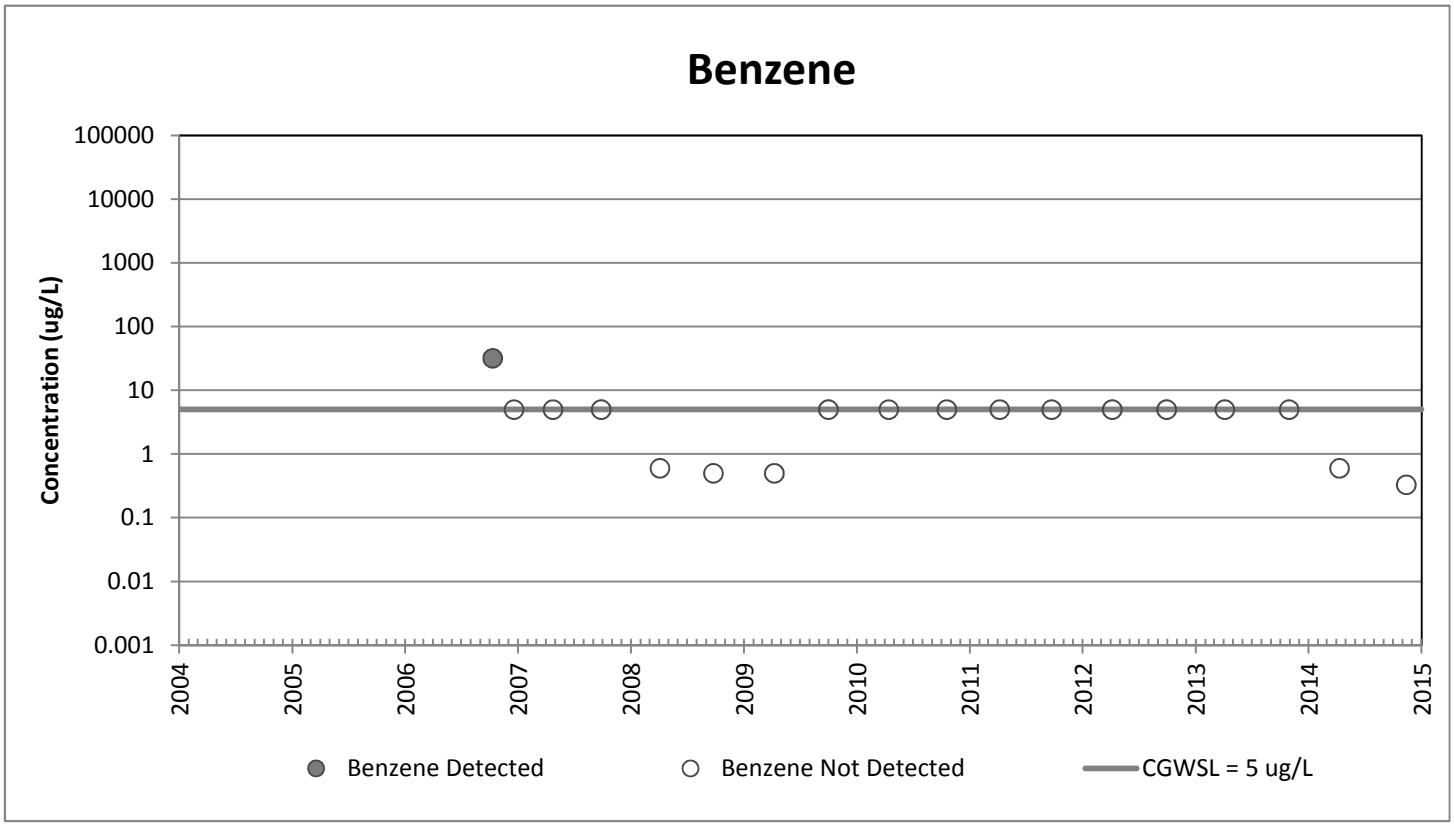
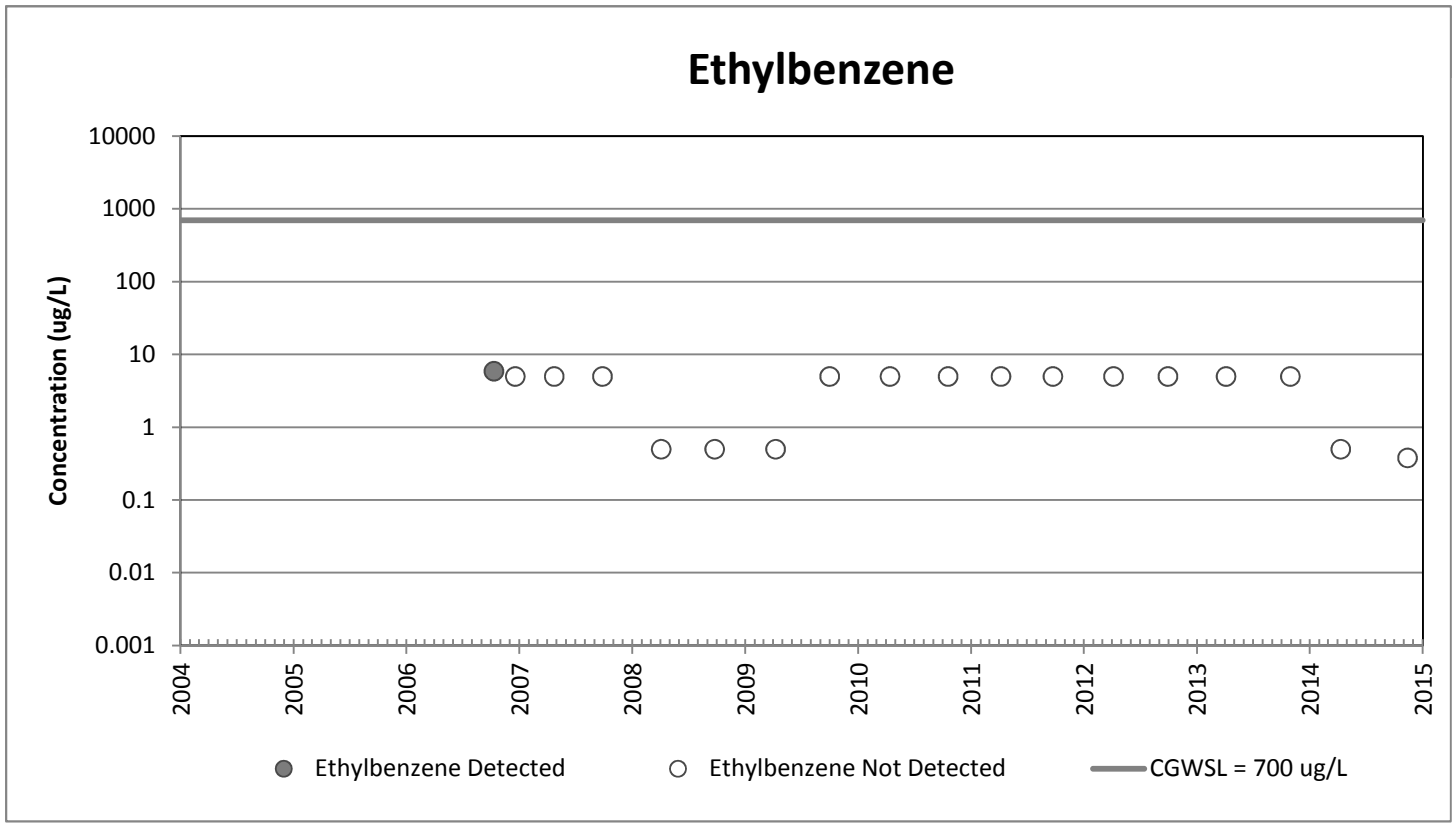
GW-028

ANNUAL GW MONITORING REPORT (6 of **6**)

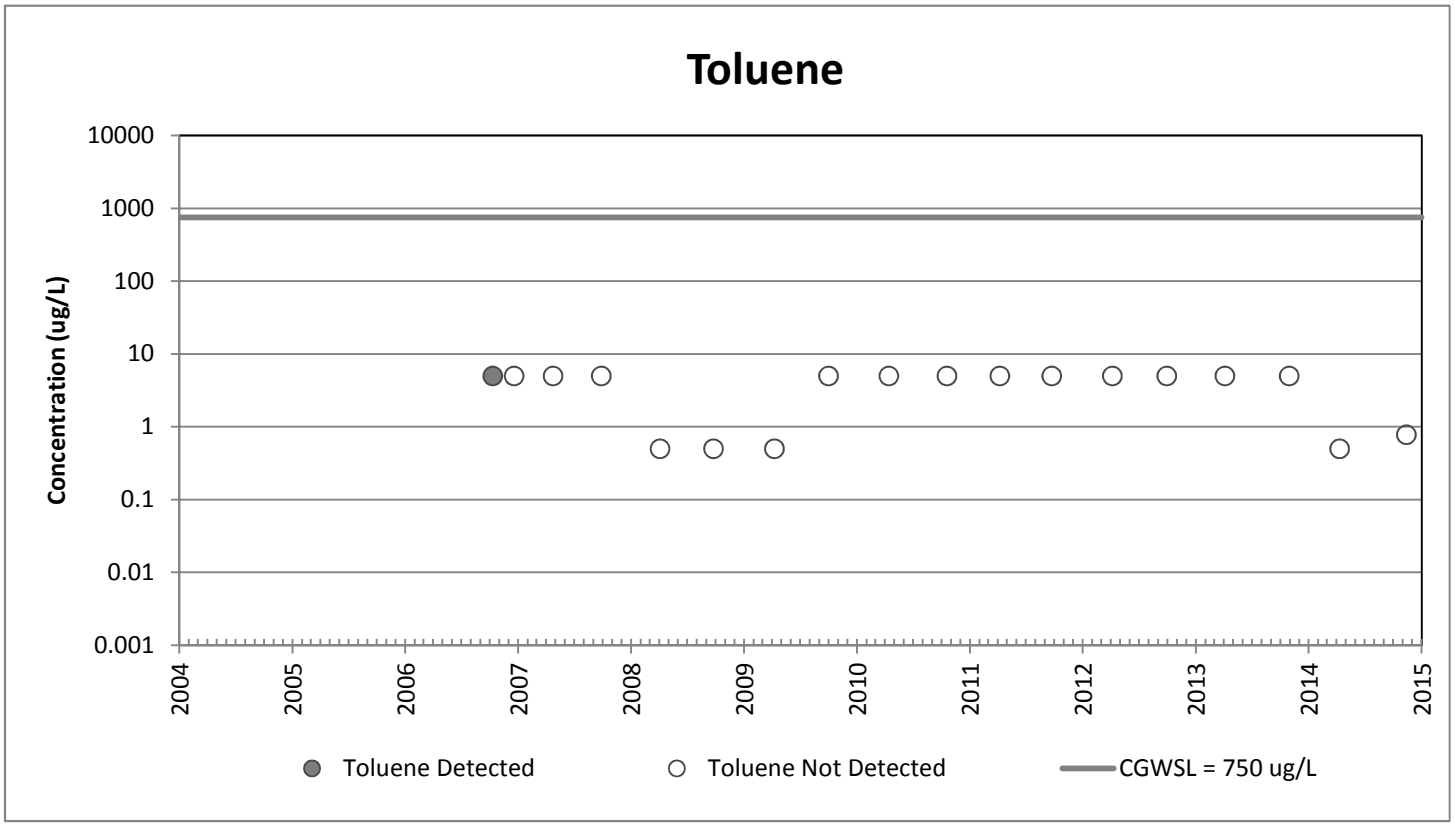
2014

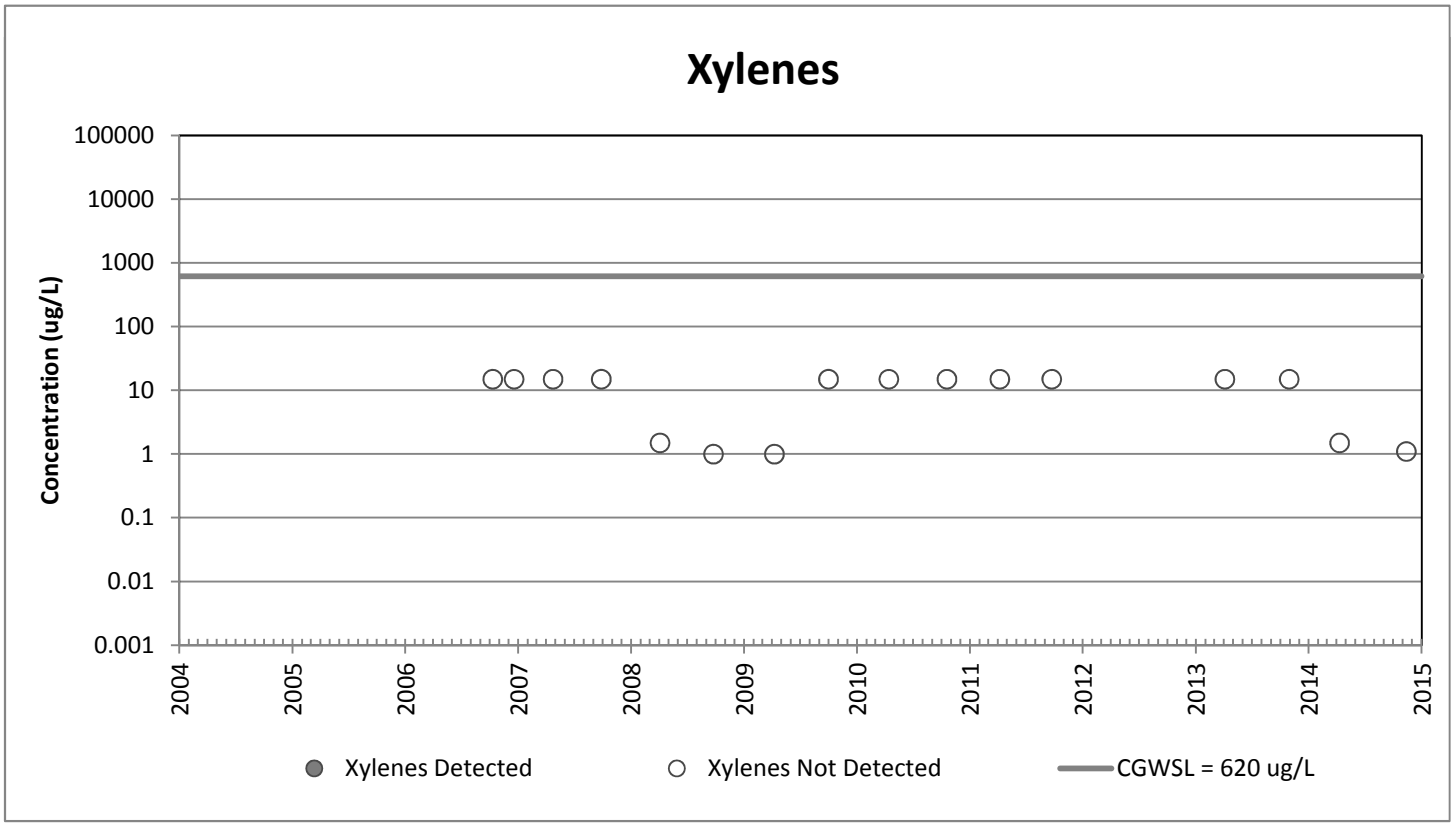
NP-1


Benzene
Concentration (ug/L)
100000
10000
1000
100
10
1
0.1
0.01
0.001
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Benzene Detected
Benzene Not Detected
CGWSL = 5 ug/L

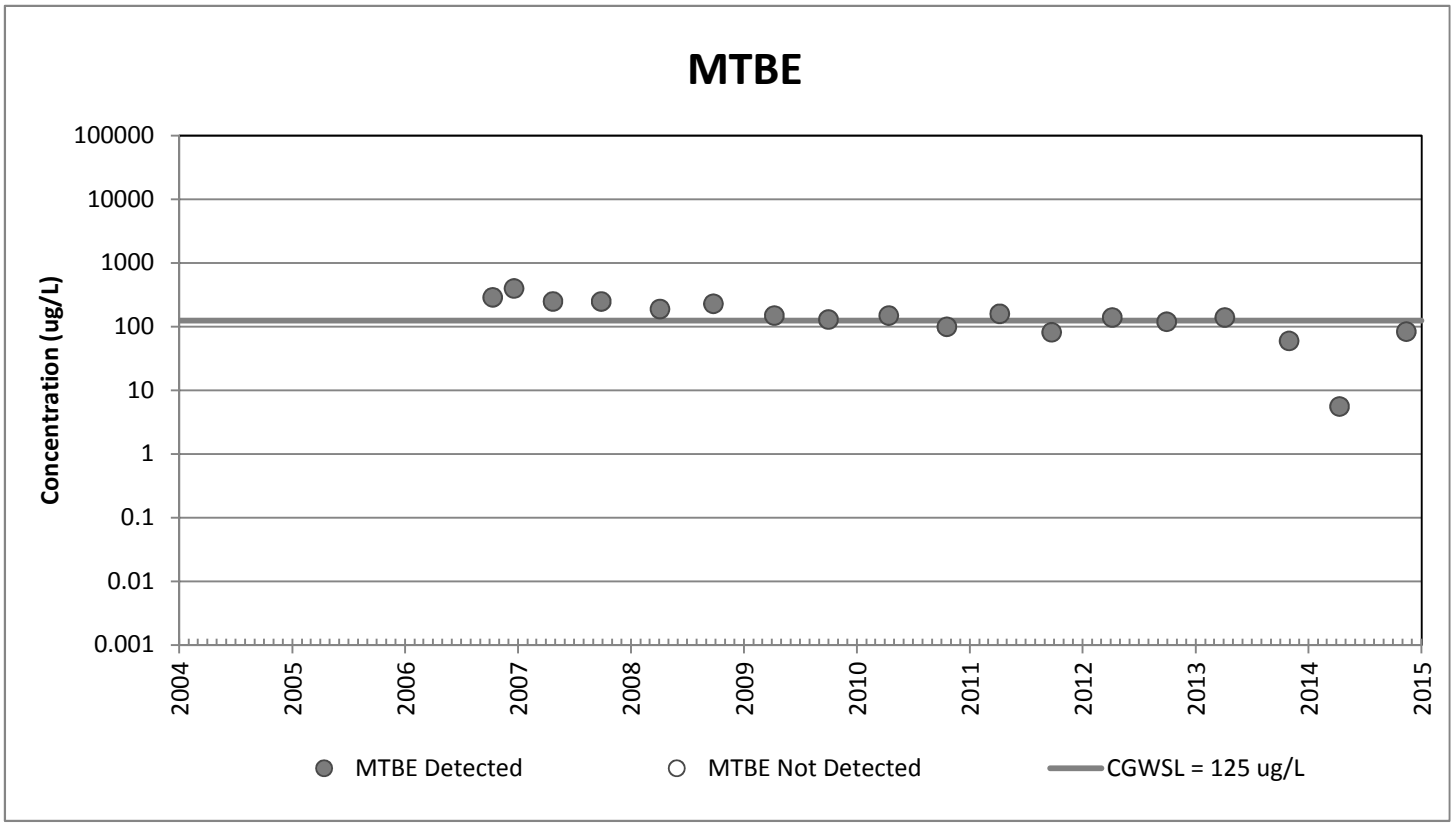

Ethylbenzene
Concentration (ug/L)
10000
1000
100
10
1
0.1
0.01
0.001
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Ethylbenzene Detected
Ethylbenzene Not Detected
CGWSL = 700 ug/L

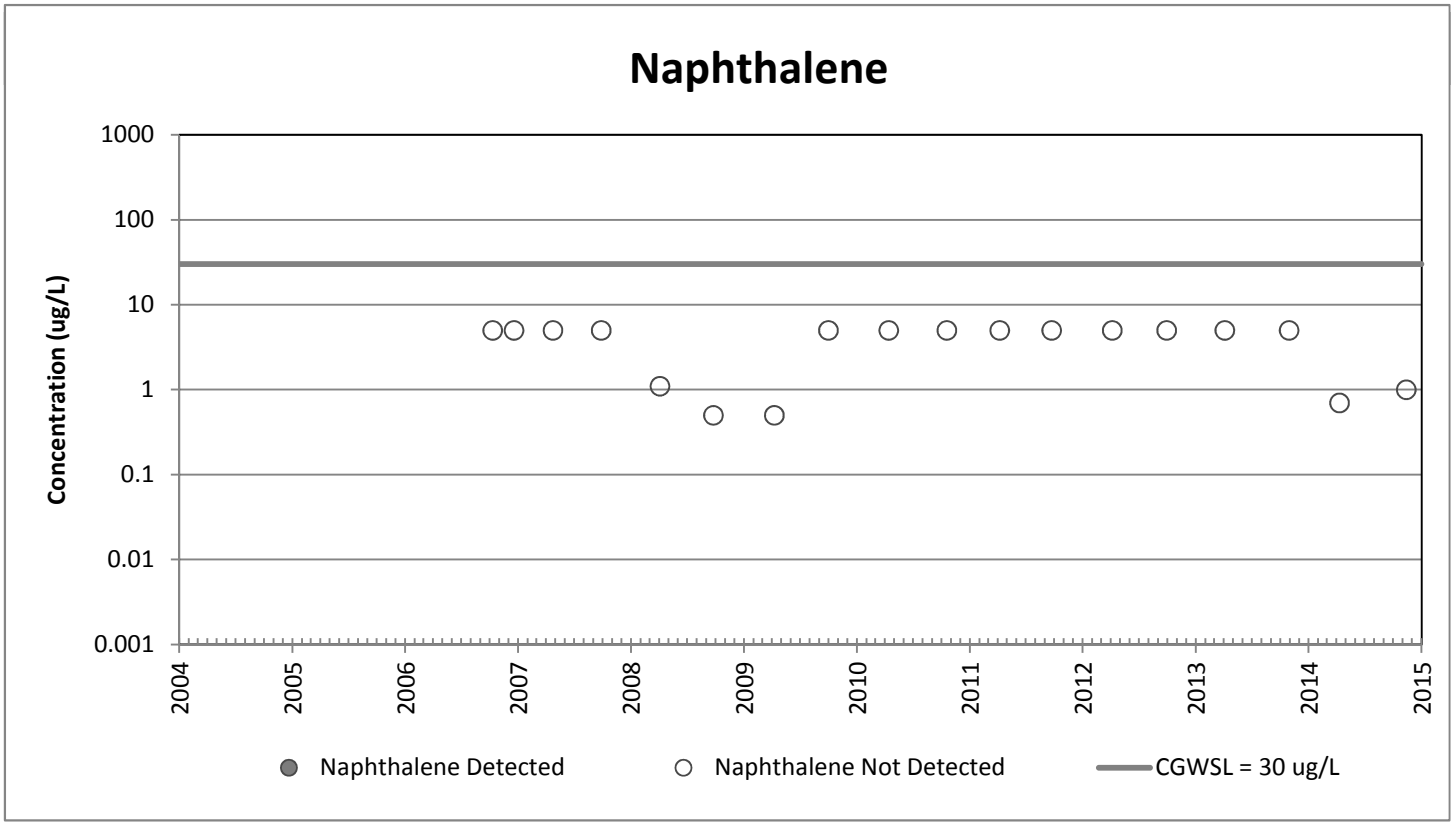
NP-1


Toluene
Concentration (ug/L)
10000
1000
100
10
1
0.1
0.01
0.001
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Toluene Detected
Toluene Not Detected
CGWSL = 750 ug/L

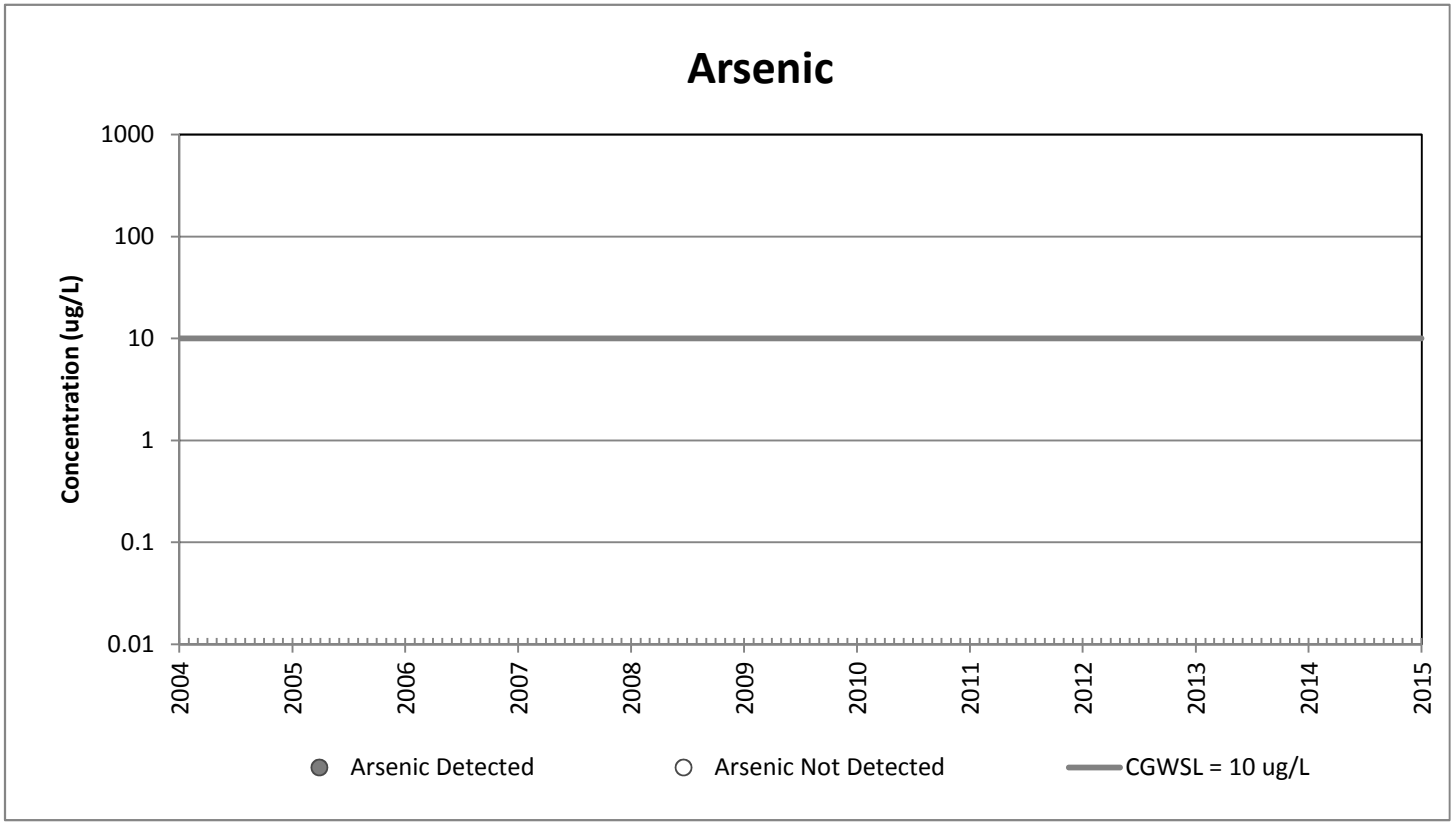

Xylenes
Concentration (ug/L)
100000
10000
1000
100
10
1
0.1
0.01
0.001
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Xylenes Detected
Xylenes Not Detected
CGWSL = 620 ug/L

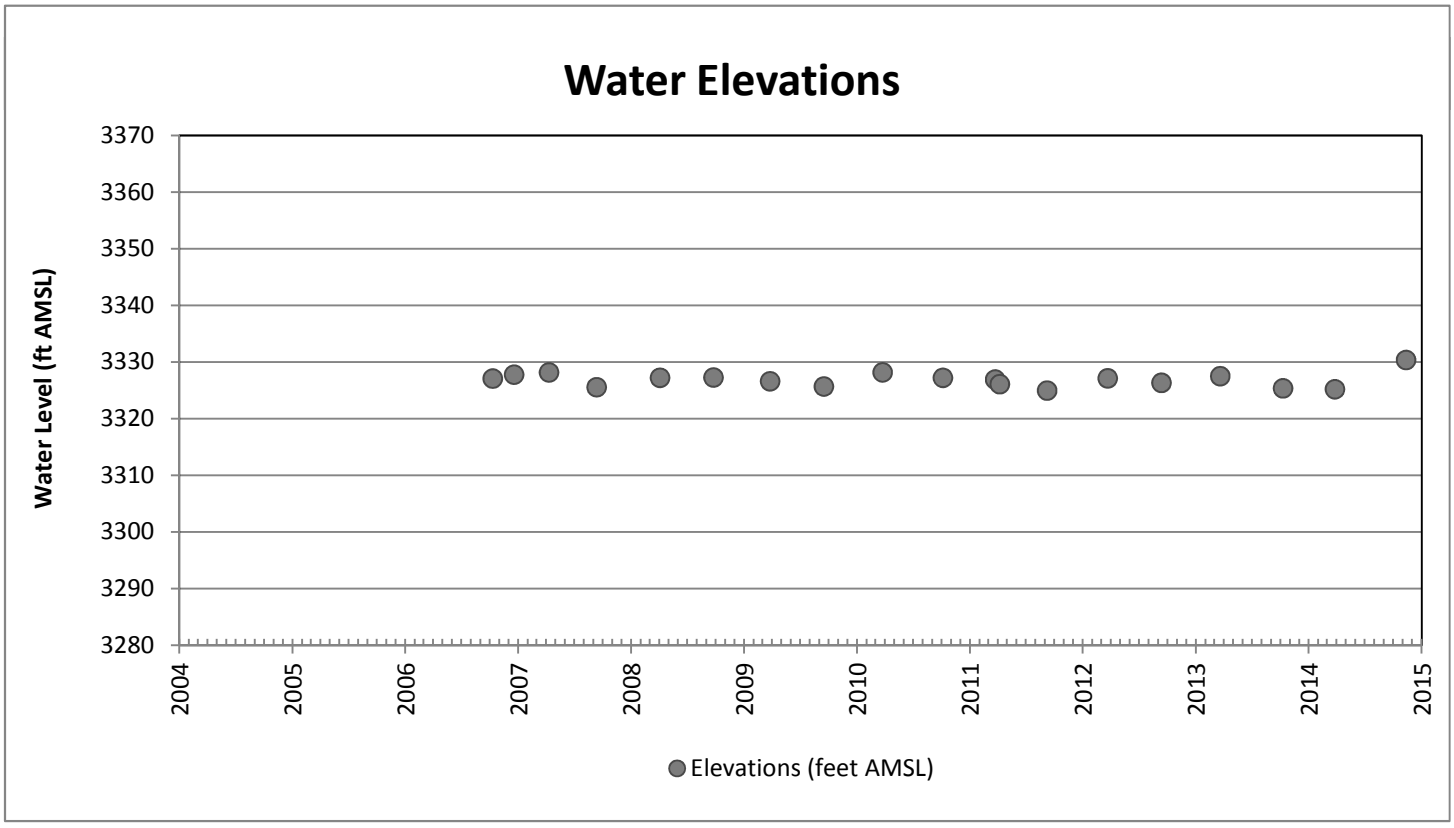
NP-1


MTBE
Concentration (ug/L)
100000
10000
1000
100
10
1
0.1
0.01
0.001
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
MTBE Detected
MTBE Not Detected
CGWSL = 125 ug/L

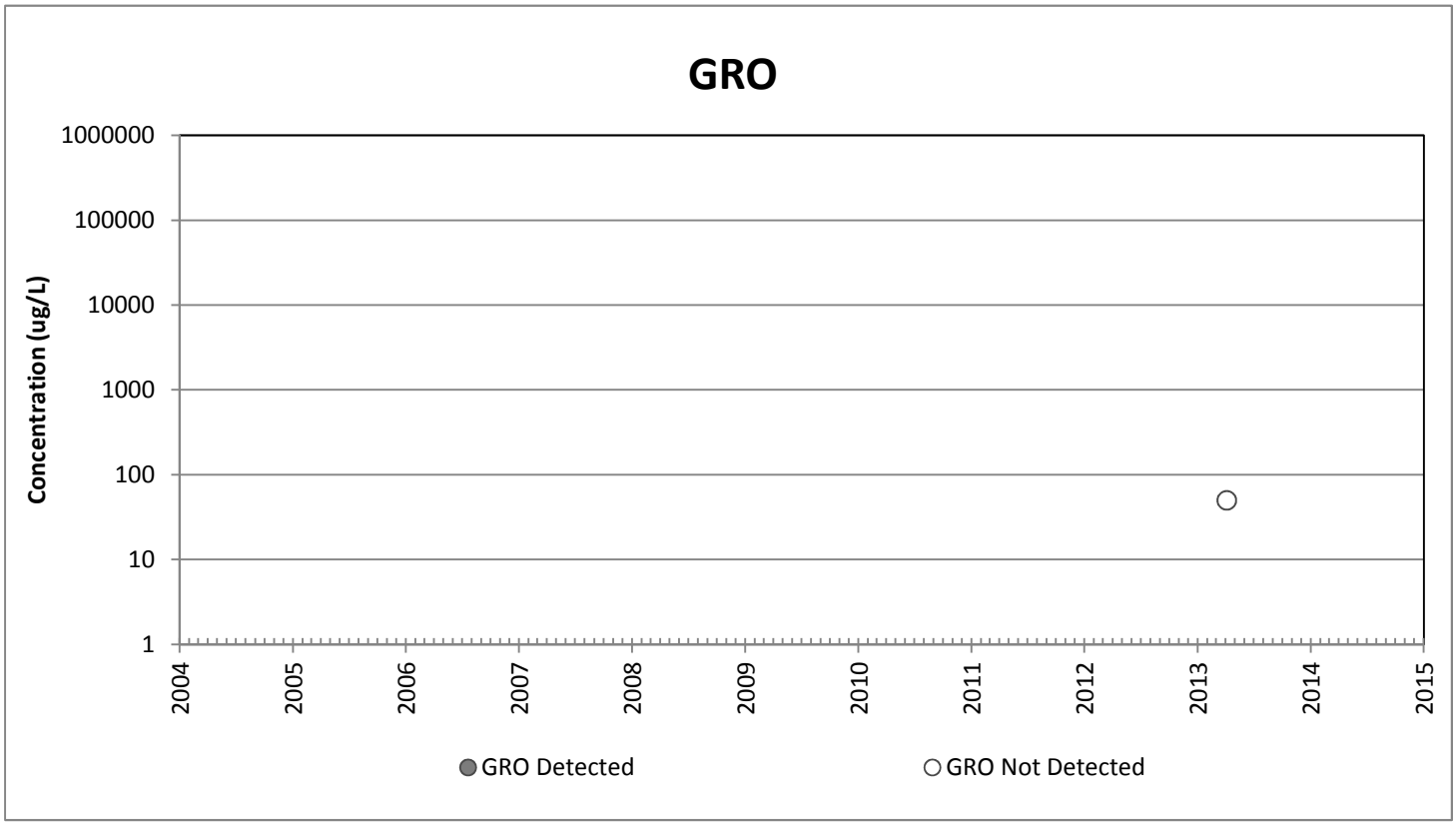

Naphthalene
Concentration (ug/L)
1000
100
10
1
0.1
0.01
0.001
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Naphthalene Detected
Naphthalene Not Detected
CGWSL = 30 ug/L

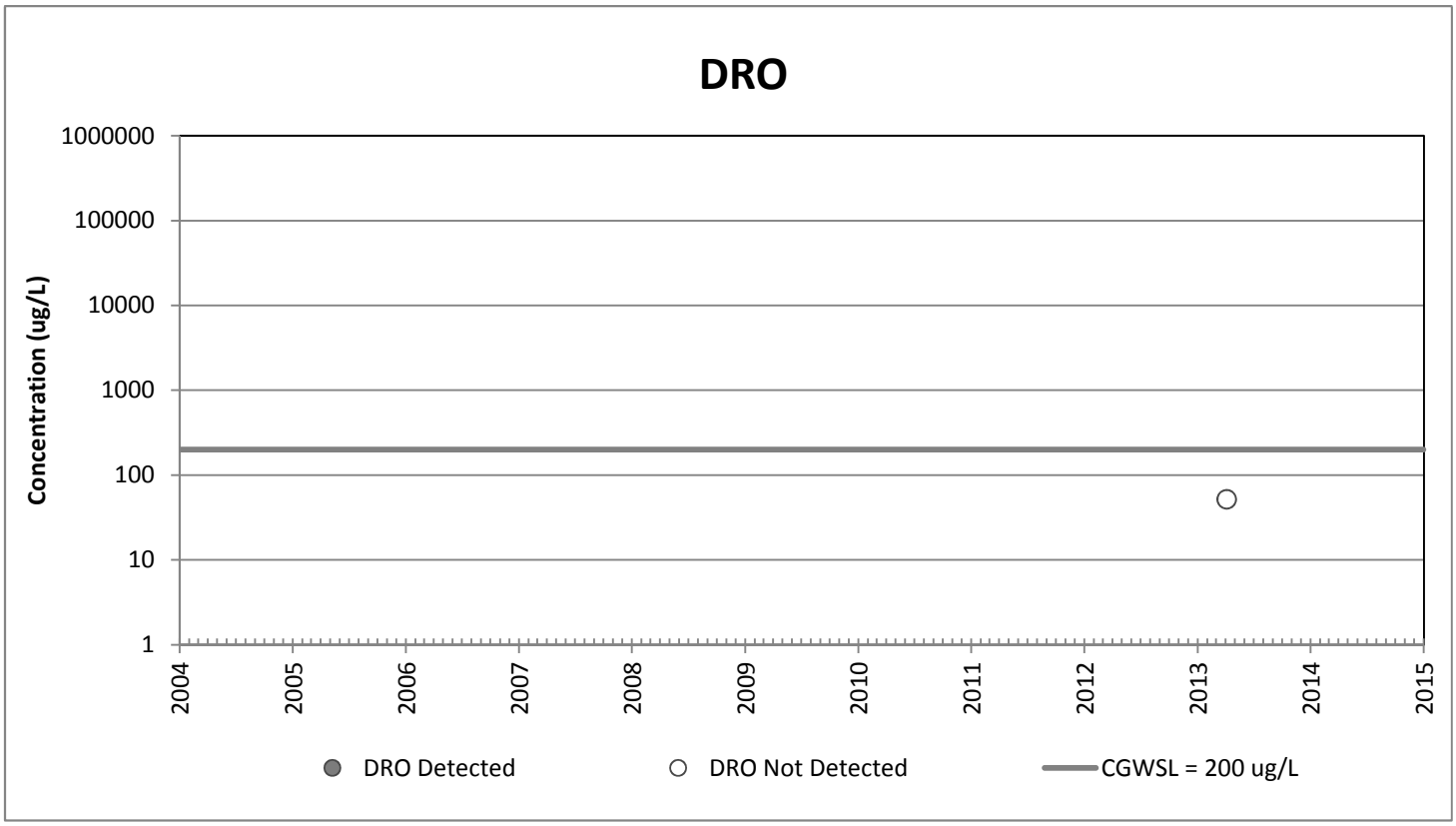
NP-1


Arsenic
1000
100
10
1
0.1
0.01
Concentration (ug/L)
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Arsenic Detected
Arsenic Not Detected
CGWSL = 10 ug/L

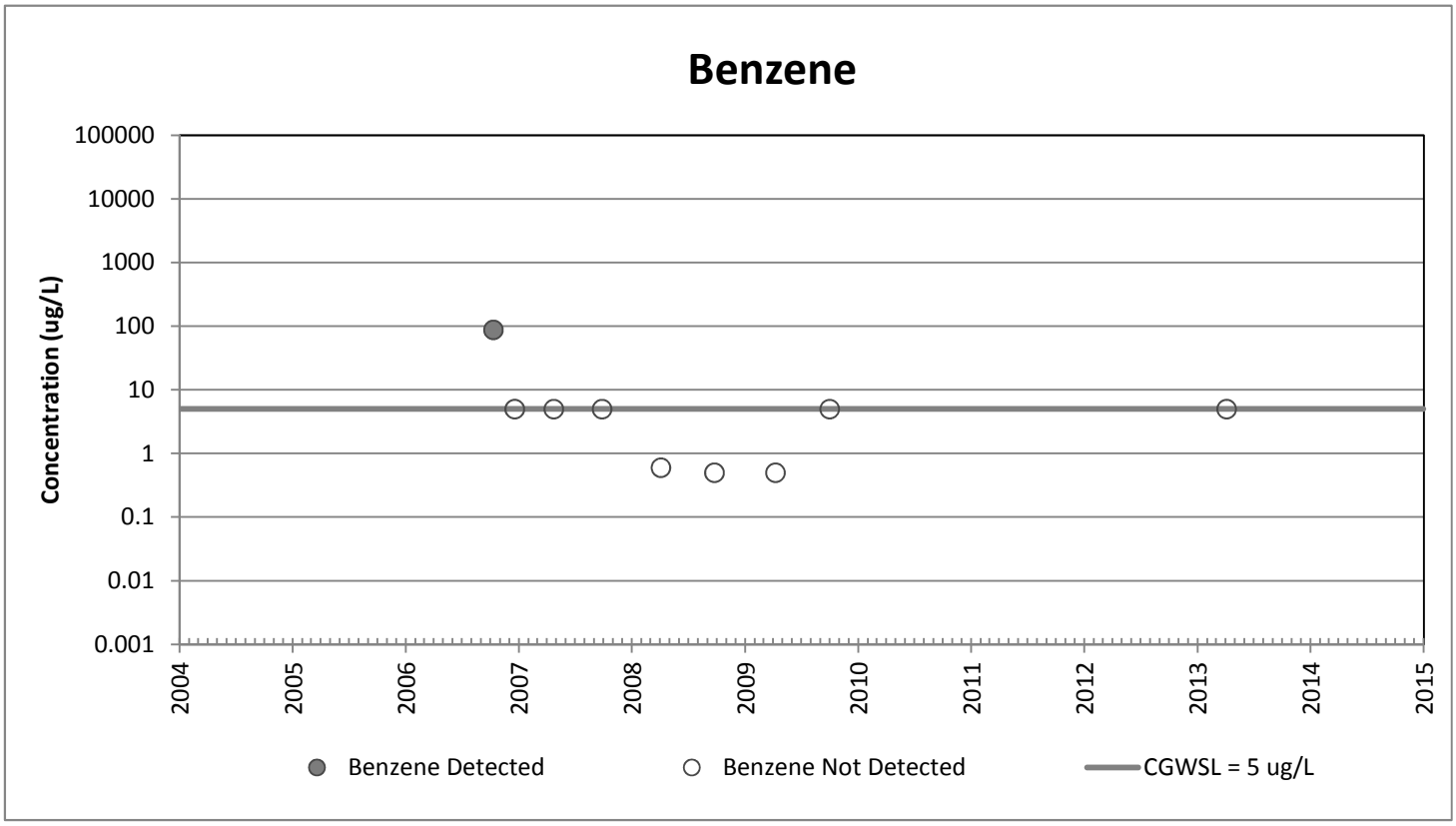

Water Elevations
3370
3360
3350
3340
3330
3320
3310
3300
3290
3280
Water Level (ft AMSL)
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Elevations (feet AMSL)

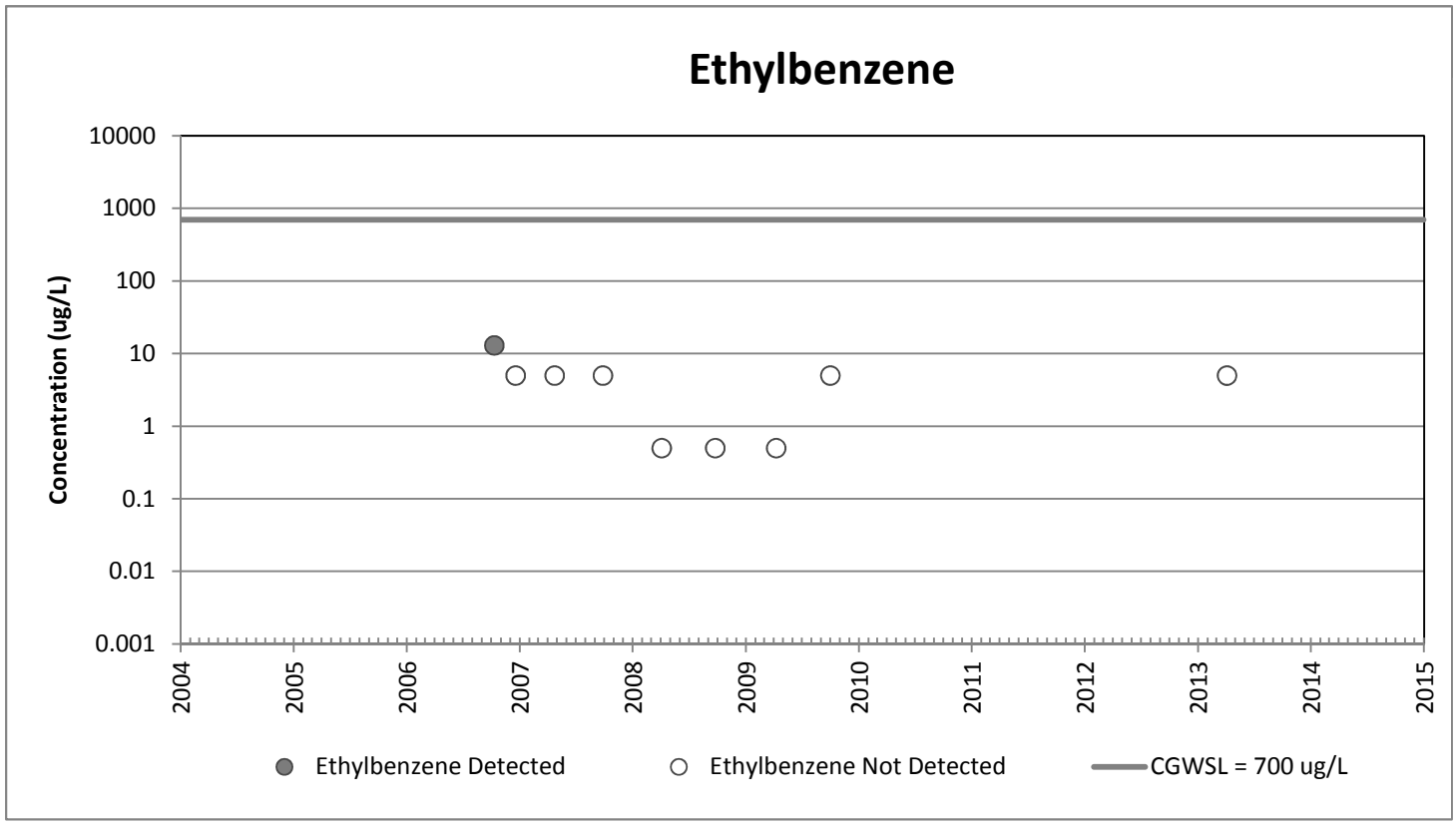
NP-2


GRO
1000000
100000
10000
1000
100
10
1
Concentration (ug/L)
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
GRO Detected
GRO Not Detected

