L	1	12/4/2013 16:58
Carbon tetrachloride	U		0.00050	0.0010	mg/L	1	12/4/2013 16:58
Chloroform	U		0.00020	0.0010	mg/L	1	12/4/2013 16:58
Ethylbenzene	U		0.00030	0.0010	mg/L	1	12/4/2013 16:58
Methylene chloride	U		0.00040	0.0020	mg/L	1	12/4/2013 16:58
Tetrachloroethene	U		0.00030	0.0010	mg/L	1	12/4/2013 16:58
Toluene	U		0.00020	0.0010	mg/L	1	12/4/2013 16:58
Trichloroethene	U		0.00020	0.0010	mg/L	1	12/4/2013 16:58
Vinyl chloride	U		0.00020	0.0010	mg/L	1	12/4/2013 16:58
Xylenes, Total	U		0.00050	0.0010	mg/L	1	12/4/2013 16:58
Surr: 1,2-Dichloroethane-d4	120			71-125	%REC	1	12/4/2013 16:58
Surr: 4-Bromofluorobenzene	110			70-125	%REC	1	12/4/2013 16:58
Surr: Dibromofluoromethane	114			74-125	%REC	1	12/4/2013 16:58
Surr: Toluene-d8	111			75-125	%REC	1	12/4/2013 16:58

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

Work Order: 13111188
Client: Navajo Refining Company
Project: RO Discharge Sampling

DATES REPORT

Sample ID	Client Sample ID	Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
<u>Batch ID</u> 74938		<u>Test Name:</u> Dissolved Metals				
13111188-01E	MW-114	Water	11/21/2013 9:30:00 AM		11/25/2013 10:00 AM	11/26/2013 05:19 AM
					11/25/2013 10:00 AM	11/26/2013 05:34 PM
					11/25/2013 10:00 AM	11/27/2013 01:22 PM
13111188-02E	MW-115		11/21/2013 8:30:00 AM		11/25/2013 10:00 AM	11/26/2013 05:24 AM
					11/25/2013 10:00 AM	11/26/2013 05:39 PM
					11/25/2013 10:00 AM	11/27/2013 01:24 PM
<u>Batch ID</u> 74973		<u>Test Name:</u> Low-Level Semivolatiles				
13111188-01	MW-114	Water	11/21/2013 9:30:00 AM		11/26/2013 07:34 AM	11/26/2013 05:41 PM
13111188-02	MW-115		11/21/2013 8:30:00 AM		11/26/2013 07:34 AM	11/26/2013 06:00 PM
<u>Batch ID</u> 75019		<u>Test Name:</u> TPH DRO/ORO 8015C				
13111188-01C	MW-114	Water	11/21/2013 9:30:00 AM		11/27/2013 09:52 AM	12/3/2013 09:54 PM
13111188-02C	MW-115		11/21/2013 8:30:00 AM		11/27/2013 09:52 AM	12/3/2013 10:21 PM
<u>Batch ID</u> R157787		<u>Test Name:</u> pH - SM4500H+ B				
13111188-01F	MW-114	Water	11/21/2013 9:30:00 AM			11/26/2013 09:00 AM
13111188-02F	MW-115		11/21/2013 8:30:00 AM			11/26/2013 09:00 AM
<u>Batch ID</u> R157947		<u>Test Name:</u> Total Dissolved Solids				
13111188-01F	MW-114	Water	11/21/2013 9:30:00 AM			11/27/2013 05:30 PM
13111188-02F	MW-115		11/21/2013 8:30:00 AM			11/27/2013 05:30 PM
<u>Batch ID</u> R157956		<u>Test Name:</u> Anions - EPA 300.0 (1993)				
13111188-01G	MW-114	Water	11/21/2013 9:30:00 AM			12/3/2013 12:15 AM
13111188-02G	MW-115		11/21/2013 8:30:00 AM			12/3/2013 12:29 AM

Work Order: 13111188
Client: Navajo Refining Company
Project: RO Discharge Sampling

DATES REPORT

Sample ID	Client Sample ID	Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
<u>Batch ID</u> R157973 <u>Test Name:</u> Low Level Volatiles - SW8260C						
13111188-01A	MW-114	Water	11/21/2013 9:30:00 AM			12/3/2013 07:03 PM
13111188-02A	MW-115		11/21/2013 8:30:00 AM			12/3/2013 07:28 PM
<u>Batch ID</u> R158023 <u>Test Name:</u> Gasoline Range Organics - SW8015C						
13111188-01B	MW-114	Water	11/21/2013 9:30:00 AM			12/3/2013 04:02 AM
<u>Batch ID</u> R158029 <u>Test Name:</u> Gasoline Range Organics - SW8015C						
13111188-02B	MW-115	Water	11/21/2013 8:30:00 AM			12/3/2013 05:52 AM
<u>Batch ID</u> R158074 <u>Test Name:</u> Cyanide - SM4500CN E						
13111188-01	MW-114	Water	11/21/2013 9:30:00 AM			12/3/2013 08:45 AM
13111188-02	MW-115		11/21/2013 8:30:00 AM			12/3/2013 08:45 AM
<u>Batch ID</u> R158097 <u>Test Name:</u> Low Level Volatiles - SW8260C						
13111188-03A	Trip Blank 110613-71	Water	11/21/2013			12/4/2013 04:58 PM
<u>Batch ID</u> R158112 <u>Test Name:</u> Anions - EPA 300.0 (1993)						
13111188-01F	MW-114	Water	11/21/2013 9:30:00 AM			12/4/2013 02:01 PM
						12/4/2013 06:57 PM
13111188-02F	MW-115		11/21/2013 8:30:00 AM			12/4/2013 02:15 PM
						12/4/2013 07:11 PM
<u>Batch ID</u> R158719 <u>Test Name:</u> Miscellaneous Analysis						
13111188-01I	MW-114	Water	11/21/2013 9:30:00 AM			12/18/2013
13111188-02I	MW-115		11/21/2013 8:30:00 AM			12/18/2013

ALS Environmental

Date: 18-Dec-13

Client: Navajo Refining Company
Work Order: 13111188
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **75019** Instrument ID **FID-16** Method: **SW8015M**

MBLK	Sample ID: LBLKW-131127-75019				Units: mg/L		Analysis Date: 12/3/2013 03:17 PM			
Client ID:	Run ID: FID-16_131127A				SeqNo: 3457707		Prep Date: 11/27/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	U	0.050								
TPH (Oil Range)	U	0.10								
<i>Surr: 2-Fluorobiphenyl</i>	0.06882	0.0050	0.06061	0	114	60-135	0			

LCS	Sample ID: LLCSW-131127-75019				Units: mg/L		Analysis Date: 12/3/2013 03:43 PM			
Client ID:	Run ID: FID-16_131127A				SeqNo: 3457709		Prep Date: 11/27/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.7182	0.050	0.6061	0	119	70-130				
TPH (Oil Range)	0.6655	0.10	0.6061	0	110	70-130				
<i>Surr: 2-Fluorobiphenyl</i>	0.0758	0.0050	0.06061	0	125	60-135	0			

LCSD	Sample ID: LLCSDW-131127-75019				Units: mg/L		Analysis Date: 12/3/2013 04:10 PM			
Client ID:	Run ID: FID-16_131127A				SeqNo: 3457711		Prep Date: 11/27/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
TPH (Diesel Range)	0.6627	0.050	0.6061	0	109	70-130	0.7182	8.04	20	
TPH (Oil Range)	0.6411	0.10	0.6061	0	106	70-130	0.6655	3.75	20	
<i>Surr: 2-Fluorobiphenyl</i>	0.07659	0.0050	0.06061	0	126	60-135	0.0758	1.04	20	

The following samples were analyzed in this batch:

13111188-01C 13111188-02C

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

Client: Navajo Refining Company
 Work Order: 13111188
 Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R158023** Instrument ID **FID-9** Method: **SW8015**