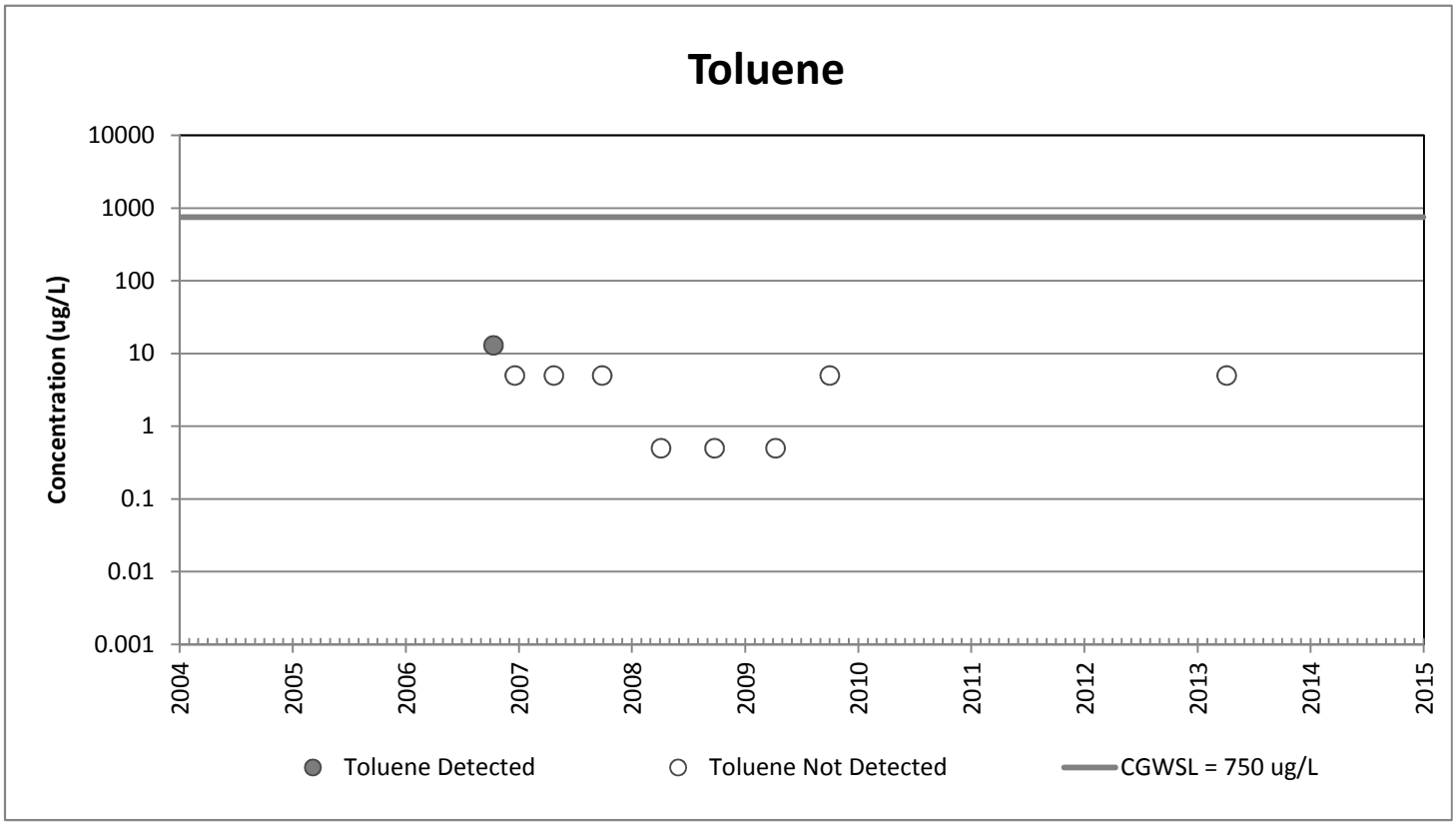

DRO
1000000
100000
10000
1000
100
10
1
Concentration (ug/L)
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
DRO Detected
DRO Not Detected
CGWSL = 200 ug/L

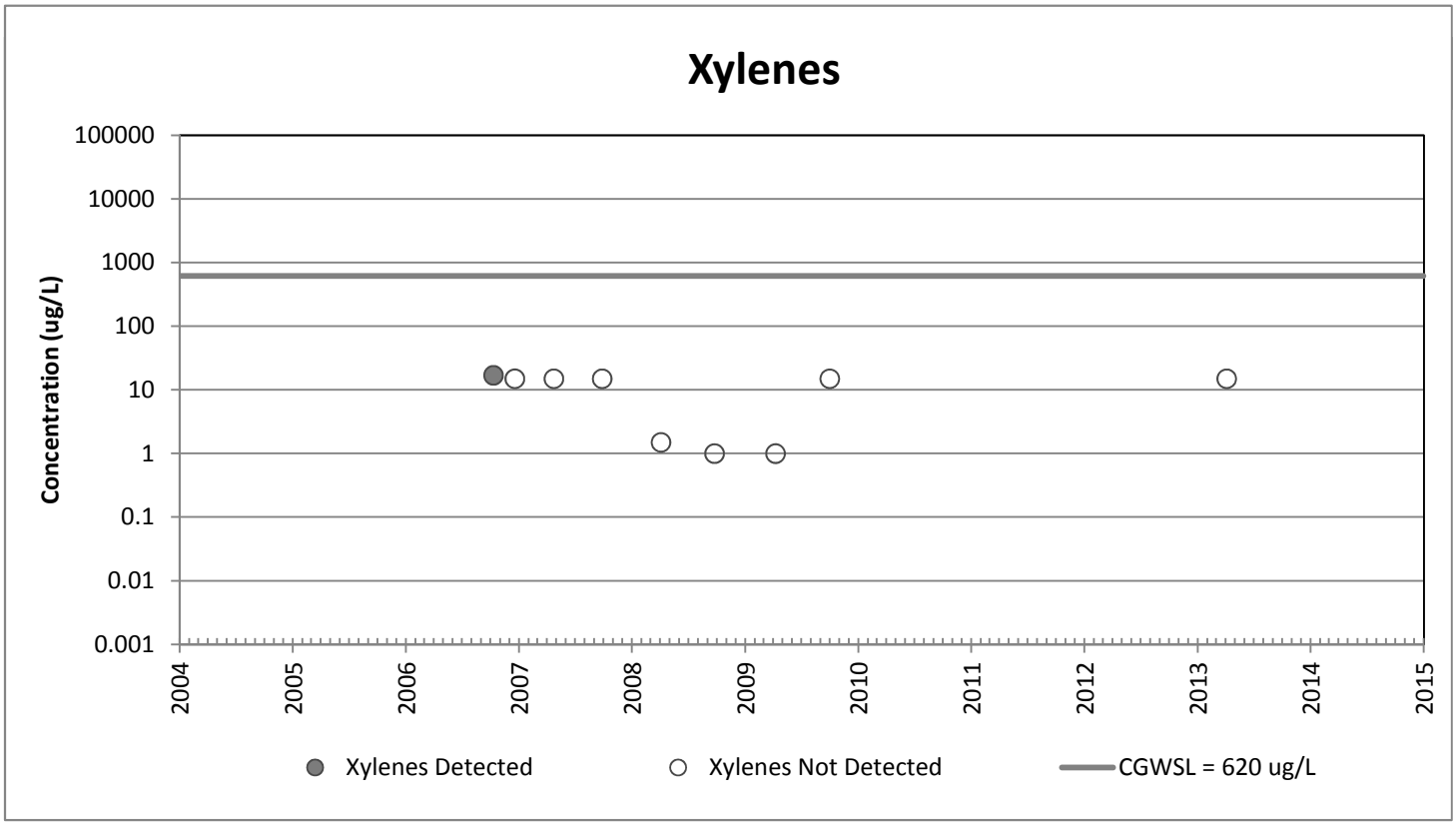
NP-2


Benzene
Concentration (ug/L)
100000
10000
1000
100
10
1
0.1
0.01
0.001
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Benzene Detected
Benzene Not Detected
CGWSL = 5 ug/L

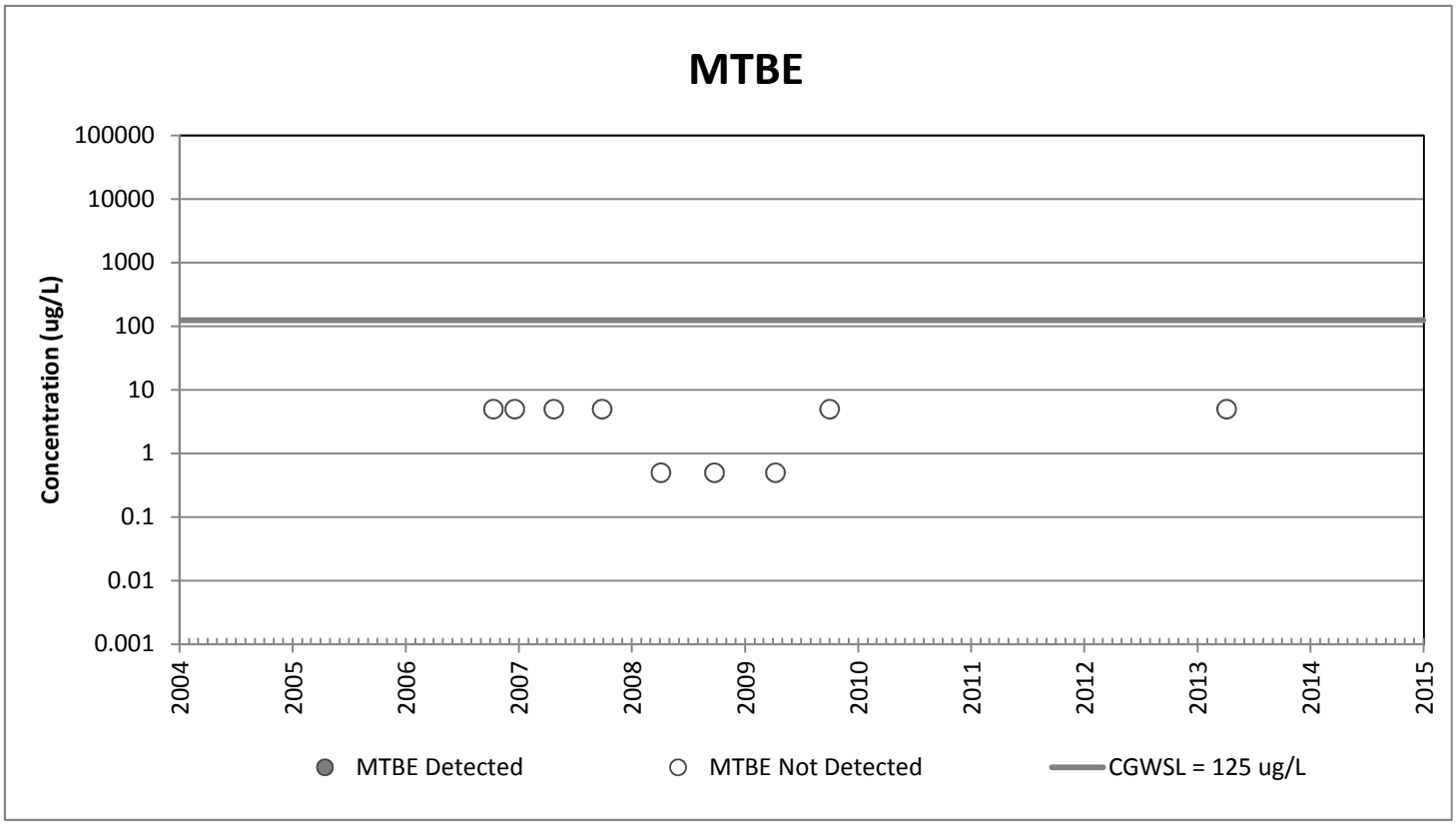

Ethylbenzene
Concentration (ug/L)
10000
1000
100
10
1
0.1
0.01
0.001
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Ethylbenzene Detected
Ethylbenzene Not Detected
CGWSL = 700 ug/L

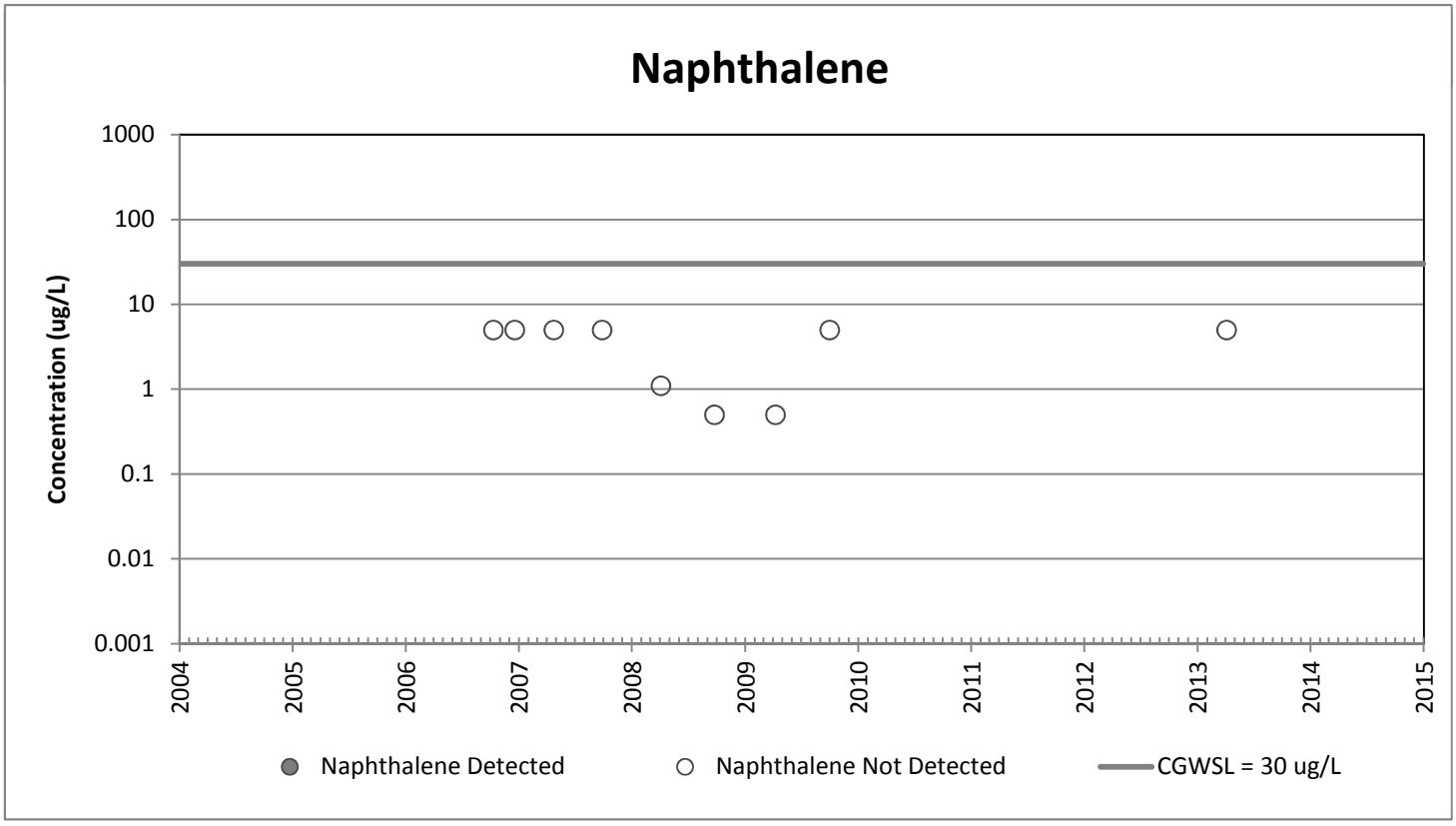
NP-2


Toluene
10000
1000
100
10
1
0.1
0.01
0.001
Concentration (ug/L)
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Toluene Detected
Toluene Not Detected
CGWSL = 750 ug/L

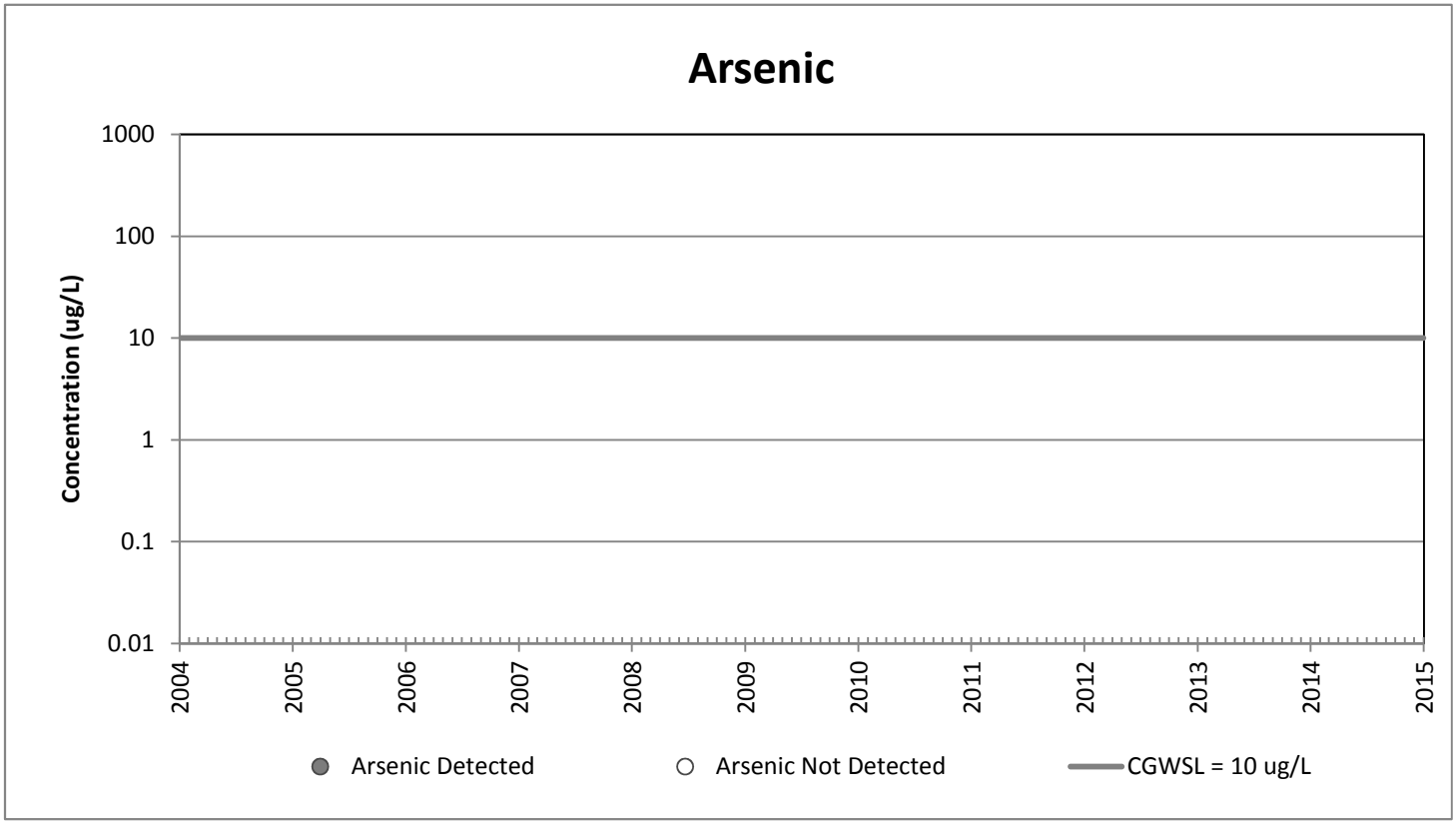

Xylenes
100000
10000
1000
100
10
1
0.1
0.01
0.001
Concentration (ug/L)
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Xylenes Detected
Xylenes Not Detected
CGWSL = 620 ug/L

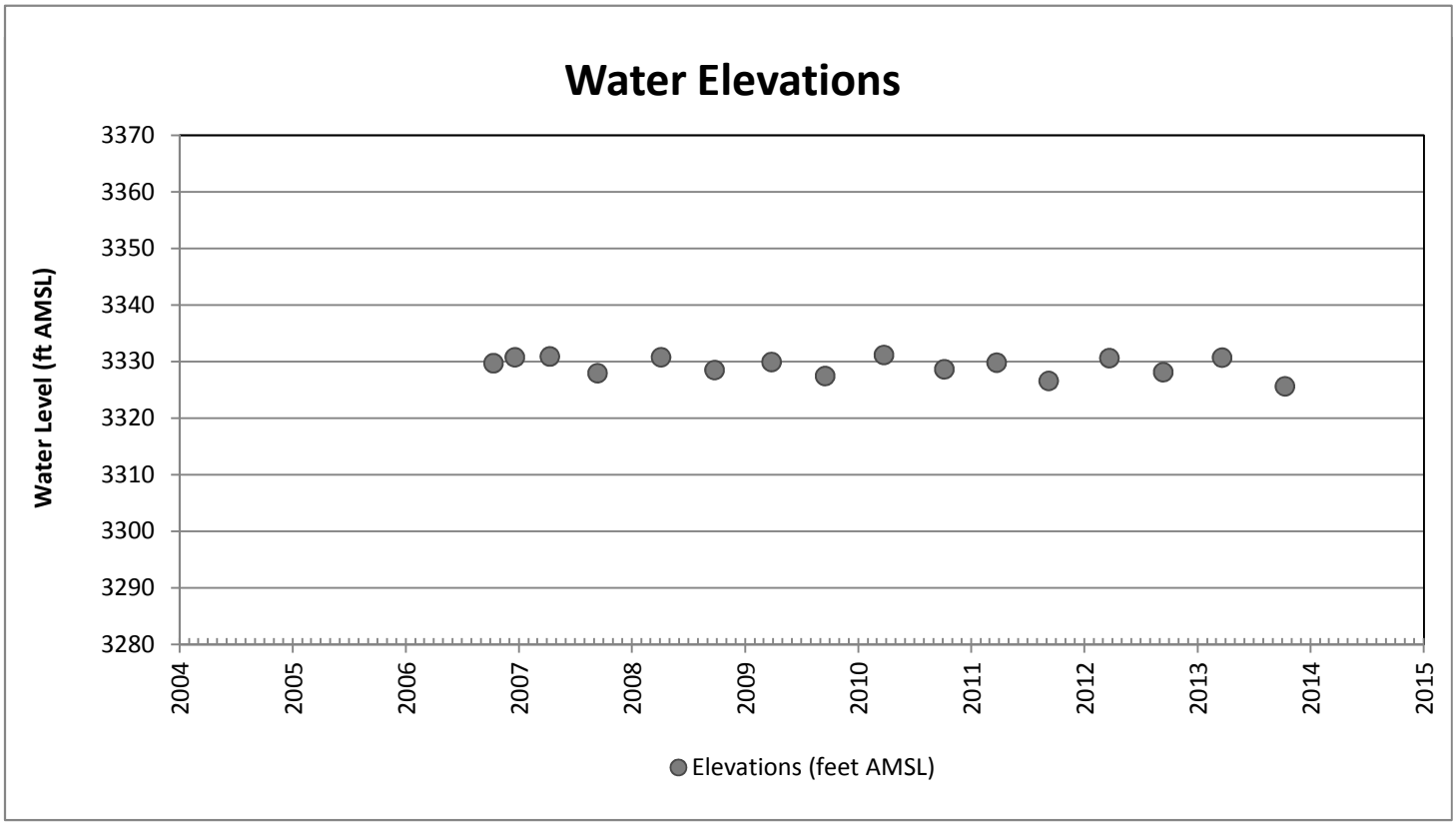
NP-2


MTBE
Concentration (ug/L)
100000
10000
1000
100
10
1
0.1
0.01
0.001
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
MTBE Detected
MTBE Not Detected
CGWSL = 125 ug/L

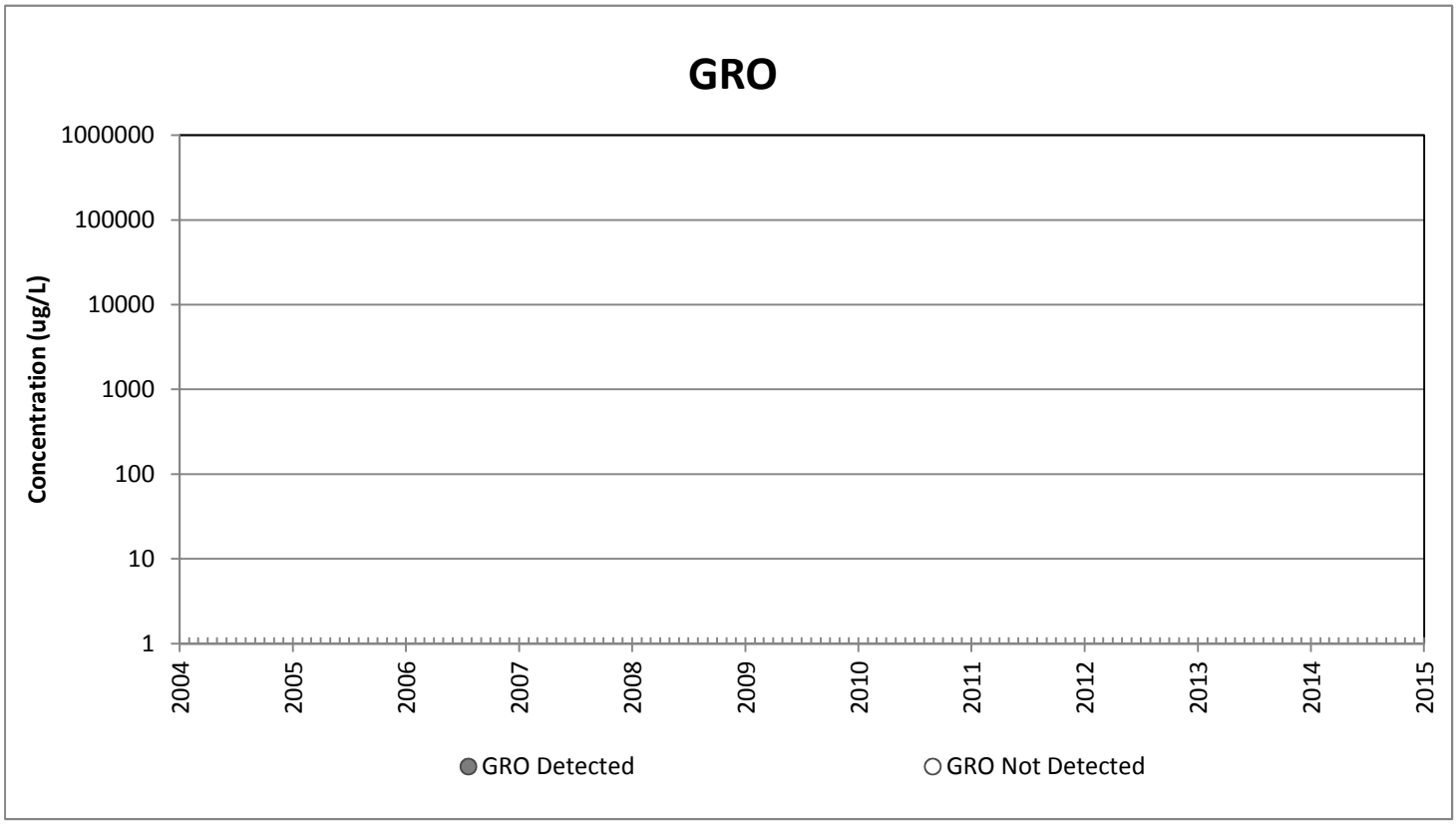

Naphthalene
Concentration (ug/L)
1000
100
10
1
0.1
0.01
0.001
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Naphthalene Detected
Naphthalene Not Detected
CGWSL = 30 ug/L

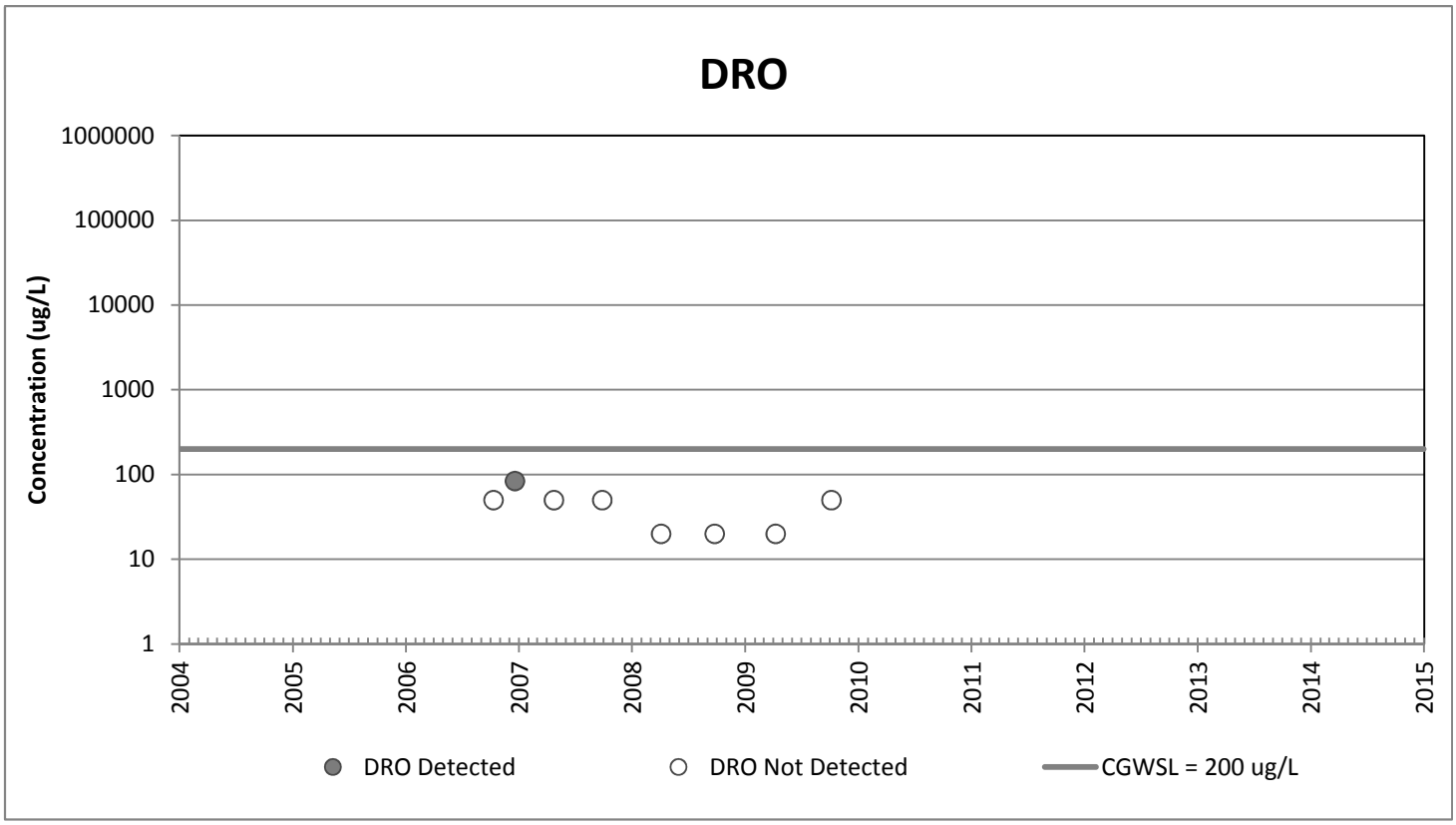
NP-2

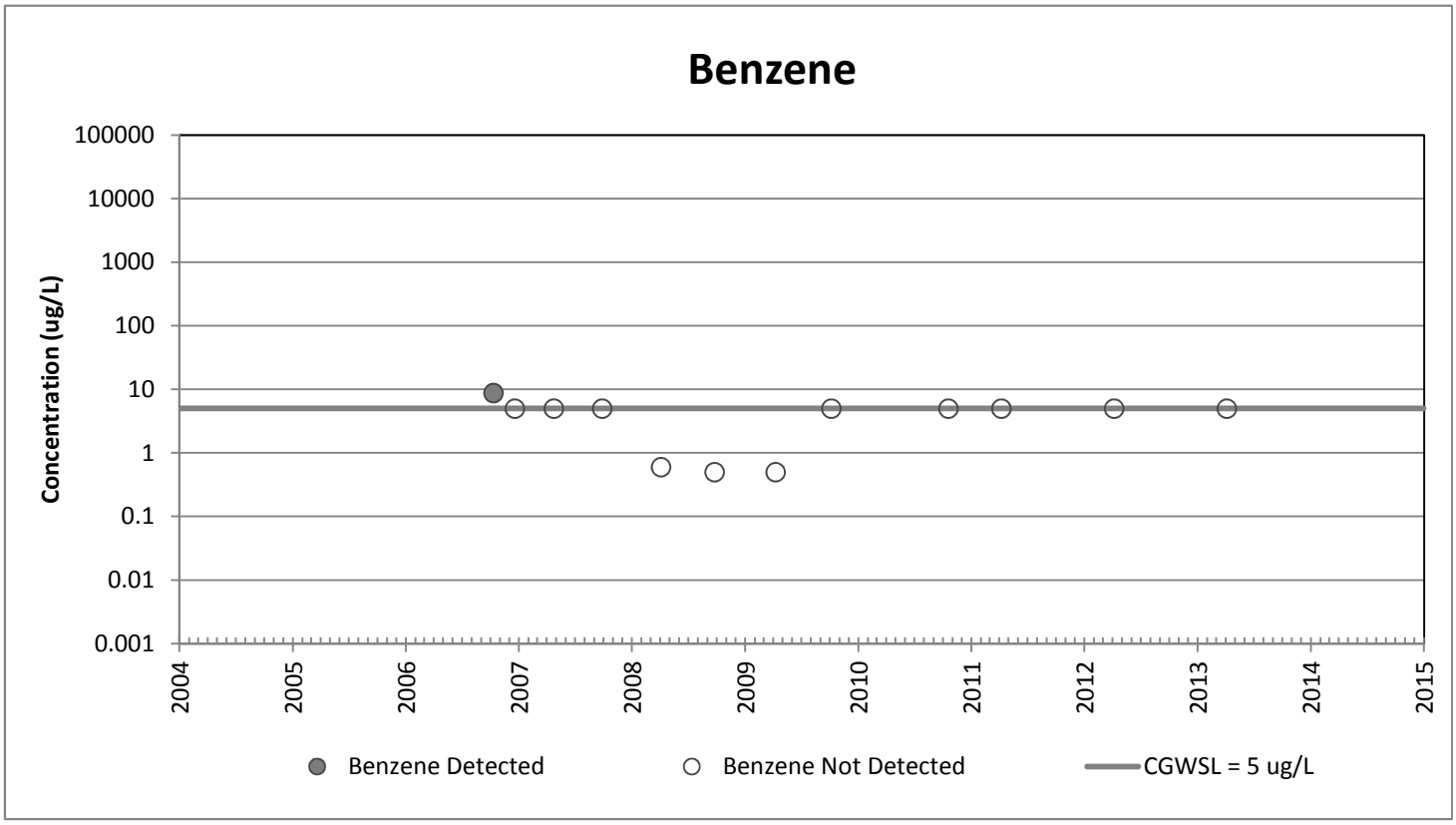

Arsenic
Concentration (ug/L)
1000
100
10
1
0.1
0.01
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Arsenic Detected
Arsenic Not Detected
CGWSL = 10 ug/L

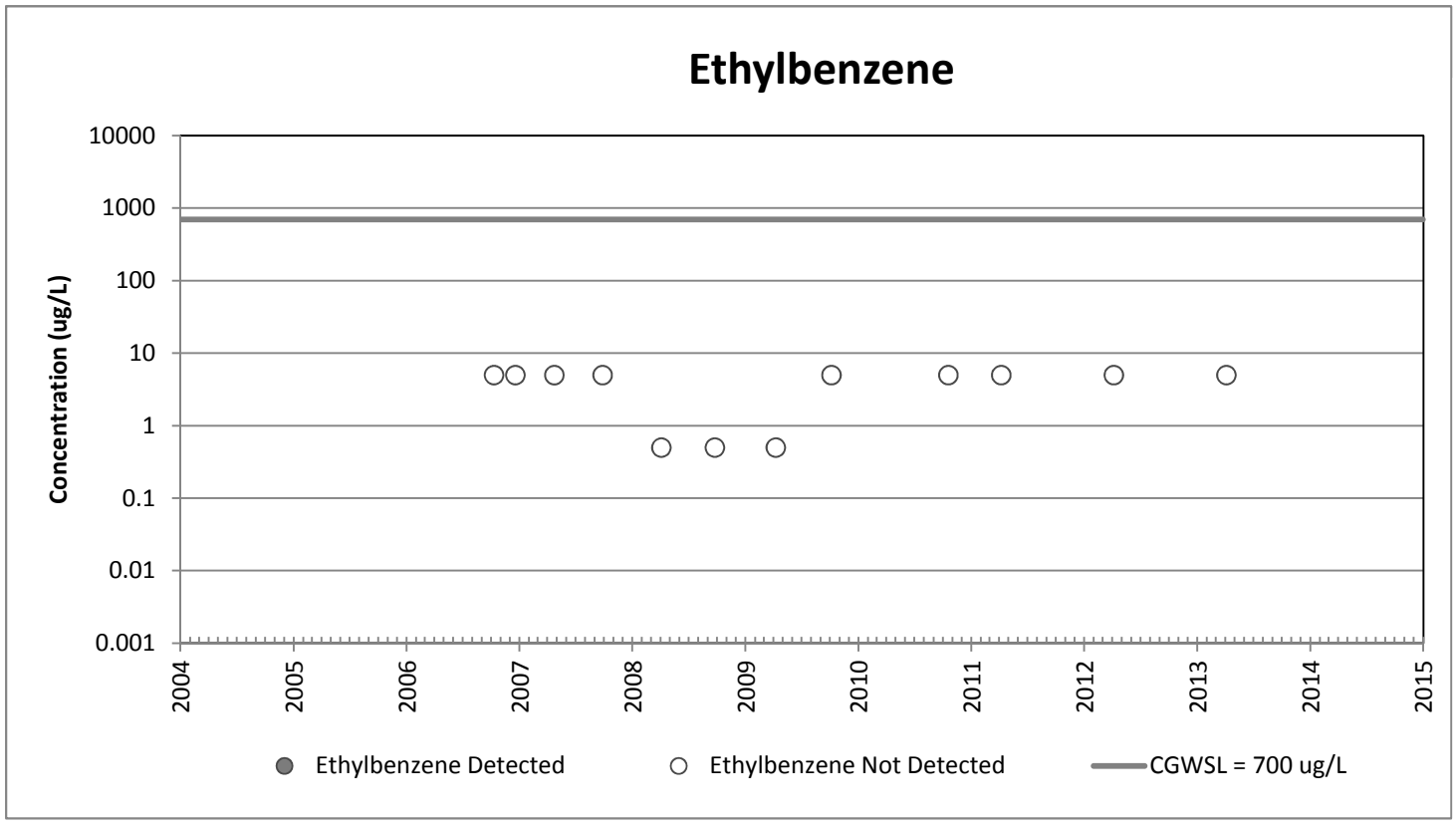

Water Elevations
Water Level (ft AMSL)
3370
3360
3350
3340
3330
3320
3310
3300
3290
3280
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Elevations (feet AMSL)

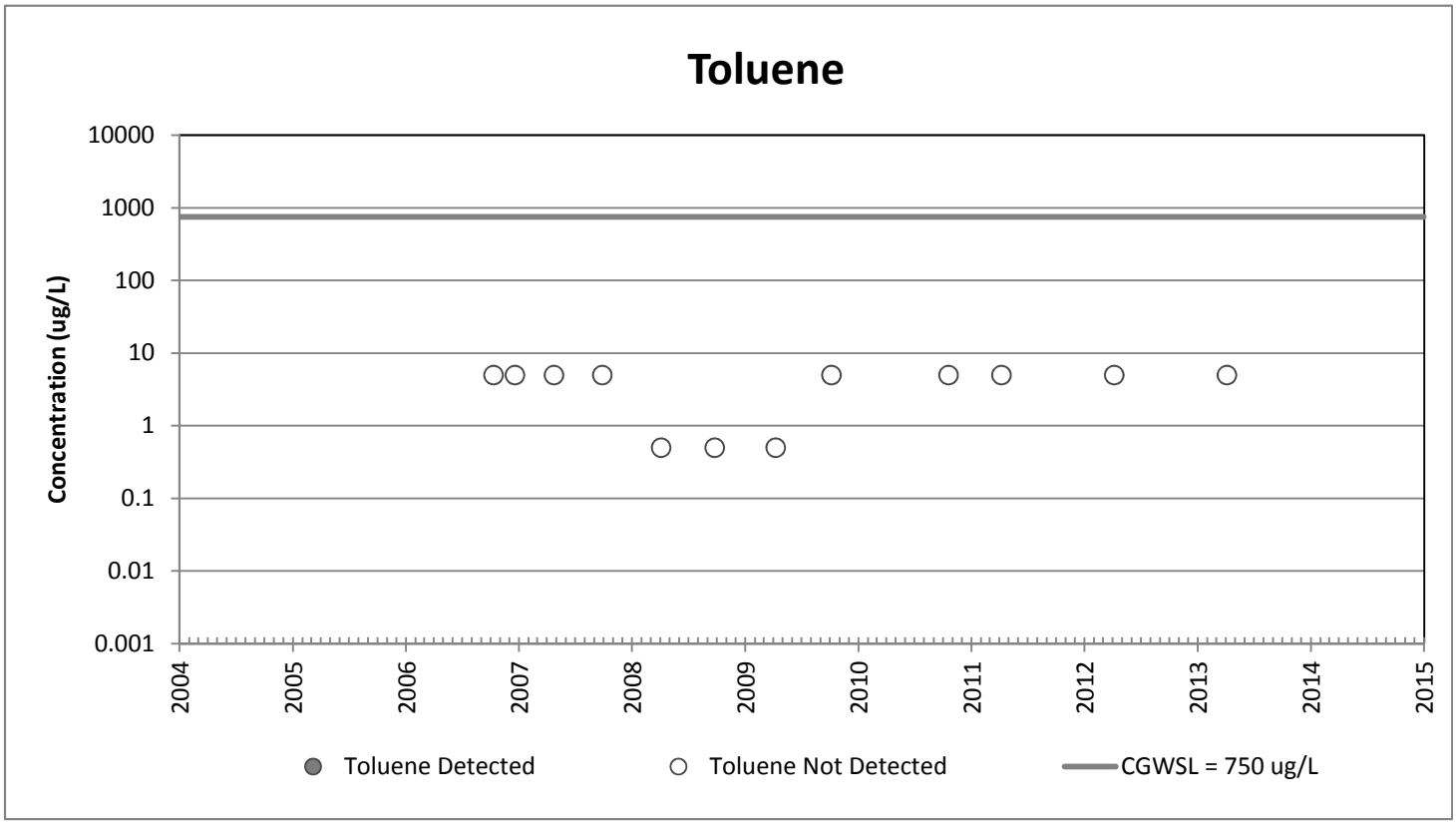
NP-6

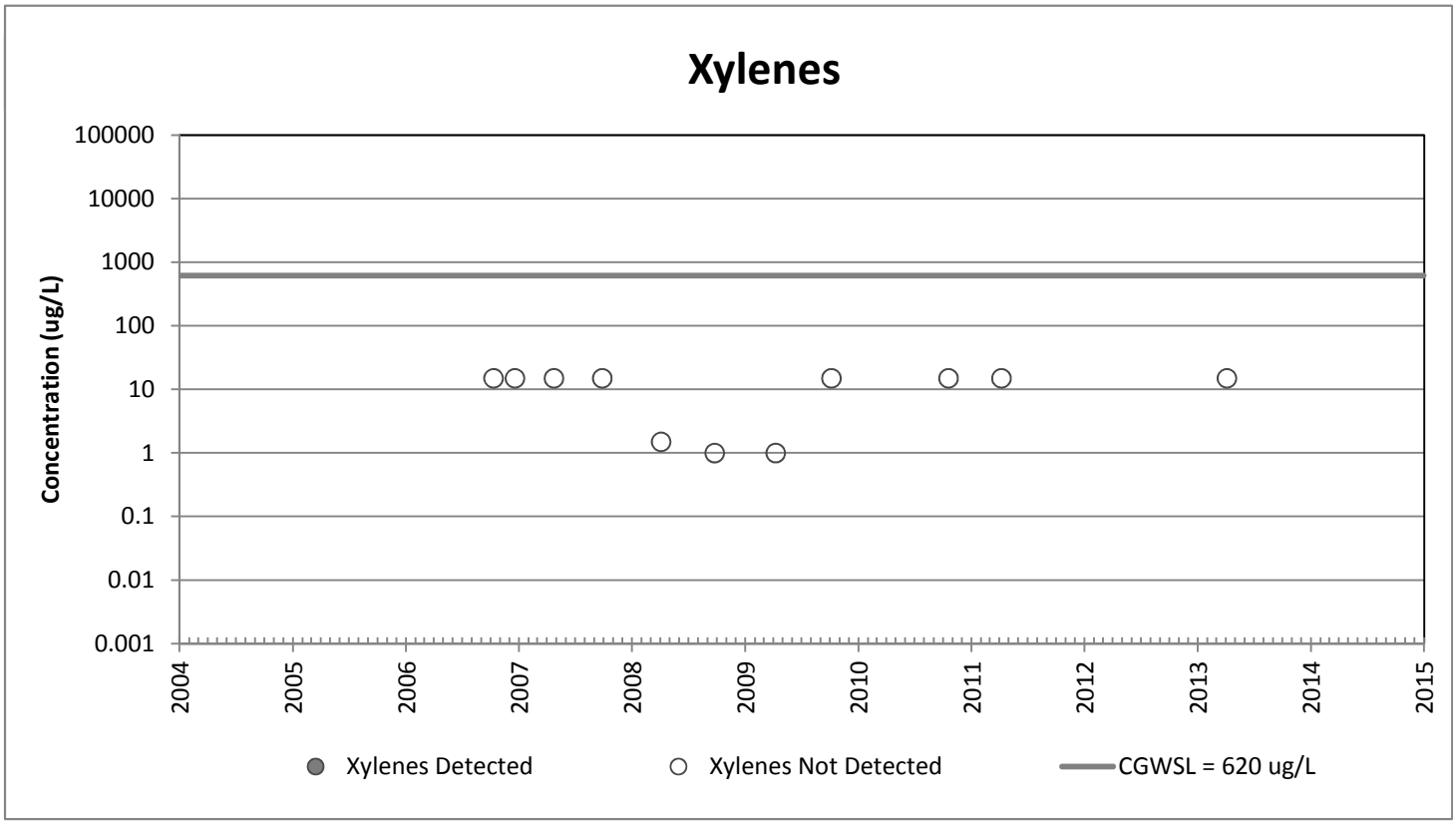

GRO
1000000
100000
10000
1000
100
10
1
Concentration (ug/L)
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
GRO Detected
GRO Not Detected

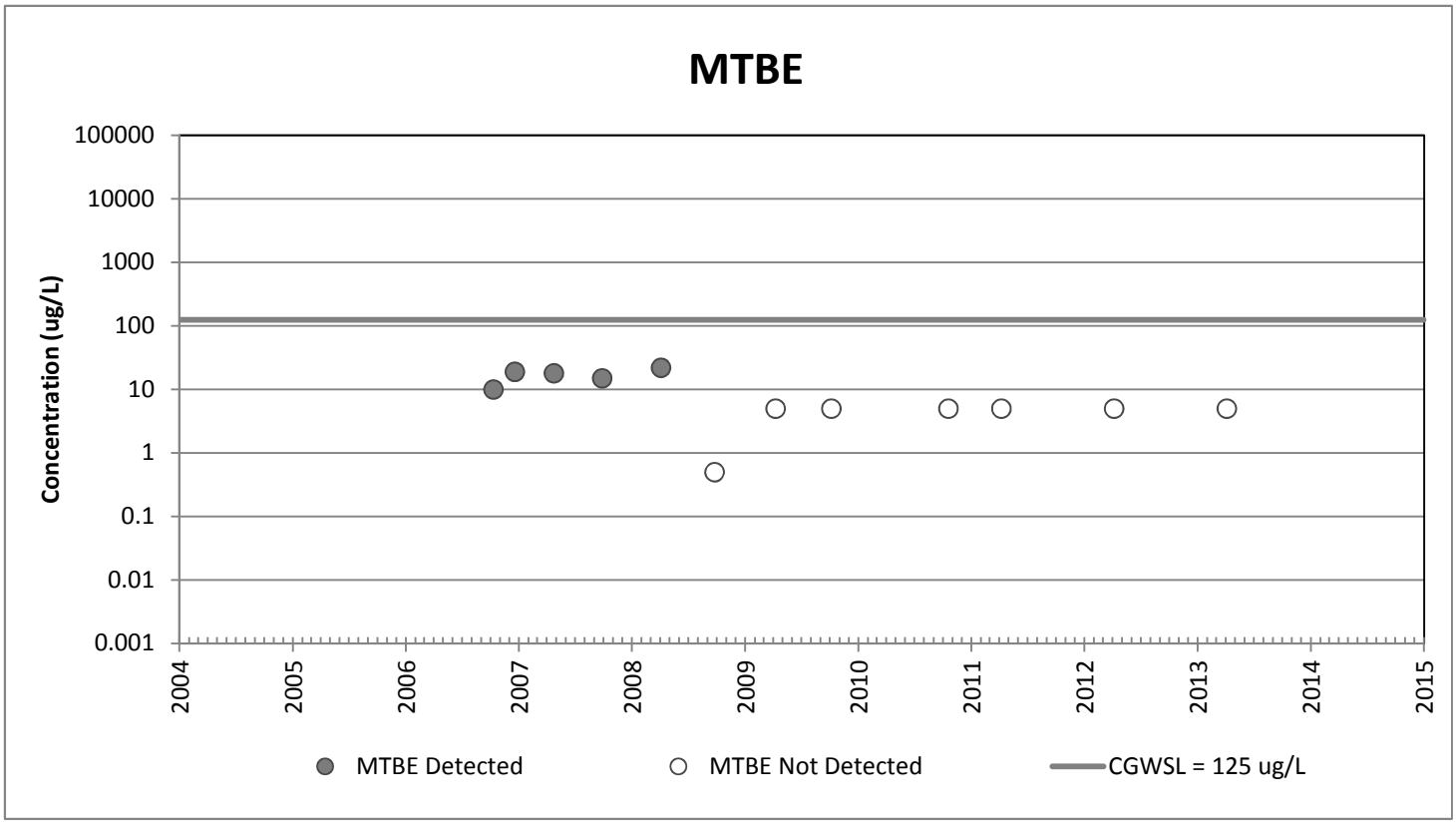

DRO
1000000
100000
10000
1000
100
10
1
Concentration (ug/L)
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
DRO Detected
DRO Not Detected
CGWSL = 200 ug/L

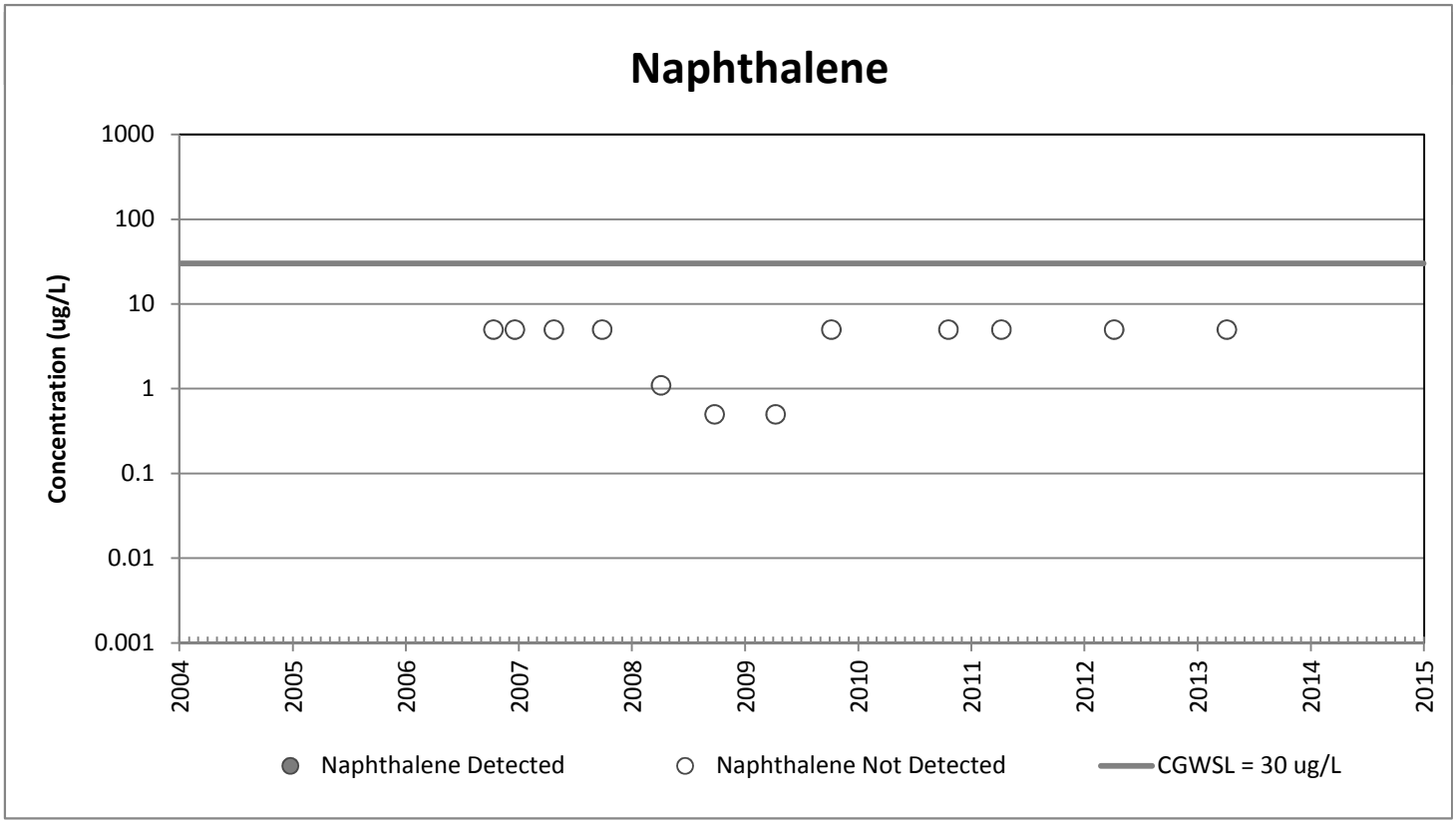

Benzene
Concentration (ug/L)
100000
10000
1000
100
10
1
0.1
0.01
0.001
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Benzene Detected
Benzene Not Detected
CGWSL = 5 ug/L


Ethylbenzene
Concentration (ug/L)
10000
1000
100
10
1
0.1
0.01
0.001
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Ethylbenzene Detected
Ethylbenzene Not Detected
CGWSL = 700 ug/L

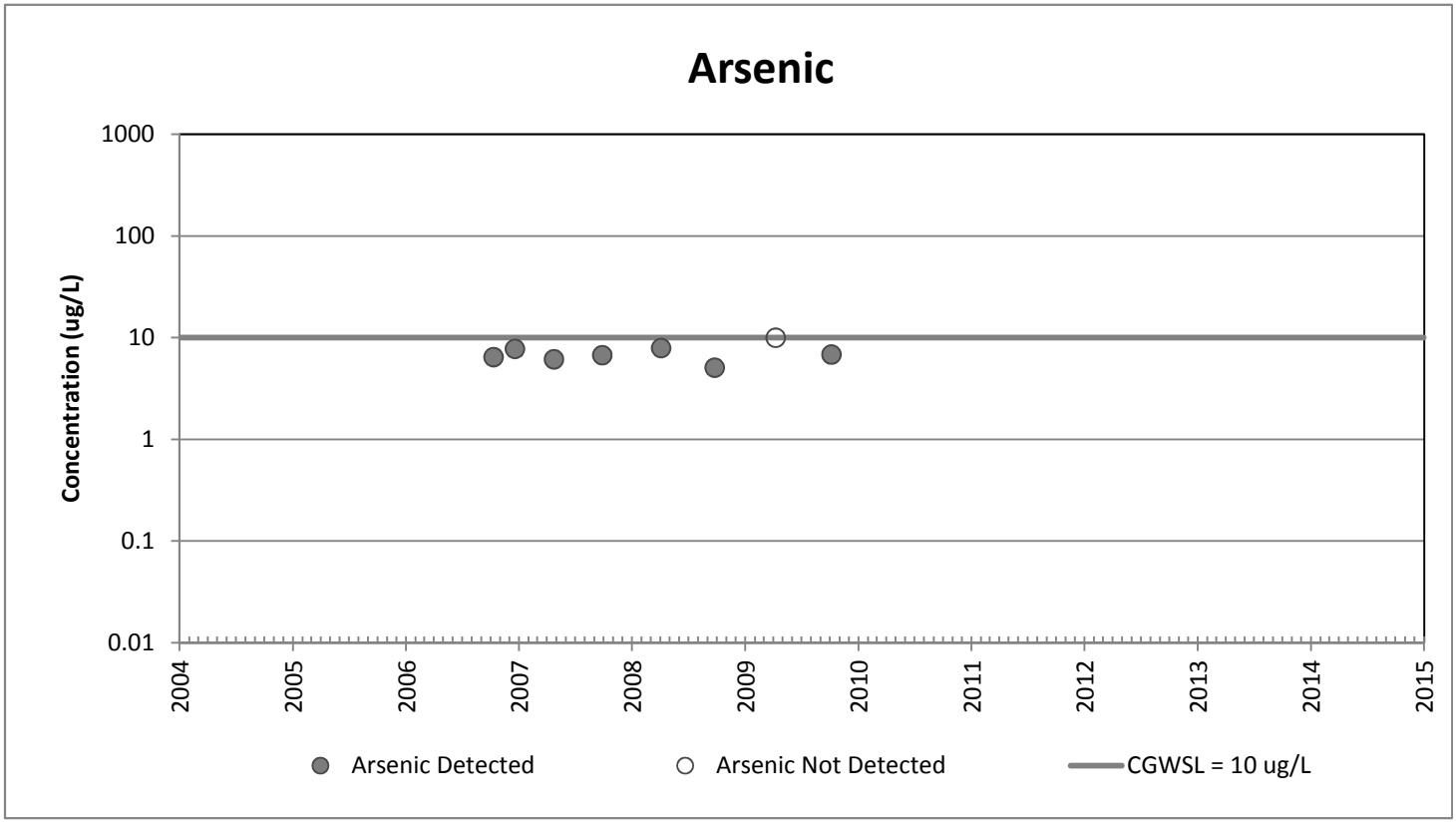

Toluene
Concentration (ug/L)
10000
1000
100
10
1
0.1
0.01
0.001
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Toluene Detected
Toluene Not Detected
CGWSL = 750 ug/L

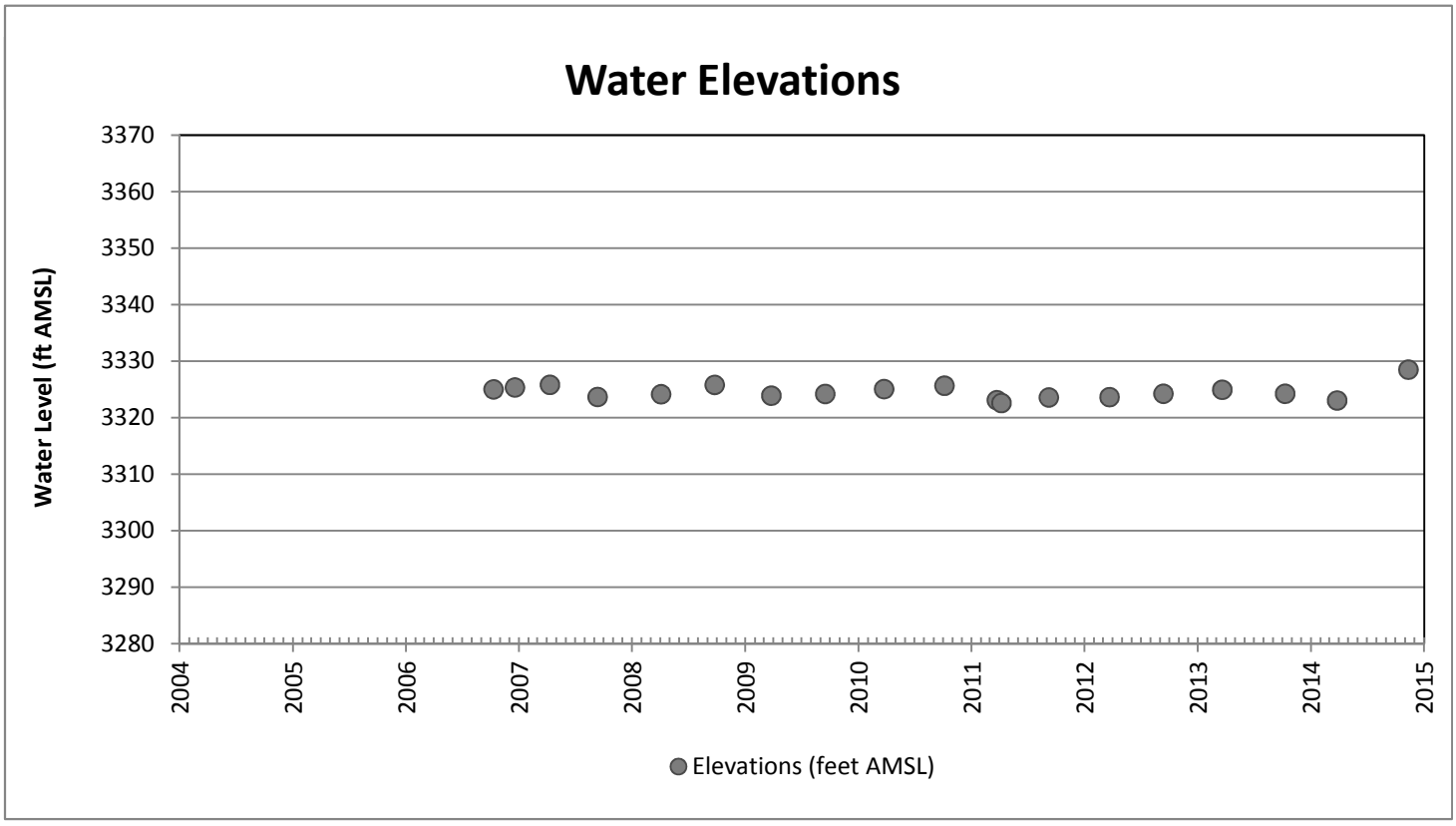

Xylenes
Concentration (ug/L)
100000
10000
1000
100
10
1
0.1
0.01
0.001
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Xylenes Detected
Xylenes Not Detected
CGWSL = 620 ug/L


MTBE
Concentration (ug/L)
100000
10000
1000
100
10
1
0.1
0.01
0.001
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
MTBE Detected
MTBE Not Detected
CGWSL = 125 ug/L


Naphthalene
Concentration (ug/L)
1000
100
10
1
0.1
0.01
0.001
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Naphthalene Detected
Naphthalene Not Detected
CGWSL = 30 ug/L

NP-6


Arsenic
Concentration (ug/L)
1000
100
10
1
0.1
0.01
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Arsenic Detected
Arsenic Not Detected
CGWSL = 10 ug/L


Water Elevations
Water Level (ft AMSL)
3370
3360
3350
3340
3330
3320
3310
3300
3290
3280
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Elevations (feet AMSL)

ARCADIS

Appendix E

Data Validation Reports

DATA VALIDATION CHECKLIST

NAVAJO REFINERY
Semi Annual GW Event

ARCADIS, Inc.
3850 N. Causeway Blvd.
Suite 990
Metairie, LA 70002
Tel. (504) 832-4174
Fax. (504) 832-2145

Sample Team:	ARCADIS
Sample Matrix:	Water
Analytical Laboratory;	ALS Environmental
Laboratory Work Order No.:	HS14050073
Lab Project Manager:	Bethany McDaniel
Analyses:	VOCs, TPH, Metals, Cyanide, TDS, Chloride, Fluoride and Sulfate
QA Reporting Level:	ARCADIS, Level II

Environmental Project:
Navajo Refinery

Project Number:
TX000931.0004.00003

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
HS14050073	MW-104-0414	04/28/14	
HS14050073	DUP-13-0414	04/28/14	MW-104-0414
HS14050073	MW-103-0414	04/28/14	
HS14050073	MW-101-0414	04/28/14	
HS14050073	MW-29-0414	04/28/14	
HS14050073	MW-66-0414	04/28/14	
HS14050073	MW-28-0414	04/28/14	
HS14050073	MW-107-0414	04/28/14	
HS14050073	EB-17-0414	04/28/14	
HS14050073	MW-61-0414	04/29/14	
HS14050073	MW-128-0414	04/29/14	
HS14050073	TEL-4-0414	04/29/14	
HS14050073	MW-49-0414	04/29/14	
HS14050073	TEL-1-0414	04/29/14	
HS14050073	DUP-14-0414	04/29/14	TEL-1-0414
HS14050073	TEL-2-0414	04/29/14	
HS14050073	TEL-3-0414	04/29/14	
HS14050073	MW-114-0414	04/29/14	
HS14050073	MW-115-0414	04/29/14	
HS14050073	MW-116-0414	04/29/14	
HS14050073	MW-125-0414	04/29/14	
HS14050073	EB-18-0414	04/29/14	
HS14050073	MW-117-0414	04/30/14	
HS14050073	MW-118-0414	04/30/14	
HS14050073	MW-119-0414	04/30/14	
HS14050073	DUP-15-0414	04/30/14	MW-119-0414
HS14050073	MW-46R-0414	04/30/14	
HS14050073	EB-19-0414	04/30/14	
HS14050073	TB-032514-92	04/30/14	

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		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
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. Surrogate Recoveries (%R)		X	X		X		
11. Field Duplicate Comparison (RPD)		X					

COMMENTS: The samples were analyzed for Volatiles by Method 8260. Performance was acceptable, with the following exceptions and notes.

3B. Acetone was detected in all three equipment blanks. The associated field samples were qualified as non-detect for acetone if the sample concentrations were less than ten times the blank value.

4. The recovery of cis-1,2-dichloroethene was above the control limit in the LCS for batch R233224. The associated field samples were non-detect for this compound; therefore, qualification of the data was not warranted.

7-9. Sample MW-101-0414 was used as the MS/MSD. The recovery of cis-1,2-dichloroethene was less than ten percent in the MS and the MSD. The parent sample was qualified as rejected for this compound.

Sample TEL-2-0414 was used as the MS/MSD. The recovery of chloroethane was above the control limit in the MS and the MSD. The parent sample was non-detect for this compound; therefore, qualification of the data was not warranted.

Sample MW-107-0414 was used as the MS/MSD. The recoveries of bromomethane and methyl-tert-butylether were below the control limit in the MS and/or the MSD. The parent sample was qualified as estimated for these compounds.

II. METALS

ITEMS REVIEWED	REPORTED/ REVIEWED		EXCEPTIONS NOTED		GENERAL COMMENTS NOTED		REPORTED/ REVIEWED
	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		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. Field/Lab Duplicate (RPD)		X					
11. Total vs. Dissolved		X		X		X	

COMMENTS: The samples were analyzed for metals by Methods 6020 and 7471A. Performance was acceptable, with the following exceptions and notes.

1. Samples MW-66-0414 and MW-28-0414 were extracted one day beyond the 28 recommended holding time for dissolved mercury. All dissolved mercury results for these samples were qualified as estimated.

3A. Calcium, lead, sodium and vanadium were detected in the method blank for batch 82140. The associated field samples were qualified as non-detect for these metals if the sample concentrations were less than ten times the blank values.

Dissolved nickel was detected in the method blank for batch 82186. The associated field sample was non-detect for this metal; therefore, qualification of the data was not warranted.

Selenium and sodium were detected in the method blank for batch 82188. The associated field samples were qualified as non-detect for these metals if the sample concentrations were less than ten times the blank values.

3C. Barium, calcium, chromium, sodium and vanadium were detected in EB-17-0414. The associated field samples were qualified as non-detect for these metals if the sample concentrations were less than ten times the blank values.

Calcium and sodium were detected in EB-18-0414. The associated field samples were greater than ten times the blank values for these metals; therefore, qualification of the data was not warranted.

Calcium, sodium and dissolved barium were detected in EB-19-0414. The associated field samples were qualified as non-detect for these metals if the sample concentrations were less than ten times the blank values.

11. The dissolved arsenic and iron results were greater than the total arsenic and iron results for sample MW-101-0414 and the %D was greater than 10%. The sample was qualified as estimated for total and dissolved arsenic and iron.

The dissolved manganese result was greater than the total manganese result for sample MW-29-0414 and the %D was greater than 10%. The sample was qualified as estimated for total and dissolved manganese.

The dissolved iron result was greater than the total iron result for sample MW-66-0414 and the %D was greater than 10%. The sample was qualified as estimated for total and dissolved iron.

The dissolved barium and manganese results were greater than the total barium and manganese results for sample DUP-14-0414 and the %D was greater than 10%. The sample was qualified as estimated for total and dissolved barium and manganese.

III. 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	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			X	
9. MSD (%R)		X	X			X	
10. MS/MSD (RPD)		X	X			X	
11. Field Duplicate (RPD)		X					

COMMENTS: The samples were analyzed for TPH by Method 8015. Performance was acceptable, with the following exceptions and notes.

3C. GRO and DRO detected in EB-17-0414. The associated field samples were qualified as non-detect for GRO if the sample concentrations were less than five times the blank value.

4. The surrogate recovery was above the control limit in MW-103-0414 for the GRO fraction. This sample was qualified as estimated for GRO.

The surrogate recovery was below the control limit in MW-61-0414 for the GRO fraction. This sample was qualified as estimated for GRO.

The surrogate recovery was above the control limit in samples TEL-4-0414, TEL-1-0414, DUP-14-0414, TEL-2-0414 and TEL-3-0414 for the DRO fraction. All detections of DRO in the associated field samples were qualified as estimated.

8-10. Sample MW-125-0414 was used as the MS/MSD. The recoveries and RPD were acceptable.

IV. GENERAL CHEMISTRY

ITEMS REVIEWED	REPORTED/ REVIEWED		EXCEPTIONS NOTED		GENERAL COMMENTS NOTED		REPORTED/ REVIEWED
	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		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. Field/Lab Duplicate (RPD)		X					
11. Total vs. Dissolved		X		X		X	

COMMENTS: The samples were analyzed for TDS, cyanide, chloride, fluoride and sulfate. Performance was acceptable, with the following exceptions and notes.

3A. Chloride was detected in the method blank for batch 12233976. The associated field samples were greater than five times the blank value for chloride; therefore, qualification of the data was not warranted.

3C. Cyanide was detected in all three equipment blanks. The associated field samples were qualified as non-detect for cyanide if the sample concentrations were less than five times the blank value.

TDS was detected in EB-19-0414. The associated field samples were greater than five times the blank value for TDS; therefore, qualification of the data was not warranted.

Sulfate was detected in EB-17-0414 and EB-18-0414. The associated field samples were qualified as non-detect for sulfate if the sample concentrations were less than five times the blank value.

7-9. Sample EB-19-0414 was used as the MS/MSD. The recoveries of chloride, fluoride and sulfate were above the control limit in the MS. The parent sample was non-detect for these compounds; therefore, qualification of the data is not warranted. The RPD for sulfate was above the control limit. The parent sample was qualified as estimated for sulfate.

DUP-14-0414 was used as the MS/MSD for the anions. The recoveries and RPDs were acceptable.

Sample MW-116-0414 was used as the MS/MSD for nitrate. The recoveries and RPD were acceptable.

Sample EB-19-0414 was used as the MS/MSD for nitrate. The recovery of nitrate was below the control limit in the MS and the MSD. The parent sample was qualified as estimated for nitrate.

10. Sample EB-17-0414 was used as the lab 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 or at the concentration reported if greater than the RL due to associated blank contamination.

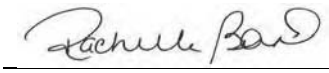
R – Result is qualified as unusable, data point is rejected.

Explanation/Notes:

Sample ID	Parameter	Result	Units	Qualifier	Reason
MW-101-0414	Acetone	<0.010	mg/L	UB	Blank Contamination
	cis-1,2-Dichloroethene	<0.0050	mg/L	R	MS/MSD Recovery
	Barium	0.0837	mg/L	UB	Blank Contamination
	Total Arsenic	0.0320	mg/L	J	Total vs. Dissolved
	Total Iron	1.42	mg/L	J	Total vs. Dissolved
	Dissolved Arsenic	0.0378	mg/L	J	Total vs. Dissolved
	Dissolved Iron	1.64	mg/L	J	Total vs. Dissolved
MW-66-0414	Acetone	<0.010	mg/L	UB	Blank Contamination
	Dissolved Mercury	<0.00020	mg/L	UJ	Holding Time
	Total Iron	0.397	mg/L	J	Total vs. Dissolved
	Dissolved Iron	0.480	mg/L	J	Total vs. Dissolved
	Cyanide	<0.0200	mg/L	UB	Blank Contamination
	Sulfate	2.02	mg/L	UB	Blank Contamination
MW-28-0414	Acetone	<0.010	mg/L	UB	Blank Contamination
	Dissolved Mercury	<0.00020	mg/L	UJ	Holding Time
	Lead	<0.0050	mg/L	UB	Blank Contamination
	Vanadium	<0.0050	mg/L	UB	Blank Contamination
TEL-4-0414	Acetone	<0.010	mg/L	UB	Blank Contamination
	Lead	<0.0050	mg/L	UB	Blank Contamination
	GRO	3.11	mg/L	J	Surrogate Recovery
MW-49-0414	Acetone	<0.010	mg/L	UB	Blank Contamination
	Vanadium	<0.0050	mg/L	UB	Blank Contamination
TEL-1-0414	Acetone	<0.010	mg/L	UB	Blank Contamination
	Selenium	<0.0050	mg/L	UB	Blank Contamination
	GRO	0.384	mg/L	J	Surrogate Recovery
DUP-14-0414	Acetone	<0.010	mg/L	UB	Blank Contamination
	Selenium	<0.0050	mg/L	UB	Blank Contamination
	Total Barium	0.0108	mg/L	J	Total vs. Dissolved
	Total Manganese	0.0751	mg/L	J	Total vs. Dissolved
	Dissolved Barium	0.0131	mg/L	J	Total vs. Dissolved
	Dissolved Manganese	0.0909	mg/L	J	Total vs. Dissolved
	GRO	0.350	mg/L	J	Surrogate Recovery
TEL-2-0414	Acetone	<0.010	mg/L	UB	Blank Contamination
	Selenium	0.00593	mg/L	UB	Blank Contamination
	GRO	6.08	mg/L	J	Surrogate Recovery
TEL-3-0414	Acetone	<0.010	mg/L	UB	Blank Contamination
	Selenium	<0.0050	mg/L	UB	Blank Contamination

Sample ID	Parameter	Result	Units	Qualifier	Reason
TEL-3-0414	GRO	0.971	mg/L	J	Surrogate Recovery
MW-125-0414	Acetone	<0.010	mg/L	UB	Blank Contamination
	Selenium	0.00901	mg/L	UB	Blank Contamination
MW-119-0414	Acetone	<0.010	mg/L	UB	Blank Contamination
	Selenium	<0.0050	mg/L	UB	Blank Contamination
	Dissolved Barium	0.00976	mg/L	UB	Blank Contamination
MW-107-0414	Bromomethane	<0.050	mg/L	UJ	MS/MSD Recovery
	Methyl-tert-butylether	1.6	mg/L	J	MS Recovery
	Sulfate	<0.50	mg/L	UB	Blank Contamination
MW-103-0414	Lead	<0.0050	mg/L	UB	Blank Contamination
	Chromium	<0.0050	mg/L	UB	Blank Contamination
	GRO	1.43	mg/L	J	Surrogate Recovery
	Sulfate	29.3	mg/L	UB	Blank Contamination
MW-29-0414	Lead	<0.0050	mg/L	UB	Blank Contamination
	Barium	0.0157	mg/L	UB	Blank Contamination
	GRO	0.0569	mg/L	UB	Blank Contamination
MW-61-0414	Lead	<0.0050	mg/L	UB	Blank Contamination
	GRO	10.9	mg/L	J	Surrogate Recovery
MW-128-0414	Lead	<0.0050	mg/L	UB	Blank Contamination
DUP-13-0414	Selenium	<0.0050	mg/L	UB	Blank Contamination
MW-114-0414	Selenium	<0.0050	mg/L	UB	Blank Contamination
MW-115-0414	Selenium	<0.0050	mg/L	UB	Blank Contamination
MW-116-0414	Selenium	0.00606	mg/L	UB	Blank Contamination
MW-117-0414	Selenium	0.00539	mg/L	UB	Blank Contamination
	Dissolved Barium	<0.0050	mg/L	UB	Blank Contamination
DUP-15-0414	Selenium	<0.0050	mg/L	UB	Blank Contamination
	Dissolved Barium	0.00925	mg/L	UB	Blank Contamination
MW-46R	Selenium	0.00624	mg/L	UB	Blank Contamination
MW-104-0414	Barium	0.0201	mg/L	UB	Blank Contamination
MW-118-0414	Dissolved Barium	<0.00974	mg/L	UB	Blank Contamination
MW-29-0414	Total Manganese	0.558	mg/L	J	Total vs. Dissolved
	Dissolved Manganese	0.624	mg/L	J	Total vs. Dissolved
MW-49-0414	Cyanide	<0.0200	mg/L	UB	Blank Contamination
EB-19-0414	Sulfate	<0.500	mg/L	UJ	MS/MSD RPD
	Nitrate	<1.0	mg/L	UJ	MS/MSD Recovery

VALIDATION PERFORMED BY: Rachelle Borne

SIGNATURE: 

DATE: October 2, 2014

PEER REVIEW: Jace'que Powell

DATE: October 3, 2014

DATA VALIDATION CHECKLIST

NAVAJO REFINERY
GW Monitoring NCL TEL LMD

ARCADIS, Inc.
3850 N. Causeway Blvd.
Suite 990
Metairie, LA 70002
Tel. (504) 832-4174
Fax. (504) 832-2145

Environmental Project:
Navajo Refinery

Project Number:
TX000836.0007.00003

Sample Team:	ARCADIS
Sample Matrix:	Water
Analytical Laboratory;	ESC
Laboratory Work Order No.:	L733743 (66-90)
Lab Project Manager:	Pamela Langford
Analyses:	Chloride/Fluoride/Sulfate, Nitrate/Nitrite, TDS, Metals, TPH, VOCs, DRO/ORO and Cyanide
QA Reporting Level:	ARCADIS, Level II

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
L733743	MW-21	11/12/14	
L733743	MW-46R	11/13/14	
L733743	NP-1	11/12/14	
L733743	MW-49	11/12/14	
L733743	TEL-1	11/12/14	
L733743	TEL-2	11/12/14	
L733743	TEL-3	11/12/14	
L733743	TEL-4	11/12/14	
L733743	DUP-TEL-01	11/12/14	TEL-4
L733743	Trip-Blank-TEL-01	11/12/14	
L733743	MW-45	11/12/14	
L733743	MW-54A	11/13/14	
L733743	MW-55	11/13/14	
L733743	MW-56	11/12/14	
L733743	MW-108	11/12/14	
L733743	NCL-31	11/12/14	
L733743	NCL-32	11/12/14	
L733743	NCL-33	11/12/14	
L733743	NCL-44	11/12/14	
L733743	NCL-49	11/13/14	
L733743	DUP-NCL-01	11/13/14	NCL-49
L733743	Trip Blank-NCL-01	11/12/14	
L733743	NCL-34A	11/13/14	

Note: The associated field samples exhibited high concentrations of target compounds. These detections in the equipment blank demonstrates that the clean procedure for these samples were outside the control limits. Since all the sample concentrations are relatively high, the associated field samples were not qualified as non-detect for these compounds if the sample concentrations were less than five times the blank value. The equipment blanks will not be included in this validation.

I. VOLATILE 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. Equipment Blanks	X						X
C. Trip Blanks		X	X		X		
4. Laboratory control sample (LCS) (%R)		X	X		X		
5. Laboratory control sample duplicate (LCSD) (%R)		X	X		X		
6. LCS/LCSD (RPD)		X	X		X		
7. Matrix spike (MS) (%R)		X	X			X	
8. MSD (%R)		X	X			X	
9. MS/MSD (RPD)		X		X		X	
10. Surrogate Recoveries (%R)		X	X			X	
11. Field Duplicate Comparison (RPD)		X	X			X	

COMMENTS: The samples were analyzed for VOCs by Method 8260B. Performance was acceptable, with the following exceptions and notes.

7-9. Sample MW-46R was used as the MS/MSD. The recoveries for bromoform and chlorodibromomethane were above the control limit in the MS. The parent sample was non-detect for these compounds; therefore, qualification of the data was not warranted. The RPDs between the MS/MSD pair were above the control limits for 1,1-dichloroethene, carbon disulfide and vinyl chloride. The parent sample was qualified as estimated for these two compounds.

11. Sample DUP-TEL-01 was collected as a field duplicate of TEL-4. The RPDs were acceptable at less than 40%.

Sample DUP-NCL-01 was collected as a field duplicate of NCL-49. The RPDs were acceptable at non-detect.

II. 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. Equipment Blanks	X						X
4. Laboratory control sample (LCS) (%R)		X	X		X		
5. Laboratory control sample duplicate (LCSD) (%R)		X	X		X		
6. LCS/LCSD (RPD)		X	X		X		
7. Matrix spike (MS) (%R)		X	X			X	
8. MSD (%R)		X	X			X	
9. MS/MSD (RPD)		X	X			X	
10. Surrogate Recoveries (%R)		X	X		X		
11. Field Duplicate Comparison (RPD)		X	X			X	

COMMENTS: The samples were analyzed for TPH by Method 8015. Performance was acceptable, with the following exceptions and notes.

3A. TPH fractions were detected in the method blanks for batches 755117, 755118 and 755121. The associated field samples were greater than five times the blank values; therefore, qualification of the data was not warranted.

7-9. Sample MW-49 was used as the MS/MSD. The recoveries and RPDs were acceptable.

11. Sample DUP-TEL-01 was collected as a field duplicate of TEL-4. The RPDs were acceptable at less than 40%.

Sample DUP-NCL-01 was collected as a field duplicate of NCL-49. The RPDs were acceptable at less than 40%.

III. METALS

ITEMS REVIEWED	REPORTED/ REVIEWED		EXCEPTIONS NOTED		GENERAL COMMENTS NOTED		REPORTED/ REVIEWED
	NO	YES	NO	YES	YES	NO	
1. Holding times		X	X			X	
2. Reporting limits		X	X			X	
3. Blanks							
A. Method Blanks		X		X		X	
B. Field Blanks	X						X
C. Equipment Blank	X						X
4. Laboratory control sample (LCS) (%R)		X	X		X		
5. LCSD (% R)		X	X		X		
6. LCS/LCSD (RPD)		X	X		X		
7. Matrix spike (MS) (%R)		X	X			X	
8. MSD (%R)		X	X			X	
9. MS/MSD (RPD)		X	X			X	
10. Field/Lab Duplicate (RPD)		X	X			X	

COMMENTS: The samples were analyzed for metals by Methods 6020. Performance was acceptable, with the following exceptions and notes.

3A. Chromium and lead were detected in the method blank for batch 755209. The associated field samples were qualified as non-detect for these metals if the sample concentrations were less than ten times the blank values.

7-9. Sample TEL-4 was used as the MS/MSD. The recoveries and RPDs were acceptable.

10. Sample DUP-TEL-01 was collected as a field duplicate of TEL-4. The RPDs were acceptable at less than 40%.

Sample DUP-NCL-01 was collected as a field duplicate of NCL-49. The RPDs were acceptable at less than 40%.

IV. GENERAL CHEMISTRY

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. Laboratory control sample (LCS) (%R)		X	X		X		
5. LCSD (% R)		X	X		X		
6. LCS/LCSD (RPD)		X	X		X		
7. Matrix spike (MS) (%R)		X	X			X	
8. MSD (%R)		X		X		X	
9. MS/MSD (RPD)		X	X			X	
10. Field/Lab Duplicate (RPD)		X		X		X	

COMMENTS: The samples were analyzed by methods 353.2, 9056 and 2540C. Performance was acceptable, with the following exceptions and notes.

3A. Chloride, fluoride and sulfate were detected in several method blanks. The associated field samples were greater than five times the blanks values; therefore, qualification of the data was not warranted.

7-9. Sample MW-55 was used as the MS/MSD for nitrate/nitrite. The recovery of nitrate/nitrite was below the control limit in the MSD. The parent sample was qualified as estimated for nitrate/nitrite.

10. Sample MW-21 was used as the laboratory duplicate for TDS. The RPD was acceptable.

Sample NCL-33 was used as the laboratory duplicate for chloride, fluoride and sulfate. The RPDs were acceptable.

Sample MW-54A was used as the laboratory duplicate for nitrate/nitrite. The RPD was above the control limit. The parent sample was qualified as estimated for nitrate/nitrite.

Samples MW-46R and NCL-34A were used as the laboratory duplicate for nitrate/nitrite. The RPDs were acceptable.

Sample DUP-TEL-01 was collected as a field duplicate of TEL-4. The RPDs were acceptable at less than 40%.

Sample DUP-NCL-01 was collected as a field duplicate of NCL-49. The RPDs were acceptable at less than 40%.

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 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-46R	1,1-Dichloroethene	<1.0	ug/L	UJ	MS/MSD RPD
	Vinyl Chloride	<1.0	ug/L	UJ	MS/MSD RPD
	Carbon Disulfide	<1.0	ug/L	UJ	MS/MSD RPD
TEL-4	Lead	3.5	ug/L	UB	Blank Contamination
DUP-TEL-01	Lead	3.4	ug/L	UB	Blank Contamination
MW-45	Chromium	1.1	ug/L	UB	Blank Contamination
	Lead	4.7	ug/L	UB	Blank Contamination
MW-54A	Nitrate/Nitrrite	850	ug/L	J	LD RPD
	Chromium	<1.0	ug/L	UB	Blank Contamination
	Lead	<2.0	ug/L	UB	Blank Contamination
MW-55	Nitrate/Nitrrite	850	ug/L	J	MSD Recovery
	Chromium	2.3	ug/L	UB	Blank Contamination
	Lead	<2.0	ug/L	UB	Blank Contamination
MW-56	Chromium	<1.0	ug/L	UB	Blank Contamination
	Lead	<2.0	ug/L	UB	Blank Contamination
MW-108	Chromium	5.5	ug/L	UB	Blank Contamination
	Lead	2.3	ug/L	UB	Blank Contamination
NCL-31	Chromium	<1.0	ug/L	UB	Blank Contamination
	Lead	<2.0	ug/L	UB	Blank Contamination
NCL-32	Lead	7.6	ug/L	UB	Blank Contamination
NCL-33	Chromium	1.1	ug/L	UB	Blank Contamination
	Lead	<2.0	ug/L	UB	Blank Contamination
NCL-44	Chromium	1.6	ug/L	UB	Blank Contamination
	Lead	<2.0	ug/L	UB	Blank Contamination
NCL-49	Chromium	<1.0	ug/L	UB	Blank Contamination
	Lead	<2.0	ug/L	UB	Blank Contamination
DUP-NCL-01	Chromium	<1.0	ug/L	UB	Blank Contamination
	Lead	<2.0	ug/L	UB	Blank Contamination
NCL-34A	Chromium	<1.0	ug/L	UB	Blank Contamination
	Lead	<2.0	ug/L	UB	Blank Contamination

VALIDATION PERFORMED BY:

SIGNATURE: Rachelle Borne

DATE: January 21, 2015
Revised January 29, 2015

PEER REVIEW: 

DATE: January 21, 2015

DATA VALIDATION CHECKLIST

NAVAJO REFINERY
Semi Annual GW Event

ARCADIS, Inc.
3850 N. Causeway Blvd.
Suite 990
Metairie, LA 70002
Tel. (504) 832-4174
Fax. (504) 832-2145

Sample Team:	ARCADIS
Sample Matrix:	Water
Analytical Laboratory;	ALS Environmental
Laboratory Work Order No.:	HS14050073
Lab Project Manager:	Bethany McDaniel
Analyses:	VOCs, TPH, Metals, Cyanide, TDS, Chloride, Fluoride and Sulfate
QA Reporting Level:	ARCADIS, Level II

Environmental Project:
Navajo Refinery

Project Number:
TX000931.0004.00003

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
HS14050073	MW-104-0414	04/28/14	
HS14050073	DUP-13-0414	04/28/14	MW-104-0414
HS14050073	MW-103-0414	04/28/14	
HS14050073	MW-101-0414	04/28/14	
HS14050073	MW-29-0414	04/28/14	
HS14050073	MW-66-0414	04/28/14	
HS14050073	MW-28-0414	04/28/14	
HS14050073	MW-107-0414	04/28/14	
HS14050073	EB-17-0414	04/28/14	
HS14050073	MW-61-0414	04/29/14	
HS14050073	MW-128-0414	04/29/14	
HS14050073	TEL-4-0414	04/29/14	
HS14050073	MW-49-0414	04/29/14	
HS14050073	TEL-1-0414	04/29/14	
HS14050073	DUP-14-0414	04/29/14	TEL-1-0414
HS14050073	TEL-2-0414	04/29/14	
HS14050073	TEL-3-0414	04/29/14	
HS14050073	MW-114-0414	04/29/14	
HS14050073	MW-115-0414	04/29/14	
HS14050073	MW-116-0414	04/29/14	
HS14050073	MW-125-0414	04/29/14	
HS14050073	EB-18-0414	04/29/14	
HS14050073	MW-117-0414	04/30/14	
HS14050073	MW-118-0414	04/30/14	
HS14050073	MW-119-0414	04/30/14	
HS14050073	DUP-15-0414	04/30/14	MW-119-0414
HS14050073	MW-46R-0414	04/30/14	
HS14050073	EB-19-0414	04/30/14	
HS14050073	TB-032514-92	04/30/14	

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		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
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. Surrogate Recoveries (%R)		X	X		X		
11. Field Duplicate Comparison (RPD)		X					

COMMENTS: The samples were analyzed for Volatiles by Method 8260. Performance was acceptable, with the following exceptions and notes.

3B. Acetone was detected in all three equipment blanks. The associated field samples were qualified as non-detect for acetone if the sample concentrations were less than ten times the blank value.

4. The recovery of cis-1,2-dichloroethene was above the control limit in the LCS for batch R233224. The associated field samples were non-detect for this compound; therefore, qualification of the data was not warranted.

7-9. Sample MW-101-0414 was used as the MS/MSD. The recovery of cis-1,2-dichloroethene was less than ten percent in the MS and the MSD. The parent sample was qualified as rejected for this compound.

Sample TEL-2-0414 was used as the MS/MSD. The recovery of chloroethane was above the control limit in the MS and the MSD. The parent sample was non-detect for this compound; therefore, qualification of the data was not warranted.

Sample MW-107-0414 was used as the MS/MSD. The recoveries of bromomethane and methyl-tert-butylether were below the control limit in the MS and/or the MSD. The parent sample was qualified as estimated for these compounds.

II. METALS

ITEMS REVIEWED	REPORTED/ REVIEWED		EXCEPTIONS NOTED		GENERAL COMMENTS NOTED		REPORTED/ REVIEWED
	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		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. Field/Lab Duplicate (RPD)		X					
11. Total vs. Dissolved		X		X		X	

COMMENTS: The samples were analyzed for metals by Methods 6020 and 7471A. Performance was acceptable, with the following exceptions and notes.

1. Samples MW-66-0414 and MW-28-0414 were extracted one day beyond the 28 recommended holding time for dissolved mercury. All dissolved mercury results for these samples were qualified as estimated.

3A. Calcium, lead, sodium and vanadium were detected in the method blank for batch 82140. The associated field samples were qualified as non-detect for these metals if the sample concentrations were less than ten times the blank values.

Dissolved nickel was detected in the method blank for batch 82186. The associated field sample was non-detect for this metal; therefore, qualification of the data was not warranted.

Selenium and sodium were detected in the method blank for batch 82188. The associated field samples were qualified as non-detect for these metals if the sample concentrations were less than ten times the blank values.

3C. Barium, calcium, chromium, sodium and vanadium were detected in EB-17-0414. The associated field samples were qualified as non-detect for these metals if the sample concentrations were less than ten times the blank values.

Calcium and sodium were detected in EB-18-0414. The associated field samples were greater than ten times the blank values for these metals; therefore, qualification of the data was not warranted.

Calcium, sodium and dissolved barium were detected in EB-19-0414. The associated field samples were qualified as non-detect for these metals if the sample concentrations were less than ten times the blank values.

11. The dissolved arsenic and iron results were greater than the total arsenic and iron results for sample MW-101-0414 and the %D was greater than 10%. The sample was qualified as estimated for total and dissolved arsenic and iron.

The dissolved manganese result was greater than the total manganese result for sample MW-29-0414 and the %D was greater than 10%. The sample was qualified as estimated for total and dissolved manganese.

The dissolved iron result was greater than the total iron result for sample MW-66-0414 and the %D was greater than 10%. The sample was qualified as estimated for total and dissolved iron.

The dissolved barium and manganese results were greater than the total barium and manganese results for sample DUP-14-0414 and the %D was greater than 10%. The sample was qualified as estimated for total and dissolved barium and manganese.

III. 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	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			X	
9. MSD (%R)		X	X			X	
10. MS/MSD (RPD)		X	X			X	
11. Field Duplicate (RPD)		X					

COMMENTS: The samples were analyzed for TPH by Method 8015. Performance was acceptable, with the following exceptions and notes.

3C. GRO and DRO detected in EB-17-0414. The associated field samples were qualified as non-detect for GRO if the sample concentrations were less than five times the blank value.

4. The surrogate recovery was above the control limit in MW-103-0414 for the GRO fraction. This sample was qualified as estimated for GRO.

The surrogate recovery was below the control limit in MW-61-0414 for the GRO fraction. This sample was qualified as estimated for GRO.

The surrogate recovery was above the control limit in samples TEL-4-0414, TEL-1-0414, DUP-14-0414, TEL-2-0414 and TEL-3-0414 for the DRO fraction. All detections of DRO in the associated field samples were qualified as estimated.

8-10. Sample MW-125-0414 was used as the MS/MSD. The recoveries and RPD were acceptable.

IV. GENERAL CHEMISTRY

ITEMS REVIEWED	REPORTED/ REVIEWED		EXCEPTIONS NOTED		GENERAL COMMENTS NOTED		REPORTED/ REVIEWED
	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		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. Field/Lab Duplicate (RPD)		X					
11. Total vs. Dissolved		X		X		X	

COMMENTS: The samples were analyzed for TDS, cyanide, chloride, fluoride and sulfate. Performance was acceptable, with the following exceptions and notes.

3A. Chloride was detected in the method blank for batch 12233976. The associated field samples were greater than five times the blank value for chloride; therefore, qualification of the data was not warranted.

3C. Cyanide was detected in all three equipment blanks. The associated field samples were qualified as non-detect for cyanide if the sample concentrations were less than five times the blank value.

TDS was detected in EB-19-0414. The associated field samples were greater than five times the blank value for TDS; therefore, qualification of the data was not warranted.

Sulfate was detected in EB-17-0414 and EB-18-0414. The associated field samples were qualified as non-detect for sulfate if the sample concentrations were less than five times the blank value.

7-9. Sample EB-19-0414 was used as the MS/MSD. The recoveries of chloride, fluoride and sulfate were above the control limit in the MS. The parent sample was non-detect for these compounds; therefore, qualification of the data is not warranted. The RPD for sulfate was above the control limit. The parent sample was qualified as estimated for sulfate.

DUP-14-0414 was used as the MS/MSD for the anions. The recoveries and RPDs were acceptable.

Sample MW-116-0414 was used as the MS/MSD for nitrate. The recoveries and RPD were acceptable.

Sample EB-19-0414 was used as the MS/MSD for nitrate. The recovery of nitrate was below the control limit in the MS and the MSD. The parent sample was qualified as estimated for nitrate.

10. Sample EB-17-0414 was used as the lab 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 or at the concentration reported if greater than the RL due to associated blank contamination.

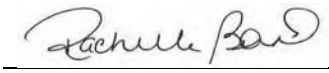
R – Result is qualified as unusable, data point is rejected.