MBLK	Sample ID: GBLKW2-131202-R158023				Units: mg/L		Analysis Date: 12/2/2013 08:31 PM			
Client ID:	Run ID: FID-9_131202C				SeqNo: 3456298		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	0.0500								
Surr: 4-Bromofluorobenzene	0.09923	0.00500	0.1	0	99.2	70-130	0			

LCS	Sample ID: GLCSW2-131202-R158023				Units: mg/L		Analysis Date: 12/2/2013 07:54 PM			
Client ID:	Run ID: FID-9_131202C				SeqNo: 3456297		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	1.033	0.0500	1	0	103	70-130				
Surr: 4-Bromofluorobenzene	0.1002	0.00500	0.1	0	100	70-130	0			

MS	Sample ID: 13111253-02BMS				Units: mg/L		Analysis Date: 12/3/2013 12:24 AM			
Client ID:	Run ID: FID-9_131202C				SeqNo: 3456311		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	1.049	0.0500	1	0	105	70-130				
Surr: 4-Bromofluorobenzene	0.09964	0.00500	0.1	0	99.6	70-130	0			

MSD	Sample ID: 13111253-02BMSD				Units: mg/L		Analysis Date: 12/3/2013 12:42 AM			
Client ID:	Run ID: FID-9_131202C				SeqNo: 3456312		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	0.9905	0.0500	1	0	99.1	70-130	1.049	5.7	30	
Surr: 4-Bromofluorobenzene	0.09991	0.00500	0.1	0	99.9	70-130	0.09964	0.277	30	

The following samples were analyzed in this batch:

13111188-01B

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

Client: Navajo Refining Company
Work Order: 13111188
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R158029** Instrument ID **FID-9** Method: **SW8015**

MBLK	Sample ID: GBLKW1-131203-R158029					Units: mg/L		Analysis Date: 12/3/2013 05:34 AM		
Client ID:	Run ID: FID-9_131203A					SeqNo: 3456405		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	0.0500								
<i>Surr: 4-Bromofluorobenzene</i>	0.09734	0.00500	0.1	0	97.3	70-130	0			

LCS	Sample ID: GLCSW1-131203-R158029					Units: mg/L		Analysis Date: 12/3/2013 04:58 AM		
Client ID:	Run ID: FID-9_131203A					SeqNo: 3456404		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	1.041	0.0500	1	0	104	70-130				
<i>Surr: 4-Bromofluorobenzene</i>	0.1003	0.00500	0.1	0	100	70-130	0			

MS	Sample ID: 13111336-02BMS					Units: mg/L		Analysis Date: 12/3/2013 10:04 AM		
Client ID:	Run ID: FID-9_131203A					SeqNo: 3456408		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	0.9142	0.0500	1	0	91.4	70-130				
<i>Surr: 4-Bromofluorobenzene</i>	0.09908	0.00500	0.1	0	99.1	70-130	0			

MSD	Sample ID: 13111336-02BMSD					Units: mg/L		Analysis Date: 12/3/2013 10:22 AM		
Client ID:	Run ID: FID-9_131203A					SeqNo: 3456409		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	0.9044	0.0500	1	0	90.4	70-130	0.9142	1.08	30	
<i>Surr: 4-Bromofluorobenzene</i>	0.098	0.00500	0.1	0	98	70-130	0.09908	1.09	30	

The following samples were analyzed in this batch:

13111188-02B

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

Client: Navajo Refining Company
Work Order: 13111188
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **74938** Instrument ID **ICP7500** Method: **SW6020** **(Dissolve)**

MBLK Sample ID: **MBLKW6-112513-74938** Units: **mg/L** Analysis Date: **11/26/2013 03:51 PM**

Client ID: Run ID: **ICP7500_131126A** SeqNo: **3450394** Prep Date: **11/25/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.005079	0.0100								J
Arsenic	U	0.00500								
Barium	U	0.00500								
Boron	U	0.0500								
Cadmium	U	0.00200								
Calcium	U	0.500								
Chromium	U	0.00500								
Cobalt	U	0.00500								
Copper	U	0.00500								
Iron	U	0.200								
Lead	U	0.00500								
Manganese	U	0.00500								
Molybdenum	U	0.00500								
Nickel	U	0.00500								
Potassium	U	0.200								
Selenium	U	0.00500								
Silver	U	0.00500								
Sodium	U	0.200								
Uranium	U	0.00500								
Zinc	0.00409	0.00500								J

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

Client: Navajo Refining Company
Work Order: 13111188
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **74938** Instrument ID **ICP7500** Method: **SW6020** **(Dissolve)**

LCS Sample ID: **MLCSW6-112513-74938** Units: **mg/L** Analysis Date: **11/26/2013 04:21 AM**

Client ID: Run ID: **ICP7500_131125A** SeqNo: **3449549** Prep Date: **11/25/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1099	0.0100	0.1	0	110	80-120				
Arsenic	0.05141	0.00500	0.05	0	103	80-120				
Barium	0.05065	0.00500	0.05	0	101	80-120				
Boron	0.4911	0.0500	0.5	0	98.2	80-120				
Cadmium	0.04961	0.00200	0.05	0	99.2	80-120				
Calcium	5.056	0.500	5	0	101	80-120				
Chromium	0.0519	0.00500	0.05	0	104	80-120				
Cobalt	0.05168	0.00500	0.05	0	103	80-120				
Copper	0.05218	0.00500	0.05	0	104	80-120				
Iron	5.202	0.200	5	0	104	80-120				
Lead	0.05065	0.00500	0.05	0	101	80-120				
Manganese	0.05367	0.00500	0.05	0	107	80-120				
Molybdenum	0.0493	0.00500	0.05	0	98.6	80-120				
Nickel	0.05122	0.00500	0.05	0	102	80-120				
Potassium	4.989	0.200	5	0	99.8	80-120				
Selenium	0.05042	0.00500	0.05	0	101	80-120				
Silver	0.05165	0.00500	0.05	0	103	80-120				
Uranium	0.09498	0.00500	0.1	0	95	80-120				
Zinc	0.05473	0.00500	0.05	0	109	80-120				

LCS Sample ID: **MLCSW6-112513-74938** Units: **mg/L** Analysis Date: **11/26/2013 03:56 PM**

Client ID: Run ID: **ICP7500_131126A** SeqNo: **3450395** Prep Date: **11/25/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	5.183	0.200	5	0	104	80-120				

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

Client: Navajo Refining Company
Work Order: 13111188
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **74938** Instrument ID **ICP7500** Method: **SW6020** (Dissolve)

MS Sample ID: **1311934-06CMS** Units: **mg/L** Analysis Date: **11/26/2013 04:40 AM**

Client ID: Run ID: **ICP7500_131125A** SeqNo: **3449553** Prep Date: **11/25/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1146	0.0100	0.1	0.007725	107	75-125				
Barium	36.63	0.00500	0.05	38.83	-4400	75-125				SEO
Boron	12.36	0.0500	0.5	12.27	18	75-125				SEO
Cadmium	0.04905	0.00200	0.05	0.00008766	97.9	75-125				
Lead	0.05122	0.00500	0.05	-0.0001674	103	75-125				
Molybdenum	0.05261	0.00500	0.05	0.0007769	104	75-125				
Potassium	9.723	0.200	5	4.865	97.2	75-125				
Silver	0.04794	0.00500	0.05	-0.0004062	96.7	75-125				
Sodium	U	0.200	5	0	0	75-125				SX
Uranium	0.1013	0.00500	0.1	-0.0001365	101	75-125				

MS Sample ID: **1311934-06CMS** Units: **mg/L** Analysis Date: **11/26/2013 04:31 PM**