Explanation/Notes:

Sample ID	Parameter	Result	Units	Qualifier	Reason
MW-101-0414	Acetone	<0.010	mg/L	UB	Blank Contamination
	cis-1,2-Dichloroethene	<0.0050	mg/L	R	MS/MSD Recovery
	Barium	0.0837	mg/L	UB	Blank Contamination
	Total Arsenic	0.0320	mg/L	J	Total vs. Dissolved
	Total Iron	1.42	mg/L	J	Total vs. Dissolved
	Dissolved Arsenic	0.0378	mg/L	J	Total vs. Dissolved
	Dissolved Iron	1.64	mg/L	J	Total vs. Dissolved
MW-66-0414	Acetone	<0.010	mg/L	UB	Blank Contamination
	Dissolved Mercury	<0.00020	mg/L	UJ	Holding Time
	Total Iron	0.397	mg/L	J	Total vs. Dissolved
	Dissolved Iron	0.480	mg/L	J	Total vs. Dissolved
	Cyanide	<0.0200	mg/L	UB	Blank Contamination
	Sulfate	2.02	mg/L	UB	Blank Contamination
MW-28-0414	Acetone	<0.010	mg/L	UB	Blank Contamination
	Dissolved Mercury	<0.00020	mg/L	UJ	Holding Time
	Lead	<0.0050	mg/L	UB	Blank Contamination
	Vanadium	<0.0050	mg/L	UB	Blank Contamination
TEL-4-0414	Acetone	<0.010	mg/L	UB	Blank Contamination
	Lead	<0.0050	mg/L	UB	Blank Contamination
	GRO	3.11	mg/L	J	Surrogate Recovery
MW-49-0414	Acetone	<0.010	mg/L	UB	Blank Contamination
	Vanadium	<0.0050	mg/L	UB	Blank Contamination
TEL-1-0414	Acetone	<0.010	mg/L	UB	Blank Contamination
	Selenium	<0.0050	mg/L	UB	Blank Contamination
	GRO	0.384	mg/L	J	Surrogate Recovery
DUP-14-0414	Acetone	<0.010	mg/L	UB	Blank Contamination
	Selenium	<0.0050	mg/L	UB	Blank Contamination
	Total Barium	0.0108	mg/L	J	Total vs. Dissolved
	Total Manganese	0.0751	mg/L	J	Total vs. Dissolved
	Dissolved Barium	0.0131	mg/L	J	Total vs. Dissolved
	Dissolved Manganese	0.0909	mg/L	J	Total vs. Dissolved
	GRO	0.350	mg/L	J	Surrogate Recovery
TEL-2-0414	Acetone	<0.010	mg/L	UB	Blank Contamination
	Selenium	0.00593	mg/L	UB	Blank Contamination
	GRO	6.08	mg/L	J	Surrogate Recovery
TEL-3-0414	Acetone	<0.010	mg/L	UB	Blank Contamination
	Selenium	<0.0050	mg/L	UB	Blank Contamination

Sample ID	Parameter	Result	Units	Qualifier	Reason
TEL-3-0414	GRO	0.971	mg/L	J	Surrogate Recovery
MW-125-0414	Acetone	<0.010	mg/L	UB	Blank Contamination
	Selenium	0.00901	mg/L	UB	Blank Contamination
MW-119-0414	Acetone	<0.010	mg/L	UB	Blank Contamination
	Selenium	<0.0050	mg/L	UB	Blank Contamination
	Dissolved Barium	0.00976	mg/L	UB	Blank Contamination
MW-107-0414	Bromomethane	<0.050	mg/L	UJ	MS/MSD Recovery
	Methyl-tert-butylether	1.6	mg/L	J	MS Recovery
	Sulfate	<0.50	mg/L	UB	Blank Contamination
MW-103-0414	Lead	<0.0050	mg/L	UB	Blank Contamination
	Chromium	<0.0050	mg/L	UB	Blank Contamination
	GRO	1.43	mg/L	J	Surrogate Recovery
	Sulfate	29.3	mg/L	UB	Blank Contamination
MW-29-0414	Lead	<0.0050	mg/L	UB	Blank Contamination
	Barium	0.0157	mg/L	UB	Blank Contamination
	GRO	0.0569	mg/L	UB	Blank Contamination
MW-61-0414	Lead	<0.0050	mg/L	UB	Blank Contamination
	GRO	10.9	mg/L	J	Surrogate Recovery
MW-128-0414	Lead	<0.0050	mg/L	UB	Blank Contamination
DUP-13-0414	Selenium	<0.0050	mg/L	UB	Blank Contamination
MW-114-0414	Selenium	<0.0050	mg/L	UB	Blank Contamination
MW-115-0414	Selenium	<0.0050	mg/L	UB	Blank Contamination
MW-116-0414	Selenium	0.00606	mg/L	UB	Blank Contamination
MW-117-0414	Selenium	0.00539	mg/L	UB	Blank Contamination
	Dissolved Barium	<0.0050	mg/L	UB	Blank Contamination
DUP-15-0414	Selenium	<0.0050	mg/L	UB	Blank Contamination
	Dissolved Barium	0.00925	mg/L	UB	Blank Contamination
MW-46R	Selenium	0.00624	mg/L	UB	Blank Contamination
MW-104-0414	Barium	0.0201	mg/L	UB	Blank Contamination
MW-118-0414	Dissolved Barium	<0.00974	mg/L	UB	Blank Contamination
MW-29-0414	Total Manganese	0.558	mg/L	J	Total vs. Dissolved
	Dissolved Manganese	0.624	mg/L	J	Total vs. Dissolved
MW-49-0414	Cyanide	<0.0200	mg/L	UB	Blank Contamination
EB-19-0414	Sulfate	<0.500	mg/L	UJ	MS/MSD RPD
	Nitrate	<1.0	mg/L	UJ	MS/MSD Recovery

VALIDATION PERFORMED BY: Rachelle Borne

SIGNATURE: 

DATE: October 2, 2014

PEER REVIEW: Jace'que Powell

DATE: October 3, 2014

ARCADIS

Appendix F

Recovery System Records

Weekly Recovery Well Gauging Information

Date: 8-22-14 By:

Well #	Product Level	Water Level	Local Flow Meter (at meter)	Local Pulse Counter (at meter)	PLC Water Meter (phone app)	PLC Pulse Counter (phone app)	Date/Comments
RW-1R	0	13.50	96782	000210	96418	3	
RW-2R	14.75	14.90	138182	050500	138253	11022	
RW-4R	0	16.25	4710	000271	4709	1	
RW-5R	18.06	21.60	23974	006022	23977	2183	
RW-6R	17.47	18.7	173430	018938	173427	7	
RW-7	12.45	12.70	0	000203	4	1	
RW-8R	12.90	13.70	42851	102813	42895	25639	Pump set at 13.0
RW-12R	0	22.28	234	023063	233	4710	
RW-13R	21.30	21.53	225009	000314	225001	6759	
RW-14R	19.20	19.55	355380	161261	355318	40098	
RW-15	17.05	17.80	0	003360	0	777	
RW-19	24.44	26.45	57909	001670	57907	292	
RW-20	17.65	18.21	0	000219	0	1	
RW-22	—	—	—	—	52381	5778	To wet to gauge
T-9003	n/a	n/a	2304	n/a	1974	n/a	
T-9012	n/a	n/a	00000	n/a	8822	n/a	
T-9020	n/a	n/a	41730	n/a	41870	n/a	
T-9021	n/a	n/a	1552	n/a	9173	n/a	

Weekly Recovery Well Gauging Information

Date: 8-28-14 By:

Well #	Product Level	Water Level	Local Flow Meter (at meter)	Local Pulse Counter (at meter)	PLC Water Meter (phone app)	PLC Pulse Counter (phone app)	Date/Comments
RW-1R	0	13.52	99069	000210	99049	1	
RW-2R	14.65	15.0	141271	050537	141247	11031	
RW-4R	0	16.15	4710	000221	4709	1	
RW-5R	18.0	22.08	23974	006302	23977	2286	
RW-6R	16.80	17.85	173430	024076	173427	2	
RW-7	12.49	12.95	0	000203	4	1	
RW-8R	12.90	13.80	45486	102818	45427	25640	
RW-12R	0	22.10	234	023063	233	4710	
RW-13R	21.24	21.50	225009	000314	225001	6799	
RW-14R	18.94	19.55	355380	161261	355318	40098	
RW-15	17.0	17.75	0	003406	0	789	
RW-19	24.30	24.70	57909	001676	57907	292	
RW-20	17.35	17.85	0	000219	0	1	
RW-22	20.07	20.13	52379	025421	52381	5738	
T-9003	n/a	n/a	3555	n/a	1976	n/a	
T-9012	n/a	n/a	5499	n/a	8822	n/a	
T-9020	n/a	n/a	41780	n/a	41870	n/a	
T-9021	n/a	n/a	1552	n/a	9173	n/a	

Weekly Recovery Well Gauging Information

Date: 9-11-14 By:

Well #	Product Level	Water Level	Local Flow Meter (at meter)	Local Pulse Counter (at meter)	PLC Water Meter (phone app)	PLC Pulse Counter (phone app)	Date/Comments
RW-1R	0	13.20	107970	000210	107805	3	
RW-2R	14.65	15.0	150149	050661	150179	11061	
RW-4R	0	16.0	4710	000221	4709	1	
RW-5R	17.82	21.21	23974	006322	23977	2291	
RW-6R	21.09	23.38	188258	24310	188287	27	
RW-7	11.75	12.20	0	000203	4	1	
RW-8R	12.95	13.25	53898	102824	53926	25641	
RW-12R	0	21.75	6284	023063	233	4711	
RW-13R	21.04	21.24	225009	000315	22501	6799	
RW-14R	18.85	19.71	355380	161261	355318	40098	
RW-15	16.70	17.45	0	003630	0	845	
RW-19	24.22	24.58	57909	001678	57907	293	
RW-20	17.0	17.65	0	000219	0	1	
RW-22	19.84	19.85	52379	025421	52381	5738	
T-9003	n/a	n/a	3728	n/a	1976	n/a	
T-9012	n/a	n/a	5499	n/a	8822	n/a	
T-9020	n/a	n/a	41830	n/a	41870	n/a	
T-9021	n/a	n/a	1552	n/a	9173	n/a	

Weekly Recovery Well Gauging Information

Date: 9-17-14 By:

Well#	Product Level	Water Level	Pump Level	Local Flow Meter (at meter)	Local Pulse Counter (at meter)	PLC Water Meter (phone app)	PLC Pulse Counter (phone app)	Date/Comments
RW-1R	0	13.21	Pump out of water level	114954	000210	115043	3	
RW-2R	14.50	15.70	14.74	157182	050700	157274	11072	
RW-4R	0	15.65	Pump out of water level	4710	000221	4709	1	
RW-5R	17.55	20.33	18.11	239944	006342	23977	2297	
RW-6R	20.60	24.55	21.39	204827	02 4310	204928	27	Not Reading pulse to PLC
RW-7	10.78	10.79	Not in Service	0	000203	4	1	CAN't Run old system due to electrical
RW-8R	12.91	13.40	13.01	61493	102888	61604	25642	
RW-12R	0	21.40	Pump Hung Above water level	0 233	023069	233	4711	Pump Hung Above water level
RW-13R	20.85	20.85	Out of Product	225019	000315	225001	6799	Product pump out of product system not running
RW-14R	18.59	19.34	System not Running	355380	161261	355318	40098	" " " "
RW-15	16.60	17.13	all fluid pump	0	003669	0	854	All fluid Pump is working
RW-19	0	23.99	Pump out of water level	57905	001681	57907	293	system still down
RW-20	16.70	17.55	System not Running	0	000219	0	1	" "
RW-22	19.57	19.58	system not Running	52381 025421	025421	52381	5738	" "
T-9003	n/a	n/a	n/a	3844	n/a	1976	n/a	not Reading flow meter to PLC
T-9012	n/a	n/a	n/a	5499	n/a	8822	n/a	Sump pump on skid not working
T-9020	n/a	n/a	n/a	41730	n/a	41870	n/a	~~unit tested~~ system down
T-9021	n/a	n/a	n/a	1552	n/a	9173	n/a	NO Change not Registering Readings

Weekly Recovery Well Gauging Information

Date: 9-25-14 By:

Well#	Product Level	Water Level	Pump Level	Local Flow Meter (at meter)	Local Pulse Counter (at meter)	PLC Water Meter (phone app)	PLC Pulse Counter (phone app)	Date/Comments
RW-1R	0	13.20	N/A	143093	000210	143206	3	
RW-2R	13.90	18.28	14.78	N/A	N/A	176223	11079	
RW-4R	0	14.51	N/A	4710	000221	4709	1	
RW-5R	15.95	17.30	16.22	23974	006345	23977	2297	???
RW-6R	21.0	23.57	21.51	214124	024310	214166	27	???
RW-7	0	8.11	N/A	0	000203	4	1	
RW-8R	N/A	N/A	N/A	N/A	N/A	64232	25643	ACCESS TO WELL BLOCKED OFF DUE TO WORK IN AREA
RW-12R	0	14.29	N/A	234	023078	233	4713	??? local Flow meter
RW-13R	0	14.20	N/A	225089	000316	225001	6799	???
RW-14R	14.45	15.91	14.74	355380	161262	355318	40095	
RW-15	15.65	16.0	N/A	0	003711	0	864	All Fluid Pump
RW-19	25.19	26.0	25.35	57909	001682	57507	293	????
RW-20	10.50	18.50	N/A	0	002161	0	1	All Fluid Pump ????
RW-22	N/A	N/A	N/A	N/A	N/A	52381	5740	To Flooded in Orchard
T-9003	n/a	n/a	n/a	4420	n/a	1976	n/a	???
T-9012	n/a	n/a	n/a	5499	n/a	8822	n/a	???
T-9020	n/a	n/a	n/a	42354	n/a	42571	n/a	
T-9021	n/a	n/a	n/a	1552	n/a	9173	n/a	???

WELL #2 WELL OVER 18 PPM ON H_2S had to TURN off was UNABLE to GET local READINGS

Weekly Recovery Well Gauging Information

Date: 9-29-14 By:

Well#	Product Level	Water Level	Pump Level	Local Flow Meter (at meter)	Local Pulse Counter (at meter)	PLC Water Meter (phone app)	PLC Pulse Counter (phone app)	Date/Comments
RW-1R	0	13.15	N/A	155973	000210	156331	3	
RW-2R	14.70	15.25	N/A	191784	050741	176223	11079	
RW-4R	0	13.69	N/A	4710	000221	4709	1	
RW-5R	15.23	18.28	N/A	23984	006345	23977	2297	
RW-6R	20.8	23.84	N/A	228419	024310	228447	27	
RW-7	0	7.71	N/A	000203	4	4	1	
RW-8R	0	8.0	N/A	64233	102830	64232	25643	
RW-12R	0	13.73	N/A	234	023092	233	4718	
RW-13R	13.45	13.46	N/A	225088	000316	225001	6799	
RW-14R	14.10	15.29	N/A	355380	161263	355318	4009	
RW-15	15.10	15.45	N/A	0	003742	0	871	
RW-19	25.31	26.11	N/A	57909	001682	57907	293	
RW-20	10.20	15.0	N/A	0	004354	0	1	
RW-22	11.43	11.45	N/A	52379	025435	52381	5742	
T-9003	n/a	n/a	n/a	4423	n/a	1976	n/a	
T-9012	n/a	n/a	n/a	5499	n/a	8822	n/a	
T-9020	n/a	n/a	n/a	43072	n/a	43215	n/a	
T-9021	n/a	n/a	n/a	1552	n/a	9173	n/a	

Weekly Recovery Well Gauging Information

Date: 10-7-14 By:

Well #	Product Level	Water Level	Local Flow Meter (at meter)	Local Pulse Counter (at meter)	PLC Water Meter (phone app)	PLC Pulse Counter (phone app)	Date/Comments
RW-1R	~~0~~	9.25	180246	000210	180247	3	
RW-2R	11.64	11.65	224467	050741	176223	11079	
RW-4R	~~0~~	12.80	4710	000221	4709	1	
RW-5R	14.62	17.07	239794	006380	23977	2306	
RW-6R	14.50	15.99	261367	024310	261361	27	
RW-7	7.73	7.74	[illegible] 4	00023	4	1	
RW-8R	8.15	9.15	64233	102831	64232	25650	
RW-12R	~~0~~	14.90	234	023123	239	4724	
RW-13R	~~0~~	14.35	225008	000816	225001	6758	
RW-14R	13.70	14.82	355380	162164	355318	40099	
RW-15	14.28	14.50	~~0~~	003898	~~0~~	910	
RW-19	25.30	26.18	57909	001682	57907	293	
RW-20	16.84	17.32	49114	013078	51362	1	
RW-22	13.21	13.22	52379	028435	52381	5742	
T-9003	n/a	n/a	4423	n/a	1976	n/a	
T-9012	n/a	n/a	5497	n/a	8822	n/a	
T-9020	n/a	n/a	45731	n/a	45871	n/a	
T-9021	n/a	n/a	1552	n/a	9173	n/a	

Weekly Recovery Well Gauging Information

Date: 10-15-14 By:

Well#	Product Level	Water Level	Pump Level	Local Flow Meter (at meter)	Local Pulse Counter (at meter)	PLC Water Meter (phone app)	PLC Pulse Counter (phone app)	Date/Comments
RW-1R	Θ	9.21	N/A	180246	000210	180452	3	Pump pulled and hung
RW-2R	14.65	15.76	N/A	257964	050741	176223	11079	Pump hung will set pump when in operating mode
RW-4R	Θ	12.70	N/A	4710	000221	4709	1	Pump hung
RW-5R	14.47	18.45	15.27	238784	006382	23977	2305	
RW-6R	23.85	24.85	23.4	309720	024310	309520	27	
RW-7	8.16	8.19	N/A	4	00023	4	1	Pulled and hung
RW-8R	8.89	8.99	8.89	64283	114271	64232	28526	
RW-12R	Θ	15.69	N/A	234	023263	238	4745	Pump is hanging out of water
RW-13R	15.36	15.37	15.36	225009	000316	225001	6798	
RW-14R	13.75	14.85	13.97	355380	161265	355318	40099	
RW-15	13.85	14.0	N/A	Θ	003957	Θ	925	
RW-19	25.30	26.19	25.47	57909	001682	57907	293	
RW-20	17.55	17.65	N/A	134009	013139	136570	1	
RW-22	14.48	14.49	N/A	52379	025435	52381	5742	Pump is hanging out of water
T-9003	n/a	n/a	n/a	4424	n/a	1976	n/a	
T-9012	n/a	n/a	n/a	5499	n/a	8822	n/a	
T-9020	n/a	n/a	n/a	45744	n/a	46026	n/a	
T-9021	n/a	n/a	n/a	1552	n/a	9173	n/a	

Weekly Recovery Well Gauging Information

Date: 10-24-14 By:

Well#	Product Level	Water Level	Pump Level	Local Flow Meter (at meter)	Local Pulse Counter (at meter)	PLC Water Meter (phone app)	PLC Pulse Counter (phone app)	Date/Comments
RW-1R	0	13.25	N/A	203318	000210	203456	3	
RW-2R	14.44	16.15	N/A	292188	050741	176223	11079	
RW-4R	0	12.74	N/A	4710	000221	4709	1	
RW-5R	14.38	16.0	N/A	239774	006424	23977	2317	
RW-6R	23.10	24.55	N/A	365560	024310	365702	27	
RW-7	8.17	8.18	N/A	4	000203	4	1	
RW-8R	8.62	8.69	N/A	66470	117065	66470	29192	
RW-12R	15.47	15.49	N/A	234	023265	233	4705	
RW-13R	15.15	15.15	N/A	225005	000316	225001	6759	
RW-14R	13.50	14.67	N/A	355380	161267	355318	40095	Compressor stopping down
RW-15	13.50	13.55	N/A	0	004020	0	941	
RW-19	25.30	26.34	N/A	57909	001682	57907	293	
RW-20	17.34	17.44	N/A	241843	013145	230068	1	No Pressure on compressor
RW-22	N/A	N/A	N/A	N/A	N/A	52401	5742	To wet
			N/A					
T-9003	n/a	n/a	n/a	4435	n/a	1976	n/a	
T-9012	n/a	n/a	n/a	5499	n/a	8822	n/a	
T-9020	n/a	n/a	n/a	45887	n/a	46026	n/a	
T-9021	n/a	n/a	n/a	1552	n/a	9173	n/a	

Weekly Recovery Well Gauging Information

Date: 10-30-14 By:

Well#	Product Level	Water Level	Pump Level	Local Flow Meter (at meter)	Local Pulse Counter (at meter)	PLC Water Meter (phone app)	PLC Pulse Counter (phone app)	Date/Comments
RW-1R	0	13.20	N/A	228360	000210	228414	3	
RW-2R	14.35	16.55	N/A	292188	050741	176223	11079	
RW-4R	0	12.75	N/A	4710	000221	4709	1	
RW-5R	14.42	15.95	N/A	23974	066424	23977	2317	
RW-6R	23.05	24.45	N/A	425384	024310	425374	27	
RW-7	8.61	8.65	N/A	4	000208	4	1	
RW-8R	11.17	11.49	N/A	80736	117065	80771	29192	
RW-12R	15.97	16.03	N/A	234	023267	233	4745	
RW-13R	15.59	15.60	N/A	225009	000316	225001	6799	
RW-14R	13.60	15.12	N/A	355380	161267	355318	40099	
RW-15	13.41	13.45	N/A	0	004113	0	964	
RW-19	21.12	21.77	N/A	57909	001682	57907	293	
RW-20	16.40	17.19	N/A	303788	013203	315329	1	
RW-22	14.55	14.60	N/A	52428	025435	52430	5742	
T-9003	n/a	n/a	n/a	4435	n/a	1976	n/a	
T-9012	n/a	n/a	n/a	5499	n/a	8822	n/a	
T-9020	n/a	n/a	n/a	45887	n/a	46026	n/a	
T-9021	n/a	n/a	n/a	1552	n/a	9173	n/a	

Weekly Recovery Well Gauging Information

By:

Date: 11-7-14								
Well#	Product Level	Water Level	Pump Level	Local Flow Meter (at meter)	Local Pulse Counter (at meter)	PLC Water Meter (phone app)	PLC Pulse Counter (phone app)	Date/Comments
RW-1R	0	13.30	N/A	245263	000210	251912	3	
RW-2R	14.15	16.34	N/A	352031	050741	176223	11079	
RW-4R	0	12.38	N/A	4710	000221	4709	1	
RW-5R	14.20	16.0	14.56	23924	006424	23977	2317	
RW-6R	21.05	24.45	21.73	463157	024310	469967	31	
RW-7	0	8.35	N/A	4	000203	4	1	
RW-8R	11.25	11.70	11.34	5146	117066	92712	29872	
RW-12R	16.45	16.55	N/A	234	023267	233	4745	
RW-13R	0	16.10	N/A	225009	000316	225301	6759	
RW-14R	13.85	16.15	14.31	355380	16270	355318	40173	
RW-15	13.30	13.42	N/A			0	583	
RW-19	25.30	25.96	25.43	57909	001682	57907	299	
RW-20	18.12	18.40	N/A	379383	013249	407515	1	
RW-22	0	15.25	N/A	52428	025437	52430	5742	
T-9003	n/a	n/a	n/a	4511	n/a	1976	n/a	
T-9012	n/a	n/a	n/a	5499	n/a	9109	n/a	
T-9020	n/a	n/a	n/a	45857	n/a	46044	n/a	
T-9021	n/a	n/a	n/a	1553	n/a	9173	n/a	

Weekly Recovery Well Gauging Information

Date: 11-12-14 By:

Well#	Product Level	Water Level	Pump Level	Local Flow Meter (at meter)	Local Pulse Counter (at meter)	PLC Water Meter (phone app)	PLC Pulse Counter (phone app)	Date/Comments
RW-1R	0	19.24	N/A	270316	000210	270399	3	
RW-2R	14.15	17.55	N/A	388332	050741	176223	11079	
RW-4R	0	18.63	N/A	0	000221	4709	1	flow meter stuck on zero
RW-5R	14.34	15.80	N/A	23974	006424	23977	2317	
RW-6R	13.74	14.60	N/A	469985	034530	469967	31	
RW-7	0	8.75	N/A	4	000203	4	1	
RW-8R	9.15	9.25	N/A	9924	124987	99241	31165	
RW-12R	17.09	17.10	N/A	234	023277	233	4746	
RW-13R	0	16.79	N/A	225009	00316	225001	6755	
RW-14R	14.03	15.35	N/A	355380	161869	355318	40322	
RW-15	13.35	13.50	N/A	0	004223	0	991	
RW-19	25.33	26.07	N/A	57909	001705	57907	295	
RW-20	19.64	19.82	N/A	478489	013255	485560	3	
RW-22	15.80	15.81	N/A	52428	025437	52430	5742	
T-9003	n/a	n/a	n/a	8394	n/a	1976	n/a	NGE/s work on pumps
T-9012	n/a	n/a	n/a	7901	n/a	11224	n/a	
T-9020	n/a	n/a	n/a	46067	n/a	46206	n/a	
T-9021	n/a	n/a	n/a	1553	n/a	9173	n/a	

Weekly Recovery Well Gauging Information

Date: 11-21-14 By:

Well#	Product Level	Water Level	Pump Level	Local Flow Meter (at meter)	Local Pulse Counter (at meter)	PLC Water Meter (phone app)	PLC Pulse Counter (phone app)	Date/Comments
RW-1R	~~0~~	9.0	N/A	285749	000210	285748	3	
RW-2R	~~0~~	10.44	N/A	411283	080741	176223	11079	
RW-4R	~~0~~	12.50	N/A	~~0~~	000221	4709	1	Flow meter not registering
RW-5R	14.18	15.70	N/A	23974	006424	23977	2317	
RW-6R	13.50	13.58	N/A	469985	034570	469967	31	
RW-7	~~0~~	8.80	N/A	4	000203	4	1	
RW-8R	9.0	9.13	N/A	99242	124987	95241	31165	
RW-12R	17.35	17.48	N/A	234	023277	233	4746	
RW-13R	~~0~~	17.05	N/A	225009	000316	225001	6799	
RW-14R	14.05	15.09	N/A	355380	162162	355318	40322	
RW-15	13.10	13.20	N/A	~~0~~	004229	0	993	
RW-19	20.90	21.24	N/A	58013	001705	58011	299	
RW-20	18.80	18.90	N/A	565258	013255	586738	3	
RW-22	16.16	16.11	N/A	52428	025437	52430	5742	
T-9003	n/a	n/a	n/a	14144	n/a	1980	n/a	
T-9012	n/a	n/a	n/a	7903	n/a	11226	n/a	
T-9020	n/a	n/a	n/a	46067	n/a	46206	n/a	
T-9021	n/a	n/a	n/a	1553	n/a	9173	n/a	

Weekly Recovery Well Gauging Information

Date: 11-26-14 By:

Well#	Product Level	Water Level	Pump Level	Local Flow Meter (at meter)	Local Pulse Counter (at meter)	PLC Water Meter (phone app)	PLC Pulse Counter (phone app)	Date/Comments
RW-1R	0	9.06	N/A	285749	000210	285748	3	
RW-2R	0	10.35	N/A	411283	050741	176223	11079	
RW-4R	0	12.55	N/A	0	000221	4709	1	
RW-5R	14.25	16.16	N/A	23974	006424	23977	2717	
RW-6R	13.55	13.61	N/A	469985	034530	469967	31	
RW-7	0	9.0	N/A	4	000203	4	1	
RW-8R	9.23	9.75	N/A	99242	124987	99241	31165	
RW-12R	17.85	17.95	N/A	234	023273	233	4746	
RW-13R	0	17.48	N/A	225009	000316	225001	6789	
RW-14R	14.30	15.60	N/A	355380	162162	355318	40322	
RW-15	13.25	13.40	N/A	0	004229	0	993	
RW-19	20.73	21.57	N/A	58013	001705	58011	299	
RW-20	18.85	19.05	N/A	642296	013255	642225	3	
RW-22	16.65	16.66	N/A	52428	025437	52420	5742	
T-9003	n/a	n/a	n/a	15451	n/a	1984	n/a	
T-9012	n/a	n/a	n/a	7903	n/a	11226	n/a	
T-9020	n/a	n/a	n/a	46067	n/a	46206	n/a	
T-9021	n/a	n/a	n/a	1553	n/a	9173	n/a	

Weekly Recovery Well Gauging Information

Date: 12-3-14 By:

Well#	Product Level	Water Level	Pump Level	Local Flow Meter (at meter)	Local Pulse Counter (at meter)	PLC Water Meter (phone app)	PLC Pulse Counter (phone app)	Date/Comments
RW-1R	0	8.98	N/A	285749	000210	285748	3	
RW-2R	0	10.20	N/A	411283	050741	176223	11079	
RW-4R	0	12.46	N/A	0	000221	4709	1	
RW-5R	14.22	18.35	N/A	23974	006424	23977	2317	
RW-6R	13.35	13.44	N/A	469985	034530	469967	31	
RW-7	0	8.88	N/A	4	000203	4	1	
RW-8R	9.05	9.29	N/A	99242	124987	99241	31165	
RW-12R	18.10	18.33	N/A	234	023273	233	4746	
RW-13R	0	15.45	N/A	225009	000716	225001	6799	
RW-14R	14.41	15.43	N/A	355380	162162	355318	40322	
RW-15	13.17	13.30	N/A	0	004229	0	993	
RW-19	20.58	21.32	N/A	58013	001705	58011	299	
RW-20	19.15	19.30	N/A	723077	018255	723718	3	
RW-22	16.87	16.88	N/A	52428	025437	52430	5742	
T-9003	n/a	n/a	n/a	15451	n/a	1984	n/a	
T-9012	n/a	n/a	n/a	7903	n/a	11226	n/a	
T-9020	n/a	n/a	n/a	46068	n/a	46207	n/a	
T-9021	n/a	n/a	n/a	1553	n/a	9173	n/a	

Weekly Recovery Well Gauging Information

Date: 12-11-14 By:

Well#	Product Level	Water Level	Pump Level	Local Flow Meter (at meter)	Local Pulse Counter (at meter)	PLC Water Meter (phone app)	PLC Pulse Counter (phone app)	Date/Comments
RW-1R	0	9.0	N/A	285749	000210	285748	3	
RW-2R	11.23	11.24	N/A	411283	050741	176223	11079	
RW-4R	0	12.50	N/A	0	000221	4709	1	
RW-5R	14.34	16.27	N/A	23974	006424	23977	2317	
RW-6R	13.35	13.45	N/A	469985	034530	469967	31	
RW-7	0	9.05	N/A	4	000203	4	1	
RW-8R	9.15	9.50	N/A	99242	124987	99241	31165	
RW-12R	18.65	18.70	N/A	234	022273	233	4746	
RW-13R	18.20	18.30	N/A	225009	000316	225001	6799	
RW-14R	14.70	15.70	N/A	355380	162162	355318	40322	
RW-15	13.20	13.35	N/A	0	004229	0	993	
RW-19	20.73	21.31	N/A	58013	001705	58011	299	
RW-20	19.59	19.70	N/A	811164	018255	812549	3	
RW-22	17.36	17.39	N/A	52428	025437	52430	5742	
T-9003	n/a	n/a	n/a	15451	n/a	1984	n/a	
T-9012	n/a	n/a	n/a	3903	n/a	11226	n/a	
T-9020	n/a	n/a	n/a	46068	n/a	46207	n/a	
T-9021	n/a	n/a	n/a	1553	n/a	9173	n/a	

Weekly Recovery Well Gauging Information

Date: 12-18-14 By:

Well#	Product Level	Water Level	Pump Level	Local Flow Meter (at meter)	Local Pulse Counter (at meter)	PLC Water Meter (phone app)	PLC Pulse Counter (phone app)	Date/Comments
RW-1R	0	9.04	N/A	285749	000210	285748	3	
RW-2R	0	10.25	N/A	411283	050741	411275	11080	
RW-4R	0	12.50	N/A	0	000221	4709	1	
RW-5R	14.35	16.10	N/A	23994	006424	23977	2317	
RW-6R	13.60	13.85	N/A	469985	035290	469967	31	
RW-7	0	9.14	N/A	4	000203	4	1	
RW-8R	9.20	9.70	N/A	99245	131439	99557	32772	
RW-12R	19.0	19.05	N/A	234	023273	233	4746	
RW-13R	18.52	18.83	N/A	225009	000316	225001	6799	
RW-14R	14.95	16.39	N/A	355380	162162	355318	40322	
RW-15	13.30	13.40	N/A	0	004229	0	993	
RW-19	20.90	21.81	N/A	58013	001705	58011	259	
RW-20	19.71	19.91	N/A	886877	013255	886995	3	
RW-22	17.70	17.71	N/A	52429	025437	52430	5742	
T-9003	n/a	n/a	n/a	15451	n/a	1984	n/a	
T-9012	n/a	n/a	n/a	10596	n/a	13919	n/a	
T-9020	n/a	n/a	n/a	46068	n/a	46207	n/a	
T-9021	n/a	n/a	n/a	1553	n/a	9173	n/a	

Weekly Recovery Well Gauging Information

Date: 12-22-14 By:

Well#	Product Level	Water Level	Pump Level	Local Flow Meter (at meter)	Local Pulse Counter (at meter)	PLC Water Meter (phone app)	PLC Pulse Counter (phone app)	Date/Comments
RW-1R	0	8.90	N/A	285749	000210	285748	3	
RW-2R	0	10.22	N/A	411283	050741	411275	11080	
RW-4R	0	12.45	N/A	0	000221	4709	1	
RW-5R	14.30	16.0	N/A	23974	06424	23977	2317	
RW-6R	0	13.20	N/A	469985	035290	469967	31	
RW-7	0	9.10	N/A	4	00203	4	1	
RW-8R	9.10	9.29	N/A	99243	131439	99557	32772	
RW-12R	19.10	19.17	N/A	234	023273	233	4746	
RW-13R	18.56	19.05	N/A	225009	000316	225001	6799	
RW-14R	14.91	14.91	N/A	355380	162162	355318	40322	
RW-15	13.20	13.25	N/A	0	004229	0	993	
RW-19	20.10	21.28	N/A	58013	001705	58011	299	
RW-20	19.75	19.95	N/A	930895	013255	931199	3	
RW-22	17.70	17.74	N/A	52428	025437	52430	5742	
T-9003	n/a	n/a	n/a	15451	n/a	1984	n/a	
T-9012	n/a	n/a	n/a	10596	n/a	13919	n/a	
T-9020	n/a	n/a	n/a	46068	n/a	46207	n/a	
T-9021	n/a	n/a	n/a	1553	n/a	9173	n/a	

Well	Volume of Water Recovered (gallons)					Volume of PSH Recovered (gallons)				
	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total 2014	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total 2014
RW-1R	14,447	52,294	86,723	130,420	283,884	-	-	-	-	-
RW-2R	-	106,166	70,057	235,052	411,275	-	10,947	132	1	11,080
RW-4R	4,019	22	-	-	4,041	-	-	-	-	-
RW-5R	9,894	4,589	9,490	-	23,973	39	12	2,141	20	2,212
RW-6R	9,502	60,383	157,013	242,723	469,621	-	1	25	4	30
RW-7	-	-	-	-	-	-	-	-	-	-
RW-8R	8,785	24,309	30,530	35,325	98,949	-	7,296	18,343	7,129	32,768
RW-12R	9	224	-	-	233	4	3,638	1,073	30	4,745
RW-13R	34,413	144,959	43,662	-	223,034	5,748	611	7	-	6,366
RW-14R	141,332	62,736	142,863	-	346,931	21,050	8,790	9,965	223	40,028
RW-15	-	-	-	-	-	115	381	313	122	931
RW-19	12,714	33,649	10,818	104	57,285	50	192	10	6	258
RW-20	-	-	-	996,779	996,779	-	-	1	2	3
RW-22	-	24,898	27,479	49.00	52,426	-	2,440	3,299	-	5,739
TOTAL	235,115	514,229	578,635	1,640,452	2,968,431	27,006	34,308	35,309	7,537	104,160

Notes:

1. Volume reported as water is total fluids and may contain unmeasured amount of PSH.

Automated Readings - Skid T-9012

Date	Water/Total Fluids Readings			
	RW-1R	RW-2R	RW-7	RW-8R
1st Quarter				
2/2/2014	1,864	-	4	608
2/9/2014	5,449	-	4	934
2/16/2014	8,503	-	-	-
2/23/2014	11,061	-	4	934
3/6/2014	13,343	-	4	2,732
3/13/2014	14,909	-	4	6,319
3/20/2014	16,311	-	4	9,393
Totals:	**14,447**	**-**	**-**	**8,785**
2nd Quarter				
4/2/2014	24,453	-	4	14,605
4/9/2014	29,305	-	4	17,892
4/16/2014	33,531	-	4	20,466
4/23/2014	37,689	-	4	22,726
4/30/2014	42,519	-	4	25,599
5/7/2014	46,394	-	4	27,781
5/14/2014	49,748	-	4	29,541
5/21/2014	52,392	-	4	30,562
5/28/2014	-	-	-	-
6/4/2014	-	-	-	-
6/11/2014	-	-	-	-
6/18/2014	-	-	-	-
6/29/2014	68,605	106,166	4	33,702
Totals:	**52,294**	**106,166**	**-**	**24,309**
3rd Quarter				
7/2/2014	-	-	-	-
7/7/2014	71,824	110,412	4	33,936
7/14/2014	74,261	113,888	4	33,936
7/21/2014	77,100	117,347	4	34,053
7/28/2014	82,185	122,644	4	36,471
8/4/2014	86,660	127,505	4	38,619
8/11/2014	90,899	132,131	4	40,772
8/18/2014	94,719	136,366	4	42,307
8/25/2014	98,153	140,210	4	44,569
9/1/2014	101,153	143,686	4	47,546
9/8/2014	105,127	147,553	4	50,990
9/15/2014	112,102	154,211	4	58,286
9/22/2014	125,882	165,901	4	64,232
9/29/2014	155,328	176,223	4	64,232
Totals:	**86,723**	**70,057**	**-**	**30,530**
4th Quarter				
9/29/2014	155,328	176,223	4	64,232
10/6/2014	176,646	176,223	4	64,232
10/13/2014	180,247	176,223	4	64,232
10/20/2014	193,703	176,223	4	66,470
10/27/2014	215,725	176,223	4	73,489
11/3/2014	237,363	176,223	4	85,743
11/10/2014	260,491	176,223	4	96,943
11/17/2014	282,039	176,223	4	99,241
11/24/2014	285,748	176,223	4	99,241
12/1/2014	285,748	176,223	4	99,241
12/8/2014	285,748	176,223	4	99,241
12/15/2014	285,748	176,223	4	99,437
12/22/2014	285,748	411,275	4	99,557
12/29/2014	285,748	411,275	4	99,557
Totals:	**130,420**	**235,052**	**-**	**35,325**
Annual Totals:	**283,884**	**411,275**	**-**	**98,949**

Automated Readings - Skid T-9012

Date	PSH Readings				Tank Reading
	RW-1R	RW-2R	RW-7	RW-8R	T-9012
1st Quarter					
2/2/2014	3	-	1	4	na
2/9/2014	3	-	1	4	na
2/16/2014	3	-	-	-	na
2/23/2014	3	-	1	4	na
3/6/2014	3	-	1	4	na
3/13/2014	3	-	1	4	na
3/20/2014	3	-	1	4	na
Totals:	**-**	**-**	**-**	**-**	
2nd Quarter					
4/2/2014	3	-	1	4	na
4/9/2014	3	-	1	4	na
4/16/2014	3	-	1	4	na
4/23/2014	3	-	1	4	na
4/30/2014	3	-	1	4	na
5/7/2014	3	-	1	4	2,889
5/14/2014	3	-	1	4	2,889
5/21/2014	3	-	1	4	2,889
5/28/2014	-	-	-	-	2,889
6/4/2014	-	-	-	-	8,748
6/11/2014	-	-	-	-	8,748
6/18/2014	-	-	-	-	8,822
6/29/2014	3	10,947	1	7,300	8,822
Totals:	**-**	**10,947**	**-**	**7,296**	
3rd Quarter					
7/2/2014	-	-	-	-	8,822
7/7/2014	3	10,956	1	9,117	8,822
7/14/2014	3	10,962	1	11,770	8,822
7/21/2014	3	10,971	1	14,426	8,822
7/28/2014	3	10,983	1	17,137	8,822
8/4/2014	3	10,994	1	19,689	8,822
8/11/2014	3	11,006	1	22,105	8,822
8/18/2014	3	11,016	1	24,542	8,822
8/25/2014	3	11,028	1	25,640	8,822
9/1/2014	3	11,038	1	25,640	8,822
9/8/2014	3	11,054	1	25,641	8,822
9/15/2014	3	11,069	1	25,642	8,822
9/22/2014	3	11,075	1	25,643	8,822
9/29/2014	3	11,079	1	25,643	8,822
Totals:	**-**	**132**	**-**	**18,343**	
4th Quarter					
9/29/2014	3	11,079	1	25,643	8,822
10/6/2014	3	11,079	1	25,643	8,822
10/13/2014	3	11,079	1	27,680	8,822
10/20/2014	3	11,079	1	29,192	8,822
10/27/2014	3	11,079	1	29,192	8,822
11/3/2014	3	11,079	1	29,192	8,822
11/10/2014	3	11,079	1	30,718	10,434
11/17/2014	3	11,079	1	31,165	11,226
11/24/2014	3	11,079	1	31,165	11,226
12/1/2014	3	11,079	1	31,165	11,226
12/8/2014	3	11,079	1	31,165	11,226
12/15/2014	3	11,079	1	32,657	13,645
12/22/2014	3	11,080	1	32,772	13,919
12/29/2014	3	11,080	1	32,772	13,919
Totals:	**-**	**1**	**-**	**7,129**	
Annual Totals:	**-**	**11,080**	**-**	**32,768**	

Local Readings - Skid T-9012

Date	Water/Total Fluids Readings			
	RW-1R	RW-2R	RW-7	RW-8R
5/13/2014	50,545	91,368	-	29,897
5/15/2014	51,158	92,166	-	30,011
5/16/2014	51,530	92,516	-	30,175
5/19/2014	52,754	93,394	-	30,746
5/20/2014	53,131	93,633	-	30,895
5/22/2014	53,784	94,035	-	31,113
5/28/2014	55,833	95,227	-	31,172
6/5/2014	58,314	96,609	-	31,172
6/10/2014	60,154	97,616	-	31,214
6/19/2014	63,907	101,847	-	31,511
6/26/2014	66,944	102,876	-	33,279
7/2/2014	4,519	107,863	-	33,937
8/1/2014	84,900	125,585	-	37,760
8/7/2014	88,705	129,762	-	39,620
8/14/2014	92,635	134,070	-	41,527
8/22/2014	96,782	138,182	-	42,851
8/28/2014	99,069	141,271	-	45,486
9/11/2014	107,970	150,149	-	53,898
9/17/2014	114,954	157,182	-	61,493
9/25/2014	143,093	High H2S	-	No Access
9/29/2014	155,973	191,784	4	64,233
10/7/2014	180,246	224,467	4	64,233
10/15/2014	180,246	257,964	4	64,233
10/24/2014	203,318	292,188	4	66,470
10/30/2014	228,360	292,188	4	80,736
11/7/2014	245,263	352,031	4	85,146
11/12/2014	270,316	388,332	4	99,242
11/21/2014	285,749	411,283	4	99,242
11/26/2014	285,749	411,283	4	99,242
12/3/2014	285,749	411,283	4	99,242
12/11/2014	285,749	411,283	4	99,242
12/18/2014	285,749	411,283	4	99,243
12/22/2014	285,749	411,283	4	99,243

Local Readings - Skid T-9012

Date	PSH Readings				Tank Reading	
	RW-1R	RW-2R	RW-7	RW-8R	T-9012	
5/13/2014	3	4	-	4	na	
5/15/2014	3	4	-	4	na	
5/16/2014	3	197	-	4	na	
5/19/2014	53	1,369	-	67	888888888	
5/20/2014	53	1,886	-	67	888888888	
5/22/2014	53	2,753	-	95	888888888	
5/28/2014	53	5,130	51	2,114	888888888	
6/5/2014	53	8,354	51	5,633	888888888	
6/10/2014	53	10,178	51	7,354	888888888	
6/19/2014	53	10,608	51	7,364	888888888	
6/26/2014	53	12,530	51	7,364	888888888	
7/2/2014	53	12,552	51	7,364	888888888	
8/1/2014	53	12,593	51	18,764	888888888	
8/7/2014	53	12,604	51	20,905	888888888	
8/14/2014	53	12,614	51	23,272	888888888	
8/22/2014	53	12,625	51	25,703	888888888	*
8/28/2014	53	12,634	51	25,705	5,499	
9/11/2014	53	12,665	51	25,706	5,499	
9/17/2014	53	12,675	51	25,707	5,499	
9/25/2014	53	High H2S	51	No Access	5,499	
9/29/2014	53	12,685	51	25,708	5,499	
10/7/2014	53	12,685	51	25,708	5,499	
10/15/2014	53	12,685	51	28,568	5,499	
10/24/2014	53	12,685	51	29,266	5,499	
10/30/2014	53	12,685	51	29,266	5,499	
11/7/2014	53	12,685	51	29,267	5,499	
11/12/2014	53	12,685	51	31,247	7,901	
11/21/2014	53	12,685	51	31,247	7,903	
11/26/2014	53	12,685	51	31,247	7,903	
12/3/2014	53	12,685	51	31,247	7,903	
12/11/2014	53	12,685	51	31,247	7,903	
12/18/2014	53	12,685	51	32,860	10,596	
12/22/2014	53	12,685	51	32,860	10,596	

Note:

* = Flowmeter or totalizer was reset

Automated Readings - Skid T-9003

Date	Water/Total Fluids Readings	
	RW-4R	RW-6R
1st Quarter		
2/2/2014	668	346
2/9/2014	1,716	2,327
2/16/2014	-	-
2/23/2014	3,437	6,007
3/6/2014	4,231	7,631
3/13/2014	4,677	8,858
3/20/2014	4,687	9,848
Totals:	**4,019**	**9,502**
2nd Quarter		
4/2/2014	4,688	11,133
4/9/2014	4,688	11,689
4/16/2014	4,689	12,083
4/23/2014	4,692	12,283
4/30/2014	4,697	12,386
5/7/2014	4,700	12,408
5/14/2014	4,704	12,411
5/21/2014	4,708	12,411
5/28/2014	-	-
6/4/2014	-	-
6/11/2014	-	-
6/18/2014	-	-
6/29/2014	4,709	70,231
Totals:	**22**	**60,383**
3rd Quarter		
7/2/2014	-	-
7/7/2014	4,709	85,546
7/14/2014	4,709	100,138
7/21/2014	4,709	115,122
7/28/2014	4,709	130,714
8/4/2014	4,709	146,247
8/11/2014	4,709	158,929
8/18/2014	4,709	172,732
8/25/2014	4,709	173,427
9/1/2014	4,709	173,427
9/8/2014	4,709	180,218
9/15/2014	4,709	198,527
9/22/2014	4,709	210,037
9/29/2014	4,709	227,244
Totals:	**-**	**157,013**
4th Quarter		
9/29/2014	4,709	227,244
10/6/2014	4,709	255,978
10/13/2014	4,709	293,466
10/20/2014	4,709	343,031
10/27/2014	4,709	395,783
11/3/2014	4,709	446,409
11/10/2014	4,709	469,967
11/17/2014	4,709	469,967
11/24/2014	4,709	469,967
12/1/2014	4,709	469,967
12/8/2014	4,709	469,967
12/15/2014	4,709	469,967
12/22/2014	4,709	469,967
12/29/2014	4,709	469,967
Totals:	**-**	**242,723**
Annual Totals:	**4,041**	**469,621**

Automated Readings - Skid T-9003

Date	PSH Readings		Tank Reading
	RW-4R	RW-6R	T-9003
1st Quarter			
2/2/2014	1	1	na
2/9/2014	1	1	na
2/16/2014	-	-	na
2/23/2014	1	1	na
3/6/2014	1	1	na
3/13/2014	1	1	na
3/20/2014	1	1	na
Totals:	**-**	**-**	**na**
2nd Quarter			
4/2/2014	1	1	na
4/9/2014	1	1	na
4/16/2014	1	1	na
4/23/2014	1	1	na
4/30/2014	1	1	na
5/7/2014	1	1	1,308
5/14/2014	1	1	1,308
5/21/2014	1	1	1,308
5/28/2014	-	-	1,493
6/4/2014	-	-	1,782
6/11/2014	-	-	1,967
6/18/2014	-	-	1,972
6/29/2014	1	2	1,972
Totals:	**-**	**1**	
3rd Quarter			
7/2/2014	-	-	1,972
7/7/2014	1	2	1,972
7/14/2014	1	2	1,972
7/21/2014	1	2	1,972
7/28/2014	1	2	1,972
8/4/2014	1	2	1,972
8/11/2014	1	2	1,974
8/18/2014	1	2	1,974
8/25/2014	1	2	1,976
9/1/2014	1	2	1,976
9/8/2014	1	27	1,976
9/15/2014	1	27	1,976
9/22/2014	1	27	1,976
9/29/2014	1	27	1,976
Totals:	**-**	**25**	
4th Quarter			
9/29/2014	1	27	1,976
10/6/2014	1	27	1,976
10/13/2014	1	27	1,976
10/20/2014	1	27	1,976
10/27/2014	1	27	1,976
11/3/2014	1	27	1,976
11/10/2014	1	31	1,976
11/17/2014	1	31	1,977
11/24/2014	1	31	1,980
12/1/2014	1	31	1,984
12/8/2014	1	31	1,984
12/15/2014	1	31	1,984
12/22/2014	1	31	1,984
12/29/2014	1	31	1,984
Totals:	**-**	**4**	
Annual Totals:	**-**	**30**	

Table 1a: Local Readings - Skid T-9003

Date	Water/Total Fluids Readings	
	RW-4R	RW-6R
5/13/2014	4,705	12,411
5/15/2014	4,705	12,411
5/16/2014	4,708	12,411
5/19/2014	4,710	12,412
5/20/2014	4,710	12,412
5/22/2014	4,710	13,823
5/28/2014	4,710	22,111
6/5/2014	4,710	35,992
6/10/2014	4,710	44,854
6/19/2014	4,710	50,584
6/26/2014	4,710	60,184
7/2/2014	4,710	76,039
8/1/2014	4,710	140,163
8/7/2014	4,710	150,610
8/14/2014	4,710	164,992
8/22/2014	4,710	173,430
8/28/2014	4,710	173,430
9/11/2014	4,710	188,258
9/17/2014	4,710	204,827
9/25/2014	4,710	214,124
9/29/2014	4,710	228,419
10/7/2014	4,710	261,367
10/15/2014	4,710	309,720
10/24/2014	4,710	365,560
10/30/2014	4,710	425,334
11/7/2014	4,710	463,157
11/12/2014	-	469,985
11/21/2014	-	469,985
11/26/2014	-	469,985
12/3/2014	-	469,985
12/11/2014	-	469,985
12/18/2014	-	469,985
12/22/2014	-	469,985

Table 1a: Local Readings - Skid T-9003

Date	PSH Readings		Tank Reading	
	RW-4R	RW-6R	T-9003	
5/13/2014	1	1	na	
5/15/2014	1	1	na	
5/16/2014	1	1	na	
5/19/2014	55	52	205	
5/20/2014	55	52	205	
5/22/2014	55	52	205	
5/28/2014	55	261	391	
6/5/2014	55	562	679	
6/10/2014	55	742	864	
6/19/2014	55	836	866	
6/26/2014	55	1,012	1,232	
7/2/2014	55	1,238	1,416	
8/1/2014	55	1,714	1,960	
8/7/2014	55	1,714	1,978	
8/14/2014	55	1,714	1,979	
8/22/2014	55	4,735	2,304	
8/28/2014	55	6,019	3,555	
9/11/2014	55	6,078	3,728	
9/17/2014	55	6,078	3,844	
9/25/2014	55	6,078	4,420	
9/29/2014	55	6,078	4,423	
10/7/2014	55	6,078	4,423	
10/15/2014	55	6,078	4,424	
10/24/2014	55	6,078	4,435	
10/30/2014	55	6,078	4,435	
11/7/2014	55	6,078	4,511	
11/12/2014	55	8,633	8,374	
11/21/2014	55	8,633	14,144	**
11/26/2014	55	8,633	15,451	
12/3/2014	55	8,633	15,451	
12/11/2014	55	8,633	15,451	
12/18/2014	55	8,823	15,451	
12/22/2014	55	8,823	15,451	

Note:

** = Volume changed as a result of maintenance activities.

Automated Readings - Skid T-9021

Date	Water/Total Fluids Readings		
	RW-5R	RW-15	RW-19
1st Quarter			
2/2/2014	4	-	726
2/9/2014	4	-	2,777
2/16/2014	-	-	4,913
2/23/2014	3,421	-	7,013
3/6/2014	6,420	-	9,325
3/13/2014	8,302	-	11,433
3/20/2014	9,898	-	13,440
Totals:	**9,894**	**-**	**12,714**
2nd Quarter			
4/2/2014	11,441	-	17,128
4/9/2014	11,853	-	19,168
4/16/2014	12,262	-	21,205
4/23/2014	12,690	-	-
4/30/2014	13,160	-	-
5/7/2014	13,658	-	-
5/14/2014	14,200	-	-
5/21/2014	14,487	-	31,442
5/28/2014	-	-	-
6/4/2014	-	-	36,638
6/11/2014	-	-	-
6/18/2014	-	-	-
6/29/2014	14,487	-	47,089
Totals:	**4,589**	**-**	**33,649**
3rd Quarter			
7/2/2014	-	-	-
7/7/2014	14,487	-	49,498
7/14/2014	14,487	-	51,096
7/21/2014	14,487	-	52,381
7/28/2014	16,430	-	55,697
8/4/2014	21,672	-	57,907
8/11/2014	23,977	-	57,907
8/18/2014	23,977	-	57,907
8/25/2014	23,977	-	57,907
9/1/2014	23,977	-	57,907
9/8/2014	23,977	-	57,907
9/15/2014	23,977	-	57,907
9/22/2014	23,977	-	57,907
9/29/2014	23,977	-	57,907
Totals:	**9,490**	**-**	**10,818**
4th Quarter			
9/29/2014	23,977	-	57,907
10/6/2014	23,977	-	57,907
10/13/2014	23,977	-	57,907
10/20/2014	23,977	-	57,907
10/27/2014	23,977	-	57,907
11/3/2014	23,977	-	57,907
11/10/2014	23,977	-	57,907
11/17/2014	23,977	-	57,907
11/24/2014	23,977	-	58,011
12/1/2014	23,977	-	58,011
12/8/2014	23,977	-	58,011
12/15/2014	23,977	-	58,011
12/22/2014	23,977	-	58,011
12/29/2014	23,977	-	58,011
Totals:	**-**	**-**	**104**
Annual Totals:	**23,973**	**-**	**57,285**

Automated Readings - Skid T-9021

Date	PSH Readings			Tank Reading
	RW-5R	RW-15	RW-19	T-9021
1st Quarter				
2/2/2014	105	62	41	na
2/9/2014	143	86	48	na
2/16/2014	-	107	61	na
2/23/2014	143	118	62	na
3/6/2014	143	143	63	na
3/13/2014	144	157	67	na
3/20/2014	144	177	91	na
Totals:	**39**	**115**	**50**	**na**
2nd Quarter				
4/2/2014	147	222	100	na
4/9/2014	149	237	103	na
4/16/2014	150	251	107	na
4/23/2014	150	-	-	na
4/30/2014	150	-	-	na
5/7/2014	152	-	-	7,564
5/14/2014	153	-	-	7,623
5/21/2014	154	338	162	7,623
5/28/2014	-	-	-	7,633
6/4/2014	-	387	217	7,633
6/11/2014	-	-	-	7,633
6/18/2014	-	-	-	7,633
6/29/2014	156	558	283	7,745
Totals:	**12**	**381**	**192**	
3rd Quarter				
7/2/2014	-	-	-	8,248
7/7/2014	156	593	283	8,248
7/14/2014	156	621	285	8,248
7/21/2014	156	659	287	8,248
7/28/2014	160	699	288	9,173
8/4/2014	168	741	288	9,173
8/11/2014	232	756	289	9,173
8/18/2014	1,945	769	290	9,173
8/25/2014	2,284	784	292	9,173
9/1/2014	2,287	815	293	9,173
9/8/2014	2,291	842	293	9,173
9/15/2014	2,291	853	293	9,173
9/22/2014	2,297	860	293	9,173
9/29/2014	2,297	871	293	9,173
Totals:	**2,141**	**313**	**10**	
4th Quarter				
9/29/2014	2,297	871	293	9,173
10/6/2014	2,306	905	293	9,173
10/13/2014	2,308	920	293	9,173
10/20/2014	2,316	933	293	9,173
10/27/2014	2,317	953	293	9,173
11/3/2014	2,317	975	293	9,173
11/10/2014	2,317	988	299	9,173
11/17/2014	2,317	993	299	9,173
11/24/2014	2,317	993	299	9,173
12/1/2014	2,317	993	299	9,173
12/8/2014	2,317	993	299	9,173
12/15/2014	2,317	993	299	9,173
12/22/2014	2,317	993	299	9,173
12/29/2014	2,317	993	299	9,173
Totals:	**20**	**122**	**6**	
Annual Totals:	**2,212**	**931**	**258**	

Local Readings - Skid T-9021

Date	Water/Total Fluids Readings		
	RW-5R	RW-15	RW-19
5/13/2014	14,339	-	30,050
5/15/2014	14,476	-	30,944
5/16/2014	14,487	-	31,443
5/19/2014	14,487	-	31,503
5/20/2014	14,484	-	31,503
5/22/2014	14,484	-	39,167
5/28/2014	14,484	-	34,696
6/5/2014	14,484	-	38,442
6/10/2014	14,484	-	40,741
6/19/2014	14,484	-	43,459
6/26/2014	14,484	-	45,526
7/2/2014	14,484	-	48,559
8/1/2014	5,320	-	57,744
8/7/2014	23,972	-	57,909
8/14/2014	23,974	-	57,909
8/22/2014	23,974	-	57,909
8/28/2014	23,974	-	57,909
9/11/2014	23,974	-	57,909
9/17/2014	23,974	-	57,909
9/25/2014	23,974	-	57,909
9/29/2014	23,974	-	57,909
10/7/2014	23,974	-	57,909
10/15/2014	23,974	-	57,909
10/24/2014	23,974	-	57,909
10/30/2014	23,974	-	57,909
11/7/2014	23,974	-	57,909
11/12/2014	23,974	-	57,909
11/21/2014	23,974	-	58,013
11/26/2014	23,974	-	58,013
12/3/2014	23,974	-	58,013
12/11/2014	23,974	-	58,013
12/18/2014	23,974	-	58,013
12/22/2014	23,974	-	58,013

Local Readings - Skid T-9021

Date	PSH Readings			Tank Reading	
	RW-5R	RW-15	RW-19	T-9021	
5/13/2014	153	328	134	na	
5/15/2014	153	328	151	na	
5/16/2014	154	330	151	na	
5/19/2014	222	405	228	7,623	
5/20/2014	222	407	235	7,623	
5/22/2014	223	413	241	7,623	
5/28/2014	223	432	292	7,633	
6/5/2014	224	471	341	7,633	
6/10/2014	224	491	379	7,633	
6/19/2014	63	566	404	81	*
6/26/2014	63	606	408	124	
7/2/2014	63	634	409	627	
8/1/2014	68	788	414	1,552	
8/7/2014	78	811	414	1,552	
8/14/2014	728	825	415	1,552	
8/22/2014	1,506	840	418	1,552	
8/28/2014	1,576	852	419	1,552	
9/11/2014	1,581	908	420	1,552	
9/17/2014	1,586	917	420	1,552	
9/25/2014	1,586	928	421	1,552	
9/29/2014	1,586	936	421	1,552	
10/7/2014	1,595	975	421	1,552	
10/15/2014	1,598	989	421	1,552	
10/24/2014	1,606	1,005	421	1,552	
10/30/2014	1,606	1,028	421	1,552	
11/7/2014	1,606	not recorded	421	1,553	
11/12/2014	1,606	1,056	426	1,553	
11/21/2014	1,606	1,057	426	1,553	
11/26/2014	1,606	1,057	426	1,553	
12/3/2014	1,606	1,057	426	1,553	
12/11/2014	1,606	1,057	426	1,553	
12/18/2014	1,606	1,057	426	1,553	
12/22/2014	1,606	1,057	426	1,553	

Notes:

1. T-9021 skid recovered volume includes volume recovered from T-9020 skid.
2. * = Flowmeter or totalizer was reset

Automated Readings - Skid T-9020

Date	Water/Total Fluids Readings				
	RW-12R	RW-13R	RW-14R	RW-20	RW-22
1st Quarter					
2/2/2014	-	1,967	8,387	-	4
2/9/2014	-	5,410	19,704	-	4
2/16/2014	-	13,113	47,970	-	4
2/23/2014	-	20,931	76,095	-	4
3/6/2014	1	27,220	103,174	-	4
3/13/2014	1	32,173	127,310	-	4
3/20/2014	9	36,380	149,719	-	4
Totals:	**9**	**34,413**	**141,332**	**-**	**-**
2nd Quarter					
4/2/2014	23	38,961	164,520	-	4
4/9/2014	23	44,610	184,684	-	4
4/16/2014	23	46,867	191,501	-	4
4/23/2014	152	-	-	-	-
4/30/2014	233	-	-	-	-
5/7/2014	233	-	-	-	-
5/14/2014	233	-	-	-	-
5/21/2014	233	66,403	191,501	-	1,513
5/28/2014	-	-	-	-	-
6/4/2014	-	111,058	191,502	-	10,292
6/11/2014	-	-	-	-	-
6/18/2014	-	-	-	-	-
6/29/2014	233	181,339	212,455	-	24,902
Totals:	**224**	**144,959**	**62,736**	**-**	**24,898**
3rd Quarter					
7/2/2014	-	-	-	-	-
7/7/2014	233	189,534	276,208	-	24,902
7/14/2014	233	189,534	323,555	-	37,554
7/21/2014	233	189,534	355,318	-	52,353
7/28/2014	233	189,534	355,318	-	52,353
8/4/2014	233	209,762	355,318	-	52,353
8/11/2014	233	225,001	355,318	-	52,381
8/18/2014	233	225,001	355,318	-	52,381
8/25/2014	233	225,001	355,318	-	52,381
9/1/2014	233	225,001	355,318	-	52,381
9/8/2014	233	225,001	355,318	-	52,381
9/15/2014	233	225,001	355,318	-	52,381
9/22/2014	233	225,001	355,318	-	52,381
9/29/2014	233	-	-	-	52,381
Totals:	**-**	**43,662**	**142,863**	**-**	**27,479**
4th Quarter					
9/29/2014	233	225,001	355,318	-	52,381
10/6/2014	233	225,001	355,318	37,505	52,381
10/13/2014	233	225,001	355,318	110,411	52,381
10/20/2014	233	225,001	355,318	192,030	52,401
10/27/2014	233	225,001	355,318	276,441	52,401
11/3/2014	233	225,001	355,318	351,274	52,430
11/10/2014	233	225,001	355,318	444,929	52,430
11/17/2014	233	225,001	355,318	536,791	52,430
11/24/2014	233	225,001	355,318	618,034	52,430
12/1/2014	233	225,001	355,318	696,685	52,430
12/8/2014	233	225,001	355,318	775,076	52,430
12/15/2014	233	225,001	355,318	853,151	52,430
12/22/2014	233	225,001	355,318	927,274	52,430
12/29/2014	233	225,001	355,318	996,779	52,430
Totals:	**-**	**-**	**-**	**996,779**	**49**
Annual Totals:	**233**	**223,034**	**346,931**	**996,779**	**52,426**

Automated Readings - Skid T-9020

Date	PSH Readings					Tank Reading
	RW-12R	RW-13R	RW-14R	RW-20	RW-22	T-9020
1st Quarter						
2/2/2014	-	433	294	-	3	na
2/9/2014	-	880	958	-	3	na
2/16/2014	-	1,952	4,942	-	3	na
2/23/2014	1	3,055	9,278	-	3	na
3/6/2014	4	4,129	13,526	-	3	na
3/13/2014	5	5,151	17,504	-	3	na
3/20/2014	5	6,181	21,344	-	3	na
Totals:	**4**	**5,748**	**21,050**	**-**	**-**	**na**
2nd Quarter						
4/2/2014	5	6,554	23,547	-	3	na
4/9/2014	5	6,555	27,683	-	3	na
4/16/2014	5	6,560	29,250	-	3	na
4/23/2014	5	-	-	-	-	na
4/30/2014	5	-	-	-	-	na
5/7/2014	5	-	-	-	-	26,512
5/14/2014	5	-	-	-	-	27,057
5/21/2014	15	6,561	29,250	-	564	27,057
5/28/2014	-	-	-	-	-	30,231
6/4/2014	-	6,561	29,250	-	1,924	30,916
6/11/2014	-	-	-	-	-	31,166
6/18/2014	-	-	-	-	-	31,353
6/29/2014	3,643	6,792	30,134	-	2,443	31,490
Totals:	**3,638**	**611**	**8,790**	**-**	**2,440**	
3rd Quarter						
7/2/2014	-	-	-	-	-	32,395
7/7/2014	3,648	6,792	32,659	-	2,443	32,395
7/14/2014	3,650	6,792	34,736	-	2,446	32,395
7/21/2014	3,663	6,792	36,482	-	2,450	32,395
7/28/2014	4,710	6,792	38,675	-	4,460	39,804
8/4/2014	4,710	6,799	40,098	1	5,738	41,870
8/11/2014	4,710	6,799	40,098	1	5,738	41,870
8/18/2014	4,710	6,799	40,098	1	5,738	41,870
8/25/2014	4,710	6,799	40,098	1	5,738	41,870
9/1/2014	4,710	6,799	40,098	1	5,738	41,870
9/8/2014	4,711	6,799	40,098	1	5,738	41,870
9/15/2014	4,711	6,799	40,098	1	5,738	41,870
9/22/2014	4,711	6,799	40,098	1	5,738	41,870
9/29/2014	4,716	6,799	40,099	1	5,742	42,912
Totals:	**1,073**	**7**	**9,965**	**1**	**3,299**	
4th Quarter						
9/29/2014	4,716	6,799	40,099	1	5,742	42,912
10/6/2014	4,724	6,799	40,099	1	5,742	45,871
10/13/2014	4,740	6,799	40,099	1	5,742	45,871
10/20/2014	4,745	6,799	40,099	1	5,742	46,026
10/27/2014	4,745	6,799	40,099	1	5,742	46,026
11/3/2014	4,745	6,799	40,099	1	5,742	46,026
11/10/2014	4,746	6,799	40,173	3	5,742	46,202
11/17/2014	4,746	6,799	40,322	3	5,742	46,206
11/24/2014	4,746	6,799	40,322	3	5,742	46,206
12/1/2014	4,746	6,799	40,322	3	5,742	46,207
12/8/2014	4,746	6,799	40,322	3	5,742	46,207
12/15/2014	4,746	6,799	40,322	3	5,742	46,207
12/22/2014	4,746	6,799	40,322	3	5,742	46,207
12/29/2014	4,746	6,799	40,322	3	5,742	46,208
Totals:	**30**	**-**	**223**	**2**	**-**	
Annual Totals:	**4,745**	**6,366**	**40,028**	**3**	**5,739**	

Local Readings - Skid T-9020

Date	Water/Total Fluids Readings				
	RW-12R	RW-13R	RW-14R	RW-20	RW-22
5/13/2014	233	53,969	191,501	-	2,484
5/15/2014	233	58,571	191,501	dry	-
5/16/2014	233	60,969	191,501	-	983
5/19/2014	233	68,544	191,556	-	-
5/20/2014	233	70,975	191,556	-	-
5/22/2014	234	76,580	191,556	-	2,886
5/28/2014	234	96,127	191,594	-	6,990
6/5/2014	234	125,144	191,594	-	13,481
6/10/2014	234	140,298	191,594	-	17,180
6/19/2014	234	156,132	191,594	-	24,109
6/26/2014	234	168,356	191,594	-	24,899
7/2/2014	234	189,540	231,529	-	24,899
8/1/2014	234	189,540	355,379	-	52,351
8/7/2014	234	223,888	355,379	-	52,351
8/14/2014	234	225,009	355,380	-	52,379
8/22/2014	234	225,009	355,380	-	too wet to gauge
8/28/2014	234	225,009	355,380	-	52,379
9/11/2014	234	225,009	355,380	-	52,379
9/17/2014	233	225,009	355,380	-	52,381
9/25/2014	234	225,009	355,380	-	too wet to gauge
9/29/2014	234	225,009	355,380	-	52,379
10/7/2014	234	225,009	355,380	49,114	52,379
10/15/2014	234	225,009	355,380	134,009	52,379
10/24/2014	234	225,009	355,380	241,843	too wet to gauge
10/30/2014	234	225,009	355,380	303,788	52,428
11/7/2014	234	225,009	355,380	379,383	52,428
11/12/2014	234	225,009	355,380	478,489	52,428
11/21/2014	234	225,009	355,380	565,258	52,428
11/26/2014	234	225,009	355,380	642,296	52,428
12/3/2014	234	225,009	355,380	723,077	52,428
12/11/2014	234	225,009	355,380	811,164	52,428
12/18/2014	234	225,009	355,380	886,877	52,429
12/22/2014					

Local Readings - Skid T-9020

Date	PSH Readings					Tank Reading
	RW-12R	RW-13R	RW-14R	RW-20	RW-22	T-9020
5/13/2014	5	6,561	29,250	-	3	na
5/15/2014	6	6,581	29,250	dry	439	na
5/16/2014	6	6,561	29,250	-	583	na
5/19/2014	63	6,653	29,465	-	-	26,916
5/20/2014	63	6,653	29,465	-	-	26,916
5/22/2014	653	6,653	29,465	-	1,379	27,492
5/28/2014	3,047	6,653	29,465	55	2,204	30,091
6/5/2014	4,032	6,653	29,465	55	2,804	30,776
6/10/2014	4,039	6,654	29,465	55	3,047	31,026
6/19/2014	4,039	59	29,465	55	3,053	31,350
6/26/2014	4,040	64	29,465	55	3,059	31,350
7/2/2014	4,046	65	31,124	55	3,059	32,119
8/1/2014	5,765	69	40,313	55	6,354	41,423
8/7/2014	5,766	79	40,315	55	6,354	41,730
8/14/2014	5,766	79	40,315	55	6,355	41,730
8/22/2014	5,766	79	40,315	55	too wet to gauge	41,730
8/28/2014	5,766	79	40,315	55	6,355	41,730
9/11/2014	5,766	79	40,315	55	6,355	41,730
9/17/2014	5,767	79	40,315	55	6,355	41,730
9/25/2014	5,770	79	40,316	540	too wet to gauge	42,354
9/29/2014	5,773	79	40,316	1,089	6,359	43,072
10/7/2014	5,781	79	40,316	3,270	6,359	45,731
10/15/2014	5,816	79	40,316	3,285	6,359	45,744
10/24/2014	5,816	79	40,317	3,287	too wet to gauge	45,887
10/30/2014	5,817	79	40,317	3,301	6,359	45,887
11/7/2014	5,817	79	40,318	3,312	6,359	45,897
11/12/2014	5,818	79	40,392	3,314	6,359	46,067
11/21/2014	5,818	79	40,541	3,314	6,359	46,067
11/26/2014	5,818	79	40,541	3,314	6,359	46,067
12/3/2014	5,818	79	40,541	3,314	6,359	46,068
12/11/2014	5,818	79	40,541	3,314	6,359	46,068
12/18/2014	5,818	79	40,541	3,314	6,359	46,068
12/22/2014	5,818	79	40,541	3,314	6,359	46,068

Gauging Data

Well	Date:	1/31/14	2/6/14	2/14/14	2/28/14	3/7/14	3/14/14	3/21/14	3/26/14	4/3/14	4/9/14	5/15/14	5/19/14	5/20/14	6/19/14	6/26/14	7/2/14
RW-1R	Depth to PSH																
	Depth to Water	12.00	12.45	12.47	12.51	12.45	12.47	13.10	13.15	13.10	13.25	13.13	13.15	13.25	13.20	13.35	13.30
	Product Pump																
	PSH Thickness	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	TOC Elev	**3367.03**	**3367.03**	**3367.03**	**3367.03**	**3367.03**	**3367.03**	**3367.03**	**3367.03**	**3367.03**	**3367.03**	**3367.03**	**3367.03**	**3368.03**	**3367.03**	**3367.03**	**3367.03**
	PSH Elev																
	Water Elev	**3355.03**	**3354.58**	**3354.56**	**3354.52**	**3354.58**	**3354.56**	**3353.93**	**3353.88**	**3353.93**	**3353.78**	**3353.90**	**3353.88**	**3354.78**	**3353.83**	**3353.68**	**3353.73**
RW-2R	Depth to PSH				14.05	14.01	14.09	14.05	14.00	14.00	14.14	14.37	14.60	14.60	14.65	14.60	14.60
	Depth to Water	13.00	14.45	14.36	16.90	16.91	16.98	17.00	17.10	17.19	17.10	15.48	15.10	15.20	15.08	15.20	15.15
	Product Pump																
	PSH Thickness	**0.00**	**0.00**	**0.00**	**2.85**	**2.90**	**2.89**	**2.95**	**3.10**	**3.19**	**2.96**	**1.11**	**0.50**	**0.60**	**0.43**	**0.60**	**0.55**
	TOC Elev	**3368.17**	**3368.17**	**3368.17**	**3368.17**	**3368.17**	**3368.17**	**3368.17**	**3368.17**	**3368.17**	**3368.17**	**3368.17**	**3368.17**	**3369.17**	**3368.17**	**3368.17**	**3368.17**
	PSH Elev				**3354.12**	**3354.16**	**3354.08**	**3354.12**	**3354.17**	**3354.17**	**3354.03**	**3353.80**	**3353.57**	**3354.57**	**3353.52**	**3353.57**	**3353.57**
	Water Elev	**3355.17**	**3353.72**	**3353.81**	**3351.27**	**3351.26**	**3351.19**	**3351.17**	**3351.07**	**3350.98**	**3351.07**	**3352.69**	**3353.07**	**3353.97**	**3353.09**	**3352.97**	**3353.02**
RW-4R	Depth to PSH																
	Depth to Water	16.10	16.85	14.90	16.96	16.87	15.50	16.75	16.75	16.60	12.24	17.09	17.00	17.00	17.09	17.10	17.10
	Product Pump																
	PSH Thickness	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	TOC Elev	**3364.86**	**3364.86**	**3364.86**	**3364.86**	**3364.86**	**3364.86**	**3364.86**	**3364.86**	**3364.86**	**3364.86**	**3364.86**	**3364.86**	**3365.86**	**3364.86**	**3364.86**	**3364.86**
	PSH Elev																
	Water Elev	**3348.76**	**3348.01**	**3349.96**	**3347.90**	**3347.99**	**3349.36**	**3348.11**	**3348.11**	**3348.26**	**3352.62**	**3347.77**	**3347.86**	**3348.86**	**3347.77**	**3347.76**	**3347.76**
RW-5R	Depth to PSH	17.43	19.37	18.45	18.80	18.65	18.45	18.75	18.77	18.55	18.67	18.70	18.49	18.75	19.55	19.30	19.10
	Depth to Water	18.90	21.95	21.38	26.17	27.35	27.36	26.91	26.95	28.14	28.10	27.97	23.30	22.44	20.22	22.90	21.50
	Product Pump																
	PSH Thickness	**1.47**	**2.58**	**2.93**	**7.37**	**8.70**	**8.91**	**8.16**	**8.18**	**9.59**	**9.43**	**9.27**	**4.81**	**3.69**	**0.67**	**3.60**	**2.40**
	TOC Elev	**3368.56**	**3368.56**	**3368.56**	**3368.56**	**3368.56**	**3368.56**	**3368.56**	**3368.56**	**3368.56**	**3368.56**	**3368.56**	**3368.56**	**3369.56**	**3368.56**	**3368.56**	**3368.56**
	PSH Elev	**3351.13**	**3349.19**	**3350.11**	**3349.76**	**3349.91**	**3350.11**	**3349.81**	**3349.79**	**3350.01**	**3349.89**	**3349.86**	**3350.07**	**3350.81**	**3349.01**	**3349.26**	**3349.46**
	Water Elev	**3349.66**	**3346.61**	**3347.18**	**3342.39**	**3341.21**	**3341.20**	**3341.65**	**3341.61**	**3340.42**	**3340.46**	**3340.59**	**3345.26**	**3347.12**	**3348.34**	**3345.66**	**3347.06**
RW-6R	Depth to PSH											18.09	18.05	18.00	21.20	21.10	21.45
	Depth to Water	17.09	17.85	17.88	17.89	17.85	17.87	18.82	18.85	17.90	17.90	18.10	18.15	18.18	22.10	22.70	21.95
	Product Pump																
	PSH Thickness	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.10**	**0.18**	**0.90**	**1.60**	**0.50**
	TOC Elev	**3368.36**	**3368.36**	**3368.36**	**3368.36**	**3368.36**	**3368.36**	**3368.36**	**3368.36**	**3368.36**	**3368.36**	**3368.36**	**3368.36**	**3369.36**	**3368.36**	**3368.36**	**3368.36**
	PSH Elev											**3350.27**	**3350.31**	**3351.36**	**3347.16**	**3347.26**	**3346.91**
	Water Elev	**3351.27**	**3350.51**	**3350.48**	**3350.47**	**3350.51**	**3350.49**	**3349.54**	**3349.51**	**3350.46**	**3350.46**	**3350.26**	**3350.21**	**3351.18**	**3346.26**	**3345.66**	**3346.41**
RW-7R	Depth to PSH	12.67	13.07	12.70		12.75	12.53	13.00	13.10	12.70	12.95	13.31	13.25	13.30	12.95	12.60	12.40
	Depth to Water	12.76	13.41	12.85	12.65	12.89	12.76	13.65	13.70	12.79	13.20	13.80	13.85	14.10	13.27	12.65	12.45
	Product Pump																
	PSH Thickness	**0.09**	**0.34**	**0.15**	**0.00**	**0.14**	**0.23**	**0.65**	**0.60**	**0.09**	**0.25**	**0.49**	**0.60**	**0.80**	**0.32**	**0.05**	**0.05**
	TOC Elev	**3367.09**	**3367.09**	**3367.09**	**3367.09**	**3367.09**	**3367.09**	**3367.09**	**3367.09**	**3367.09**	**3367.09**	**3367.09**	**3367.09**	**3368.09**	**3367.09**	**3367.09**	**3367.09**
	PSH Elev	**3354.42**	**3354.02**	**3354.39**		**3354.34**	**3354.56**	**3354.09**	**3353.99**	**3354.39**	**3354.14**	**3353.78**	**3353.84**	**3354.79**	**3354.14**	**3354.49**	**3354.69**
	Water Elev	**3354.33**	**3353.68**	**3354.24**	**3354.44**	**3354.20**	**3354.33**	**3353.44**	**3353.39**	**3354.30**	**3353.89**	**3353.29**	**3353.24**	**3353.99**	**3353.82**	**3354.44**	**3354.64**
RW-8R	Depth to PSH									12.89	12.87	12.91	12.95	12.90	12.95	12.90	12.95
	Depth to Water	12.04	12.25	12.14	12.05	12.86	12.95	12.90	13.00	12.90	13.05	13.12	13.30	13.20	13.40	13.40	13.50
	Product Pump																
	PSH Thickness	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.18**	**0.21**	**0.35**	**0.30**	**0.45**	**0.50**	**0.55**
	TOC Elev	**3368.10**	**3368.10**	**3368.10**	**3368.10**	**3368.10**	**3368.10**	**3368.10**	**3368.10**	**3368.10**	**3368.10**	**3368.10**	**3368.10**	**3369.10**	**3368.10**	**3368.10**	**3368.10**
	PSH Elev									**3355.21**	**3355.23**	**3355.19**	**3355.15**	**3356.20**	**3355.15**	**3355.20**	**3355.15**
	Water Elev	**3356.06**	**3355.85**	**3355.96**	**3356.05**	**3355.24**	**3355.15**	**3355.20**	**3355.10**	**3355.20**	**3355.05**	**3354.98**	**3354.80**	**3355.90**	**3354.70**	**3354.70**	**3354.60**
RW-12R	Depth to PSH	25.00	25.85	25.85	25.59	25.30	19.90	26.05	26.00	26.29	26.20	26.00	26.08	26.05			
	Depth to Water	25.10	26.05	25.95	26.06	25.35	20.00	26.10	26.10	26.45	26.30	26.64	26.30	26.39	26.35	26.35	24.30
	Product Pump																
	PSH Thickness	**0.10**	**0.20**	**0.10**	**0.47**	**0.05**	**0.10**	**0.05**	**0.10**	**0.16**	**0.10**	**0.64**	**0.22**	**0.34**	**0.00**	**0.00**	**0.00**
	TOC Elev	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3352.54**	**3351.54**	**3351.54**	**3351.54**
	PSH Elev	**3326.54**	**3325.69**	**3325.69**	**3325.95**	**3326.24**	**3331.64**	**3325.49**	**3325.54**	**3325.25**	**3325.34**	**3325.54**	**3325.46**	**3326.49**			
	Water Elev	**3326.44**	**3325.49**	**3325.59**	**3325.48**	**3326.19**	**3331.54**	**3325.44**	**3325.44**	**3325.09**	**3325.24**	**3324.90**	**3325.24**	**3326.15**	**3325.19**	**3325.19**	**3327.24**

Gauging Data

Well	Date:	1/31/14	2/6/14	2/14/14	2/28/14	3/7/14	3/14/14	3/21/14	3/26/14	4/3/14	4/9/14	5/15/14	5/19/14	5/20/14	6/19/14	6/26/14	7/2/14
RW-13R	Depth to PSH	23.92	24.50	24.51	25.52	25.53	24.15	24.10	24.60	27.40	27.40	24.20	30.10	30.10	24.45	23.07	22.18
	Depth to Water	24.08	29.30	29.23	25.72	25.80	24.95	24.87	29.18	31.42	36.60	27.19	31.40	31.40	24.95	23.25	22.80
	Product Pump																
	PSH Thickness	**0.16**	**4.80**	**4.72**	**0.20**	**0.27**	**0.80**	**0.77**	**4.58**	**4.02**	**9.20**	**2.99**	**1.30**	**1.30**	**0.50**	**0.18**	**0.62**
	TOC Elev	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3352.54**	**3351.54**	**3351.54**	**3351.54**
	PSH Elev	**3327.62**	**3327.04**	**3327.03**	**3326.02**	**3326.01**	**3327.39**	**3327.44**	**3326.94**	**3324.14**	**3324.14**	**3327.34**	**3321.44**	**3322.44**	**3327.09**	**3328.47**	**3329.36**
	Water Elev	**3327.46**	**3322.24**	**3322.31**	**3325.82**	**3325.74**	**3326.59**	**3326.67**	**3322.36**	**3320.12**	**3314.94**	**3324.35**	**3320.14**	**3321.14**	**3326.59**	**3328.29**	**3328.74**
RW-14R	Depth to PSH	20.47	21.85	20.80	20.62	20.94	20.91	21.56	20.94	21.15	21.10	20.35	20.30	20.30	20.20	19.92	19.85
	Depth to Water	21.04	32.30	32.36	32.26	32.25	32.30	23.57	32.25	32.25	31.70	23.52	23.45	23.31	22.62	20.55	20.93
	Product Pump																
	PSH Thickness	**0.57**	**10.45**	**11.56**	**11.64**	**11.31**	**11.39**	**2.01**	**11.31**	**11.10**	**10.60**	**3.17**	**3.15**	**3.01**	**2.42**	**0.63**	**1.08**
	TOC Elev	**3349.37**	**3349.37**	**3349.37**	**3349.37**	**3349.37**	**3349.37**	**3349.37**	**3349.37**	**3349.37**	**3349.37**	**3349.37**	**3349.37**	**3350.37**	**3349.37**	**3349.37**	**3349.37**
	PSH Elev	**3328.90**	**3327.52**	**3328.57**	**3328.75**	**3328.43**	**3328.46**	**3327.81**	**3328.43**	**3328.22**	**3328.27**	**3329.02**	**3329.07**	**3330.07**	**3329.17**	**3329.45**	**3329.52**
	Water Elev	**3328.33**	**3317.07**	**3317.01**	**3317.11**	**3317.12**	**3317.07**	**3325.80**	**3317.12**	**3317.12**	**3317.67**	**3325.85**	**3325.92**	**3327.06**	**3326.75**	**3328.82**	**3328.44**
RW-15	Depth to PSH	17.50	18.50	18.10	18.25	18.30	18.50	18.49	18.50	18.55	18.50	18.60	18.55	18.55	18.55	18.30	18.25
	Depth to Water	19.30	20.45	21.17	20.40	20.19	20.20	20.33	20.35	20.28	20.30	20.29	20.05	20.10	20.60	19.20	19.70
	Product Pump																
	PSH Thickness	**1.80**	**1.95**	**3.07**	**2.15**	**1.89**	**1.70**	**1.84**	**1.85**	**1.73**	**1.80**	**1.69**	**1.50**	**1.55**	**2.05**	**0.90**	**1.45**
	TOC Elev	**3365.30**	**3365.30**	**3365.30**	**3365.30**	**3365.30**	**3365.30**	**3365.30**	**3365.30**	**3365.30**	**3365.30**	**3365.30**	**3365.30**	**3366.30**	**3365.30**	**3365.30**	**3365.30**
	PSH Elev	**3347.80**	**3346.80**	**3347.20**	**3347.05**	**3347.00**	**3346.80**	**3346.81**	**3346.80**	**3346.75**	**3346.80**	**3346.70**	**3346.75**	**3347.75**	**3346.75**	**3347.00**	**3347.05**
	Water Elev	**3346.00**	**3344.85**	**3344.13**	**3344.90**	**3345.11**	**3345.10**	**3344.97**	**3344.95**	**3345.02**	**3345.00**	**3345.01**	**3345.25**	**3346.20**	**3344.70**	**3346.10**	**3345.60**
RW-19	Depth to PSH	21.10	29.85	29.91	29.55	29.59	29.46	29.60	29.50	29.49	30.50	29.50	26.07	26.10	35.50	35.60	35.51
	Depth to Water	22.55	30.35	30.20	31.01	31.49	31.80	32.10	32.51	32.85	33.75	32.94	27.40	27.30	38.00	37.05	37.64
	Product Pump																
	PSH Thickness	**1.45**	**0.50**	**0.29**	**1.46**	**1.90**	**2.34**	**2.50**	**3.01**	**3.36**	**3.25**	**3.44**	**1.33**	**1.20**	**2.50**	**1.45**	**2.13**
	TOC Elev	**3369.11**	**3369.11**	**3369.11**	**3369.11**	**3369.11**	**3369.11**	**3369.11**	**3369.11**	**3369.11**	**3369.11**	**3369.11**	**3369.11**	**3370.11**	**3369.11**	**3369.11**	**3369.11**
	PSH Elev	**3348.01**	**3339.26**	**3339.20**	**3339.56**	**3339.52**	**3339.65**	**3339.51**	**3339.61**	**3339.62**	**3338.61**	**3339.61**	**3343.04**	**3344.01**	**3333.61**	**3333.51**	**3333.60**
	Water Elev	**3346.56**	**3338.76**	**3338.91**	**3338.10**	**3337.62**	**3337.31**	**3337.01**	**3336.60**	**3336.26**	**3335.36**	**3336.17**	**3341.71**	**3342.81**	**3331.11**	**3332.06**	**3331.47**
RW-20	Depth to PSH	21.10	21.80	21.67	21.97	22.11	22.20	22.32	22.35	22.40	22.50	21.40					
	Depth to Water	22.55	22.65	22.70	22.50	22.25	22.65	22.89	22.65	22.60	22.75	22.75	20.17	20.14	20.40	20.41	20.50
	Product Pump																
	PSH Thickness	**1.45**	**0.85**	**1.03**	**0.53**	**0.14**	**0.45**	**0.57**	**0.30**	**0.20**	**0.25**	**1.35**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	TOC Elev	**3348.44**	**3348.44**	**3348.44**	**3348.44**	**3348.44**	**3348.44**	**3348.44**	**3348.44**	**3348.44**	**3348.44**	**3348.44**	**3348.44**	**3349.44**	**3348.44**	**3348.44**	**3348.44**
	PSH Elev	**3327.34**	**3326.64**	**3326.77**	**3326.47**	**3326.33**	**3326.24**	**3326.12**	**3326.09**	**3326.04**	**3325.94**	**3327.04**					
	Water Elev	**3325.89**	**3325.79**	**3325.74**	**3325.94**	**3326.19**	**3325.79**	**3325.55**	**3325.79**	**3325.84**	**3325.69**	**3325.69**	**3328.27**	**3329.30**	**3328.04**	**3328.03**	**3327.94**
RW-22	Depth to PSH	24.27	25.00	28.90	25.83	25.20	25.27	25.45	25.45	25.55	25.60	24.55			26.10	21.10	
	Depth to Water	29.02	28.25	29.04	26.60	28.30	29.40	29.32	29.29	29.35	29.32	28.32			30.03	22.00	
	Product Pump																
	PSH Thickness	**4.75**	**3.25**	**0.14**	**0.77**	**3.10**	**4.13**	**3.87**	**3.84**	**3.80**	**3.72**	**3.77**	**0.00**	**0.00**	**3.93**	**0.90**	**0.00**
	TOC Elev	**3349.21**	**3349.21**	**3349.21**	**3349.21**	**3349.21**	**3349.21**	**3349.21**	**3349.21**	**3349.21**	**3349.21**	**3349.21**	**3349.21**	**3350.21**	**3349.21**	**3349.21**	**3349.21**
	PSH Elev	**3324.94**	**3324.21**	**3320.31**	**3323.38**	**3324.01**	**3323.94**	**3323.76**	**3323.76**	**3323.66**	**3323.61**	**3324.66**			**3323.11**	**3328.11**	
	Water Elev	**3320.19**	**3320.96**	**3320.17**	**3322.61**	**3320.91**	**3319.81**	**3319.89**	**3319.92**	**3319.86**	**3319.89**	**3320.89**	**3349.21**	**3350.21**	**3319.18**	**3327.21**	**3349.21**

Gauging Data

Well	Date:	7/8/14	7/15/14	7/24/14	8/1/14	8/7/14	8/14/14	8/22/14	9/11/14	9/17/14	9/29/14	10/7/14	10/15/14	10/24/14	10/30/14	11/7/14	11/12/14
RW-1R	Depth to PSH								0	0	0	0	0	0	0	0	0
	Depth to Water	13.20	13.25	13.40	13.55	13.23	13.3	13.5	13.2	13.21	13.15	9.25	9.21	13.25	13.2	13.3	19.24
	Product Pump									Out	Out	Out	Out	Out	Out	Out	Out
	PSH Thickness	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	TOC Elev	**3367.03**	**3367.03**	**3367.03**	**3367.03**	**3367.03**	**3367.03**	**3367.03**	**3367.03**	**3367.03**	**3367.03**	**3367.03**	**3367.03**	**3367.03**	**3367.03**	**3367.03**	**3367.03**
	PSH Elev																
	Water Elev	**3353.83**	**3353.78**	**3353.63**	**3353.48**	**3353.80**	**3353.73**	**3353.53**	**3353.83**	**3353.82**	**3353.88**	**3357.78**	**3357.82**	**3353.78**	**3353.83**	**3353.73**	**3347.79**
RW-2R	Depth to PSH	14.60	14.70	14.65	14.6	14.7	14.87	14.75	14.65	14.5	14.7	11.64	14.65	14.44	14.35	14.15	14.15
	Depth to Water	15.35	14.95	14.84	15	14.91	14.99	14.9	15	15.7	15.25	11.65	15.7	16.15	16.55	16.35	17.55
	Product Pump									14.74	14.74	14.74	Out	Out	Out	Out	Out
	PSH Thickness	**0.75**	**0.25**	**0.19**	**0.40**	**0.21**	**0.12**	**0.15**	**0.35**	**1.20**	**0.55**	**0.01**	**1.05**	**1.71**	**2.20**	**2.20**	**3.40**
	TOC Elev	**3368.17**	**3368.17**	**3368.17**	**3368.17**	**3368.17**	**3368.17**	**3368.17**	**3368.17**	**3368.17**	**3368.17**	**3368.17**	**3368.17**	**3368.17**	**3368.17**	**3368.17**	**3368.17**
	PSH Elev	**3353.57**	**3353.47**	**3353.52**	**3353.57**	**3353.47**	**3353.30**	**3353.42**	**3353.52**	**3353.67**	**3353.47**	**3356.53**	**3353.52**	**3353.73**	**3353.82**	**3354.02**	**3354.02**
	Water Elev	**3352.82**	**3353.22**	**3353.33**	**3353.17**	**3353.26**	**3353.18**	**3353.27**	**3353.17**	**3352.47**	**3352.92**	**3356.52**	**3352.47**	**3352.02**	**3351.62**	**3351.82**	**3350.62**
RW-4R	Depth to PSH								0	0	0	0	0	0	0	0	0
	Depth to Water	17.00	16.95	16.75	16.5	16.35	16.28	16.25	16	15.65	13.69	12.8	12.7	12.74	12.75	12.38	18.63
	Product Pump				16.5		16.5	16.5	16.5	Out	Out	Out	Out	Out	Out	Out	Out
	PSH Thickness	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	TOC Elev	**3364.86**	**3364.86**	**3364.86**	**3364.86**	**3364.86**	**3364.86**	**3364.86**	**3364.86**	**3364.86**	**3364.86**	**3364.86**	**3364.86**	**3364.86**	**3364.86**	**3364.86**	**3364.86**
	PSH Elev																
	Water Elev	**3347.86**	**3347.91**	**3348.11**	**3348.36**	**3348.51**	**3348.58**	**3348.61**	**3348.86**	**3349.21**	**3351.17**	**3352.06**	**3352.16**	**3352.12**	**3352.11**	**3352.48**	**3346.23**
RW-5R	Depth to PSH	18.90	18.75	18.15	20.25	19.86	18.4	18.06	17.82	17.55	15.23	14.62	14.47	14.38	14.42	14.2	14.34
	Depth to Water	21.80	22.10	22.05	29.25	32.47	21.73	21.6	21.21	20.33	18.28	17.07	18.45	16	15.95	16	15.8
	Product Pump				22.05		22.05	22.05	22.05	18.11	16.22	16.22	15.27	15.27	15.27	14.56	14.56
	PSH Thickness	**2.90**	**3.35**	**3.90**	**9.00**	**12.61**	**3.33**	**3.54**	**3.39**	**2.78**	**3.05**	**2.45**	**3.98**	**1.62**	**1.53**	**1.80**	**1.46**
	TOC Elev	**3368.56**	**3368.56**	**3368.56**	**3368.56**	**3368.56**	**3368.56**	**3368.56**	**3368.56**	**3368.56**	**3368.56**	**3368.56**	**3368.56**	**3368.56**	**3368.56**	**3368.56**	**3368.56**
	PSH Elev	**3349.66**	**3349.81**	**3350.41**	**3348.31**	**3348.70**	**3350.16**	**3350.50**	**3350.74**	**3351.01**	**3353.33**	**3353.94**	**3354.09**	**3354.18**	**3354.14**	**3354.36**	**3354.22**
	Water Elev	**3346.76**	**3346.46**	**3346.51**	**3339.31**	**3336.09**	**3346.83**	**3346.96**	**3347.35**	**3348.23**	**3350.28**	**3351.49**	**3350.11**	**3352.56**	**3352.61**	**3352.56**	**3352.76**
RW-6R	Depth to PSH	21.45	21.55	21.45	21.5	21.25	18.68	17.47	21.09	20.6	20.8	14.5	23.05	23.1	23.05	21.05	13.74
	Depth to Water	22.00	21.75	21.95	21.8	22.8	30.79	18.7	23.38	24.55	23.84	15.99	24.85	24.55	24.45	24.45	14.6
	Product Pump				21.5		21.09	21.09	21.09	21.39	21.51	21.51	23.4	23.4	23.4	21.73	21.73
	PSH Thickness	**0.55**	**0.20**	**0.50**	**0.30**	**1.55**	**12.11**	**1.23**	**2.29**	**3.95**	**3.04**	**1.49**	**1.80**	**1.45**	**1.40**	**3.40**	**0.86**
	TOC Elev	**3368.36**	**3368.36**	**3368.36**	**3368.36**	**3368.36**	**3368.36**	**3368.36**	**3368.36**	**3368.36**	**3368.36**	**3368.36**	**3368.36**	**3368.36**	**3368.36**	**3368.36**	**3368.36**
	PSH Elev	**3346.91**	**3346.81**	**3346.91**	**3346.86**	**3347.11**	**3349.68**	**3350.89**	**3347.27**	**3347.76**	**3347.56**	**3353.86**	**3345.31**	**3345.26**	**3345.31**	**3347.31**	**3354.62**
	Water Elev	**3346.36**	**3346.61**	**3346.41**	**3346.56**	**3345.56**	**3337.57**	**3349.66**	**3344.98**	**3343.81**	**3344.52**	**3352.37**	**3343.51**	**3343.81**	**3343.91**	**3343.91**	**3353.76**
RW-7R	Depth to PSH	12.90	12.70	12.00	12	12.2	12.27	12.45	11.75	10.75	0	7.73	8.16	8.17	8.61	0	0
	Depth to Water	13.25	13.00	12.15	12.3	12.24	12.43	12.7	12.2	10.79	7.71	7.74	8.19	8.18	8.65	8.35	8.75
	Product Pump									Not in service	Not in service	Not in service	Not in service	Not in service	Not in service	Not in service	Not in service
	PSH Thickness	**0.35**	**0.30**	**0.15**	**0.30**	**0.04**	**0.16**	**0.25**	**0.45**	**0.04**	**0.00**	**0.01**	**0.03**	**0.01**	**0.04**	**0.00**	**0.00**
	TOC Elev	**3367.09**	**3367.09**	**3367.09**	**3367.09**	**3367.09**	**3367.09**	**3367.09**	**3367.09**	**3367.09**	**3367.09**	**3367.09**	**3367.09**	**3367.09**	**3367.09**	**3367.09**	**3367.09**
	PSH Elev	**3354.19**	**3354.39**	**3355.09**	**3355.09**	**3354.89**	**3354.82**	**3354.64**	**3355.34**	**3356.34**		**3359.36**	**3358.93**	**3358.92**	**3358.48**		
	Water Elev	**3353.84**	**3354.09**	**3354.94**	**3354.79**	**3354.85**	**3354.66**	**3354.39**	**3354.89**	**3356.30**	**3359.38**	**3359.35**	**3358.90**	**3358.91**	**3358.44**	**3358.74**	**3358.34**
RW-8R	Depth to PSH	13.20	13.10	13.00	12.95	12.91	12.6	12.9	12.95	12.91	0	8.15	8.89	8.62	11.17	11.25	9.15
	Depth to Water	14.15	13.60	13.68	13.48	13.42	13.62	13.9	13.25	13.4	8	9.15	8.99	8.69	11.49	11.7	9.25
	Product Pump									13.01	13.01	13.01	8.89	8.89	8.89	11.34	11.34
	PSH Thickness	**0.95**	**0.50**	**0.68**	**0.53**	**0.51**	**1.02**	**1.00**	**0.30**	**0.49**	**0.00**	**1.00**	**0.10**	**0.07**	**0.32**	**0.45**	**0.10**
	TOC Elev	**3368.10**	**3368.10**	**3368.10**	**3368.10**	**3368.10**	**3368.10**	**3368.10**	**3368.10**	**3368.10**	**3368.10**	**3368.10**	**3368.10**	**3368.10**	**3368.10**	**3368.10**	**3368.10**
	PSH Elev	**3354.90**	**3355.00**	**3355.10**	**3355.15**	**3355.19**	**3355.50**	**3355.20**	**3355.15**	**3355.19**		**3359.95**	**3359.21**	**3359.48**	**3356.93**	**3356.85**	**3358.95**
	Water Elev	**3353.95**	**3354.50**	**3354.42**	**3354.62**	**3354.68**	**3354.48**	**3354.20**	**3354.85**	**3354.70**	**3360.10**	**3358.95**	**3359.11**	**3359.41**	**3356.61**	**3356.40**	**3358.85**
RW-12R	Depth to PSH								0	0	0	0	0	15.47	15.97	16.45	17.09
	Depth to Water	25.60	25.58	23.00	22.95	22.68	22.65	22.28	21.75	21.4	13.73	14.7	15.69	15.49	16.03	16.55	17.1
	Product Pump				22.15		22.15	22.15	22.15	Above H20	Above H20		Out	Out	Out	Out	Out
	PSH Thickness	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.02**	**0.06**	**0.10**	**0.01**
	TOC Elev	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**
	PSH Elev													**3336.07**	**3335.57**	**3335.09**	**3334.45**
	Water Elev	**3325.94**	**3325.96**	**3328.54**	**3328.59**	**3328.86**	**3328.89**	**3329.26**	**3329.79**	**3330.14**	**3337.81**	**3336.84**	**3335.85**	**3336.05**	**3335.51**	**3334.99**	**3334.44**