Client ID: Run ID: **ICP7500_131126A** SeqNo: **3450593** Prep Date: **11/25/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.0573	0.00500	0.05	0.005024	105	75-125				
Calcium	67.4	0.500	5	64.91	49.8	75-125				SO
Chromium	0.05177	0.00500	0.05	0	104	75-125				
Cobalt	0.04989	0.00500	0.05	0.0008988	98	75-125				
Copper	0.04791	0.00500	0.05	0	95.8	75-125				
Iron	6.283	0.200	5	1.625	93.2	75-125				
Manganese	0.09802	0.00500	0.05	0.05231	91.4	75-125				
Nickel	0.04913	0.00500	0.05	0	98.3	75-125				
Selenium	0.0515	0.00500	0.05	0	103	75-125				
Zinc	0.06288	0.00500	0.05	0.01235	101	75-125				

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

Client: Navajo Refining Company
Work Order: 13111188
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **74938** Instrument ID **ICP7500** Method: **SW6020** **(Dissolve)**

MSD Sample ID: **1311934-06CMSD** Units: **mg/L** Analysis Date: **11/26/2013 04:45 AM**

Client ID: Run ID: **ICP7500_131125A** SeqNo: **3449554** Prep Date: **11/25/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1108	0.0100	0.1	0.007725	103	75-125	0.1146	3.37	25	
Arsenic	0.05436	0.00500	0.05	0.005024	98.7	75-125	0.05636	3.61	25	
Barium	35.64	0.00500	0.05	38.83	-6380	75-125	36.63	2.74	25	SEO
Boron	12.21	0.0500	0.5	12.27	-12	75-125	12.36	1.22	25	SEO
Cadmium	0.0469	0.00200	0.05	0.00008766	93.6	75-125	0.04905	4.48	25	
Calcium	66.04	0.500	5	64.91	22.6	75-125	67.12	1.62	25	SO
Chromium	0.0486	0.00500	0.05	0.000705	95.8	75-125	0.05175	6.28	25	
Cobalt	0.04761	0.00500	0.05	0.0008988	93.4	75-125	0.05009	5.08	25	
Copper	0.04531	0.00500	0.05	-0.0003358	91.3	75-125	0.04751	4.74	25	
Iron	6.027	0.200	5	1.625	88	75-125	6.403	6.05	25	
Lead	0.04965	0.00500	0.05	-0.0001674	99.6	75-125	0.05122	3.11	25	
Manganese	0.09378	0.00500	0.05	0.05231	82.9	75-125	0.1004	6.82	25	
Molybdenum	0.05151	0.00500	0.05	0.0007769	101	75-125	0.05261	2.11	25	
Nickel	0.04559	0.00500	0.05	0.0007887	89.6	75-125	0.0489	7.01	25	
Potassium	9.507	0.200	5	4.865	92.8	75-125	9.723	2.25	25	
Selenium	0.04751	0.00500	0.05	0.0008209	93.4	75-125	0.05051	6.12	25	
Silver	0.047	0.00500	0.05	-0.0004062	94.8	75-125	0.04794	1.98	25	
Sodium	U	0.200	5	0	0	75-125	0	0	25	SX
Uranium	0.0989	0.00500	0.1	-0.0001365	99	75-125	0.1013	2.4	25	
Zinc	0.06053	0.00500	0.05	0.01235	96.4	75-125	0.06357	4.9	25	

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

Client: Navajo Refining Company
Work Order: 13111188
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **74938** Instrument ID **ICP7500** Method: **SW6020** (Dissolve)

DUP		Sample ID: 1311934-06CDUP		Units: mg/L		Analysis Date: 11/26/2013 04:30 AM				
Client ID:		Run ID: ICP7500_131125A		SeqNo: 3449551		Prep Date: 11/25/2013		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.00616	0.0100					0.007725	0	25	J
Arsenic	0.005234	0.00500					0.005024	4.09	25	
Cadmium	U	0.00200					0.00008766	0	25	
Calcium	63.59	0.500					64.91	2.05	25	
Chromium	U	0.00500					0.000705	0	25	
Cobalt	0.0008663	0.00500					0.0008988	0	25	J
Copper	U	0.00500					-0.0003358	0	25	
Iron	1.38	0.200					1.625	16.3	25	
Lead	U	0.00500					-0.0001674	0	25	
Manganese	0.04698	0.00500					0.05231	10.7	25	
Molybdenum	U	0.00500					0.0007769	0	25	
Nickel	U	0.00500					0.0007887	0	25	
Potassium	4.664	0.200					4.865	4.22	25	
Selenium	0.001275	0.00500					0.0008209	0	25	J
Silver	U	0.00500					-0.0004062	0	25	
Uranium	U	0.00500					-0.0001365	0	25	
Zinc	0.01187	0.00500					0.01235	3.96	25	

DUP		Sample ID: 1311934-06CDUP		Units: mg/L		Analysis Date: 11/26/2013 04:06 PM				
Client ID:		Run ID: ICP7500_131126A		SeqNo: 3450542		Prep Date: 11/25/2013		DF: 50		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	33.96	0.250					37.96	11.1	25	
Boron	10.02	2.50					11.28	11.8	25	

The following samples were analyzed in this batch:

13111188-01E 13111188-02E

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

Client: Navajo Refining Company
Work Order: 13111188
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **74973** Instrument ID **SV-4** Method: **SW8270**

MBLK Sample ID: **SBLKW1-131126-74973** Units: **µg/L** Analysis Date: **11/26/2013 05:05 PM**

Client ID: Run ID: **SV-4_131126A** SeqNo: **3451914** Prep Date: **11/26/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	U	0.20								
2-Methylnaphthalene	U	0.20								
Benzo(a)pyrene	U	0.20								
Naphthalene	U	0.20								
Surr: 2,4,6-Tribromophenol	3.583	0.20	5	0	71.7	34-129	0			
Surr: 2-Fluorobiphenyl	3.466	0.20	5	0	69.3	40-125	0			
Surr: 2-Fluorophenol	3.106	0.20	5	0	62.1	20-120	0			
Surr: 4-Terphenyl-d14	4.479	0.20	5	0	89.6	40-135	0			
Surr: Nitrobenzene-d5	3.192	0.20	5	0	63.8	41-120	0			
Surr: Phenol-d6	2.816	0.20	5	0	56.3	20-120	0			

LCS Sample ID: **SLCSW1-131126-74973** Units: **µg/L** Analysis Date: **11/26/2013 05:25 PM**

Client ID: Run ID: **SV-4_131126A** SeqNo: **3451915** Prep Date: **11/26/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	3.803	0.20	5	0	76.1	45-120				
2-Methylnaphthalene	3.701	0.20	5	0	74	50-120				
Benzo(a)pyrene	4.305	0.20	5	0	86.1	45-120				
Naphthalene	3.749	0.20	5	0	75	45-120				
Surr: 2,4,6-Tribromophenol	4.877	0.20	5	0	97.5	34-129	0			
Surr: 2-Fluorobiphenyl	3.823	0.20	5	0	76.5	40-125	0			
Surr: 2-Fluorophenol	3.367	0.20	5	0	67.3	20-120	0			
Surr: 4-Terphenyl-d14	3.983	0.20	5	0	79.7	40-135	0			
Surr: Nitrobenzene-d5	3.45	0.20	5	0	69	41-120	0			
Surr: Phenol-d6	3.572	0.20	5	0	71.4	20-120	0			

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

Client: Navajo Refining Company
Work Order: 13111188
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **74973** Instrument ID **SV-4** Method: **SW8270**

LCSD Sample ID: **SLCSDW1-131126-74973** Units: **µg/L** Analysis Date: **11/26/2013 05:46 PM**