Gauging Data

Well	Date:	7/8/14	7/15/14	7/24/14	8/1/14	8/7/14	8/14/14	8/22/14	9/11/14	9/17/14	9/29/14	10/7/14	10/15/14	10/24/14	10/30/14	11/7/14	11/12/14
RW-13R	Depth to PSH	22.11	22.26	21.91	21.91	22.47	21.5	21.3	21.04	20.75	13.45	0	15.36	15.15	15.59	0	0
	Depth to Water	22.65	22.75	22.40	22.29	22.95	22	21.53	21.24	20.85	13.46	14.35	15.37	15.15	15.6	16.1	16.79
	Product Pump				22	22	22	22	22	System down			15.36	15.36	15.36	Out	Out
	PSH Thickness	**0.54**	**0.49**	**0.49**	**0.38**	**0.48**	**0.50**	**0.23**	**0.20**	**0.10**	**0.01**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**
	TOC Elev	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**
	PSH Elev	**3329.43**	**3329.28**	**3329.63**	**3329.63**	**3329.07**	**3330.04**	**3330.24**	**3330.50**	**3330.79**	**3338.09**		**3336.18**	**3336.39**	**3335.95**		
	Water Elev	**3328.89**	**3328.79**	**3329.14**	**3329.25**	**3328.59**	**3329.54**	**3330.01**	**3330.30**	**3330.69**	**3338.08**	**3337.19**	**3336.17**	**3336.39**	**3335.94**	**3335.44**	**3334.75**
RW-14R	Depth to PSH	20.90	21.00	19.65	19.65	19.29	19.2	19.2	18.85	18.59	14.1	13.7	13.75	13.5	13.6	13.85	14.03
	Depth to Water	27.15	32.45	20.00	19.81	19.66	19.75	19.55	19.71	19.34	15.29	14.82	14.85	14.67	15.12	16.15	15.35
	Product Pump				19.7	19.7	19.7	19.7	19.7	System down	14.74	14.74	13.97	13.97	13.97	14.31	14.31
	PSH Thickness	**6.25**	**11.45**	**0.35**	**0.16**	**0.37**	**0.55**	**0.35**	**0.86**	**0.75**	**1.19**	**1.12**	**1.10**	**1.17**	**1.52**	**2.30**	**1.32**
	TOC Elev	**3349.37**	**3349.37**	**3349.37**	**3349.37**	**3349.37**	**3349.37**	**3349.37**	**3349.37**	**3349.37**	**3349.37**	**3349.37**	**3349.37**	**3349.37**	**3349.37**	**3349.37**	**3349.37**
	PSH Elev	**3328.47**	**3328.37**	**3329.72**	**3329.72**	**3330.08**	**3330.17**	**3330.17**	**3330.52**	**3330.78**	**3335.27**	**3335.67**	**3335.62**	**3335.87**	**3335.77**	**3335.52**	**3335.34**
	Water Elev	**3322.22**	**3316.92**	**3329.37**	**3329.56**	**3329.71**	**3329.62**	**3329.82**	**3329.66**	**3330.03**	**3334.08**	**3334.55**	**3334.52**	**3334.70**	**3334.25**	**3333.22**	**3334.02**
RW-15	Depth to PSH	18.20	18.00	17.80	17.5	17.27	17.15	17.05	16.7	16.6	15.1	14.28	13.85	13.5	13.41	13.3	13.35
	Depth to Water	19.20	19.15	18.40	18.45	18.1	19.1	17.8	17.45	17.13	15.45	14.5	14	13.55	13.45	13.42	13.5
	Product Pump									Under water	Under water		13.97	13.97	13.97	13.97	13.97
	PSH Thickness	**1.00**	**1.15**	**0.60**	**0.95**	**0.83**	**1.95**	**0.75**	**0.75**	**0.53**	**0.35**	**0.22**	**0.15**	**0.05**	**0.04**	**0.12**	**0.15**
	TOC Elev	**3365.30**	**3365.30**	**3365.30**	**3365.30**	**3365.30**	**3365.30**	**3365.30**	**3365.30**	**3365.30**	**3365.30**	**3365.30**	**3365.30**	**3365.30**	**3365.30**	**3365.30**	**3365.30**
	PSH Elev	**3347.10**	**3347.30**	**3347.50**	**3347.80**	**3348.03**	**3348.15**	**3348.25**	**3348.60**	**3348.70**	**3350.20**	**3351.02**	**3351.45**	**3351.80**	**3351.89**	**3352.00**	**3351.95**
	Water Elev	**3346.10**	**3346.15**	**3346.90**	**3346.85**	**3347.20**	**3346.20**	**3347.50**	**3347.85**	**3348.17**	**3349.85**	**3350.80**	**3351.30**	**3351.75**	**3351.85**	**3351.88**	**3351.80**
RW-19	Depth to PSH	27.67	35.50	35.64	28.85	24.68		24.44	24.22	0	25.31	25.3	25.3	25.3	21.12	25.3	25.33
	Depth to Water	31.00	37.38	36.78	31.74	25.57	24.55	26.45	24.58	23.99	26.11	26.18	26.19	26.34	21.77	25.96	26.07
	Product Pump				29		29	29	29	Above H20	25.35	25.35	25.47	25.47	25.47	25.47	25.47
	PSH Thickness	**3.33**	**1.88**	**1.14**	**2.89**	**0.89**	**0.00**	**2.01**	**0.36**	**0.00**	**0.80**	**0.88**	**0.89**	**1.04**	**0.65**	**0.66**	**0.74**
	TOC Elev	**3369.11**	**3369.11**	**3369.11**	**3369.11**	**3369.11**	**3369.11**	**3369.11**	**3369.11**	**3369.11**	**3369.11**	**3369.11**	**3369.11**	**3369.11**	**3369.11**	**3369.11**	**3369.11**
	PSH Elev	**3341.44**	**3333.61**	**3333.47**	**3340.26**	**3344.43**		**3344.67**	**3344.89**		**3343.80**	**3343.81**	**3343.81**	**3343.81**	**3347.99**	**3343.81**	**3343.78**
	Water Elev	**3338.11**	**3331.73**	**3332.33**	**3337.37**	**3343.54**	**3344.56**	**3342.66**	**3344.53**	**3345.12**	**3343.00**	**3342.93**	**3342.92**	**3342.77**	**3347.34**	**3343.15**	**3343.04**
RW-20	Depth to PSH	18.65	18.75	18.60	18.4	18.08	17.84	17.65	17	16.7	10.2	16.84	17.55	17.34	16.4	18.12	19.64
	Depth to Water	19.15	19.25	19.05	19.08	18.52	18.4	18.21	17.65	17.55	15	17.32	17.65	17.44	17.19	18.4	19.82
	Product Pump									System down	Under water		N/A	N/A	N/A	N/A	N/A
	PSH Thickness	**0.50**	**0.50**	**0.45**	**0.68**	**0.44**	**0.56**	**0.56**	**0.65**	**0.85**	**4.80**	**0.48**	**0.10**	**0.10**	**0.79**	**0.28**	**0.18**
	TOC Elev	**3348.44**	**3348.44**	**3348.44**	**3348.44**	**3348.44**	**3348.44**	**3348.44**	**3348.44**	**3348.44**	**3348.44**	**3348.44**	**3348.44**	**3348.44**	**3348.44**	**3348.44**	**3348.44**
	PSH Elev	**3329.79**	**3329.69**	**3329.84**	**3330.04**	**3330.36**	**3330.60**	**3330.79**	**3331.44**	**3331.74**	**3338.24**	**3331.60**	**3330.89**	**3331.10**	**3332.04**	**3330.32**	**3328.80**
	Water Elev	**3329.29**	**3329.19**	**3329.39**	**3329.36**	**3329.92**	**3330.04**	**3330.23**	**3330.79**	**3330.89**	**3333.44**	**3331.12**	**3330.79**	**3331.00**	**3331.25**	**3330.04**	**3328.62**
RW-22	Depth to PSH	21.50	26.27	21.48	21.65	20.41	20.6		19.84	19.57	11.43	13.21	14.48		14.55	0	15.8
	Depth to Water	22.20	26.72	21.96	21.84	20.43	20.68		19.85	19.58	11.45	13.22	14.49		14.6	15.25	15.81
	Product Pump				21.7		21.7	21.7	21.7	System down	21.7?	21.7	Out	Too Wet	Out	Out	Out
	PSH Thickness	**0.70**	**0.45**	**0.48**	**0.19**	**0.02**	**0.08**	**0.00**	**0.01**	**0.01**	**0.02**	**0.01**	**0.01**	**0.00**	**0.05**	**0.00**	**0.01**
	TOC Elev	**3349.21**	**3349.21**	**3349.21**	**3349.21**	**3349.21**	**3349.21**	**3349.21**	**3349.21**	**3349.21**	**3349.21**	**3349.21**	**3349.21**	**3349.21**	**3349.21**	**3349.21**	**3349.21**
	PSH Elev	**3327.71**	**3322.94**	**3327.73**	**3327.56**	**3328.80**	**3328.61**		**3329.37**	**3329.64**	**3337.78**	**3336.00**	**3334.73**		**3334.66**		**3333.41**
	Water Elev	**3327.01**	**3322.49**	**3327.25**	**3327.37**	**3328.78**	**3328.53**	**3349.21**	**3329.36**	**3329.63**	**3337.76**	**3335.99**	**3334.72**	**3349.21**	**3334.61**	**3333.96**	**3333.40**

Gauging Data

Well	Date:	11/21/14	11/26/14	12/3/14	12/11/14	12/18/14	12/22/14	12/29/14
RW-1R	Depth to PSH	0	0	0	0	0	0	
	Depth to Water	9	9.06	8.98	9	9.04	8.9	
	Product Pump	Out	Out	Out	Out	Out	Out	
	PSH Thickness	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	TOC Elev	**3367.03**	**3367.03**	**3367.03**	**3367.03**	**3367.03**	**3367.03**	**3367.03**
	PSH Elev							
	Water Elev	**3358.03**	**3357.97**	**3358.05**	**3358.03**	**3357.99**	**3358.13**	**3367.03**
RW-2R	Depth to PSH	0	0	0	11.23	0	0	
	Depth to Water	10.44	10.35	10.2	11.24	10.25	10.22	
	Product Pump	Out	Out	Out	Out	Out	Out	
	PSH Thickness	**0.00**	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**
	TOC Elev	**3368.17**	**3368.17**	**3368.17**	**3368.17**	**3368.17**	**3368.17**	**3368.17**
	PSH Elev				**3356.94**			
	Water Elev	**3357.73**	**3357.82**	**3357.97**	**3356.93**	**3357.92**	**3357.95**	**3368.17**
RW-4R	Depth to PSH	0	0	0	0	0	0	
	Depth to Water	12.5	12.55	12.46	12.5	12.5	12.45	
	Product Pump	Out	Out	Out	Out	Out	Out	
	PSH Thickness	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	TOC Elev	**3364.86**	**3364.86**	**3364.86**	**3364.86**	**3364.86**	**3364.86**	**3364.86**
	PSH Elev							
	Water Elev	**3352.36**	**3352.31**	**3352.40**	**3352.36**	**3352.36**	**3352.41**	**3364.86**
RW-5R	Depth to PSH	14.18	14.25	14.22	14.34	14.34	14.3	
	Depth to Water	15.7	16.16	18.35	16.27	16.1	16	
	Product Pump	14.56	14.56	14.56	14.56	14.56	14.56	
	PSH Thickness	**1.52**	**1.91**	**4.13**	**1.93**	**1.76**	**1.70**	**0.00**
	TOC Elev	**3368.56**	**3368.56**	**3368.56**	**3368.56**	**3368.56**	**3368.56**	**3368.56**
	PSH Elev	**3354.38**	**3354.31**	**3354.34**	**3354.22**	**3354.22**	**3354.26**	
	Water Elev	**3352.86**	**3352.40**	**3350.21**	**3352.29**	**3352.46**	**3352.56**	**3368.56**
RW-6R	Depth to PSH	13.5	13.55	13.35	13.35	13.6	0	
	Depth to Water	13.58	13.61	13.44	13.45	13.85	13.2	
	Product Pump	21.73	21.73	21.73	21.73	21.73	21.73	
	PSH Thickness	**0.08**	**0.06**	**0.09**	**0.10**	**0.25**	**0.00**	**0.00**
	TOC Elev	**3368.36**	**3368.36**	**3368.36**	**3368.36**	**3368.36**	**3368.36**	**3368.36**
	PSH Elev	**3354.86**	**3354.81**	**3355.01**	**3355.01**	**3354.76**		
	Water Elev	**3354.78**	**3354.75**	**3354.92**	**3354.91**	**3354.51**	**3355.16**	**3368.36**
RW-7R	Depth to PSH	0	0	0	0	0	0	
	Depth to Water	8.8	9	8.88	9.05	9.14	9.1	
	Product Pump	Not in service	Out	Out	Out	Out	Out	
	PSH Thickness	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	TOC Elev	**3367.09**	**3367.09**	**3367.09**	**3367.09**	**3367.09**	**3367.09**	**3367.09**
	PSH Elev							
	Water Elev	**3358.29**	**3358.09**	**3358.21**	**3358.04**	**3357.95**	**3357.99**	**3367.09**
RW-8R	Depth to PSH	9	9.23	9.05	9.15	9.2	9.1	
	Depth to Water	9.13	9.75	9.29	9.5	9.7	9.29	
	Product Pump	11.34	11.34	11.34	11.34	11.34	11.34	
	PSH Thickness	**0.13**	**0.52**	**0.24**	**0.35**	**0.50**	**0.19**	**0.00**
	TOC Elev	**3368.10**	**3368.10**	**3368.10**	**3368.10**	**3368.10**	**3368.10**	**3368.10**
	PSH Elev	**3359.10**	**3358.87**	**3359.05**	**3358.95**	**3358.90**	**3359.00**	
	Water Elev	**3358.97**	**3358.35**	**3358.81**	**3358.60**	**3358.40**	**3358.81**	**3368.10**
RW-12R	Depth to PSH	17.35	17.85	18.1	18.65	19	19.1	
	Depth to Water	17.48	17.95	18.33	18.7	19.05	19.17	
	Product Pump	Out	Out	Out	Out	Out	Out	
	PSH Thickness	**0.13**	**0.10**	**0.23**	**0.05**	**0.05**	**0.07**	**0.00**
	TOC Elev	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**
	PSH Elev	**3334.19**	**3333.69**	**3333.44**	**3332.89**	**3332.54**	**3332.44**	
	Water Elev	**3334.06**	**3333.59**	**3333.21**	**3332.84**	**3332.49**	**3332.37**	**3351.54**

Gauging Data

Well	Date:	11/21/14	11/26/14	12/3/14	12/11/14	12/18/14	12/22/14	12/29/14
RW-13R	Depth to PSH	0	0	0	18.2	18.52	18.56	
	Depth to Water	17.05	17.48	15.45	18.3	18.83	19.05	
	Product Pump	Out	Out	Out	Out	Out	Out	
	PSH Thickness	**0.00**	**0.00**	**0.00**	**0.10**	**0.31**	**0.49**	**0.00**
	TOC Elev	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**	**3351.54**
	PSH Elev				**3333.34**	**3333.02**	**3332.98**	
	Water Elev	**3334.49**	**3334.06**	**3336.09**	**3333.24**	**3332.71**	**3332.49**	**3351.54**
RW-14R	Depth to PSH	14.05	14.3	14.41	14.7	14.95	14.91	
	Depth to Water	15.09	15.6	15.43	15.7	16.39	14.91	
	Product Pump	14.31	14.31	14.31	14.31	14.31	14.31	
	PSH Thickness	**1.04**	**1.30**	**1.02**	**1.00**	**1.44**	**0.00**	**0.00**
	TOC Elev	**3349.37**	**3349.37**	**3349.37**	**3349.37**	**3349.37**	**3349.37**	**3349.37**
	PSH Elev	**3335.32**	**3335.07**	**3334.96**	**3334.67**	**3334.42**	**3334.46**	
	Water Elev	**3334.28**	**3333.77**	**3333.94**	**3333.67**	**3332.98**	**3334.46**	**3349.37**
RW-15	Depth to PSH	13.1	13.25	13.17	13.2	13.3	13.2	
	Depth to Water	13.2	13.4	13.3	13.35	13.4	13.25	
	Product Pump	13.97	13.97	13.97	13.97	13.97	13.97	
	PSH Thickness	**0.10**	**0.15**	**0.13**	**0.15**	**0.10**	**0.05**	**0.00**
	TOC Elev	**3365.30**	**3365.30**	**3365.30**	**3365.30**	**3365.30**	**3365.30**	**3365.30**
	PSH Elev	**3352.20**	**3352.05**	**3352.13**	**3352.10**	**3352.00**	**3352.10**	
	Water Elev	**3352.10**	**3351.90**	**3352.00**	**3351.95**	**3351.90**	**3352.05**	**3365.30**
RW-19	Depth to PSH	20.7	20.73	20.58	20.73	20.9	20.1	
	Depth to Water	21.24	21.57	21.32	21.31	21.81	21.28	
	Product Pump	25.47	25.47	25.47	25.47	25.47	25.47	
	PSH Thickness	**0.54**	**0.84**	**0.74**	**0.58**	**0.91**	**1.18**	**0.00**
	TOC Elev	**3369.11**	**3369.11**	**3369.11**	**3369.11**	**3369.11**	**3369.11**	**3369.11**
	PSH Elev	**3348.41**	**3348.38**	**3348.53**	**3348.38**	**3348.21**	**3349.01**	
	Water Elev	**3347.87**	**3347.54**	**3347.79**	**3347.80**	**3347.30**	**3347.83**	**3369.11**
RW-20	Depth to PSH	18.8	18.85	19.15	19.59	19.71	19.75	
	Depth to Water	18.9	19.05	19.3	19.7	19.91	19.95	
	Product Pump	N/A	Out	Out	Out	Out	Out	
	PSH Thickness	**0.10**	**0.20**	**0.15**	**0.11**	**0.20**	**0.20**	**0.00**
	TOC Elev	**3348.44**	**3348.44**	**3348.44**	**3348.44**	**3348.44**	**3348.44**	**3348.44**
	PSH Elev	**3329.64**	**3329.59**	**3329.29**	**3328.85**	**3328.73**	**3328.69**	
	Water Elev	**3329.54**	**3329.39**	**3329.14**	**3328.74**	**3328.53**	**3328.49**	**3348.44**
RW-22	Depth to PSH	16.1	16.65	16.87	17.36	17.7	17.7	
	Depth to Water	16.11	16.66	16.88	17.39	17.71	17.74	
	Product Pump	Out	Out	Out	Out	Out	Out	
	PSH Thickness	**0.01**	**0.01**	**0.01**	**0.03**	**0.01**	**0.04**	**0.00**
	TOC Elev	**3349.21**	**3349.21**	**3349.21**	**3349.21**	**3349.21**	**3349.21**	**3349.21**
	PSH Elev	**3333.11**	**3332.56**	**3332.34**	**3331.85**	**3331.51**	**3331.51**	
	Water Elev	**3333.10**	**3332.55**	**3332.33**	**3331.82**	**3331.50**	**3331.47**	**3349.21**

ARCADIS

Appendix G

January 30, 2015 Status of the Groundwater Recovery System Letter

HOLLYFRONTIER

Mr. Dave Cobrain
New Mexico Environmental Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505

Mr. Carl Chavez
New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

January 30, 2015

RE: Status of the Groundwater Recovery System
Navajo Refining Company, Artesia Refinery
RCRA Permit No. NMD048918817
Discharge Permit GW-028

Dear Mr. Cobrain and Mr. Chavez:

The Navajo Refining Company, LLC (NRC) has been operating a groundwater recovery system to capture phase separated hydrocarbons (PSH) present within the shallow water bearing zone beneath the Artesia Refinery (Refinery) and the field east of the Refinery owned by NRC. The operation of the system is conducted in accordance with the Post Closure Care Permit (PCC Permit) administered by the New Mexico Environment Department (NMED) and the Discharge Permit administered by the Oil Conservation Division (OCD) of the New Mexico Energy, Minerals and Natural Resources Department.

The recovery system consists of a series of trenches and recovery wells located throughout the Refinery and the field east of the Refinery owned by NRC. The typical recovery well contains two pumps: a groundwater pump typically placed near the bottom of the recovery well and a PSH-only "skimming" pump placed near the interface between the groundwater and PSH. The groundwater pumps are operated on an as-needed basis to depress the groundwater beneath the PSH, drawing additional PSH into each recovery well. The groundwater pumps are typically cycled in order to minimize the volume of groundwater produced. Recovered groundwater is piped to the process wastewater system for treatment and ultimate discharge to either the City of Artesia wastewater treatment system or a deep well injection site(s) located approximately 12 miles east of the Refinery. Recovered PSH is placed into the crude stream for processing. The volume of PSH and groundwater recovered is reported to both NMED and OCD annually in the required annual monitoring report.

In November 2014, NRC submitted a well abandonment plan (plugging plan) to the New Mexico Office of the State Engineer (OSE) requesting approval to abandon three recovery wells located adjacent to Bolton Road that are no longer used as collection points within the recovery system. The OSE approved the plugging plan but raised questions on the diversion of groundwater as part of the recovery system. OSE verbally requested that NRC cease pumping of groundwater from the recovery system until a review of the operation and potential water rights issues could be completed. As a result, the groundwater pumps associated with the recovery system were turned off on November 17, 2014, with the exception of the total fluids pump located in the french drain immediately east of Bolton Road. The PSH skimming pumps continue to be operated; thus, the recovery system is still operating but at slightly reduced efficiency. The change in operational mode (i.e. not operating the groundwater pumps) will be documented in the 2014 Groundwater Report and the 2014 Annual Report.

A meeting was conducted on December 29, 2014 to describe the recovery system to OSE personnel and to discuss any potential water rights requirements. The volume of groundwater "diverted" from the shallow water bearing zone by the recovery system (since 1995) was provided to OSE and compared to the volume of water discharged to the reverse osmosis (RO) reject discharge fields for the same period. Although not permitted by OSE for the purpose, the discharge to the RO reject fields provides return flow to the shallow water bearing zone, as demonstrated by the investigation of the RO reject fields conducted in 2013 at the request of OCD. Accordingly, any water diverted in connection with the recovery system from the shallow water bearing zone is "offset" by water returned to the same aquifer. NRC presented the volume information to OSE and requested whether the return flow through the RO reject fields could be considered as an offset to the volume of groundwater diverted for remediation purposes. As an initial matter, the OSE personnel with whom the meeting was held stated that this would likely not be allowable since the RO was currently associated with NRC's artesian groundwater rights and, as currently permitted, NRC may not apply any excess artesian water rights to the shallow water bearing zone diversion. OSE personnel stated that NRC would likely need to obtain shallow water rights through either a leasing agreement or purchase of existing water rights to continue operation of the system. Another alternative suggested by OSE was to inject the recovered/diverted groundwater phase into the shallow water bearing zone.

NRC is currently reviewing various options for addressing the OSE concerns for water rights for the shallow groundwater, including:

- Modifying the existing water rights permit for the artesian aquifer to apply the return flow credit from discharge to the RO reject fields allowed under this permit to the diversion of the shallow groundwater from the recovery system. This modification would be submitted along with a request for emergency approval under Section 72-5-25 New Mexico Statutes Amended 1978 (NMSA 1978).

- Identifying shallow groundwater rights nearby that may be obtainable under either a lease or purchase agreement. This approach may require a significant amount of time, resulting in a longer period in which the groundwater pumps are not operating.

- Evaluating the potential for re-injection of the groundwater into the shallow groundwater. This approach will require approval of both NMED and OCD and is expected to require a modification of the Discharge Permit. As part of this evaluation, the possibility of using the re-injection of groundwater for either gradient control (i.e., a hydraulic barrier) or for flushing of groundwater contaminants to the recovery system is being considered. This approach will require a significant amount of time for design and construction of treatment (if required) and injection infrastructure.

The groundwater pumps, as described above, will remain inactive until an agreement can be reached with the various agencies to allow the diversion of groundwater from the shallow water bearing zone for the remediation system. The PSH-only pumps will remain active; however, NRC believes that operation of the remediation system in this fashion is not the most efficient or effective method to control potential migration of the PSH plume. As we proceed with evaluation of the various options we will keep you informed and may request your assistance with regard to ensuring an effective resolution of this matter with the OSE.

NRC will continue to update both NMED and OCD regarding the status of the remediation system periodically. If you have any questions or comments regarding this request, please feel free to contact me at 575-746-5294 or Robert Combs at 575-746-5382.

Sincerely,

Brian Stone
Environmental Specialist
Navajo Refining Company, LLC

c: Robert Combs, NRC
Pamela R. Krueger, ARCADIS

HOLLYFRONTIER.

Mr. John E. Kieling, Chief
Hazardous Waste Bureau
New Mexico Environmental Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505

Mr. Carl Chavez
New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

March 13, 2015

RE: Submittal of the *ABT and DAF Analytical Reports* for the Navajo Refining Company, Artesia Refinery
RCRA Permit No. NMD048918817
Discharge Permit GW-028

Dear Mr. Kieling and Mr. Chavez:

Enclosed are two paper copies and one electronic copy of the analytical reports for the monthly sampling of the aggressive biological treatment (ABT) system and the quarterly sampling of the dissolved air flotation (DAF) bins associated with the wastewater treatment system at the Navajo Refining Company, LLC Artesia Refinery. This data should have been included in the *2014 Annual Groundwater Monitoring Report*, which was submitted on February 27, 2015. Please insert this information into your copy of that report.

If you have any questions or comments regarding this report, please feel free to contact me at 575-746-5294 or Robert Combs at 575-746-5382.

Sincerely,

B M Stone

Brian Stone, P.E.
Environmental Specialist
Navajo Refining Company, LLC

c: Robert Combs, NRC
Pamela R. Krueger, ARCADIS

13-Jan-2014

Aaron Strange
Navajo Refining Company
PO Box 1490
Artesia, NM 88211-1490

Tel: (575) 748-6733
Fax: (575) 746-5421

Re: ABT Inlet - Outlet (T-801) Work Order: **1401014**

Dear Aaron,

ALS Environmental received 2 samples on 02-Jan-2014 08:55 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 14.

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

Sincerely,

Electronically approved by: Jumoke M. Lawal

Sonia West
Project Manager

Certificate No: T104704231-13-12

ALS Environmental

Date: 13-Jan-14

Client: Navajo Refining Company
Project: ABT Inlet - Outlet (T-801)
Work Order: **1401014**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1401014-01	ABT T-836 Inlet	Liquid		12/30/2013 06:30	1/2/2014 08:55	☐
1401014-02	ABT T-836 Outlet	Liquid		12/30/2013 13:25	1/2/2014 08:55	☐

Client:	Navajo Refining Company
Project:	ABT Inlet - Outlet (T-801)
Work Order:	1401014

Case Narrative

Sample received outside method holding time for BOD. BOD has a 48 hour holding time. Sample results are flagged with an "H" qualifier.

ALS Environmental

Date: *13-Jan-14*

Client: Navajo Refining Company
Project: ABT Inlet - Outlet (T-801)
Work Order: 1401014
Sample ID: ABT T-836 Inlet
Lab ID: 1401014-01
Collection Date: 12/30/2013 06:30 AM
Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BOD			**SM5210 B**		Prep Date: **1/2/2014**	Analyst: **DM**
Biochemical Oxygen Demand	**300**	H	**4.00**	**mg/L**	2	1/7/2014 12:00 PM
CHEMICAL OXYGEN DEMAND			**E410.4**			Analyst: **DM**
Chemical Oxygen Demand	**836**		**100**	**mg/L**	1	1/6/2014 01:00 PM
PHENOLICS - EPA 420.4			**E420.4**			Analyst: **KKB**
Phenolics, Total Recoverable	**31.5**		**2.50**	**mg/L**	50	1/10/2014 01:37 PM
TOTAL KJELDAHL NITROGEN			**M4500 NH3 D**			Analyst: **KL**
Nitrogen, Total Kjeldahl	**91**		**5.0**	**mg/L**	5	1/3/2014 11:00 AM

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

ALS Environmental

Date: *13-Jan-14*

Client: Navajo Refining Company
Project: ABT Inlet - Outlet (T-801)
Work Order: 1401014
Sample ID: ABT T-836 Outlet
Lab ID: 1401014-02
Collection Date: 12/30/2013 01:25 PM
Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BOD			**SM5210 B**		Prep Date: **1/2/2014**	Analyst: **DM**
Biochemical Oxygen Demand	**44.0**	H	**10.0**	**mg/L**	5	1/7/2014 12:00 PM
CHEMICAL OXYGEN DEMAND			**E410.4**			Analyst: **DM**
Chemical Oxygen Demand	**1,190**		**100**	**mg/L**	1	1/6/2014 01:00 PM
PHENOLICS - EPA 420.4			**E420.4**			Analyst: **KKB**
Phenolics, Total Recoverable	ND		0.0500	mg/L	1	1/10/2014 01:38 PM
TOTAL KJELDAHL NITROGEN			**M4500 NH3 D**			Analyst: **KL**
Nitrogen, Total Kjeldahl	**85**		**5.0**	**mg/L**	5	1/3/2014 11:00 AM

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

Work Order: 1401014
Client: Navajo Refining Company
Project: ABT Inlet - Outlet (T-801)

DATES REPORT

Sample ID	Client Sample ID	Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
Batch ID 75761 **Test Name:** BOD						
1401014-01D	ABT T-836 Inlet	Liquid	12/30/2013 6:30:00 AM		1/2/2014 12:00 PM	1/7/2014 12:00 PM
1401014-02D	ABT T-836 Outlet		12/30/2013 1:25:00 PM		1/2/2014 12:00 PM	1/7/2014 12:00 PM
Batch ID R159484 **Test Name:** Total Kjeldahl Nitrogen						
1401014-01B	ABT T-836 Inlet	Liquid	12/30/2013 6:30:00 AM			1/3/2014 11:00 AM
1401014-02B	ABT T-836 Outlet		12/30/2013 1:25:00 PM			1/3/2014 11:00 AM
Batch ID R159560 **Test Name:** Chemical Oxygen Demand						
1401014-01A	ABT T-836 Inlet	Liquid	12/30/2013 6:30:00 AM			1/6/2014 01:00 PM
1401014-02A	ABT T-836 Outlet		12/30/2013 1:25:00 PM			1/6/2014 01:00 PM
Batch ID R159765 **Test Name:** Phenolics - EPA 420.4						
1401014-01C	ABT T-836 Inlet	Liquid	12/30/2013 6:30:00 AM			1/10/2014 01:37 PM
1401014-02C	ABT T-836 Outlet		12/30/2013 1:25:00 PM			1/10/2014 01:38 PM

QC BATCH REPORT

Batch ID: **75761** Instrument ID **ManTech01** Method: **SM5210 B** **(Dissolve)**

MBLK Sample ID: **WBLKW1-010214-75761** Units: **mg/L** Analysis Date: **1/7/2014 12:00 PM**

Client ID: Run ID: **MANTECH01_140107H** SeqNo: **3495368** Prep Date: **1/2/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	ND	2.00								

LCS Sample ID: **WLCSW1-010214-75761** Units: **mg/L** Analysis Date: **1/7/2014 12:00 PM**

Client ID: Run ID: **MANTECH01_140107H** SeqNo: **3495369** Prep Date: **1/2/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	209.1	2.00	198	0	106	85-115				

LCSD Sample ID: **WLCSDW1-010214-75761** Units: **mg/L** Analysis Date: **1/7/2014 12:00 PM**

Client ID: Run ID: **MANTECH01_140107H** SeqNo: **3495374** Prep Date: **1/2/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	212.1	2.00	198	0	107	85-115	209.1	1.42	20	

DUP Sample ID: **1401014-02DDUP** Units: **mg/L** Analysis Date: **1/7/2014 12:00 PM**

Client ID: **ABT T-836 Outlet** Run ID: **MANTECH01_140107H** SeqNo: **3495373** Prep Date: **1/2/2014** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	44.62	10.0					43.98	1.43	20	H

The following samples were analyzed in this batch: 1401014-01D 1401014-02D

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

Client: Navajo Refining Company
Work Order: 1401014
Project: ABT Inlet - Outlet (T-801)

QC BATCH REPORT

Batch ID: **R159484** Instrument ID **WetChem** Method: **M4500 NH3 D (Dissolve)**

MBLK Sample ID: **WBLKW1-140103-R159484** Units: **mg/L** Analysis Date: **1/3/2014 11:00 AM**
Client ID: Run ID: **WETCHEM_140103F** SeqNo: **3492637** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	ND	1.0								

LCS Sample ID: **WLCSW1-140103-R159484** Units: **mg/L** Analysis Date: **1/3/2014 11:00 AM**
Client ID: Run ID: **WETCHEM_140103F** SeqNo: **3492638** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	20.2	1.0	20	0	101	80-120				

LCSD Sample ID: **WLCSDW1-140103-R159484** Units: **mg/L** Analysis Date: **1/3/2014 11:00 AM**
Client ID: Run ID: **WETCHEM_140103F** SeqNo: **3492652** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	19.96	1.0	20	0	99.8	80-120	20.2	1.2	20	

MS Sample ID: **13121074-01CMS** Units: **mg/L** Analysis Date: **1/3/2014 11:00 AM**
Client ID: Run ID: **WETCHEM_140103F** SeqNo: **3492646** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	19.48	1.0	20	2.34	85.7	75-125				

The following samples were analyzed in this batch: 1401014-01B 1401014-02B

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

Client: Navajo Refining Company
Work Order: 1401014
Project: ABT Inlet - Outlet (T-801)

QC BATCH REPORT

Batch ID: **R159560** Instrument ID **WetChem** Method: **E410.4** **(Dissolve)**

MBLK Sample ID: **WBLKW1-010614-R159560** Units: **mg/L** Analysis Date: **1/6/2014 01:00 PM**
Client ID: Run ID: **WETCHEM_140106E** SeqNo: **3494314** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	ND	100								

LCS Sample ID: **WLCSW1-010614-R159560** Units: **mg/L** Analysis Date: **1/6/2014 01:00 PM**
Client ID: Run ID: **WETCHEM_140106E** SeqNo: **3494315** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	922	100	1000	0	92.2	85-115				

MS Sample ID: **1401117-01AMS** Units: **mg/L** Analysis Date: **1/6/2014 01:00 PM**
Client ID: Run ID: **WETCHEM_140106E** SeqNo: **3494320** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	2996	200	1000	2188	80.8	80-120				

DUP Sample ID: **1401117-01ADUP** Units: **mg/L** Analysis Date: **1/6/2014 01:00 PM**
Client ID: Run ID: **WETCHEM_140106E** SeqNo: **3494319** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	2178	200					2188	0.458	20	

The following samples were analyzed in this batch: 1401014-01A 1401014-02A

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

Client: Navajo Refining Company
Work Order: 1401014
Project: ABT Inlet - Outlet (T-801)

QC BATCH REPORT

Batch ID: **R159765** Instrument ID **Gall01** Method: **E420.4**

MBLK Sample ID: **WBLKW1-011014-R159765** Units: **mg/L** Analysis Date: **1/10/2014 01:36 PM**
Client ID: Run ID: **GALL01_140110A** SeqNo: **3499312** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	ND	0.0500								

LCS Sample ID: **WLCSW1-011014-R159765** Units: **mg/L** Analysis Date: **1/10/2014 01:36 PM**
Client ID: Run ID: **GALL01_140110A** SeqNo: **3499313** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	0.4252	0.0500	0.5	0	85	80-120				

LCSD Sample ID: **WLCSDW1-011014-R159765** Units: **mg/L** Analysis Date: **1/10/2014 01:37 PM**
Client ID: Run ID: **GALL01_140110A** SeqNo: **3499314** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	0.4216	0.0500	0.5	0	84.3	80-120	0.4252	0.85	20	

MS Sample ID: **1401085-02AMS** Units: **mg/L** Analysis Date: **1/10/2014 01:40 PM**
Client ID: Run ID: **GALL01_140110A** SeqNo: **3499317** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	0.466	0.0500	0.5	0.05652	81.9	80-120				

The following samples were analyzed in this batch: 1401014-01C 1401014-02C

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

QC Page: 4 of 4

ALS Environmental

Date: 13-Jan-14

Client: Navajo Refining Company
Project: ABT Inlet - Outlet (T-801)
WorkOrder: **1401014**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	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

Acronym	Description
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

Units Reported	Description
mg/L	Milligrams per Liter

ALS Environmental

Sample Receipt Checklist

Client Name: **NAVAJO REFINING** Date/Time Received: **02-Jan-14 08:55**

Work Order: **1401014** Received by: **PMG**

Checklist completed by Paresh M. Giga (eSignature) 02-Jan-14 (Date) Reviewed by: Sonia Wist (eSignature) 02-Jan-14 (Date)

Matrices: Liquid
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):	1.1c/1.1c c/U	IR1	
Cooler(s)/Kit(s):	5616		
Date/Time sample(s) sent to storage:	1/2/14 09:45		
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: ABT T-836 Inlet - Sampling times do not match - Bottles - 06:20. Logged in per chain of custody. All BOD samples were received out of holding time.

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

SRC Page 1 of 1

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

Chain of Custody Form

Page 1 of 1

1401014

NAVAJO REFINING: Navajo Refining Company

Project: ABT Inlet - Outlet (T-801)

ALS Project Manager: Pat Lynch

Customer Information		Project Information			
Purchase Order		Project Name	ABT Inlet / Outlet	A	TKN (350)
Work Order		Project Number		B	BOD
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	COD (410.1)
Send Report To	Aaron Strange	Invoice Attn.	Aaron Strange	D	Phenolics (420)
Address	P. O. Box 159	Address	501 East Main	E	
				F	
City/State/Zip	Artesia, New Mexico 88211-0159	City/State/Zip	Artesia, New Mexico 88210	G	
Phone	(575) 748-3311	Phone	(575) 748-3311	H	
Fax	(575) 746-5451	Fax	(575) 746-5451	I	
e-Mail Address	Aaron.Strange@hollyfrontier.com	e-Mail Address	Aaron.Strange@hollyfrontier.com	J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	ABT T- 836 Inlet	12/30/13	6:30	Liquid	Yes	5	X	X	X	X							
2	ABT T- 836 Outlet	12/30/13	13:25	Liquid	Yes	5	X	X	X	X							
3	Temperature Blank			Liquid	None	1											
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s): Please Print & Sign
Aaron Strange

Shipment Method: FedEx

Required Turnaround Time: ☑ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other _____

Results Due Date:

Relinquished by: Aaron Strange	Date: 12/30/2013	Time: 16:15	Received by:	Notes:
Relinquished by:	Date:	Time:	Received by (Laboratory): 1-2-14 0855.	Cooler Temp.
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	1.1°

QC Package: (Check Box Below)

- ☐ Level II: Standard QC
- ☐ Level III: Std QC + Raw Data
- ☐ Level IV: SW846 CLP-Like
- ☐ Other: _____
- ☐ TRRP-Checklist
- ☐ TRRP Level IV

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

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

S616

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

5616

Date: 12
Name:
Company:

CUSTODY SEAL

-30-13 Time: 16:15
Laben Strange
Navajo Refining Co.

Seal Broken By:
Date: 1-2-14

ORIGIN ID:ROWA (575) 748-3311
NAVAJO ARTESIA
501 E MAIN
ARTESIA , NM 882109440
UNITED STATES US

SHIP DATE: 30DEC13
ACTWGT: 33.0 LB MAN
CAD: 634483/CAFE2704

BILL RECIPIENT

SONIA WEST
ALS LABORATORY GROUP
10450 STANCLIFF RD., SUITE 210

HOUSTON TX 77099
(281) 530-5656 REF:
INV:
PO: DEPT:

518C1/D6EC/6FB3

FedEx Express

J131111305230126

TUE 31 DEC 10:30A

TRK# 0201 5614 5589 3995

THU - 02 JAN 10:30A
PRIORITY OVERNIGHT

XH SGRA

77099
TX-US
IAH

Part # 156140-434 RIT 08/12

FID 891056 31DEC13 ROWA 51AC1/D6EC/65DD

06-Feb-2014

Aaron Strange
Navajo Refining Company
PO Box 1490
Artesia, NM 88211-1490

Tel: (575) 748-6733
Fax: (575) 746-5421

Re: ABT Inlet - Outlet Work Order: **14011183**

Dear Aaron,

ALS Environmental received 2 samples on 31-Jan-2014 08:53 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 14.

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

Sincerely,

Electronically approved by: Dayna.Fisher

Sonia West
Project Manager

Certificate No: T104704231-13-12

ALS Environmental

Date: 06-Feb-14

Client: Navajo Refining Company
Project: ABT Inlet - Outlet
Work Order: **14011183**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
14011183-01	ABT T-836 Intel	Water		1/30/2014 07:10	1/31/2014 08:53	☐
14011183-02	ABT T-836 Outlet	Water		1/30/2014 14:00	1/31/2014 08:53	☐

Client: Navajo Refining Company
Project: ABT Inlet - Outlet
Work Order: 14011183

Case Narrative

Batch R160869, TKN SM4500NH3 D, Sample 14011201-01B: MS is for an unrelated sample.

Batch R160889, Phenol 420.4, Sample 1402038-01F: MS/MSD are for an unrelated sample.

ALS Environmental

Date: *06-Feb-14*

Client: Navajo Refining Company

Project: ABT Inlet - Outlet **Work Order:** 14011183

Sample ID: ABT T-836 Intel **Lab ID:** 14011183-01

Collection Date: 1/30/2014 07:10 AM **Matrix:** WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BOD			**SM5210 B**		Prep Date: **1/31/2014**	Analyst: **PPM**
Biochemical Oxygen Demand	**154**		**40.0**	**mg/L**	20	2/5/2014 11:45 AM
CHEMICAL OXYGEN DEMAND			**E410.4**			Analyst: **PPM**
Chemical Oxygen Demand	**890**		**100**	**mg/L**	1	2/4/2014 10:15 AM
PHENOLICS - EPA 420.4			**E420.4**			Analyst: **KKB**
Phenolics, Total Recoverable	ND		0.0500	mg/L	1	2/4/2014 02:45 PM
TOTAL KJELDAHL NITROGEN			**M4500 NH3 D**			Analyst: **KKB**
Nitrogen, Total Kjeldahl	**62**		**1.0**	**mg/L**	1	2/4/2014 01:00 PM

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

ALS Environmental

Date: *06-Feb-14*

Client: Navajo Refining Company
Project: ABT Inlet - Outlet
Work Order: 14011183
Sample ID: ABT T-836 Outlet
Lab ID: 14011183-02
Collection Date: 1/30/2014 02:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BOD			**SM5210 B**		Prep Date: **1/31/2014**	Analyst: **PPM**
Biochemical Oxygen Demand	**80.0**		**10.0**	**mg/L**	5	2/5/2014 11:45 AM
CHEMICAL OXYGEN DEMAND			**E410.4**			Analyst: **PPM**
Chemical Oxygen Demand	**926**		**100**	**mg/L**	1	2/4/2014 10:15 AM
PHENOLICS - EPA 420.4			**E420.4**			Analyst: **KKB**
Phenolics, Total Recoverable	**2.46**		**0.500**	**mg/L**	5	2/4/2014 02:46 PM
TOTAL KJELDAHL NITROGEN			**M4500 NH3 D**			Analyst: **KKB**
Nitrogen, Total Kjeldahl	**59**		**1.0**	**mg/L**	1	2/4/2014 01:00 PM

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

Work Order: 14011183
Client: Navajo Refining Company
Project: ABT Inlet - Outlet

DATES REPORT

Sample ID	Client Sample ID	Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
Batch ID 76425	**Test Name:** BOD					
14011183-01D	ABT T-836 Intel	Water	1/30/2014 7:10:00 AM		1/31/2014 09:30 AM	2/5/2014 11:45 AM
14011183-02D	ABT T-836 Outlet		1/30/2014 2:00:00 PM		1/31/2014 09:30 AM	2/5/2014 11:45 AM
Batch ID R160869	**Test Name:** Total Kjeldahl Nitrogen					
14011183-01B	ABT T-836 Intel	Water	1/30/2014 7:10:00 AM			2/4/2014 01:00 PM
14011183-02B	ABT T-836 Outlet		1/30/2014 2:00:00 PM			2/4/2014 01:00 PM
Batch ID R160889	**Test Name:** Phenolics - EPA 420.4					
14011183-01C	ABT T-836 Intel	Water	1/30/2014 7:10:00 AM			2/4/2014 02:45 PM
14011183-02C	ABT T-836 Outlet		1/30/2014 2:00:00 PM			2/4/2014 02:46 PM
Batch ID R160910	**Test Name:** Chemical Oxygen Demand					
14011183-01A	ABT T-836 Intel	Water	1/30/2014 7:10:00 AM			2/4/2014 10:15 AM
14011183-02A	ABT T-836 Outlet		1/30/2014 2:00:00 PM			2/4/2014 10:15 AM

Batch ID: **76425** Instrument ID **ManTech01** Method: **SM5210 B** **(Dissolve)**

MBLK Sample ID: **WBLKW1140131-76425** Units: **mg/L** Analysis Date: **2/5/2014 11:45 AM**

Client ID: Run ID: **MANTECH01_140205A** SeqNo: **3523692** Prep Date: **1/31/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	ND	2.00								

LCS Sample ID: **WLCSW1-140131-76425** Units: **mg/L** Analysis Date: **2/5/2014 11:45 AM**

Client ID: Run ID: **MANTECH01_140205A** SeqNo: **3523693** Prep Date: **1/31/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	189.5	2.00	198	0	95.7	85-115				

LCSD Sample ID: **WLCSDW1-140131-76425** Units: **mg/L** Analysis Date: **2/5/2014 11:45 AM**

Client ID: Run ID: **MANTECH01_140205A** SeqNo: **3523705** Prep Date: **1/31/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	185.5	2.00	198	0	93.7	85-115	189.5	2.13	20	

DUP Sample ID: **14011152-01DDUP** Units: **mg/L** Analysis Date: **2/5/2014 11:45 AM**

Client ID: Run ID: **MANTECH01_140205A** SeqNo: **3523704** Prep Date: **1/31/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	5.8	2.00					6.2	6.67	20	

The following samples were analyzed in this batch: 14011183-01D 14011183-02D

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

Client: Navajo Refining Company
Work Order: 14011183
Project: ABT Inlet - Outlet

QC BATCH REPORT

Batch ID: **R160869** Instrument ID **WetChem** Method: **M4500 NH3 D** **(Dissolve)**

MBLK Sample ID: **MB-R160869-R160869** Units: **mg/L** Analysis Date: **2/4/2014 01:00 PM**
Client ID: Run ID: **WETCHEM_140204D** SeqNo: **3521949** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	ND	0.50								

LCS Sample ID: **LCS-R160869-R160869** Units: **mg/L** Analysis Date: **2/4/2014 01:00 PM**
Client ID: Run ID: **WETCHEM_140204D** SeqNo: **3521950** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	23.6	1.0	20	0	118	80-120				

LCSD Sample ID: **WLCSDW1-140204-R160869** Units: **mg/L** Analysis Date: **2/4/2014 01:00 PM**
Client ID: Run ID: **WETCHEM_140204D** SeqNo: **3521965** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	22	1.0	20	0	110	80-120	23.6	7.02	20	

MS Sample ID: **14011201-01BMS** Units: **mg/L** Analysis Date: **2/4/2014 01:00 PM**
Client ID: Run ID: **WETCHEM_140204D** SeqNo: **3521964** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	12.78	1.0	20	0.94	59.2	75-125				S

The following samples were analyzed in this batch: 14011183-01B 14011183-02B

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

Client: Navajo Refining Company
Work Order: 14011183
Project: ABT Inlet - Outlet

QC BATCH REPORT

Batch ID: **R160889** Instrument ID **Gall01** Method: **E420.4**

MBLK Sample ID: **WBLKW1-140204-R160889** Units: **mg/L** Analysis Date: **2/4/2014 02:43 PM**
Client ID: Run ID: **GALL01_140204A** SeqNo: **3522235** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	ND	0.0500								

LCS Sample ID: **WLCSW1-140204-R160889** Units: **mg/L** Analysis Date: **2/4/2014 02:43 PM**
Client ID: Run ID: **GALL01_140204A** SeqNo: **3522236** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	0.4204	0.0500	0.5	0	84.1	80-120				

MS Sample ID: **1402038-01FMS** Units: **mg/L** Analysis Date: **2/4/2014 02:47 PM**
Client ID: Run ID: **GALL01_140204A** SeqNo: **3522242** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	0.2068	0.0500	0.5	0	41.4	80-120				S

MSD Sample ID: **1402038-01FMSD** Units: **mg/L** Analysis Date: **2/4/2014 02:48 PM**
Client ID: Run ID: **GALL01_140204A** SeqNo: **3522243** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	0.1747	0.0500	0.5	0	34.9	80-120	0.2068	16.9	20	S

The following samples were analyzed in this batch: 14011183-01C 14011183-02C

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

Client: Navajo Refining Company
Work Order: 14011183
Project: ABT Inlet - Outlet

QC BATCH REPORT

Batch ID: **R160910** Instrument ID **WetChem** Method: **E410.4** **(Dissolve)**

MBLK Sample ID: **WBLKW1-140204-R160910** Units: **mg/L** Analysis Date: **2/4/2014 10:15 AM**
Client ID: Run ID: **WETCHEM_140204H** SeqNo: **3522791** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	ND	100								

LCS Sample ID: **WLCSW1-140204-R160910** Units: **mg/L** Analysis Date: **2/4/2014 10:15 AM**
Client ID: Run ID: **WETCHEM_140204H** SeqNo: **3522792** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	947	100	1000	0	94.7	85-115				

LCSD Sample ID: **WLCSDW1-140204-R160910** Units: **mg/L** Analysis Date: **2/4/2014 10:15 AM**
Client ID: Run ID: **WETCHEM_140204H** SeqNo: **3522798** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	958	100	1000	0	95.8	85-115	947	1.15	20	

MS Sample ID: **1401997-01EMS** Units: **mg/L** Analysis Date: **2/4/2014 10:15 AM**
Client ID: Run ID: **WETCHEM_140204H** SeqNo: **3522797** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	1880	200	1000	868	101	80-120				

DUP Sample ID: **1401997-01EDUP** Units: **mg/L** Analysis Date: **2/4/2014 10:15 AM**
Client ID: Run ID: **WETCHEM_140204H** SeqNo: **3522796** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	864	100					868	0.462	20	

The following samples were analyzed in this batch: 14011183-01A 14011183-02A

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

ALS Environmental

Date: 06-Feb-14

Client: Navajo Refining Company
Project: ABT Inlet - Outlet
WorkOrder: **14011183**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	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

Acronym	Description
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

Units Reported	Description
mg/L	Milligrams per Liter

ALS Environmental

Sample Receipt Checklist

Client Name: **NAVAJO REFINING** Date/Time Received: **31-Jan-14 08:53**

Work Order: **14011183** Received by: **SAY**

Checklist completed by Salvador A. Yanez (eSignature) 31-Jan-14 (Date) Reviewed by: Sonia West (eSignature) 31-Jan-14 (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):	2.0c2.0c c/u		
Cooler(s)/Kit(s):	2856		
Date/Time sample(s) sent to storage:	1/31/2014 11:00		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

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

Chain of Custody Form

Page 1 of 1

14011183

NAVAJO REFINING: Navajo Refining Company

Project: ABT Inlet - Outlet

ALS Project Manager: Pat Lynch

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	ABT Inlet / Outlet	A	TKN (350)
Work Order		Project Number		B	BOD
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	COD (410.1)
Send Report To	Aaron Strange	Invoice Attn.	Aaron Strange	D	Phenolics (420)
Address	P. O. Box 159	Address	501 East Main	E	
				F	
City/State/Zip	Artesia, New Mexico 88211-0159	City/State/Zip	Artesia, New Mexico 88210	G	
Phone	(575) 748-3311	Phone	(575) 748-3311	H	
Fax	(575) 746-5451	Fax	(575) 746-5451	I	
e-Mail Address	Aaron.Strange@hollyfrontier.com	e-Mail Address	Aaron.Strange@hollyfrontier.com	J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	ABT T- 836 Inlet	1/30/14	7:10	Liquid	Yes	5	X	X	X	X							
2	ABT T- 836 Outlet	1/30/14	14:00	Liquid	Yes	5	X	X	X	X							
3	Temperature Blank			Liquid	None	1											
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s): Please Print & Sign: Aaron Strange

Shipment Method: FedEx

Required Turnaround Time: ☑ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other _____

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Notes:
[signature]	1/30/2014	16:15		
Relinquished by:	Date:	Time:	Received by (Laboratory):	Cooler Temp.
	1/31/14	08:53	[signature]	
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	

QC Package: (Check Box Below)

☐ Level II: Standard QC ☐ TRRP-Checklist
☐ Level III: Std QC + Raw Data ☐ TRRP Level IV
☐ Level IV: SW846 CLP-Like
☐ Other: _____

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

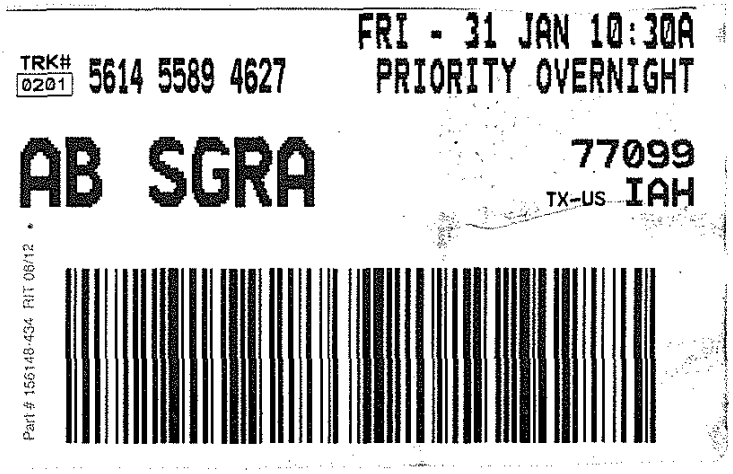
Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS Laboratory Group.

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

CUST
Date: 1-30-14
Name: Aaron S
Company: Naval

ODY SEAL
Time: 16:15
trong
a Refining Co.

Broke By:
34
Date:
1/31/14



11-Mar-2014

Aaron Strange
Navajo Refining Company
PO Box 1490
Artesia, NM 88211-1490

Tel: (575) 748-6733
Fax: (575) 746-5421

Re: ABT Inlet - Outlet (T-801) Work Order: **14021265**

Dear Aaron,

ALS Environmental received 2 samples on 28-Feb-2014 09:20 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 14.

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

Sincerely,

Electronically approved by: Jumoke M. Lawal

Sonia West
Project Manager

Certificate No: T104704231-13-12

ALS Environmental

Date: 11-Mar-14

Client: Navajo Refining Company
Project: ABT Inlet - Outlet (T-801)
Work Order: **14021265**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
14021265-01	ABT T-801 Inlet	Liquid		2/27/2014 06:35	2/28/2014 09:20	☐
14021265-02	ABT T-801 Outlet	Liquid		2/27/2014 13:00	2/28/2014 09:20	☐

Client:	Navajo Refining Company
Project:	ABT Inlet - Outlet (T-801)
Work Order:	14021265

Case Narrative

BOD Method 5210B, samples "ABT T-801 Inlet" and "ABT T-801 Outlet": Analytical results are flagged with a B qualifier due to the concentration in the Method Blank at >0.2 (0.4) mg/L.

Batch R162591, COD, Sample 14030171-01C: MS and DUP are for an unrelated sample.

ALS Environmental

Date: *11-Mar-14*

Client: Navajo Refining Company

Project: ABT Inlet - Outlet (T-801) **Work Order:** 14021265

Sample ID: ABT T-801 Inlet **Lab ID:** 14021265-01

Collection Date: 2/27/2014 06:35 AM **Matrix:** LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BOD			**SM5210 B**		Prep Date: **2/28/2014**	Analyst: **PPM**
Biochemical Oxygen Demand	**330**	B	**40.0**	**mg/L**	20	3/5/2014 12:56 PM
CHEMICAL OXYGEN DEMAND			**E410.4**			Analyst: **PPM**
Chemical Oxygen Demand	**2,190**		**200**	**mg/L**	2	3/10/2014 09:00 AM
PHENOLICS - EPA 420.4			**E420.4**			Analyst: **RPM**
Phenolics, Total Recoverable	**14.5**		**2.50**	**mg/L**	50	3/5/2014 04:00 PM
TOTAL KJELDAHL NITROGEN			**M4500 NH3 D**			Analyst: **KAH**
Nitrogen, Total Kjeldahl	**91**		**5.0**	**mg/L**	1	3/4/2014 04:00 PM

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

ALS Environmental

Date: *11-Mar-14*

Client: Navajo Refining Company
Project: ABT Inlet - Outlet (T-801)
Work Order: 14021265
Sample ID: ABT T-801 Outlet
Lab ID: 14021265-02
Collection Date: 2/27/2014 01:00 PM
Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BOD			**SM5210 B**		Prep Date: **2/28/2014**	Analyst: **PPM**
Biochemical Oxygen Demand	**335**	B	**40.0**	**mg/L**	20	3/5/2014 12:56 PM
CHEMICAL OXYGEN DEMAND			**E410.4**			Analyst: **PPM**
Chemical Oxygen Demand	**1,700**		**500**	**mg/L**	5	3/10/2014 09:00 AM
PHENOLICS - EPA 420.4			**E420.4**			Analyst: **RPM**
Phenolics, Total Recoverable	**0.0974**		**0.0500**	**mg/L**	1	3/5/2014 03:31 PM
TOTAL KJELDAHL NITROGEN			**M4500 NH3 D**			Analyst: **KAH**
Nitrogen, Total Kjeldahl	**110**		**5.0**	**mg/L**	1	3/4/2014 04:00 PM

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

Work Order: 14021265
Client: Navajo Refining Company
Project: ABT Inlet - Outlet (T-801)

DATES REPORT

Sample ID	Client Sample ID	Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
Batch ID 77111 **Test Name:** BOD						
14021265-01 D	ABT T-801 Inlet	Liquid	2/27/2014 6:35:00 AM		2/28/2014 05:00 PM	3/5/2014 12:56 PM
14021265-02 D	ABT T-801 Outlet		2/27/2014 1:00:00 PM		2/28/2014 05:00 PM	3/5/2014 12:56 PM
Batch ID R162311 **Test Name:** Total Kjeldahl Nitrogen						
14021265-01 B	ABT T-801 Inlet	Liquid	2/27/2014 6:35:00 AM			3/4/2014 04:00 PM
14021265-02 B	ABT T-801 Outlet		2/27/2014 1:00:00 PM			3/4/2014 04:00 PM
Batch ID R162379 **Test Name:** Phenolics - EPA 420.4						
14021265-01 C	ABT T-801 Inlet	Liquid	2/27/2014 6:35:00 AM			3/5/2014 04:00 PM
14021265-02 C	ABT T-801 Outlet		2/27/2014 1:00:00 PM			3/5/2014 03:31 PM
Batch ID R162591 **Test Name:** Chemical Oxygen Demand						
14021265-01 A	ABT T-801 Inlet	Liquid	2/27/2014 6:35:00 AM			3/10/2014 09:00 AM
14021265-02 A	ABT T-801 Outlet		2/27/2014 1:00:00 PM			3/10/2014 09:00 AM

QC BATCH REPORT

Batch ID: **77111** Instrument ID **ManTech01** Method: **SM5210 B** **(Dissolve)**

MBLK Sample ID: **WBLKW1-140228-77111** Units: **mg/L** Analysis Date: **3/5/2014 12:56 PM**

Client ID: Run ID: **MANTECH01_140305A** SeqNo: **3553927** Prep Date: **2/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	ND	2.00								

LCS Sample ID: **WLCSW1-140228-77111** Units: **mg/L** Analysis Date: **3/5/2014 12:56 PM**

Client ID: Run ID: **MANTECH01_140305A** SeqNo: **3553928** Prep Date: **2/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	213	2.00	198	0	108	85-115				B

LCSD Sample ID: **WLCSDW1-140228-77111** Units: **mg/L** Analysis Date: **3/5/2014 12:56 PM**

Client ID: Run ID: **MANTECH01_140305A** SeqNo: **3553938** Prep Date: **2/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	214.5	2.00	198	0	108	85-115	213	0.702	20	B

DUP Sample ID: **14021210-01DDUP** Units: **mg/L** Analysis Date: **3/5/2014 12:56 PM**

Client ID: Run ID: **MANTECH01_140305A** SeqNo: **3553937** Prep Date: **2/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	7.5	2.00					7.5	0	20	B

The following samples were analyzed in this batch: 14021265-01D 14021265-02D

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

Client: Navajo Refining Company
Work Order: 14021265
Project: ABT Inlet - Outlet (T-801)

QC BATCH REPORT

Batch ID: **R162311** Instrument ID **WetChem** Method: **M4500 NH3 D** **(Dissolve)**

MBLK Sample ID: **WBLKW1-140304-R162311** Units: **mg/L** Analysis Date: **3/4/2014 04:00 PM**
Client ID: Run ID: **WETCHEM_140304G** SeqNo: **3552480** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	ND	1.0								

LCS Sample ID: **WLCSW1-140304-R162311** Units: **mg/L** Analysis Date: **3/4/2014 04:00 PM**
Client ID: Run ID: **WETCHEM_140304G** SeqNo: **3552481** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	19.88	1.0	20	0	99.4	80-120				

MS Sample ID: **14021148-01IMS** Units: **mg/L** Analysis Date: **3/4/2014 04:00 PM**
Client ID: Run ID: **WETCHEM_140304G** SeqNo: **3552489** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	17.98	1.0	20	1.202	83.9	75-125				

The following samples were analyzed in this batch: 14021265-01B 14021265-02B

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

Client: Navajo Refining Company
Work Order: 14021265
Project: ABT Inlet - Outlet (T-801)

QC BATCH REPORT

Batch ID: **R162379** Instrument ID **Gall01** Method: **E420.4**

MBLK Sample ID: **WBLKW1-140305-R162379** Units: **mg/L** Analysis Date: **3/5/2014 03:27 PM**
Client ID: Run ID: **GALL01_140305E** SeqNo: **3554146** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	ND	0.0500								

LCS Sample ID: **WLCSW1-140305-R162379** Units: **mg/L** Analysis Date: **3/5/2014 03:28 PM**
Client ID: Run ID: **GALL01_140305E** SeqNo: **3554147** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	0.192	0.0500	0.2	0	96	80-120				

MS Sample ID: **14021188-01BMS** Units: **mg/L** Analysis Date: **3/5/2014 03:30 PM**
Client ID: Run ID: **GALL01_140305E** SeqNo: **3554150** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	0.2161	0.0500	0.2	0.04838	83.8	80-120				

DUP Sample ID: **14021188-01BDUP** Units: **mg/L** Analysis Date: **3/5/2014 03:29 PM**
Client ID: Run ID: **GALL01_140305E** SeqNo: **3554149** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	ND	0.0500					0.04838	0	20	

The following samples were analyzed in this batch: 14021265-01C 14021265-02C

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

Client: Navajo Refining Company
Work Order: 14021265
Project: ABT Inlet - Outlet (T-801)

QC BATCH REPORT

Batch ID: **R162591** Instrument ID **WetChem** Method: **E410.4** **(Dissolve)**

MBLK Sample ID: **WBLKW1-140310-R162591** Units: **mg/L** Analysis Date: **3/10/2014 09:00 AM**
Client ID: Run ID: **WETCHEM_140310B** SeqNo: **3558763** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	ND	100								

LCS Sample ID: **WLCSW1-140310-R162591** Units: **mg/L** Analysis Date: **3/10/2014 09:00 AM**
Client ID: Run ID: **WETCHEM_140310B** SeqNo: **3558764** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	975	100	1000	0	97.5	85-115				

LCSD Sample ID: **WLCSDW1-140310-R162591** Units: **mg/L** Analysis Date: **3/10/2014 09:00 AM**
Client ID: Run ID: **WETCHEM_140310B** SeqNo: **3558774** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	970	100	1000	0	97	85-115	975	0.514	20	

MS Sample ID: **14030171-01CMS** Units: **mg/L** Analysis Date: **3/10/2014 09:00 AM**
Client ID: Run ID: **WETCHEM_140310B** SeqNo: **3558771** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	659	100	500	311	69.6	80-120				S

DUP Sample ID: **14030171-01CDUP** Units: **mg/L** Analysis Date: **3/10/2014 09:00 AM**
Client ID: Run ID: **WETCHEM_140310B** SeqNo: **3558770** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	312	100					311	0.321	20	

The following samples were analyzed in this batch: 14021265-01A 14021265-02A

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

ALS Environmental

Date: 11-Mar-14

Client: Navajo Refining Company
Project: ABT Inlet - Outlet (T-801)
WorkOrder: **14021265**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	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

Acronym	Description
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

Units Reported	Description
mg/L	Milligrams per Liter

ALS Environmental

Sample Receipt Checklist

Client Name: **NAVAJO REFINING** Date/Time Received: **28-Feb-14 09:20**

Work Order: **14021265** Received by: **LOT**

Checklist completed by Paresh M. Giga (eSignature) 28-Feb-14 (Date) Reviewed by: Sonia West (eSignature) 03-Mar-14 (Date)

Matrices: Liquid
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):	2.2c/2.2c C/U	IR1	
Cooler(s)/Kit(s):	4999		
Date/Time sample(s) sent to storage:	2/28/14 11:00		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

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

Chain of Custody Form

Page 1 of 1

14021265

NAVAJO REFINING: Navajo Refining Company

Project: ABT Inlet - Outlet (T-801)

ALS Project Manager: Pat Lynch

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	ABT Inlet / Outlet	A	TKN (350)
Work Order		Project Number		B	BOD
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	COD (410.1)
Send Report To	Aaron Strange	Invoice Attn.	Aaron Strange	D	Phenolics (420)
Address	P. O. Box 159	Address	501 East Main	E	
				F	
City/State/Zip	Artesia, New Mexico 88211-0159	City/State/Zip	Artesia, New Mexico 88210	G	
Phone	(575) 748-3311	Phone	(575) 748-3311	H	
Fax	(575) 746-5451	Fax	(575) 746-5451	I	
e-Mail Address	Aaron.Strange@hollyfrontier.com	e-Mail Address	Aaron.Strange@hollyfrontier.com	J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	ABT T- 801 Inlet	2/27/14	6:35	Liquid	Yes	5	X	X	X	X							
2	ABT T- 801 Outlet	2/27/14	13:00	Liquid	Yes	4	X	X	X	X							
3	Temperature Blank			Liquid	None	1											
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s): Please Print & Sign
Aaron Strange

Shipment Method: FedEx

Required Turnaround Time: ☑ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other _____

Results Due Date:

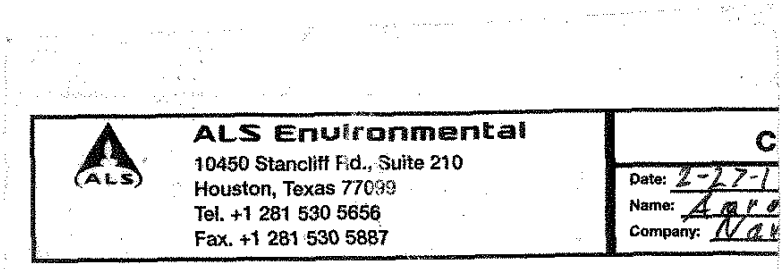
Relinquished by:	Date:	Time:	Received by:	Notes:
[signature]	2/27/2014	16:15		One amber jar arrived broken
Relinquished by:	Date:	Time:	Received by (Laboratory): [signature] 2/28/14 920	Cooler Temp.
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	

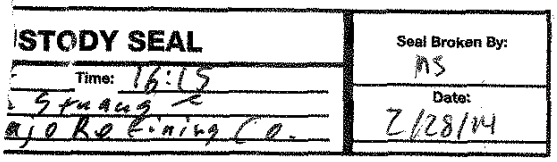
QC Package: (Check Box Below)

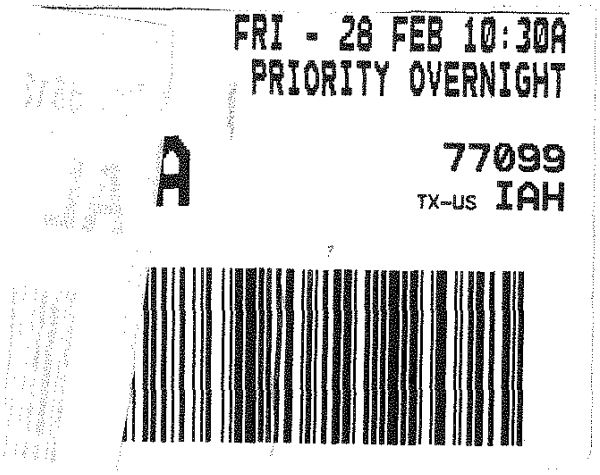
- ☐ Level II: Standard QC — ☐ TRRP-Checklist
- ☐ Level III: Std QC + Raw Data — ☐ TRRP Level IV
- ☐ Level IV: SW846 CLP-Like
- ☐ Other: _____

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

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


ALS Environmental
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887
C
Date: 2-27-1
Name: Aaro
Company: Nav


STODY SEAL
Time: 16:15
Seal Broken By:
MS
Date:
2/28/14


FRI - 28 FEB 10:30A
PRIORITY OVERNIGHT
A
77099
TX-US IAH

31-Mar-2014

Aaron Strange
Navajo Refining Company
PO Box 1490
Artesia, NM 88211-1490

Tel: (575) 748-6733
Fax: (575) 746-5421

Re: ABT Inlet - Outlet (T-801) Work Order: **14030783**

Dear Aaron,

ALS Environmental received 2 samples on 20-Mar-2014 08:57 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 15.

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

Sincerely,

Electronically approved by: Jumoke M. Lawal

Sonia West
Project Manager

Certificate No: T104704231-13-12

ALS Environmental

Date: 31-Mar-14

Client: Navajo Refining Company
Project: ABT Inlet - Outlet (T-801)
Work Order: **14030783**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
14030783-01	ABT T-801 Inlet	Liquid		3/19/2014 07:05	3/20/2014 08:57	☐
14030783-02	ABT T-801 Outlet	Liquid		3/19/2014 14:00	3/20/2014 08:57	☐

Client: Navajo Refining Company
Project: ABT Inlet - Outlet (T-801)
Work Order: 14030783

Case Narrative

No Exceptions

ALS Environmental

Date: *31-Mar-14*

Client: Navajo Refining Company
Project: ABT Inlet - Outlet (T-801)
Work Order: 14030783
Sample ID: ABT T-801 Inlet
Lab ID: 14030783-01
Collection Date: 3/19/2014 07:05 AM
Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BOD			**SM5210 B**		Prep Date: **3/20/2014**	Analyst: **PPM**
Biochemical Oxygen Demand	**202**		**80.0**	**mg/L**	40	3/25/2014 04:15 PM
CHEMICAL OXYGEN DEMAND			**E410.4**			Analyst: **PPM**
Chemical Oxygen Demand	**1,010**		**100**	**mg/L**	1	3/25/2014 09:00 AM
PHENOLICS - EPA 420.4			**E420.4**			Analyst: **KKB**
Phenolics, Total Recoverable	**32.6**		**2.50**	**mg/L**	50	3/31/2014 04:08 PM
TOTAL KJELDAHL NITROGEN			**M4500 NH3 D**			Analyst: **KKB**
Nitrogen, Total Kjeldahl	**37**		**1.0**	**mg/L**	1	3/25/2014 03:00 PM

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

ALS Environmental

Date: *31-Mar-14*

Client: Navajo Refining Company
Project: ABT Inlet - Outlet (T-801)
Work Order: 14030783
Sample ID: ABT T-801 Outlet
Lab ID: 14030783-02
Collection Date: 3/19/2014 02:00 PM
Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BOD			**SM5210 B**		Prep Date: **3/20/2014**	Analyst: **PPM**
Biochemical Oxygen Demand	**31.4**		**8.00**	**mg/L**	4	3/25/2014 04:15 PM
CHEMICAL OXYGEN DEMAND			**E410.4**			Analyst: **PPM**
Chemical Oxygen Demand	**3,430**		**500**	**mg/L**	5	3/25/2014 09:00 AM
PHENOLICS - EPA 420.4			**E420.4**			Analyst: **KKB**
Phenolics, Total Recoverable	**0.153**		**0.0500**	**mg/L**	1	3/28/2014 02:54 PM
TOTAL KJELDAHL NITROGEN			**M4500 NH3 D**			Analyst: **KKB**
Nitrogen, Total Kjeldahl	**160**		**5.0**	**mg/L**	1	3/25/2014 03:00 PM

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

Work Order: 14030783
Client: Navajo Refining Company
Project: ABT Inlet - Outlet (T-801)

DATES REPORT

Sample ID	Client Sample ID	Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
Batch ID 77573 **Test Name:** BOD						
14030783-01 D	ABT T-801 Inlet	Liquid	3/19/2014 7:05:00 AM		3/20/2014 04:15 PM	3/25/2014 04:15 PM
14030783-02 D	ABT T-801 Outlet		3/19/2014 2:00:00 PM		3/20/2014 04:15 PM	3/25/2014 04:15 PM
Batch ID R163407 **Test Name:** Total Kjeldahl Nitrogen						
14030783-01 B	ABT T-801 Inlet	Liquid	3/19/2014 7:05:00 AM			3/25/2014 03:00 PM
14030783-02 B	ABT T-801 Outlet		3/19/2014 2:00:00 PM			3/25/2014 03:00 PM
Batch ID R163418 **Test Name:** Chemical Oxygen Demand						
14030783-01 A	ABT T-801 Inlet	Liquid	3/19/2014 7:05:00 AM			3/25/2014 09:00 AM
14030783-02 A	ABT T-801 Outlet		3/19/2014 2:00:00 PM			3/25/2014 09:00 AM
Batch ID R163638 **Test Name:** Phenolics - EPA 420.4						
14030783-02 C	ABT T-801 Outlet	Liquid	3/19/2014 2:00:00 PM			3/28/2014 02:54 PM
Batch ID R163752 **Test Name:** Phenolics - EPA 420.4						
14030783-01 C	ABT T-801 Inlet	Liquid	3/19/2014 7:05:00 AM			3/31/2014 04:08 PM

QC BATCH REPORT

Batch ID: **77573** Instrument ID **WetChem** Method: **SM5210 B** **(Dissolve)**

MBLK Sample ID: **WBLKW1-140320-77573** Units: **mg/L** Analysis Date: **3/25/2014 04:15 PM**

Client ID: Run ID: **WETCHEM_140325L** SeqNo: **3581692** Prep Date: **3/20/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	ND	2.00								

LCS Sample ID: **WLCSW1-140320-77573** Units: **mg/L** Analysis Date: **3/25/2014 04:15 PM**

Client ID: Run ID: **WETCHEM_140325L** SeqNo: **3581693** Prep Date: **3/20/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	197.8	2.00	198	0	99.9	85-115				

LCSD Sample ID: **WLCSDW1-140320-77573** Units: **mg/L** Analysis Date: **3/25/2014 04:15 PM**

Client ID: Run ID: **WETCHEM_140325L** SeqNo: **3581703** Prep Date: **3/20/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	205.8	2.00	198	0	104	85-115	197.8	3.96	20	

DUP Sample ID: **14030723-01ADUP** Units: **mg/L** Analysis Date: **3/25/2014 04:15 PM**

Client ID: Run ID: **WETCHEM_140325L** SeqNo: **3581705** Prep Date: **3/20/2014** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	24.76	8.00					24.88	0.483	20	

The following samples were analyzed in this batch: 14030783-01D 14030783-02D

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

Client: Navajo Refining Company
Work Order: 14030783
Project: ABT Inlet - Outlet (T-801)

QC BATCH REPORT

Batch ID: **R163407** Instrument ID **WetChem** Method: **M4500 NH3 D (Dissolve)**

MBLK Sample ID: **MB-R163407-R163407** Units: **mg/L** Analysis Date: **3/25/2014 03:00 PM**
Client ID: Run ID: **WETCHEM_140325C** SeqNo: **3576845** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	ND	1.0								

LCS Sample ID: **LCS-R163407-R163407** Units: **mg/L** Analysis Date: **3/25/2014 03:00 PM**
Client ID: Run ID: **WETCHEM_140325C** SeqNo: **3576846** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	23.6	1.0	20	0	118	80-120				

LCSD Sample ID: **WLCSDW1-140325-R163407** Units: **mg/L** Analysis Date: **3/25/2014 03:00 PM**
Client ID: Run ID: **WETCHEM_140325C** SeqNo: **3576852** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	23	1.0	20	0	115	80-120	23.6	2.58	20	

MS Sample ID: **14030738-01BMS** Units: **mg/L** Analysis Date: **3/25/2014 03:00 PM**
Client ID: Run ID: **WETCHEM_140325C** SeqNo: **3576851** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	19.68	1.0	20	0.956	93.6	75-125				

The following samples were analyzed in this batch: 14030783-01B 14030783-02B

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

Client: Navajo Refining Company
Work Order: 14030783
Project: ABT Inlet - Outlet (T-801)

QC BATCH REPORT

Batch ID: **R163418** Instrument ID **WetChem** Method: **E410.4** **(Dissolve)**

MBLK Sample ID: **WBLKW2-140325-R163418** Units: **mg/L** Analysis Date: **3/25/2014 09:00 AM**
Client ID: Run ID: **WETCHEM_140325I** SeqNo: **3577148** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	ND	100								

LCS Sample ID: **WLCSW2-140325-R163418** Units: **mg/L** Analysis Date: **3/25/2014 09:00 AM**
Client ID: Run ID: **WETCHEM_140325I** SeqNo: **3577149** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	968	100	1000	0	96.8	85-115				

LCSD Sample ID: **WLCSDW2-140325-R163418** Units: **mg/L** Analysis Date: **3/25/2014 09:30 AM**
Client ID: Run ID: **WETCHEM_140325I** SeqNo: **3577159** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	970	100	1000	0	97	85-115	968	0.206	20	

MS Sample ID: **14030781-01CMS** Units: **mg/L** Analysis Date: **3/25/2014 09:30 AM**
Client ID: Run ID: **WETCHEM_140325I** SeqNo: **3577156** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	1408	200	1000	411	99.7	80-120				

DUP Sample ID: **14030781-01CDUP** Units: **mg/L** Analysis Date: **3/25/2014 09:30 AM**
Client ID: Run ID: **WETCHEM_140325I** SeqNo: **3577155** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	410	100					411	0.244	20	

The following samples were analyzed in this batch: 14030783-01A 14030783-02A

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

Client: Navajo Refining Company
Work Order: 14030783
Project: ABT Inlet - Outlet (T-801)

QC BATCH REPORT

Batch ID: **R163638** Instrument ID **Gall01** Method: **E420.4**

MBLK Sample ID: **WBLKW1-140328-R163638** Units: **mg/L** Analysis Date: **3/28/2014 02:40 PM**
Client ID: Run ID: **GALL01_140328A** SeqNo: **3582148** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	ND	0.0500								

LCS Sample ID: **WLCSW1-140328-R163638** Units: **mg/L** Analysis Date: **3/28/2014 02:40 PM**
Client ID: Run ID: **GALL01_140328A** SeqNo: **3582149** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	0.4978	0.0500	0.5	0	99.6	80-120				

LCSD Sample ID: **WLCSDW1-140328-R163638** Units: **mg/L** Analysis Date: **3/28/2014 02:41 PM**
Client ID: Run ID: **GALL01_140328A** SeqNo: **3582150** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	0.5002	0.0500	0.5	0	100	80-120	0.4978	0.489	20	

MS Sample ID: **14030754-14AMS** Units: **mg/L** Analysis Date: **3/28/2014 02:52 PM**
Client ID: Run ID: **GALL01_140328A** SeqNo: **3582168** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	0.4782	0.0500	0.5	0.02475	90.7	80-120				

The following samples were analyzed in this batch: 14030783-02C

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

Client: Navajo Refining Company
Work Order: 14030783
Project: ABT Inlet - Outlet (T-801)

QC BATCH REPORT

Batch ID: **R163752** Instrument ID **Gall01** Method: **E420.4**

MBLK Sample ID: **WBLKW1-140331-R163752** Units: **mg/L** Analysis Date: **3/31/2014 04:07 PM**
Client ID: Run ID: **GALL01_140331A** SeqNo: **3584970** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	ND	0.0500								

LCS Sample ID: **WLCSW1-140331-R163752** Units: **mg/L** Analysis Date: **3/31/2014 04:08 PM**
Client ID: Run ID: **GALL01_140331A** SeqNo: **3584971** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	0.4953	0.0500	0.5	0	99.1	80-120				

LCSD Sample ID: **WLCSDW1-140331-R163752** Units: **mg/L** Analysis Date: **3/31/2014 04:08 PM**
Client ID: Run ID: **GALL01_140331A** SeqNo: **3584972** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	0.5134	0.0500	0.5	0	103	80-120	0.4953	3.58	20	

MS Sample ID: **14030876-02AMS** Units: **mg/L** Analysis Date: **3/31/2014 04:12 PM**
Client ID: Run ID: **GALL01_140331A** SeqNo: **3584976** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	0.4984	0.0500	0.5	0.02592	94.5	80-120				

The following samples were analyzed in this batch: 14030783-01C

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

ALS Environmental

Date: 31-Mar-14

Client: Navajo Refining Company
Project: ABT Inlet - Outlet (T-801)
WorkOrder: **14030783**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	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

Acronym	Description
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

Units Reported	Description
mg/L	Milligrams per Liter

ALS Environmental

Sample Receipt Checklist

Client Name: **NAVAJO REFINING** Date/Time Received: **20-Mar-14 08:57**

Work Order: **14030783** Received by: **DRC**

Checklist completed by Johnnie B. Allen (eSignature) 20-Mar-14 (Date) Reviewed by: Bernadette A. Fini (eSignature) 21-Mar-14 (Date)

Matrices: liquid
Carrier name: FedEx Priority Overnight

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.6 C/1.6 C u/c	IR1	
Cooler(s)/Kit(s):	5468		
Date/Time sample(s) sent to storage:	3/20/14 10:47		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

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

Chain of Custody Form

Page 1 of 1

14030783

NAVAJO REFINING: Navajo Refining Company

Project: ABT Inlet - Outlet (T-801)

ALS Project Manager: Pat Lynch

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	ABT Inlet / Outlet	A	TKN (350)
Work Order		Project Number		B	BOD
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	COD (410.1)
Send Report To	Aaron Strange	Invoice Attn.	Aaron Strange	D	Phenolics (420)
Address	P. O. Box 159	Address	501 East Main	E	
				F	
City/State/Zip	Artesia, New Mexico 88211-0159	City/State/Zip	Artesia, New Mexico 88210	G	
Phone	(575) 748-3311	Phone	(575) 748-3311	H	
Fax	(575) 746-5451	Fax	(575) 746-5451	I	
e-Mail Address	Aaron.Strange@hollyfrontier.com	e-Mail Address	Aaron.Strange@hollyfrontier.com	J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	ABT T- 801 Inlet	3/19/14	7:05	Liquid	Yes	5	X	X	X	X							
2	ABT T- 801 Outlet	3/19/14	14:00	Liquid	Yes	5	X	X	X	X							
3	Temperature Blank			Liquid	None	1											
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s): Please Print & Sign
Aaron Strange

Shipment Method: FedEx

Required Turnaround Time: ☑ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other _____

Results Due Date:

Relinquished by:	Date: 3/19/2014	Time: 16:15	Received by:	Notes: One amber jar arrived broken	
Relinquished by:	Date: 3/20/14	Time: 857	Received by (Laboratory):	Cooler Temp.	QC Package: (Check Box Below)
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		☐ Level II: Standard QC ☐ TRRP-Checklist ☐ Level III: Std QC + Raw Data ☐ TRRP Level IV ☐ Level IV: SW846 CLP-Like ☐ Other: _____

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

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

ORIGIN ID:ROWA (575) 748-3311
NAVAJO ARTESIA
501 E MAIN

ARTESIA , NM 882109440
UNITED STATES US

SHIP DATE: 19MAR14
ACTWGT: 33.0 LB MAN
CAD: 634483/CAFE2704

BILL RECIPIENT

TO SONIA WEST
ALS LABORATORY GROUP
10450 STANCLIFF RD., SUITE 210

HOUSTON TX 77099
(281) 530-5656
DEPT: ENVIRONMENTAL DEPT.

518C1/CC4F/6F03

FedEx
Express

E

J131113052301026

THU - 20 MAR 10:30A
PRIORITY OVERNIGHT

TRK# 0201 5614 5589 5509

AB SGRA

77099
TX-US IAH

Part # 156148-434 RIT 08/12

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

CUSTODY SEAL

Date: 3-19-14 Time: 16:15
Name: Aaron Strange
Company: Navajo Refining Co.

Seal Broken By: [illegible]
Date: 3/20/14

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

May 14, 2014

Aaron Strange
Navajo Refining Company
PO Box 1490
Artesia, NM 88211-1490

Work Order: **HS14041286**

Laboratory Results for: **ABT Inlet - Outlet**

Dear Aaron,

ALS Environmental received 2 sample(s) on Apr 30, 2014 for the analysis 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.

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

Sincerely,

Generated By: Dayna.Fisher
Sonia West
Project Manager

Client: Navajo Refining Company
Project: ABT Inlet - Outlet
Work Order: HS14041286

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS14041286-01	ABT T-836 Inlet	Water		29-Apr-2014 07:30	30-Apr-2014 09:45	☐
HS14041286-02	ABT T-836 Outlet	Water		29-Apr-2014 14:35	30-Apr-2014 09:45	☐

Client: Navajo Refining Company
Project: ABT Inlet - Outlet
Work Order: HS14041286

CASE NARRATIVE

Batch R233307, Phenolics, Total Recoverable by Method E420.4, Sample “ABT T-836 Inlet”: MS/MSD recoveries were outside the control limits, due to possible sample matrix interference. The associated LCS recoveries and MS/MSD RPD were within the control limits.