Client ID: Run ID: **SV-4_131126A** SeqNo: **3451916** Prep Date: **11/26/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	4.143	0.20	5	0	82.9	45-120	3.803	8.56	20	
2-Methylnaphthalene	4.022	0.20	5	0	80.4	50-120	3.701	8.3	20	
Benzo(a)pyrene	4.867	0.20	5	0	97.3	45-120	4.305	12.2	20	
Naphthalene	3.815	0.20	5	0	76.3	45-120	3.749	1.74	20	
<i>Surr: 2,4,6-Tribromophenol</i>	4.519	0.20	5	0	90.4	34-129	4.877	7.63	0	
<i>Surr: 2-Fluorobiphenyl</i>	3.597	0.20	5	0	71.9	40-125	3.823	6.09	0	
<i>Surr: 2-Fluorophenol</i>	3.41	0.20	5	0	68.2	20-120	3.367	1.28	0	
<i>Surr: 4-Terphenyl-d14</i>	4.253	0.20	5	0	85.1	40-135	3.983	6.55	0	
<i>Surr: Nitrobenzene-d5</i>	3.315	0.20	5	0	66.3	41-120	3.45	3.98	0	
<i>Surr: Phenol-d6</i>	3.376	0.20	5	0	67.5	20-120	3.572	5.65	0	

The following samples were analyzed in this batch:

13111188-01D 13111188-02D

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

Client: Navajo Refining Company
Work Order: 13111188
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157973** Instrument ID **VOA4** Method: **SW8260**

MBLK		Sample ID: VBLKW-131203-R157973				Units: µg/L		Analysis Date: 12/3/2013 11:13 AM		
Client ID:		Run ID: VOA4_131203A				SeqNo: 3455211		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichloroethane	U	1.0								
Benzene	U	1.0								
Carbon tetrachloride	U	1.0								
Chloroform	U	1.0								
Ethylbenzene	U	1.0								
Methylene chloride	U	2.0								
Tetrachloroethene	U	1.0								
Toluene	U	1.0								
Trichloroethene	U	1.0								
Vinyl chloride	U	1.0								
Xylenes, Total	U	3.0								
Surr: 1,2-Dichloroethane-d4	59.13	1.0	50	0	118	71-125	0			
Surr: 4-Bromofluorobenzene	53.31	1.0	50	0	107	70-125	0			
Surr: Dibromofluoromethane	56.76	1.0	50	0	114	74-125	0			
Surr: Toluene-d8	55.64	1.0	50	0	111	75-125	0			

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

Client: Navajo Refining Company
Work Order: 13111188
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157973** Instrument ID **VOA4** Method: **SW8260**

LCS				Sample ID: VLCSW-131203-R157973		Units: µg/L		Analysis Date: 12/3/2013 10:24 AM		
Client ID:		Run ID: VOA4_131203A			SeqNo: 3455210		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	59.56	1.0	50	0	119	75-130				
1,1,2,2-Tetrachloroethane	51.02	1.0	50	0	102	74-123				
1,1,2-Trichloroethane	51.66	1.0	50	0	103	80-120				
1,1-Dichloroethane	57.26	1.0	50	0	115	80-120				
1,1-Dichloroethene	60.43	1.0	50	0	121	75-130				
1,2-Dibromoethane	52.61	1.0	50	0	105	80-120				
1,2-Dichloroethane	52.48	1.0	50	0	105	79-120				
Benzene	54.13	1.0	50	0	108	80-120				
Carbon tetrachloride	54.33	1.0	50	0	109	75-125				
Chloroform	55.19	1.0	50	0	110	70-130				
Ethylbenzene	52.55	1.0	50	0	105	80-120				
Methylene chloride	58.04	2.0	50	0	116	65-133				
Tetrachloroethene	52.04	1.0	50	0	104	75-130				
Toluene	52.2	1.0	50	0	104	80-121				
Trichloroethene	53.23	1.0	50	0	106	75-125				
Vinyl chloride	60.81	1.0	50	0	122	70-135				
Xylenes, Total	155	3.0	150	0	103	80-124				
Surr: 1,2-Dichloroethane-d4	58.37	1.0	50	0	117	71-125		0		
Surr: 4-Bromofluorobenzene	57.61	1.0	50	0	115	70-125		0		
Surr: Dibromofluoromethane	59.15	1.0	50	0	118	74-125		0		
Surr: Toluene-d8	55.4	1.0	50	0	111	75-125		0		

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

Client: Navajo Refining Company
Work Order: 13111188
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157973** Instrument ID **VOA4** Method: **SW8260**

MS				Sample ID: 13111059-52AMS		Units: µg/L		Analysis Date: 12/3/2013 02:30 PM		
Client ID:		Run ID: VOA4_131203A			SeqNo: 3456152		Prep Date:		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	626.1	10	500	0	125	75-130				
1,1,2,2-Tetrachloroethane	541.3	10	500	0	108	74-123				
1,1,2-Trichloroethane	555.3	10	500	0	111	80-120				
1,1-Dichloroethane	606.3	10	500	0	121	80-120				S
1,1-Dichloroethene	635.9	10	500	0	127	75-130				
1,2-Dibromoethane	559.5	10	500	0	112	80-120				
1,2-Dichloroethane	578.5	10	500	0	116	79-120				
Benzene	1480	10	500	863	123	80-120				S
Carbon tetrachloride	578.7	10	500	0	116	79-120				
Chloroform	589	10	500	0	118	70-130				
Ethylbenzene	552.4	10	500	0	110	80-120				
Methylene chloride	614.1	20	500	0	123	65-133				
Tetrachloroethene	546.5	10	500	0	109	75-130				
Toluene	547.3	10	500	0	109	80-121				
Trichloroethene	560.1	10	500	0	112	75-125				
Vinyl chloride	646.2	10	500	0	129	70-135				
Xylenes, Total	1648	30	1500	0	110	80-124				
Surr: 1,2-Dichloroethane-d4	588	10	500	0	118	71-125		0		
Surr: 4-Bromofluorobenzene	575.5	10	500	0	115	70-125		0		
Surr: Dibromofluoromethane	601	10	500	0	120	74-125		0		
Surr: Toluene-d8	551.9	10	500	0	110	75-125		0		

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

Client: Navajo Refining Company
 Work Order: 13111188
 Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157973** Instrument ID **VOA4** Method: **SW8260**

MSD		Sample ID: 13111059-52AMSD				Units: µg/L		Analysis Date: 12/3/2013 02:55 PM		
Client ID:		Run ID: VOA4_131203A				SeqNo: 3456153		Prep Date:		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	600.4	10	500	0	120	75-130	626.1	4.2	20	
1,1,2,2-Tetrachloroethane	545.7	10	500	0	109	74-123	541.3	0.807	20	
1,1,2-Trichloroethane	543	10	500	0	109	80-120	555.3	2.25	20	
1,1-Dichloroethane	582.3	10	500	0	116	80-120	606.3	4.04	20	
1,1-Dichloroethene	615.2	10	500	0	123	75-130	635.9	3.3	20	
1,2-Dibromoethane	551.1	10	500	0	110	80-120	559.5	1.51	20	
1,2-Dichloroethane	561.4	10	500	0	112	79-120	578.5	3	20	
Benzene	1416	10	500	863	111	80-120	1480	4.41	20	
Carbon tetrachloride	552.9	10	500	0	111	75-125	578.7	4.56	20	
Chloroform	565.8	10	500	0	113	70-130	589	4.02	20	
Ethylbenzene	538.3	10	500	0	108	80-120	552.4	2.58	20	
Methylene chloride	597.4	20	500	0	119	65-133	614.1	2.75	20	
Tetrachloroethene	527.1	10	500	0	105	75-130	546.5	3.63	20	
Toluene	529.4	10	500	0	106	80-121	547.3	3.32	20	
Trichloroethene	543.2	10	500	0	109	75-120	560.1	3.06	20	
Vinyl chloride	622.9	10	500	0	125	70-135	646.2	3.68	20	
Xylenes, Total	1594	30	1500	0	106	80-124	1648	3.35	20	
Surr: 1,2-Dichloroethane-d4	583.2	10	500	0	117	71-125	588	0.823	20	
Surr: 4-Bromofluorobenzene	566.1	10	500	0	113	70-125	575.5	1.64	20	
Surr: Dibromofluoromethane	592.2	10	500	0	118	74-125	601	1.48	20	
Surr: Toluene-d8	550.2	10	500	0	110	75-125	551.9	0.308	20	

The following samples were analyzed in this batch:

13111188-01A 13111188-02A

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

Client: Navajo Refining Company
Work Order: 13111188
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R158097** Instrument ID **VOA4** Method: **SW8260**

MBLK		Sample ID: VBLKW-131203-R158097				Units: µg/L		Analysis Date: 12/4/2013 11:14 AM		
Client ID:		Run ID: VOA4_131204A				SeqNo: 3457811		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichloroethane	U	1.0								
Benzene	U	1.0								
Carbon tetrachloride	U	1.0								
Chloroform	U	1.0								
Ethylbenzene	U	1.0								
Methylene chloride	U	2.0								
Tetrachloroethene	U	1.0								
Toluene	U	1.0								
Trichloroethene	U	1.0								
Vinyl chloride	U	1.0								
Xylenes, Total	U	3.0								
<i>Surr: 1,2-Dichloroethane-d4</i>	59.21	1.0	50	0	118	71-125	0			
<i>Surr: 4-Bromofluorobenzene</i>	53.57	1.0	50	0	107	70-125	0			
<i>Surr: Dibromofluoromethane</i>	56.22	1.0	50	0	112	74-125	0			
<i>Surr: Toluene-d8</i>	54.63	1.0	50	0	109	75-125	0			

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

Client: Navajo Refining Company
Work Order: 13111188
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R158097** Instrument ID **VOA4** Method: **SW8260**

LCS				Sample ID: VLCSW-131203-R158097		Units: µg/L		Analysis Date: 12/4/2013 10:24 AM		
Client ID:		Run ID: VOA4_131204A			SeqNo: 3457810		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	52.63	1.0	50	0	105	75-130				
1,1,2,2-Tetrachloroethane	48.12	1.0	50	0	96.2	74-123				
1,1,2-Trichloroethane	47.64	1.0	50	0	95.3	80-120				
1,1-Dichloroethane	51.47	1.0	50	0	103	80-120				
1,1-Dichloroethene	54.46	1.0	50	0	109	75-130				
1,2-Dibromoethane	48.08	1.0	50	0	96.2	80-120				
1,2-Dichloroethane	48.27	1.0	50	0	96.5	79-120				
Benzene	49.75	1.0	50	0	99.5	80-120				
Carbon tetrachloride	48.69	1.0	50	0	97.4	75-125				
Chloroform	50.04	1.0	50	0	100	70-130				
Ethylbenzene	46.88	1.0	50	0	93.8	80-120				
Methylene chloride	54	2.0	50	0	108	65-133				
Tetrachloroethene	46.21	1.0	50	0	92.4	75-130				
Toluene	47.06	1.0	50	0	94.1	80-121				
Trichloroethene	48.1	1.0	50	0	96.2	75-125				
Vinyl chloride	54.76	1.0	50	0	110	70-135				
Xylenes, Total	138.9	3.0	150	0	92.6	80-124				
Surr: 1,2-Dichloroethane-d4	55.92	1.0	50	0	112	71-125		0		
Surr: 4-Bromofluorobenzene	55.89	1.0	50	0	112	70-125		0		
Surr: Dibromofluoromethane	57.37	1.0	50	0	115	74-125		0		
Surr: Toluene-d8	53.5	1.0	50	0	107	75-125		0		

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

Client: Navajo Refining Company
Work Order: 13111188
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R158097** Instrument ID **VOA4** Method: **SW8260**

MS	Sample ID: 13111198-01AMS				Units: µg/L		Analysis Date: 12/4/2013 12:28 PM			
Client ID:	Run ID: VOA4_131204A				SeqNo:3457814		Prep Date:		DF: 25	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	1565	25	1250	0	125	75-130				
1,1,2,2-Tetrachloroethane	1361	25	1250	0	109	74-123				
1,1,2-Trichloroethane	1429	25	1250	0	114	80-120				
1,1-Dichloroethane	1517	25	1250	0	121	80-120				S
1,1-Dichloroethene	1610	25	1250	0	129	75-130				
1,2-Dibromoethane	1365	25	1250	0	109	80-120				
1,2-Dichloroethane	1452	25	1250	0	116	79-120				
Benzene	3558	25	1250	1977	126	80-120				S
Carbon tetrachloride	1397	25	1250	0	112	79-120				
Chloroform	1470	25	1250	0	118	70-130				
Ethylbenzene	2723	25	1250	1058	133	80-120				S
Methylene chloride	1547	50	1250	0	124	65-133				
Tetrachloroethene	1260	25	1250	0	101	75-130				
Toluene	1499	25	1250	133.1	109	80-121				
Trichloroethene	1378	25	1250	0	110	75-125				
Vinyl chloride	1635	25	1250	0	131	70-135				
Xylenes, Total	11600	75	3750	5692	158	80-124				S
Surr: 1,2-Dichloroethane-d4	1441	25	1250	0	115	71-125		0		
Surr: 4-Bromofluorobenzene	1440	25	1250	0	115	70-125		0		
Surr: Dibromofluoromethane	1495	25	1250	0	120	74-125		0		
Surr: Toluene-d8	1390	25	1250	0	111	75-125		0		

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

Client: Navajo Refining Company
 Work Order: 13111188
 Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R158097** Instrument ID **VOA4** Method: **SW8260**

MSD		Sample ID: 13111198-01AMSD				Units: µg/L		Analysis Date: 12/4/2013 12:52 PM		
Client ID:		Run ID: VOA4_131204A				SeqNo: 3457815		Prep Date:		DF: 25
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	1520	25	1250	0	122	75-130	1565	2.94	20	
1,1,2,2-Tetrachloroethane	1357	25	1250	0	109	74-123	1361	0.296	20	
1,1,2-Trichloroethane	1370	25	1250	0	110	80-120	1429	4.2	20	
1,1-Dichloroethane	1478	25	1250	0	118	80-120	1517	2.59	20	
1,1-Dichloroethene	1550	25	1250	0	124	75-130	1610	3.84	20	
1,2-Dibromoethane	1342	25	1250	0	107	80-120	1365	1.71	20	
1,2-Dichloroethane	1420	25	1250	0	114	79-120	1452	2.27	20	
Benzene	3437	25	1250	1977	117	80-120	3558	3.46	20	
Carbon tetrachloride	1414	25	1250	0	113	75-125	1397	1.2	20	
Chloroform	1438	25	1250	0	115	70-130	1470	2.17	20	
Ethylbenzene	2521	25	1250	1058	117	80-120	2723	7.73	20	
Methylene chloride	1513	50	1250	0	121	65-133	1547	2.19	20	
Tetrachloroethene	1246	25	1250	0	99.6	75-130	1260	1.15	20	
Toluene	1447	25	1250	133.1	105	80-121	1499	3.53	20	
Trichloroethene	1353	25	1250	0	108	75-120	1378	1.84	20	
Vinyl chloride	1598	25	1250	0	128	70-135	1635	2.3	20	
Xylenes, Total	10640	75	3750	5692	132	80-124	11600	8.62	20	S
Surr: 1,2-Dichloroethane-d4	1420	25	1250	0	114	71-125	1441	1.51	20	
Surr: 4-Bromofluorobenzene	1417	25	1250	0	113	70-125	1440	1.67	20	
Surr: Dibromofluoromethane	1473	25	1250	0	118	74-125	1495	1.43	20	
Surr: Toluene-d8	1345	25	1250	0	108	75-125	1390	3.33	20	

The following samples were analyzed in this batch:

13111188-03A

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

Client: Navajo Refining Company
Work Order: 13111188
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157787** Instrument ID **WetChem** Method: **SM4500H+ B (Dissolve)**

LCS Sample ID: **WLCS-W11126-R157787** Units: **pH Units** Analysis Date: **11/26/2013 09:00 AM**

Client ID: Run ID: **WETCHEM_131126B** SeqNo: **3450021** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6	0.100	6	0	100	98-102				

DUP Sample ID: **13111121-01EDup** Units: **pH Units** Analysis Date: **11/26/2013 09:00 AM**

Client ID: Run ID: **WETCHEM_131126B** SeqNo: **3450073** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.4	0.100					7.42	0.27	10	H
Temp Deg C @pH	20	0					20.1	0.499		H

The following samples were analyzed in this batch:

13111188-01F	13111188-02F
--------------	--------------

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

Client: Navajo Refining Company
Work Order: 13111188
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157947** Instrument ID **Balance1** Method: **M2540C** **(Dissolve)**

MBLK Sample ID: **WBLK-112713-R157947** Units: **mg/L** Analysis Date: **11/27/2013 05:30 PM**

Client ID: Run ID: **BALANCE1_131127E** SeqNo: **3454369** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	U	10.0								

LCS Sample ID: **WLCS-112713-R157947** Units: **mg/L** Analysis Date: **11/27/2013 05:30 PM**

Client ID: Run ID: **BALANCE1_131127E** SeqNo: **3454370** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	988	10.0	1000		0	98.8	85-115			

DUP Sample ID: **13111154-01EDUP** Units: **mg/L** Analysis Date: **11/27/2013 05:30 PM**

Client ID: Run ID: **BALANCE1_131127E** SeqNo: **3454362** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	2472	10.0					2366	4.38	10	

The following samples were analyzed in this batch:

13111188-01F 13111188-02F

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

Client: Navajo Refining Company
Work Order: 13111188
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R157956** Instrument ID **ICS2100** Method: **E300** **(Dissolve)**

MBLK	Sample ID: WBLKW2-R157956				Units: mg/L		Analysis Date: 12/2/2013 07:09 PM			
Client ID:	Run ID: ICS2100_131202D				SeqNo: 3454587		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrate/Nitrite (as N)	U	0.200								

LCS	Sample ID: WLCSW2-R157956				Units: mg/L		Analysis Date: 12/2/2013 07:24 PM			
Client ID:	Run ID: ICS2100_131202D				SeqNo: 3454588		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrate/Nitrite (as N)	7.891	0.200	8	0	98.6	90-110				

MS	Sample ID: 13111093-01FMSZ				Units: mg/L		Analysis Date: 12/2/2013 07:53 PM			
Client ID:	Run ID: ICS2100_131202D				SeqNo: 3454590		Prep Date:		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrate/Nitrite (as N)	19.69	1.00	20	0	98.4	80-120				

MSD	Sample ID: 13111093-01FMSDZ				Units: mg/L		Analysis Date: 12/2/2013 08:07 PM			
Client ID:	Run ID: ICS2100_131202D				SeqNo: 3454591		Prep Date:		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrate/Nitrite (as N)	19.36	1.00	20	0	96.8	80-120	19.69	1.66	20	

The following samples were analyzed in this batch:

13111188-01G	13111188-02G
--------------	--------------

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

Client: Navajo Refining Company
Work Order: 13111188
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R158074** Instrument ID **Gall01** Method: **M4500CN E&G (Dissolve)**

MBLK	Sample ID: MB-R158074-R158074				Units: mg/L		Analysis Date: 12/3/2013 08:45 AM			
Client ID:	Run ID: GALL01_131203B				SeqNo: 3457369		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	U	0.0200								

LCS	Sample ID: LCS-R158074-R158074				Units: mg/L		Analysis Date: 12/3/2013 08:45 AM			
Client ID:	Run ID: GALL01_131203B				SeqNo: 3457370		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.1872	0.0200	0.2	0	93.6	80-120				

LCSD	Sample ID: WLCSDW1120313-R158074				Units: mg/L		Analysis Date: 12/3/2013 08:45 AM			
Client ID:	Run ID: GALL01_131203B				SeqNo: 3457378		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.1917	0.0200	0.2	0	95.9	80-120	0.1872	2.36	20	

MS	Sample ID: 13111251-01ams				Units: mg/L		Analysis Date: 12/3/2013 08:45 AM			
Client ID:	Run ID: GALL01_131203B				SeqNo: 3457374		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.208	0.0200	0.2	0.0035	102	80-120				

The following samples were analyzed in this batch:

13111188-01H	13111188-02H
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 13111188
Project: RO Discharge Sampling

QC BATCH REPORT

Batch ID: **R158112** Instrument ID **ICS2100** Method: **E300** **(Dissolve)**

MBLK	Sample ID: WBLKW1-R158112				Units: mg/L		Analysis Date: 12/4/2013 09:28 AM			
Client ID:	Run ID: ICS2100_131204A				SeqNo: 3457845		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	0.500								
Fluoride	U	0.100								
Sulfate	U	0.500								

LCS	Sample ID: WLCSW1-R158112				Units: mg/L		Analysis Date: 12/4/2013 09:42 AM			
Client ID:	Run ID: ICS2100_131204A				SeqNo: 3457846		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	21.17	0.500	20	0	106	90-110				
Fluoride	4.291	0.100	4	0	107	90-110				
Sulfate	20.15	0.500	20	0	101	90-110				

MS	Sample ID: 1312062-06CMS				Units: mg/L		Analysis Date: 12/4/2013 11:35 AM			
Client ID:	Run ID: ICS2100_131204A				SeqNo: 3457853		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	18.64	0.500	10	7.306	113	80-120				
Fluoride	3.347	0.100	2	1.01	117	80-120				
Sulfate	72.56	0.500	10	62.16	104	80-120				O

MSD	Sample ID: 1312062-06CMSD				Units: mg/L		Analysis Date: 12/4/2013 11:50 AM			
Client ID:	Run ID: ICS2100_131204A				SeqNo: 3457854		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	18.58	0.500	10	7.306	113	80-120	18.64	0.328	20	
Fluoride	3.335	0.100	2	1.01	116	80-120	3.347	0.359	20	
Sulfate	72.36	0.500	10	62.16	102	80-120	72.56	0.275	20	O

The following samples were analyzed in this batch:

13111188-01F 13111188-02F

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

Client: Navajo Refining Company
Project: RO Discharge Sampling
WorkOrder: 13111188

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>
°C	Celsius degrees
mg/L	Milligrams per Liter
pH Units	

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**

Date/Time Received: **22-Nov-13 14:00**

Work Order: **13111188**

Received by: **TXY**

Checklist completed by Johannie B. Allen
eSignature

23-Nov-13
Date

Reviewed by: Sonia West
eSignature

04-Dec-13
Date

Matrices: **water**

Carrier name: **FedEx Priority Overnight**

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>1.5C/1.5 C u/c</u> <u>IR 1</u>		
Cooler(s)/Kit(s):	<u>3185</u>		
Date/Time sample(s) sent to storage:	<u>11/23/13 09:40</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:	<u>-</u>		

Login Notes: **Trip Blank logged in for analysis per historical events.**

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



Cincinnati, OH
+1 513 733 5336
Everett, WA
+1 425 356 2600

Fort Collins, CO
+1 970 490 1511
Holland, MI
+1 616 399 6070

Chain of Custody Form

Page 1 of 1

COC ID: **87151**

13111188

NAVAJO REFINING: Navajo Refining Company

Project: RO Discharge Sampling

Environmental

ALS Project Manager:

Customer Information				Project Information													
Purchase Order	Project Name	RO Discharge/Sampling	A	VOC (8260) NM GW List													
Work Order	Project Number		B	GRO (8015M)													
Company Name	Bill To Company	Navajo Refining Company	C	DRO, ORO (8015M) LVI													
Send Report To	Invoice Attn	Robert Combs	D	LL SVOC (8270) NM GW List													
Address	Address	501 East Main	E	Dissolved Metals (6020/7000) Select List													
			F	Anions (300) Cl, F, SO4													
City/State/Zip	City/State/Zip	Artesia, NM 88211	G	Total Cyanide (SM 4500)													
Phone	Phone	(575) 746-5382	H	pH, TDS													
Fax	Fax	(575) 746-5421	I	Nitrate-Nitrite as N (Preserved)													
e-Mail Address	e-Mail Address		J	Radium 226/228													
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-114	11/21/13	0930	Liquid		17											
2	MW-115	11/22/13	0830	"		17											
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Samplers (Please Print & Sign)		Shipment Method		Required Turnaround Time (Check Box)		Results Due Date:	
Received by:	Date: 11/21/13	Time: 1200	Received by (Laboratory):	Received by (Laboratory):	Received by (Laboratory):	Received by (Laboratory):	Received by (Laboratory):
Relinquished by:	Date: 11/22/13	Time: 1600	Relinquished by (Laboratory):	Relinquished by (Laboratory):	Relinquished by (Laboratory):	Relinquished by (Laboratory):	Relinquished by (Laboratory):
Logged by (Laboratory):	Date:	Time:	Logged by (Laboratory):	Date:	Time:	Logged by (Laboratory):	Date:
Preservative Key:	1-HCl	2-HNO3	3-H2SO4	4-NaOH	5-Na2S2O3	6-NaHSO4	7-Other
Preservative Key:	8-4°C	9-5035	10-Other	11-Other	12-Other	13-Other	14-Other

Notes: 10 Day TAT - CC Pam Krueger with Arcadis

QC Package: (Check One Box Below)

☒ Level II Std QC ☐ TRRP Checklist

☐ Level III Std QC/Raw Data ☐ TRRP Level IV

☐ Level IV SW546/CLP ☐ Other / EDD

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.

3. The Chain of Custody is a legal document. All information must be completed accurately.

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

Date: 11/21
 Name:
 Company:

CUSTODY SEAL

11/21 Time: 1100
 Eric Bergersen
 ARCADIS

Seal Broken By:

Date:

Del Prej Val

004971

01000

FedEx Package
 Express US Airbill

FedEx
 Tracking
 Number

8042 4829 2232

1 From

Date 11/21/13

Sender's Name Eric Bergersen

Phone 281 787-1234

Company ARCADIS

Address 2929 Briarpark Suite 300

Dept./Floor/Suite/Room

City Houston

State TX ZIP 77021

2 Your Internal Billing Reference

FedEx 1800.463.3339

3185



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

Date:
 Name:
 Co:

CUSTODY SEAL

11/21/13 Time: 1200
 Eric Bergersen
 ARCADIS

Seal Broken By:

Date:

11/24/13

01000

FedEx Package
 Express US Airbill

FedEx
 Tracking
 Number

8042 4829 2243

1 From

Date 11/21/13

Sender's Name Eric Bergersen

Phone 281 787-1234

Company ARCADIS

Address 2929 Briarpark Suite 300

Dept./Floor/Suite/Room

City Houston

State TX ZIP 77021

2 Your Internal Billing Reference

FedEx 1800.463.3339

5564



December 17, 2013

Ms. Sonia West
ALS Environmental
10450 Stancliff Rd, Suite 210
Houston, TX 77099

Re: ALS Workorder: 13-11-496
Project Name: None Submitted
Project Number: 13111188

Dear Ms. West:

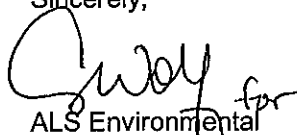
Two water samples were received from ALS Environmental on November 26, 2013. The samples were scheduled for the following analyses:

Radium-226
Radium-228

The results for these analyses are contained in the enclosed reports.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,


ALS Environmental
Jeff Kujawa
Project Manager

JRK/jl
Enclosure (s): Report

ADDRESS 225 Commerce Drive, Fort Collins, Colorado, USA 80524 | PHONE +1 970 490 1511 | FAX +1 970 490 1522

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

Environmental 

www.alsglobal.com

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40 of 52



1311496

Case Narrative

Radium-228:

The samples were analyzed for the presence of ^{228}Ra by low background gas flow proportional counting of ^{228}Ac , which is the ingrown progeny of ^{228}Ra , according to the current revision of SOP 724.

All acceptance criteria were met.

Radium-226:

The samples were prepared and analyzed according to the current revision of SOP 783.

All acceptance criteria were met.

ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Laboratory Certifications	
Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri	175
Nebraska	NE-OS-24-13
Nevada (NV)	CO000782008A
New Jersey (NJ)	CO003
North Dakota (ND)	R-057
Oklahoma	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241-09-1
Utah (UT)	CO01099
Washington	C1280

Revised 8/15/2013

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1311496

Client Name: ALS Environmental

Client Project Name:

Client Project Number: 13111188

Client PO Number: 10-13111188

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
MW-114	1311496-1		WATER	21-Nov-13	9:30
MW-115	1311496-2		WATER	21-Nov-13	8:30

1311496



CHAIN-OF-CUSTODY RECORD

Date: **23-Nov-13**
COC ID: **15503**
Due Date: **03-Dec-13**

Page 1 of 1

Subcontractor:
ALS Environmental
225 Commerce Drive
Fort Collins, CO 80524

TEL: (800) 443-1511
FAX: (970) 490-1522
Acct #:

Salesperson Houston House Acct

Customer Information		Project Information		Parameter/Method Request for Analysis												
Purchase Order	10-13111188	Project Name	13111188	A Radium 226 228 Sub to ALS Ft. Collins												
Work Order		Project Number		B												
Company Name	ALS Group USA, Corp.	Bill To Company	ALS Group USA, Corp.	C												
Send Report To	Sonia West	Inv Attn	Accounts Payable	D												
Address	10450 Stanciliff Rd, Suite 210	Address	10450 Stanciliff Rd, Suite 210	E												
				F												
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G												
Phone	(281) 530-5656	Phone	(281) 530-5656	H												
Fax	(281) 530-5887	Fax	(281) 530-5887	I												
eMail Address	Sonia.West@alsglobal.com	eMail CC	jumoke.lawal@alsglobal.com	J												
Sample ID		Matrix		Collection Date	24hr	Bottle	A	B	C	D	E	F	G	H	I	J
13111188-011 (MW-114)	①	Water		21/Nov/2013 9:30		(2) 1LPHNO3	X									
13111188-021 (MW-115)	②	Water		21/Nov/2013 8:30		(2) 1LPHNO3	X									

Comments:

WO 13111188 - Please analyze for Radium 226/228

[Signature] 23 Nov 13 10:20

Requisitioned by: _____ Date/Time: _____

Received by: *[Signature]*

Date/Time: 11/26/13 10:20

Cooler IDs: _____

Report/QC Level: _____

Std: _____

Requisitioned by: _____ Date/Time: _____

Received by: _____

Date/Time: _____

Cooler IDs: _____

Report/QC Level: _____

Std: _____



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS TX

Workorder No: 1311496

Project Manager: JRK

Initials: JLR

Date: 11/26/13

1. Does this project require any special handling in addition to standard ALS procedures?	YES	☒ NO
2. Are custody seals on shipping containers intact?	NONE	☒ YES NO
3. Are Custody seals on sample containers intact?	NONE	☒ YES NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?	☒ YES	NO
5. Are the COC and bottle labels complete and legible?	☒ YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)	☒ YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	☒ YES NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	☒ YES NO
9. Are all aqueous non-preserved samples pH 4-9?	☒ N/A	YES NO
10. Is there sufficient sample for the requested analyses?	☒ YES	NO
11. Were all samples placed in the proper containers for the requested analyses?	☒ YES	NO
12. Are all samples within holding times for the requested analyses?	☒ YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)	☒ YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	☒ N/A	YES NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES ☒ NO
16. Were the samples shipped on ice?	☒ YES	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 ☒ #4 ☒ RAD ONLY ☒	☒ YES	NO
Cooler #: <u>1</u>		
Temperature (°C): <u>0°</u>		
No. of custody seals on cooler: <u>2</u>		
External µR/hr reading: <u>10</u>		
Background µR/hr reading: <u>10</u>		
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? ☒ YES ☐ NO / NA (If no, see Form 008.)		

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO ☒ NA Contact: _____

Date/Time: _____

Project Manager Signature / Date: _____

[Signature] 11-26-13

*IR Gun #2: Oakton, SN 29922500201-0066

*IR Gun #4: Oakton, SN 2372220101-0002

1311496

Temp = 0°C

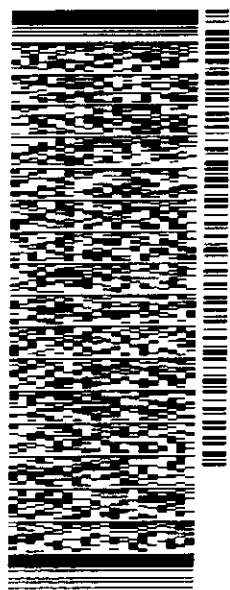
ORIGIN ID:SGRA (281) 530-5656
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 25NOV13
ACTWT: 51.6 LB
GAD: 300130/CPFE2704
DIMS: 26x14x14 IN

BILL SENDER

TO ROY FRENCH SAMPLE CONTROL.
ALS ENVIRONMENTAL
225 COMMERCE DRIVE

FORT COLLINS CO 80524
(970) 480-1611
REF: VAR/BJAGRO
DEPT: ENVIRONMENTAL



JT3111305230126

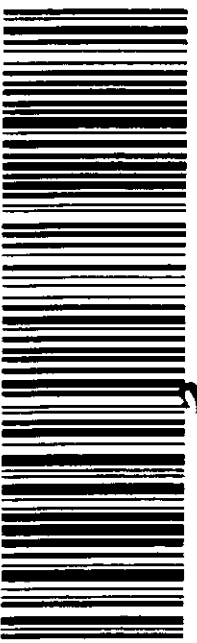
TRK# 5813 7984 9929
0201

TUE - 26 NOV 10:30A
PRIORITY OVERNIGHT

NA FTCA

80524
CO-US DEN

Part # 156148-434 RIT2 04/13



51AC1/05FC/6F03

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 13111188
Sample ID: MW-114
Legal Location:
Collection Date: 11/21/2013 09:30

Date: 16-Dec-13
Work Order: 1311496
Lab ID: 1311496-1
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	ND (+/- 0.16)	U	0.24	pCi/l	NA	12/12/2013 13:08
Carr: BARIUM	94.8		40-110	%REC	NA	12/12/2013 13:08
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	1.07 (+/- 0.37)		0.47	pCi/l	NA	12/6/2013 10:45
Carr: BARIUM	94.8		40-110	%REC	NA	12/6/2013 10:45

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 13111188
Sample ID: MW-115
Legal Location:
Collection Date: 11/21/2013 08:30

Date: 16-Dec-13
Work Order: 1311496
Lab ID: 1311496-2
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	ND (+/- 0.15)	U	0.28	pCi/l	NA	12/12/2013 13:08
Carr: BARIUM	93.2		40-110	%REC	NA	12/12/2013 13:08
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	1.11 (+/- 0.37)		0.47	pCi/l	NA	12/6/2013 10:45
Carr: BARIUM	93.2		40-110	%REC	NA	12/6/2013 10:45

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 13111188
Sample ID: MW-115
Legal Location:
Collection Date: 11/21/2013 08:30

Date: 16-Dec-13
Work Order: 1311496
Lab ID: 1311496-2
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
----------	--------	------	--------------	-------	-----------------	---------------

Explanation of Qualifiers

Radiochemistry:

U or ND - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

G - Sample density differs by more than 15% of LCS density.

D - DER is greater than Control Limit

M - Requested MDC not met.

LT - Result is less than requested MDC but greater than achieved MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).

U or ND - Indicates that the compound was analyzed for but not detected.

E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.

M - Duplicate injection precision was not met.

N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.

Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.

* - Duplicate analysis (relative percent difference) not within control limits.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.

B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.

E - Analyte concentration exceeds the upper level of the calibration range.

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

A - A tentatively identified compound is a suspected aldol-condensation product.

X - The analyte was diluted below an accurate quantitation level.

* - The spike recovery is equal to or outside the control criteria used.

+ - The relative percent difference (RPD) equals or exceeds the control criteria.

Diesel Range Organics:

ALS Environmental -- FC**SAMPLE SUMMARY REPORT****Client:** ALS Environmental**Date:** 16-Dec-13**Project:** 13111188**Work Order:** 1311496**Sample ID:** MW-115**Lab ID:** 1311496-2**Legal Location:****Matrix:** WATER**Collection Date:** 11/21/2013 08:30**Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
G - A pattern resembling gasoline was detected in this sample.						
D - A pattern resembling diesel was detected in this sample.						
M - A pattern resembling motor oil was detected in this sample.						
C - A pattern resembling crude oil was detected in this sample.						
4 - A pattern resembling JP-4 was detected in this sample.						
5 - A pattern resembling JP-5 was detected in this sample.						
H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.						
L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.						
Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:						
- gasoline						
- JP-8						
- diesel						
- mineral spirits						
- motor oil						
- Stoddard solvent						
- bunker C						

ALS Environmental -- FC

Date: 12/16/2013 12:1

Client: ALS Environmental

Work Order: 1311496

Project: 13111188

QC BATCH REPORT

Batch ID: RE131203-1-1 Instrument ID: Alpha Scin Method: Ra-226 by Radon Emanation - Me

LCS	Sample ID: RE131203-1				Units: pCi/l		Analysis Date: 12/12/2013 13:42			
Client ID:	Run ID: RE131203-1A						Prep Date: 12/3/2013		DF: NA	
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	29.1 (+/- 7.4)	0.4	30.2		96.4	67-120				P
Carr: BARIUM	31990		33300		96.1	40-110				

LCSD	Sample ID: RE131203-1				Units: pCi/l		Analysis Date: 12/12/2013 13:42			
Client ID:	Run ID: RE131203-1A						Prep Date: 12/3/2013		DF: NA	
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	29.3 (+/- 7.4)	0.3	30.2		97	67-120	29.1	0.0157	2.13	P
Carr: BARIUM	31200		33300		93.7	40-110	31990			

MB	Sample ID: RE131203-1				Units: pCi/l		Analysis Date: 12/12/2013 13:42			
Client ID:	Run ID: RE131203-1A						Prep Date: 12/3/2013		DF: NA	
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	ND	0.37								U
Carr: BARIUM	31950		33300		95.9	40-110				

The following samples were analyzed in this batch:

1311496-1 1311496-2

Client: ALS Environmental

Work Order: 1311496

Project: 13111188

QC BATCH REPORT

Batch ID: **RA131202-1-2**

Instrument ID: **LB4100-A**

Method: **Radium-228 Analysis by GFPC**

LCS	Sample ID: RA131202-1				Units: pCi/l		Analysis Date: 12/6/2013 10:56			
Client ID:	Run ID: RA131202-1A				Prep Date: 12/2/2013		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	8.9 (+/- 2.1)	0.5	9.263		95.8	70-130				P
Carr: BARIUM	31990		33300		96.1	40-110				

LCSD	Sample ID: RA131202-1				Units: pCi/l		Analysis Date: 12/6/2013 10:56			
Client ID:	Run ID: RA131202-1A				Prep Date: 12/2/2013			DF: NA		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	9.3 (+/- 2.2)	0.6	9.263		100	70-130	8.9	0.128	2.13	P
Carr: BARIUM	31200		33300		93.7	40-110	31990			

MB	Sample ID: RA131202-1				Units: pCi/l		Analysis Date: 12/6/2013 10:56			
Client ID:	Run ID: RA131202-1A				Prep Date: 12/2/2013			DF: NA		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	ND	0.57								U
Carr: BARIUM	31950		33300		95.9	40-110				

The following samples were analyzed in this batch:

1311496-1 1311496-2