Client: Navajo Refining Company
Project: ABT Inlet - Outlet
Sample ID: ABT T-836 Inlet
Collection Date: 29-Apr-2014 07:30

ANALYTICAL REPORT
WorkOrder:HS14041286
Lab ID:HS14041286-01
Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
BOD	**Method:SM5210 B**			Prep:SM5210 B / 30-Apr-2014		Analyst: PPM
Biochemical Oxygen Demand	**345**		**10.0**	**mg/L**	5	05-May-2014 13:57
CHEMICAL OXYGEN DEMAND	**Method:E410.4**					Analyst: PPM
Chemical Oxygen Demand	**1,460**		**200**	**mg/L**	2	02-May-2014 13:30
TOTAL KJELDAHL NITROGEN	**Method:M4500 NH3 D**			Prep:M4500-NH3 BE		Analyst: KKB
Nitrogen, Total Kjeldahl	**120**		**5.0**	**mg/L**	1	05-May-2014 16:38
PHENOLICS - EPA 420.4	**Method:E420.4**					Analyst: KKB
Phenolics, Total Recoverable	**6.82**		**0.500**	**mg/L**	10	12-May-2014 12:01

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

Client: Navajo Refining Company
Project: ABT Inlet - Outlet
Sample ID: ABT T-836 Outlet
Collection Date: 29-Apr-2014 14:35

ANALYTICAL REPORT
WorkOrder:HS14041286
Lab ID:HS14041286-02
Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
BOD	**Method:SM5210 B**			Prep:SM5210 B / 01-May-2014		Analyst: PPM
Biochemical Oxygen Demand	**80.0**		**10.0**	**mg/L**	5	06-May-2014 15:06
CHEMICAL OXYGEN DEMAND	**Method:E410.4**					Analyst: PPM
Chemical Oxygen Demand	**1,720**		**200**	**mg/L**	2	02-May-2014 13:30
TOTAL KJELDAHL NITROGEN	**Method:M4500 NH3 D**			Prep:M4500-NH3 BE		Analyst: KKB
Nitrogen, Total Kjeldahl	**150**		**5.0**	**mg/L**	1	05-May-2014 16:38
PHENOLICS - EPA 420.4	**Method:E420.4**					Analyst: KKB
Phenolics, Total Recoverable	**0.169**		**0.0500**	**mg/L**	1	01-May-2014 17:49

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

Client: Navajo Refining Company
Project: ABT Inlet - Outlet
WorkOrder: HS14041286

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID 81415	**Test Name :** BOD			**Matrix:** Water		
HS14041286-01	ABT T-836 Inlet	29 Apr 2014 07:30		30 Apr 2014 16:30	05 May 2014 13:57	5
Batch ID 81462	**Test Name :** BOD			**Matrix:** Water		
HS14041286-02	ABT T-836 Outlet	29 Apr 2014 14:35		01 May 2014 10:00	06 May 2014 15:06	5
Batch ID R232983	**Test Name :** PHENOLICS - EPA 420.4			**Matrix:** Water		
HS14041286-02	ABT T-836 Outlet	29 Apr 2014 14:35			01 May 2014 17:49	1
Batch ID R233084	**Test Name :** CHEMICAL OXYGEN DEMAND			**Matrix:** Water		
HS14041286-01	ABT T-836 Inlet	29 Apr 2014 07:30			02 May 2014 13:30	2
HS14041286-02	ABT T-836 Outlet	29 Apr 2014 14:35			02 May 2014 13:30	2
Batch ID R233136	**Test Name :** TOTAL KJELDAHL NITROGEN			**Matrix:** Water		
HS14041286-01	ABT T-836 Inlet	29 Apr 2014 07:30			05 May 2014 16:38	1
HS14041286-02	ABT T-836 Outlet	29 Apr 2014 14:35			05 May 2014 16:38	1
Batch ID R233307	**Test Name :** PHENOLICS - EPA 420.4			**Matrix:** Water		
HS14041286-01	ABT T-836 Inlet	29 Apr 2014 07:30			12 May 2014 12:01	10

Client: Navajo Refining Company
WorkOrder: HS14041286
Project: ABT Inlet - Outlet

QC BATCH REPORT

Batch ID: 81415 **Instrument: ManTech01** **Method: SM5210 B**

MBLK Sample ID: **MBLK-81415** Units: **mg/L** Analysis Date: **05-May-2014 13:57**
Client ID: Run ID: **ManTech01_233122** SeqNo: **2821679** PrepDate: **30-Apr-2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	ND	2.00								

LCS Sample ID: **LCS-1-81415** Units: **mg/L** Analysis Date: **05-May-2014 13:57**
Client ID: Run ID: **ManTech01_233122** SeqNo: **2821675** PrepDate: **30-Apr-2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	179.5	2.00	198	0	90.7	85 - 115				

LCSD Sample ID: **LCSD-81415** Units: **mg/L** Analysis Date: **05-May-2014 13:57**
Client ID: Run ID: **ManTech01_233122** SeqNo: **2821676** PrepDate: **30-Apr-2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	178.5	2.00	198	0	90.2	85 - 115	179.5	0.559	20	

DUP Sample ID: **HS14041225-01DUP** Units: **mg/L** Analysis Date: **05-May-2014 13:57**
Client ID: Run ID: **ManTech01_233122** SeqNo: **2821678** PrepDate: **30-Apr-2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	9.2	2.00					9	2.2	20	

The following samples were anayzed in this batch: HS14041286-01

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

Client: Navajo Refining Company
WorkOrder: HS14041286
Project: ABT Inlet - Outlet

QC BATCH REPORT

Batch ID: 81462 **Instrument: ManTech01** **Method: SM5210 B**

MBLK Sample ID: **MBLK-81462** Units: **mg/L** Analysis Date: **06-May-2014 15:06**
Client ID: Run ID: **ManTech01_233230** SeqNo: **2823923** PrepDate: **01-May-2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	ND	2.00								

LCS Sample ID: **LCS-1-81462** Units: **mg/L** Analysis Date: **06-May-2014 15:06**
Client ID: Run ID: **ManTech01_233230** SeqNo: **2823924** PrepDate: **01-May-2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	209.5	2.00	198	0	106	85 - 115				

LCSD Sample ID: **LCSD-81462** Units: **mg/L** Analysis Date: **06-May-2014 15:06**
Client ID: Run ID: **ManTech01_233230** SeqNo: **2823921** PrepDate: **01-May-2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	208.5	2.00	198	0	105	85 - 115	209.5	0.478	20	

DUP Sample ID: **HS14041283-01DUP** Units: **mg/L** Analysis Date: **06-May-2014 15:06**
Client ID: Run ID: **ManTech01_233230** SeqNo: **2823922** PrepDate: **01-May-2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	ND	2.00					0	0	20	

The following samples were anayzed in this batch: HS14041286-02

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

Client: Navajo Refining Company
WorkOrder: HS14041286
Project: ABT Inlet - Outlet

QC BATCH REPORT

Batch ID: R232983 **Instrument: UV-2450** **Method: E420.4**

MBLK Sample ID: **MBLK-232983** Units: **mg/L** Analysis Date: **01-May-2014 17:49**
Client ID: Run ID: **UV-2450_232983** SeqNo: **2818144** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	ND	0.0500								

LCS Sample ID: **LCS-232983** Units: **mg/L** Analysis Date: **01-May-2014 17:49**
Client ID: Run ID: **UV-2450_232983** SeqNo: **2818145** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	0.473	0.0500	0.5	0	94.6	80 - 120				

LCSD Sample ID: **LCSD-232983** Units: **mg/L** Analysis Date: **01-May-2014 17:49**
Client ID: Run ID: **UV-2450_232983** SeqNo: **2818146** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	0.458	0.0500	0.5	0	91.6	80 - 120	0.473	3.22	20	

MS Sample ID: **HS14040998-03MS** Units: **mg/L** Analysis Date: **01-May-2014 17:49**
Client ID: Run ID: **UV-2450_232983** SeqNo: **2818147** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	0.6	0.0500	0.5	0.04	112	80 - 120				

The following samples were anayzed in this batch: HS14041286-02

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

Client: Navajo Refining Company
WorkOrder: HS14041286
Project: ABT Inlet - Outlet

QC BATCH REPORT

Batch ID: R233084 **Instrument: WetChem_HS** **Method: E410.4**

MBLK Sample ID: **MBLK-233084** Units: **mg/L** Analysis Date: **02-May-2014 13:30**
Client ID: Run ID: **WetChem_HS_233084** SeqNo: **2820795** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	ND	100								

LCS Sample ID: **LCS-233084** Units: **mg/L** Analysis Date: **02-May-2014 13:30**
Client ID: Run ID: **WetChem_HS_233084** SeqNo: **2820796** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	940	100	1000	0	94.0	85 - 115				

LCSD Sample ID: **LCSD-233084** Units: **mg/L** Analysis Date: **02-May-2014 13:30**
Client ID: Run ID: **WetChem_HS_233084** SeqNo: **2820797** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	949	100	1000	0	94.9	85 - 115	940	0.953	20	

MS Sample ID: **HS14050014-01MS** Units: **mg/L** Analysis Date: **02-May-2014 13:30**
Client ID: Run ID: **WetChem_HS_233084** SeqNo: **2820799** PrepDate: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	1624	200	1000	618	101	80 - 120				

DUP Sample ID: **HS14050014-01DUP** Units: **mg/L** Analysis Date: **02-May-2014 13:30**
Client ID: Run ID: **WetChem_HS_233084** SeqNo: **2820798** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	614	100					618	0.649	20	

The following samples were anayzed in this batch: HS14041286-01 HS14041286-02

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

Client: Navajo Refining Company
WorkOrder: HS14041286
Project: ABT Inlet - Outlet

QC BATCH REPORT

Batch ID: R233136 **Instrument: WetChem_HS** **Method: M4500 NH3 D**

MS Sample ID: **HS14050003-01MS** Units: **mg/L** Analysis Date: **05-May-2014 16:38**
Client ID: Run ID: **WetChem_HS_233136** SeqNo: **2821878** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	17.02	1.0	20	0.66	81.8	75 - 125				

The following samples were anayzed in this batch: HS14041286-01 HS14041286-02

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

Client: Navajo Refining Company
WorkOrder: HS14041286
Project: ABT Inlet - Outlet

QC BATCH REPORT

Batch ID: R233307 **Instrument: Gall01** **Method: E420.4**

MBLK Sample ID: **WBLKW** Units: **mg/L** Analysis Date: **12-May-2014 12:00**
Client ID: Run ID: **Gall01_233307** SeqNo: **2830964** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	ND	0.0500								

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **12-May-2014 12:00**
Client ID: Run ID: **Gall01_233307** SeqNo: **2830965** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	0.4316	0.0500	0.5	0	86.3	80 - 120				

MS Sample ID: **HS14041286-01MS** Units: **mg/L** Analysis Date: **12-May-2014 12:01**
Client ID: **ABT T-836 Inlet** Run ID: **Gall01_233307** SeqNo: **2830967** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	7.874	0.500	0.5	6.817	211	80 - 120				SO

MSD Sample ID: **HS14041286-01MSD** Units: **mg/L** Analysis Date: **12-May-2014 12:02**
Client ID: **ABT T-836 Inlet** Run ID: **Gall01_233307** SeqNo: **2830968** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	7.154	0.500	0.5	6.817	67.4	80 - 120	7.874	9.58	20	SO

The following samples were anayzed in this batch: HS14041286-01

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

Client: Navajo Refining Company
Project: ABT Inlet - Outlet
WorkOrder: **HS14041286**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	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

Acronym	Description
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 Quantitaion Limit
SD	Serial Dilution

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	AR - 2014	27-Mar-2015
California	06248CA 2013-2014	31-Jul-2014
Dept of Defense	L2231 Rev 3-20-2014	22-Dec-2015
Illinois	003403	09-May-2015
Kansas	E-10352 8/15/2013-2014	31-Jul-2014
Louisiana	03087 2013/2014	30-Jun-2014
North Carolina	624 - 2014	31-Dec-2014
Oklahoma	2013-024	31-Aug-2014
Texas	TX104704231-14-13	30-Apr-2015

Client: Navajo Refining Company
Project: ABT Inlet - Outlet
Work Order: HS14041286

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS14041286-01	ABT T-836 Inlet	Login	30-Apr-14 03:37	DRC	20D
HS14041286-01	ABT T-836 Inlet	Login	30-Apr-14 03:37	DRC	20D
HS14041286-01	ABT T-836 Inlet	Login	30-Apr-14 03:37	DRC	20D
HS14041286-02	ABT T-836 Outlet	Login	30-Apr-14 03:37	DRC	20D
HS14041286-02	ABT T-836 Outlet	Login	30-Apr-14 03:37	DRC	20D
HS14041286-02	ABT T-836 Outlet	Login	30-Apr-14 03:37	DRC	20D

ALS Group USA, Corp Date: 14-May-14

Sample Receipt Checklist

Client Name: Navajo Refining
Work Order: HS14041286
Date/Time Received: **30-Apr-2014 09:45**
Received by: **ECD**

Checklist completed by: *Dana.Capps* eSignature 30-Apr-2014 Date
Reviewed by: *Sonia West* eSignature 2-May-2014 Date

Matrices: **Water**
Carrier name: **ALS Courier**

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):	0.3/0.3 C/U	IR3	
Cooler(s)/Kit(s):	4898		
Date/Time sample(s) sent to storage:	04/30/2014		
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: 0 Regarding:

Comments:

Corrective Action:

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

Chain of Custody Form

Page 1 of 1

HS14041286

Navajo Refining Company
ABT Inlet - Outlet (T-801)

ALS Project Manager: Pat Lynch

Customer Information		Project Information		Analysis Request for Analysis	
Purchase Order		Project Name	ABT Inlet / Outlet	A	TKN (350)
Work Order		Project Number		B	BOD
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	COD (410.1)
Send Report To	Aaron Strange	Invoice Attn.	Aaron Strange	D	Phenolics (420)
Address	P. O. Box 159	Address	501 East Main	E	
				F	
City/State/Zip	Artesia, New Mexico 88211-0159	City/State/Zip	Artesia, New Mexico 88210	G	
Phone	(575) 748-3311	Phone	(575) 748-3311	H	
Fax	(575) 746-5451	Fax	(575) 746-5451	I	
e-Mail Address	Aaron.Strange@hollyfrontier.com	e-Mail Address	Aaron.Strange@hollyfrontier.com	J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	ABT T- 836 Inlet	4/29/14	7:30	Liquid	Yes	3	X	X	X	X							
2	ABT T- 836 Outlet	4/29/14	14:35	Liquid	Yes	3	X	X	X	X							
3	Temperature Blank			Liquid	None	1											
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s): Please Print & Sign
Aaron Strange

Shipment Method: FedEx

Required Turnaround Time: ☑ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other _____

Results Due Date:

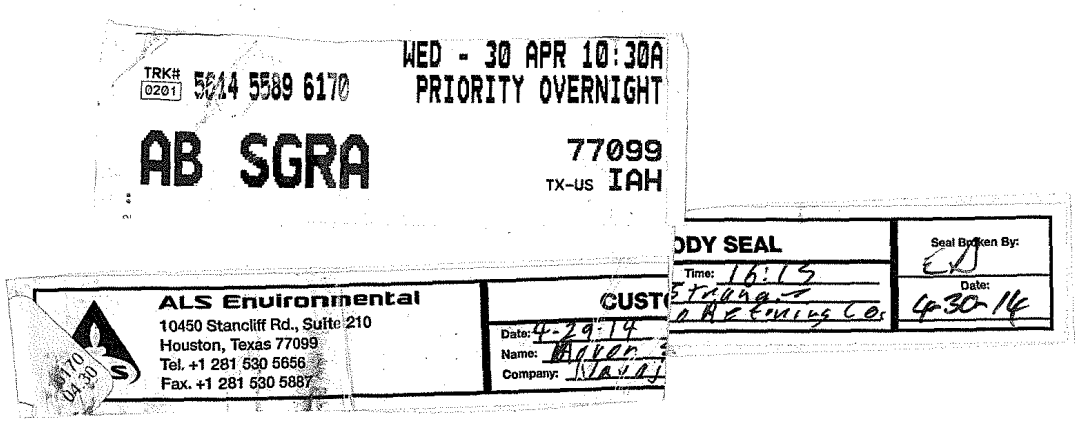
Relinquished by:	Date:	Time:	Received by:	Notes:
[signature]	4/29/2014	16:15	[signature] David 4-30-14 - 9:45	One amber jar arrived broken
Relinquished by:	Date:	Time:	Received by (Laboratory):	Cooler Temp.
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	

QC Package: (Check Box Below)

	Level II: Standard QC		TRRP-Checklist
	Level III: Std QC + Raw Data		TRRP Level IV
	Level IV: SW846 CLP-Like		
	Other: _____		

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

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


TRK# 0201 5614 5589 6170
WED - 30 APR 10:30A
PRIORITY OVERNIGHT
AB SGRA
77099
TX-US IAH
ODY SEAL
Time: 16:15
Seal Broken By:
Date: 4-30-14
ALS Environmental
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887
Date: 4-29-14
Name:
Company:

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

June 17, 2014

MIKE HOLDER

HOLLYFRONTIER NAVAJO REFINING

501 EAST MAIN STREET

ARTESIA, NM 88210

RE: ABT INLET - OUTLET MONTHLY

Enclosed are the results of analyses for samples received by the laboratory on 05/29/14 13:10.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene
Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 17-Jun-14 11:58

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
ABT INLET T-801	H401651-01	Wastewater	29-May-14 06:10	29-May-14 13:10
ABT OUTLET T-801	H401651-02	Wastewater	29-May-14 10:00	29-May-14 13:10

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 17-Jun-14 11:58

ABT INLET T-801

H401651-01 (Wastewater)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Biochemical Oxygen Demand	**1090**			mg/L	1	4061703	CK	04-Jun-14	SM 5210B	SUB
Chemical Oxygen Demand	**3520**		500	mg/L	50	4041001	AP	11-Jun-14	EPA 410.4	
Total Kjeldahl Nitrogen	**231**		10.0	mg/L	10	4042805	AP	11-Jun-14	EPA 351.2	
Green Analytical Laboratories										
General Chemistry										
Phenolics*	**13.8**		0.300	mg/L	30	B406142	KLJ	14-Jun-14	EPA420.4	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 17-Jun-14 11:58

ABT OUTLET T-801

H401651-02 (Wastewater)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Biochemical Oxygen Demand	**99.0**			mg/L	1	4061703	CK	04-Jun-14	SM 5210B	SUB
Chemical Oxygen Demand	**2730**		500	mg/L	50	4041001	AP	11-Jun-14	EPA 410.4	
Total Kjeldahl Nitrogen	**144**		10.0	mg/L	10	4042805	AP	11-Jun-14	EPA 351.2	
Green Analytical Laboratories										
General Chemistry										
Phenolics*	ND		0.300	mg/L	30	B406142	KLJ	14-Jun-14	EPA420.4	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 17-Jun-14 11:58

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4041001 - General Prep - Wet Chem										
Blank (4041001-BLK1)				Prepared: 10-Apr-14 Analyzed: 15-Apr-14						
Chemical Oxygen Demand	ND	10.0	mg/L							
LCS (4041001-BS1)				Prepared: 10-Apr-14 Analyzed: 15-Apr-14						
Chemical Oxygen Demand	76.0	10.0	mg/L	80.0		95.0	80-120			
LCS Dup (4041001-BSD1)				Prepared: 10-Apr-14 Analyzed: 15-Apr-14						
Chemical Oxygen Demand	76.0	10.0	mg/L	80.0		95.0	80-120	0.00	20	
Duplicate (4041001-DUP1)		**Source: H400939-02**		Prepared: 10-Apr-14 Analyzed: 15-Apr-14						
Chemical Oxygen Demand	12.7	10.0	mg/L		13.7			7.60	25	
Batch 4042805 - General Prep - Wet Chem										
Blank (4042805-BLK1)				Prepared & Analyzed: 28-Apr-14						
Total Kjeldahl Nitrogen	ND	1.00	mg/L							
LCS (4042805-BS1)				Prepared & Analyzed: 28-Apr-14						
Total Kjeldahl Nitrogen	0.852	0.400	mg/L	1.00		85.2	80-120			
Duplicate (4042805-DUP1)		**Source: H401164-01**		Prepared & Analyzed: 28-Apr-14						
Total Kjeldahl Nitrogen	2.04	1.00	mg/L		1.86			9.01	20	
Batch 4061703 - General Prep										
Blank (4061703-BLK1)				Prepared: 30-May-14 Analyzed: 04-Jun-14						
Biochemical Oxygen Demand	0.170		mg/L							

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 17-Jun-14 11:58

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4061703 - General Prep										
LCS (4061703-BS1)				Prepared: 30-May-14 Analyzed: 04-Jun-14						
Biochemical Oxygen Demand	209		mg/L	198		106	85-115			
LCS Dup (4061703-BSD1)				Prepared: 30-May-14 Analyzed: 04-Jun-14						
Biochemical Oxygen Demand	205		mg/L	198		103	85-115	2.02	20	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 17-Jun-14 11:58

General Chemistry - Quality Control

Green Analytical Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B406142 - General Prep - Wet Chem										
Blank (B406142-BLK1)				Prepared: 13-Jun-14 Analyzed: 14-Jun-14						
Phenolics	ND	0.0100	mg/L							
LCS (B406142-BS1)				Prepared: 13-Jun-14 Analyzed: 14-Jun-14						
Phenolics	0.0478	0.0100	mg/L	0.0500		95.6	90-110			
LCS Dup (B406142-BSD1)				Prepared: 13-Jun-14 Analyzed: 14-Jun-14						
Phenolics	0.0463	0.0100	mg/L	0.0500		92.5	90-110	3.28	20	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

SUB	Analysis subcontracted to NELAC accredited laboratory, Advanced Analysis, Inc. T104704437-13-10.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Navajo Refining Co.	**BILL TO**
Project Manager: Mike Holder	P.O. #:
Address: P.O. Box 159	Company: Navajo Refinery LLC
City: Artesia State: NM Zip: 88211-0159	Attn: Carrie Hernandez
Phone #: 575-748-3311 Fax #:	Address: P.O. Box 159
Project #: Project Owner:	City: Artesia
Project Name: ABT Inlet / Outlet Monthly	State: NM Zip: 88211-0159
Project Location: Navajo Refinery	Phone #: 575-748-3311
Sampler Name: Aaron Strange	Fax #:

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE: HNO3	ICE / COOL	OTHER : H2SO4	SAMPLING: DATE	TIME	ANALYSIS REQUEST: TKN (351)	BOD	COD (410.1)	Phenolics (420)
H401651-																		
A 01	ABT Inlet T-801	G	2		X						X	X	5/29/14	6:10	X			
B	ABT Inlet T-801	G	1		X						X		5/29/14	6:10		X		
C	ABT Inlet T-801	G	1		X						X	X	5/29/14	6:10			X	
D	ABT Inlet T-801	G	1		X						X	X	5/29/14	6:10				X
A 02	ABT Outlet T-801	G	2		X						X	X	5/29/14	10:00	X			
B	ABT Outlet T-801	G	1		X						X		5/29/14	10:00		X		
C	ABT Outlet T-801	G	1		X						X	X	5/29/14	10:00			X	
D	ABT Outlet T-801	G	1		X						X	X	5/29/14	10:00				X
	~~Trip Blank~~ CK 5/29/14		2								X							

Relinquished By: Aaron Strange	Date: 5/29/2014	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
	Time: ~~10:20~~		Fax Result: ☐ Yes ☐ No Add'l Fax #:
Relinquished By:	Date: 13:10	Received By:	REMARKS:
	Time:		Please Email Results to Aaron.Strange@hollyfrontier.com
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition: Cool ☑ Yes ☐ No; Intact ☑ Yes ☐ No	CHECKED BY: (Initials) CK	Call Aaron for Trip Blank Analysis 575-703-5057

4.6°C

FORM-006
Revision 1.0

† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476

#54

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

July 21, 2014

MIKE HOLDER

HOLLYFRONTIER NAVAJO REFINING

501 EAST MAIN STREET

ARTESIA, NM 88210

RE: ABT INLET - OUTLET MONTHLY

Enclosed are the results of analyses for samples received by the laboratory on 06/26/14 15:50.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene
Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 21-Jul-14 16:17

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
ABT INLET T-801	H401942-01	Wastewater	26-Jun-14 06:00	26-Jun-14 15:50
ABT OUTLET T-801	H401942-02	Wastewater	26-Jun-14 10:00	26-Jun-14 15:50

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 21-Jul-14 16:17

ABT INLET T-801

H401942-01 (Wastewater)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Biochemical Oxygen Demand	**303**			mg/L	1	4072106	CK	02-Jul-14	SM 5210B	SUB
Chemical Oxygen Demand	**1350**		500	mg/L	50	4041001	AP	08-Jul-14	EPA 410.4	
Total Kjeldahl Nitrogen	**635**		10.0	mg/L	10	4061002	AP	11-Jul-14	EPA 351.2	
Green Analytical Laboratories										
General Chemistry										
Phenolics*	**28.8**		0.500	mg/L	100	B407166	KLJ	17-Jul-14	EPA420.4	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 21-Jul-14 16:17

ABT OUTLET T-801

H401942-02 (Wastewater)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Biochemical Oxygen Demand	**50.0**			mg/L	1	4072106	CK	02-Jul-14	SM 5210B	SUB
Chemical Oxygen Demand	**5160**		1000	mg/L	100	4041001	AP	08-Jul-14	EPA 410.4	
Total Kjeldahl Nitrogen	**144**		3.33	mg/L	3.33	4061002	AP	11-Jul-14	EPA 351.2	
Green Analytical Laboratories										
General Chemistry										
Phenolics*	**0.215**		0.100	mg/L	20	B407166	KLJ	17-Jul-14	EPA420.4	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 21-Jul-14 16:17

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4041001 - General Prep - Wet Chem										
Blank (4041001-BLK1)				Prepared: 10-Apr-14 Analyzed: 15-Apr-14						
Chemical Oxygen Demand	ND	10.0	mg/L							
LCS (4041001-BS1)				Prepared: 10-Apr-14 Analyzed: 15-Apr-14						
Chemical Oxygen Demand	76.0	10.0	mg/L	80.0		95.0	80-120			
LCS Dup (4041001-BSD1)				Prepared: 10-Apr-14 Analyzed: 15-Apr-14						
Chemical Oxygen Demand	76.0	10.0	mg/L	80.0		95.0	80-120	0.00	20	
Duplicate (4041001-DUP1)		**Source: H400939-02**		Prepared: 10-Apr-14 Analyzed: 15-Apr-14						
Chemical Oxygen Demand	12.7	10.0	mg/L		13.7			7.60	25	
Batch 4061002 - General Prep - Wet Chem										
Blank (4061002-BLK1)				Prepared & Analyzed: 10-Jun-14						
Total Kjeldahl Nitrogen	ND	1.00	mg/L							
LCS (4061002-BS1)				Prepared & Analyzed: 10-Jun-14						
Total Kjeldahl Nitrogen	0.808	0.400	mg/L	1.00		80.8	80-120			
Duplicate (4061002-DUP1)		**Source: H401707-01**		Prepared & Analyzed: 10-Jun-14						
Total Kjeldahl Nitrogen	0.896	1.00	mg/L		0.984			9.35	20	
Batch 4072106 - General Prep										
Blank (4072106-BLK1)				Prepared: 27-Jun-14 Analyzed: 02-Jul-14						
Biochemical Oxygen Demand	0.180		mg/L							

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 21-Jul-14 16:17

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4072106 - General Prep										
LCS (4072106-BS1)				Prepared: 27-Jun-14 Analyzed: 02-Jul-14						
Biochemical Oxygen Demand	213		mg/L	198		108	85-115			
LCS Dup (4072106-BSD1)				Prepared: 27-Jun-14 Analyzed: 02-Jul-14						
Biochemical Oxygen Demand	204		mg/L	198		103	85-115	4.08	20	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 21-Jul-14 16:17

General Chemistry - Quality Control

Green Analytical Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B407166 - General Prep - Wet Chem										
Blank (B407166-BLK1)				Prepared: 16-Jul-14 Analyzed: 17-Jul-14						
Phenolics	ND	0.00500	mg/L							
LCS (B407166-BS1)				Prepared: 16-Jul-14 Analyzed: 17-Jul-14						
Phenolics	0.0497	0.00500	mg/L	0.0500		99.4	90-110			
LCS Dup (B407166-BSD1)				Prepared: 16-Jul-14 Analyzed: 17-Jul-14						
Phenolics	0.0528	0.00500	mg/L	0.0500		106	90-110	6.01	20	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

SUB	Analysis subcontracted to NELAC accredited laboratory, Advanced Analysis, Inc. T104704437-13-10.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL LABORATORIES
101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Navajo Refining Co.	**BILL TO**
Project Manager: Mike Holder	P.O. #: 167813
Address: P.O. Box 159	Company: Navajo Refinery LLC
City: Artesia State: NM Zip: 88211-0159	Attn: Carrie Hernandez
Phone #: 575-748-3311 Fax #:	Address: P.O. Box 159
Project #: Project Owner:	City: Artesia
Project Name: ABT Inlet / Outlet Monthly	State: NM Zip: 88211-0159
Project Location: Navajo Refinery	Phone #: 575-748-3311
Sampler Name: Aaron Strange	Fax #:

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE: HNO3	ICE / COOL	OTHER : H2SO4	SAMPLING: DATE	TIME	ANALYSIS REQUEST: TKN (351)	BOD	COD (410.1)	Phenolics (420)
H401942																		
1	ABT Inlet T-801	G	2		X						X	X	6/26/14	6:00	X			
2B	ABT Inlet T-801	G	1		X						X		6/26/14	6:00		X		
3C	ABT Inlet T-801	G	1		X						X	X	6/26/14	6:00			X	
4D	ABT Inlet T-801	G	1		X						X	X	6/26/14	6:00				X
5A	ABT Outlet T-801	G	2		X						X	X	6/26/14	10:00	X			
6B	ABT Outlet T-801	G	1		X						X		6/26/14	10:00		X		
7C	ABT Outlet T-801	G	1		X						X	X	6/26/14	10:00			X	
8D	ABT Outlet T-801	G	1		X						X	X	6/26/14	10:00				X
9	Trip Blank		2								X							

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequental damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: Aaron Strange	Date: 6/26/2014 Time: ~~10:20~~	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
Relinquished By:	Date: 6/26/14 Time: 3:30	Received By:	Fax Result: ☐ Yes ☐ No Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	2.7° C	Sample Condition Cool ☑ Yes ☐ No Intact ☑ Yes ☐ No	CHECKED BY: (Initials)

REMARKS: Please Email Results to Aaron.Strange@hollyfrontier.com

#54

FORM-006
Revision 1.0

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CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

August 05, 2014

MIKE HOLDER

HOLLYFRONTIER NAVAJO REFINING

501 EAST MAIN STREET

ARTESIA, NM 88210

RE: ABT INLET - OUTLET MONTHLY

Enclosed are the results of analyses for samples received by the laboratory on 07/10/14 12:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 05-Aug-14 10:56

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
ABT INLET T-836	H402097-01	Wastewater	10-Jul-14 08:18	10-Jul-14 12:30
ABT OUTLET T-836	H402097-02	Wastewater	10-Jul-14 08:25	10-Jul-14 12:30

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 05-Aug-14 10:56

ABT INLET T-836

H402097-01 (Wastewater)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Biochemical Oxygen Demand	**168**			mg/L	1	4072210	CK	16-Jul-14	SM 5210B	SUB
Chemical Oxygen Demand	**1120**		250	mg/L	25	4072103	AP	21-Jul-14	EPA 410.4	
Total Kjeldahl Nitrogen	**30.7**		2.00	mg/L	2	4071103	AP	16-Jul-14	EPA 351.2	
Green Analytical Laboratories										
General Chemistry										
Phenolics*	**9.15**		0.300	mg/L	60	B407299	KLJ	30-Jul-14	EPA420.4	Q1

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 05-Aug-14 10:56

ABT OUTLET T-836

H402097-02 (Wastewater)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Biochemical Oxygen Demand	ND		23.0	mg/L	1	4072210	CK	16-Jul-14	SM 5210B	SUB
Chemical Oxygen Demand	**1800**		1000	mg/L	100	4072103	AP	22-Jul-14	EPA 410.4	
Total Kjeldahl Nitrogen	**85.3**		2.00	mg/L	2	4071103	AP	16-Jul-14	EPA 351.2	
Green Analytical Laboratories										
General Chemistry										
Phenolics*	**0.0713**		0.0150	mg/L	3	B407299	KLJ	30-Jul-14	EPA420.4	Q1

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 05-Aug-14 10:56

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4071103 - General Prep - Wet Chem										
Blank (4071103-BLK1)				Prepared & Analyzed: 11-Jul-14						
Total Kjeldahl Nitrogen	ND	1.00	mg/L							
LCS (4071103-BS1)				Prepared & Analyzed: 11-Jul-14						
Total Kjeldahl Nitrogen	0.852	0.400	mg/L	1.00		85.2	80-120			
Duplicate (4071103-DUP1)		**Source: H401951-01**		Prepared & Analyzed: 11-Jul-14						
Total Kjeldahl Nitrogen	1.55	1.00	mg/L		1.77			13.3	20	
Batch 4072103 - General Prep - Wet Chem										
Blank (4072103-BLK1)				Prepared & Analyzed: 21-Jul-14						
Chemical Oxygen Demand	ND	10.0	mg/L							
LCS (4072103-BS1)				Prepared & Analyzed: 21-Jul-14						
Chemical Oxygen Demand	84.0	10.0	mg/L	80.0		105	80-120			
LCS Dup (4072103-BSD1)				Prepared & Analyzed: 21-Jul-14						
Chemical Oxygen Demand	87.0	10.0	mg/L	80.0		109	80-120	3.51	20	
Batch 4072210 - General Prep										
Blank (4072210-BLK1)				Prepared: 11-Jul-14 Analyzed: 16-Jul-14						
Biochemical Oxygen Demand	0.150		mg/L							
LCS (4072210-BS1)				Prepared: 11-Jul-14 Analyzed: 16-Jul-14						
Biochemical Oxygen Demand	214		mg/L	198		108	85-115			

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 05-Aug-14 10:56

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4072210 - General Prep										
LCS Dup (4072210-BSD1)	Prepared: 11-Jul-14 Analyzed: 16-Jul-14									
Biochemical Oxygen Demand	214		mg/L	198		108	85-115	0.00	20	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 05-Aug-14 10:56

General Chemistry - Quality Control

Green Analytical Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B407299 - General Prep - Wet Chem										
Blank (B407299-BLK1)				Prepared: 29-Jul-14 Analyzed: 30-Jul-14						
Phenolics	ND	0.00500	mg/L							
LCS (B407299-BS1)				Prepared: 29-Jul-14 Analyzed: 30-Jul-14						
Phenolics	0.0481	0.00500	mg/L	0.0500		96.2	90-110			
LCS Dup (B407299-BSD1)				Prepared: 29-Jul-14 Analyzed: 30-Jul-14						
Phenolics	0.0451	0.00500	mg/L	0.0500		90.2	90-110	6.44	20	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

SUB	Analysis subcontracted to NELAC accredited laboratory, Advanced Analysis, Inc. T104704437-13-10.
Q1	Sample received outside of acceptable temperature range for analyses requiring cold storage.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

CARDINAL LABORATORIES
101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name: Navajo Refining Co.	**BILL TO**
Project Manager: Mike Holder	P.O. #: 167813
Address: P.O. Box 159	Company: Navajo Refinery LLC
City: Artesia State: NM Zip: 88211-0159	Attn: Carrie Hernandez
Phone #: 575-748-3311 Fax #:	Address: P.O. Box 159
Project #: Project Owner:	City: Artesia
Project Name: ABT Inlet / Outlet Monthly	State: NM Zip: 88211-0159
Project Location: Navajo Refinery	Phone #: 575-748-3311
Sampler Name: David Boyer	Fax #:

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE: HNO3	ICE / COOL	OTHER : H2SO4	SAMPLING: DATE	TIME	ANALYSIS REQUEST: TKN (351)	BOD	COD (410.1)	Phenolics (420)
HH02097																		
1	ABT Inlet T-836	G	1		X						X	X	7/10/14	8:18	X			
	ABT Inlet T-836	G	1		X						X		7/10/14	8:18		X		
	ABT Inlet T-836	G	1		X						X	X	7/10/14	8:18			X	
	ABT Inlet T-836	G	1		X						X	X	7/10/14	8:18				X
2	ABT Outlet T-836	G	1		X						X	X	7/10/14	8:25	X			
	ABT Outlet T-836	G	1		X						X		7/10/14	8:25		X		
	ABT Outlet T-836	G	1		X						X	X	7/10/14	8:25			X	
	ABT Outlet T-836	G	1		X						X	X	7/10/14	8:25				X
	Trip Blank		2								X							

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequental damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: David Boyer	Date: 7/10/2014 Time: 1230	Received By: Jodi Henson	Phone Result: ☐ Yes ☐ No Add'l Phone #:
Relinquished By:	Date: Time:	Received By:	Fax Result: ☐ Yes ☐ No Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other: 3.6°C	Sample Condition Cool: ☑ Yes ☐ No Intact: ☑ Yes ☐ No	CHECKED BY: (Initials)	REMARKS: Please Email Results to Aaron.Strange@hollyfrontier.com

FORM-006
Revision 1.0

† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476

#54

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

September 15, 2014

MIKE HOLDER

HOLLYFRONTIER NAVAJO REFINING

501 EAST MAIN STREET

ARTESIA, NM 88210

RE: ABT INLET - OUTLET MONTHLY

Enclosed are the results of analyses for samples received by the laboratory on 08/28/14 14:45.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 15-Sep-14 14:29

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
ABT INLET T-836	H402652-01	Wastewater	28-Aug-14 09:30	28-Aug-14 14:45
ABT OUTLET T-836	H402652-02	Wastewater	28-Aug-14 09:40	28-Aug-14 14:45

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 15-Sep-14 14:29

ABT INLET T-836

H402652-01 (Wastewater)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Biochemical Oxygen Demand	**201**			mg/L	1	4091508	CK	03-Sep-14	SM 5210B	SUB
Chemical Oxygen Demand	**381**		10.0	mg/L	1	4072103	AP	11-Sep-14	EPA 410.4	
Total Kjeldahl Nitrogen	**55.0**		3.33	mg/L	3.33	4082703	AP	11-Sep-14	EPA 351.2	
Green Analytical Laboratories										
General Chemistry										
Phenolics*	**24.1**		0.150	mg/L	30	B409070	KLJ	05-Sep-14	EPA420.4	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 15-Sep-14 14:29

ABT OUTLET T-836

H402652-02 (Wastewater)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Biochemical Oxygen Demand	**33.0**			mg/L	1	4091508	CK	03-Sep-14	SM 5210B	SUB
Chemical Oxygen Demand	**435**		10.0	mg/L	1	4072103	AP	11-Sep-14	EPA 410.4	
Total Kjeldahl Nitrogen	**153**		3.33	mg/L	3.33	4082703	AP	11-Sep-14	EPA 351.2	
Green Analytical Laboratories										
General Chemistry										
Phenolics*	ND		0.0150	mg/L	3	B409070	KLJ	05-Sep-14	EPA420.4	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 15-Sep-14 14:29

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4072103 - General Prep - Wet Chem										
Blank (4072103-BLK1)				Prepared & Analyzed: 21-Jul-14						
Chemical Oxygen Demand	ND	10.0	mg/L							
LCS (4072103-BS1)				Prepared & Analyzed: 21-Jul-14						
Chemical Oxygen Demand	84.0	10.0	mg/L	80.0		105	80-120			
LCS Dup (4072103-BSD1)				Prepared & Analyzed: 21-Jul-14						
Chemical Oxygen Demand	87.0	10.0	mg/L	80.0		109	80-120	3.51	20	
Batch 4082703 - General Prep - Wet Chem										
Blank (4082703-BLK1)				Prepared & Analyzed: 02-Sep-14						
Total Kjeldahl Nitrogen	ND	1.00	mg/L							
LCS (4082703-BS1)				Prepared & Analyzed: 02-Sep-14						
Total Kjeldahl Nitrogen	0.980	0.400	mg/L	1.00		98.0	80-120			
Duplicate (4082703-DUP1)		**Source: H402515-01**		Prepared & Analyzed: 02-Sep-14						
Total Kjeldahl Nitrogen	4.33	1.00	mg/L		4.45			2.73	20	
Batch 4091508 - General Prep										
Blank (4091508-BLK1)				Prepared: 29-Aug-14 Analyzed: 03-Sep-14						
Biochemical Oxygen Demand	0.170		mg/L							
LCS (4091508-BS1)				Prepared: 29-Aug-14 Analyzed: 03-Sep-14						
Biochemical Oxygen Demand	201		mg/L	198		102	85-115			

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 15-Sep-14 14:29

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4091508 - General Prep										
LCS Dup (4091508-BSD1)	Prepared: 29-Aug-14 Analyzed: 03-Sep-14									
Biochemical Oxygen Demand	177		mg/L	198		89.3	85-115	12.8	20	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 15-Sep-14 14:29

General Chemistry - Quality Control

Green Analytical Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B409070 - General Prep - Wet Chem										
Blank (B409070-BLK1)				Prepared: 04-Sep-14 Analyzed: 05-Sep-14						
Phenolics	ND	0.00500	mg/L							
LCS (B409070-BS1)				Prepared: 04-Sep-14 Analyzed: 05-Sep-14						
Phenolics	0.0532	0.00500	mg/L	0.0500		106	90-110			
LCS Dup (B409070-BSD1)				Prepared: 04-Sep-14 Analyzed: 05-Sep-14						
Phenolics	0.0515	0.00500	mg/L	0.0500		103	90-110	3.25	20	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

SUB	Analysis subcontracted to NELAC accredited laboratory, Advanced Analysis, Inc. T104704437-13-10.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

CARDINAL LABORATORIES
101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name: Navajo Refining Co.
Project Manager: Mike Holder
Address: P.O. Box 159
City: Artesia State: NM Zip: 88211-0159
Phone #: 575-748-3311 Fax #:
Project #: Project Owner:
Project Name: ABT Inlet / Outlet Monthly
Project Location: Navajo Refinery
Sampler Name:

BILL TO
P.O. #: 167813
Company: Navajo Refinery LLC
Attn: Christie Coons
Address: P.O. Box 159
City: Artesia
State: NM Zip: 88211-0159
Phone #: 575-748-3311
Fax #:

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE: HNO3	ICE / COOL	OTHER : H2SO4	SAMPLING: DATE	TIME	TKN (351)	BOD	COD (410.1)	Phenolics (420)
H402652																		
1A	ABT Inlet T-836	G	2		X						X	X	8/28/2014		X			
B	ABT Inlet T-836	G	1		X						X		8/28/2014	9:30am		X		
C	ABT Inlet T-836	G	1		X						X	X	8/28/2014	9:30am			X	
D	ABT Inlet T-836	G	1		X						X	X	8/28/2014	9:30am				X
2A	ABT Outlet T-836	G	2		X						X	X	8/28/2014		X			
B	ABT Outlet T-836	G	1		X						X		8/28/2014	9:40am		X		
C	ABT Outlet T-836	G	1		X						X	X	8/28/2014	9:40am			X	
D	ABT Outlet T-836	G	1		X						X	X	8/28/2014	9:40am				X
	~~Trip Blank~~		2								X							

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequental damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: James Potts
Date: 8/28/2014
Time: 12pm ~~10:20~~
Received By: Jodi Henson

Relinquished By:
Date:
Time:
Received By:

Delivered By: (Circle One)
Sampler - UPS - Bus - Other:
9.6°C

Sample Condition
Cool: ☐ Yes ☑ No
Intact: ☑ Yes ☐ No

CHECKED BY: (Initials)

Phone Result: ☐ Yes ☐ No Add'l Phone #:
Fax Result: ☐ Yes ☐ No Add'l Fax #:
REMARKS:

Please Email Results to Aaron.Strange@hollyfrontier.com

† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476

FOR -006
R 1.0

#54

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

October 06, 2014

MIKE HOLDER

HOLLYFRONTIER NAVAJO REFINING

501 EAST MAIN STREET

ARTESIA, NM 88210

RE: ABT INLET - OUTLET MONTHLY

Enclosed are the results of analyses for samples received by the laboratory on 09/23/14 9:50.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 06-Oct-14 10:04

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
ABT INLET T-836	H402915-01	Wastewater	22-Sep-14 14:30	23-Sep-14 09:50
ABT OUTLET T-836	H402915-02	Wastewater	22-Sep-14 14:30	23-Sep-14 09:50

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 06-Oct-14 10:04

ABT INLET T-836

H402915-01 (Wastewater)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Biochemical Oxygen Demand	**266**			mg/L	1	4100606	CK	29-Sep-14	SM 5210B	SUB
Chemical Oxygen Demand	**863**		100	mg/L	10	4072103	HM	25-Sep-14	EPA 410.4	
Total Kjeldahl Nitrogen	**9.13**		1.00	mg/L	1	4091708	AP	03-Oct-14	EPA 351.2	
Green Analytical Laboratories										
General Chemistry										
Phenolics*	**0.577**		0.150	mg/L	30	B410003	KLJ	01-Oct-14	EPA420.4	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 06-Oct-14 10:04

ABT OUTLET T-836

H402915-02 (Wastewater)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Biochemical Oxygen Demand	**114**			mg/L	1	4100606	CK	29-Sep-14	SM 5210B	SUB
Chemical Oxygen Demand	**1240**		100	mg/L	10	4072103	HM	25-Sep-14	EPA 410.4	
Total Kjeldahl Nitrogen	**124**		3.33	mg/L	3.33	4091708	AP	03-Oct-14	EPA 351.2	
Green Analytical Laboratories										
General Chemistry										
Phenolics*	**0.0407**		0.0100	mg/L	2	B410003	KLJ	01-Oct-14	EPA420.4	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 06-Oct-14 10:04

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4072103 - General Prep - Wet Chem										
Blank (4072103-BLK1)				Prepared & Analyzed: 21-Jul-14						
Chemical Oxygen Demand	ND	10.0	mg/L							
LCS (4072103-BS1)				Prepared & Analyzed: 21-Jul-14						
Chemical Oxygen Demand	84.0	10.0	mg/L	80.0		105	80-120			
LCS Dup (4072103-BSD1)				Prepared & Analyzed: 21-Jul-14						
Chemical Oxygen Demand	87.0	10.0	mg/L	80.0		109	80-120	3.51	20	
Batch 4091708 - General Prep - Wet Chem										
Blank (4091708-BLK1)				Prepared & Analyzed: 17-Sep-14						
Total Kjeldahl Nitrogen	ND	1.00	mg/L							
LCS (4091708-BS1)				Prepared & Analyzed: 17-Sep-14						
Total Kjeldahl Nitrogen	1.02	0.400	mg/L	1.00		102	80-120			
Duplicate (4091708-DUP1)		**Source: H402862-04**		Prepared & Analyzed: 17-Sep-14						
Total Kjeldahl Nitrogen	ND	1.00	mg/L		0.00				20	
Batch 4100606 - General Prep										
Blank (4100606-BLK1)				Prepared: 24-Sep-14 Analyzed: 29-Sep-14						
Biochemical Oxygen Demand	0.130		mg/L							
LCS (4100606-BS1)				Prepared: 24-Sep-14 Analyzed: 29-Sep-14						
Biochemical Oxygen Demand	200		mg/L	198		101	85-115			

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 06-Oct-14 10:04

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4100606 - General Prep										
LCS Dup (4100606-BSD1)	Prepared: 24-Sep-14 Analyzed: 29-Sep-14									
Biochemical Oxygen Demand	200		mg/L	198		101	85-115	0.500	20	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 06-Oct-14 10:04

General Chemistry - Quality Control

Green Analytical Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B410003 - General Prep - Wet Chem										
Blank (B410003-BLK1)				Prepared: 30-Sep-14 Analyzed: 01-Oct-14						
Phenolics	ND	0.00500	mg/L							
LCS (B410003-BS1)				Prepared: 30-Sep-14 Analyzed: 01-Oct-14						
Phenolics	0.0518	0.00500	mg/L	0.0500		104	90-110			
LCS Dup (B410003-BSD1)				Prepared: 30-Sep-14 Analyzed: 01-Oct-14						
Phenolics	0.0519	0.00500	mg/L	0.0500		104	90-110	0.193	20	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

SUB	Analysis subcontracted to NELAC accredited laboratory, Advanced Analysis, Inc. T104704437-14-11
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

CARDINAL LABORATORIES
101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name: Navajo Refining Co.	**BILL TO**
Project Manager: Mike Holder	P.O. #: 167813
Address: P.O. Box 159	Company: Navajo Refinery LLC
City: Artesia State: NM Zip: 88211-0159	Attn: Christie Coons
Phone #: 575-748-3311 Fax #:	Address: P.O. Box 159
Project #: Project Owner:	City: Artesia
Project Name: ABT Inlet / Outlet Monthly	State: NM Zip: 88211-0159
Project Location: Navajo Refinery	Phone #: 575-748-3311
Sampler Name:	Fax #:

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE: HNO3	ICE / COOL	OTHER : H2SO4	SAMPLING: DATE	TIME	TKN (351), COD (410.1)	BOD	Phenolics (420)
H402915																	
1	ABT Inlet T-836 (1-250mL H2SO4)	G	1		X						X	X	8/7/2014	2:30pm	X		
	ABT Inlet T-836 (1-Liter Plastic)	G	1		X						X		8/7/2014			X	
	ABT Inlet T-836 (1-L Amber w/H2SO	G	1		X						X	X	8/7/2014				X
2	ABT Outlet T-836 (1-250mL H2SO4)	G	1		X						X	X	8/7/2014	2:30pm	X		
	ABT Outlet T-836 (1-Liter Plastic)	G	1		X						X		8/7/2014			X	
	ABT Outlet T-836(1-L Amber w/H2S	G	1		X						X	X	8/7/2014				X

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequental damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: James Potts	Date: 8/7/2014	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
	Time: 4:10pm		Fax Result: ☐ Yes ☐ No Add'l Fax #:
Relinquished By:	Date:	Received By: Jodi Henson	REMARKS: Please Email Results to Aaron.Strange@hollyfrontier.com
	Time: 9:50		
Delivered By: (Circle One)		Sample Condition: Cool ☑ Yes ☐ No; Intact ☑ Yes ☐ No	CHECKED BY: (Initials)
Sampler - UPS - Bus - Other:	1.2°C		

#454

FORM-006
Revision 1.0

† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

November 10, 2014

MIKE HOLDER

HOLLYFRONTIER NAVAJO REFINING

501 EAST MAIN STREET

ARTESIA, NM 88210

RE: ABT INLET - OUTLET MONTHLY

Enclosed are the results of analyses for samples received by the laboratory on 10/23/14 11:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 10-Nov-14 10:48

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
ABT INLET T-836	H403276-01	Wastewater	23-Oct-14 10:00	23-Oct-14 11:00
ABT OUTLET T-836	H403276-02	Wastewater	23-Oct-14 10:00	23-Oct-14 11:00

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 10-Nov-14 10:48

ABT INLET T-836

H403276-01 (Wastewater)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Biochemical Oxygen Demand	**3430**			mg/L	1	4111002	CK	29-Oct-14	SM 5210B	SUB
Chemical Oxygen Demand	**642**		250	mg/L	25	4102402	AP	24-Oct-14	EPA 410.4	
Green Analytical Laboratories										
General Chemistry										
Total Kjeldahl Nitrogen*	**104**		10.0	mg/L	20	B410295	KLJ	30-Oct-14	EPA351.2	
Phenolics*	**19.8**		0.250	mg/L	50	B410278	KLJ	29-Oct-14	EPA420.4	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 10-Nov-14 10:48

ABT OUTLET T-836

H403276-02 (Wastewater)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Biochemical Oxygen Demand	**983**			mg/L	1	4111002	CK	29-Oct-14	SM 5210B	SUB
Chemical Oxygen Demand	**792**		250	mg/L	25	4102402	AP	24-Oct-14	EPA 410.4	
Green Analytical Laboratories										
General Chemistry										
Total Kjeldahl Nitrogen*	**115**		10.0	mg/L	20	B410295	KLJ	30-Oct-14	EPA351.2	
Phenolics*	**0.136**		0.0250	mg/L	5	B410278	KLJ	29-Oct-14	EPA420.4	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 10-Nov-14 10:48

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4102402 - General Prep - Wet Chem										
Blank (4102402-BLK1)				Prepared & Analyzed: 24-Oct-14						
Chemical Oxygen Demand	ND	10.0	mg/L							
LCS (4102402-BS1)				Prepared & Analyzed: 24-Oct-14						
Chemical Oxygen Demand	82.0	10.0	mg/L	80.0		102	80-120			
LCS Dup (4102402-BSD1)				Prepared & Analyzed: 24-Oct-14						
Chemical Oxygen Demand	78.0	10.0	mg/L	80.0		97.5	80-120	5.00	20	
Duplicate (4102402-DUP1)		**Source: H403192-01**		Prepared & Analyzed: 24-Oct-14						
Chemical Oxygen Demand	23.0	10.0	mg/L		20.3			12.5	25	
Batch 4111002 - General Prep										
Blank (4111002-BLK1)				Prepared: 24-Oct-14 Analyzed: 29-Oct-14						
Biochemical Oxygen Demand	0.200		mg/L							
LCS (4111002-BS1)				Prepared: 24-Oct-14 Analyzed: 29-Oct-14						
Biochemical Oxygen Demand	186		mg/L	198		93.7	85-115			
LCS Dup (4111002-BSD1)				Prepared: 24-Oct-14 Analyzed: 29-Oct-14						
Biochemical Oxygen Demand	210		mg/L	198		106	85-115	12.2	20	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 10-Nov-14 10:48

General Chemistry - Quality Control

Green Analytical Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B410278 - General Prep - Wet Chem										
Blank (B410278-BLK1)				Prepared & Analyzed: 29-Oct-14						
Phenolics	ND	0.00500	mg/L							
LCS (B410278-BS1)				Prepared & Analyzed: 29-Oct-14						
Phenolics	0.0500	0.00500	mg/L	0.0500		100	90-110			
LCS Dup (B410278-BSD1)				Prepared & Analyzed: 29-Oct-14						
Phenolics	0.0486	0.00500	mg/L	0.0500		97.2	90-110	2.88	20	
Batch B410295 - General Prep - Wet Chem										
Blank (B410295-BLK1)				Prepared & Analyzed: 30-Oct-14						
Total Kjeldahl Nitrogen	ND	0.500	mg/L							
LCS (B410295-BS1)				Prepared & Analyzed: 30-Oct-14						
Total Kjeldahl Nitrogen	3.82	0.500	mg/L	4.00		95.5	90-110			
LCS Dup (B410295-BSD1)				Prepared & Analyzed: 30-Oct-14						
Total Kjeldahl Nitrogen	3.79	0.500	mg/L	4.00		94.8	90-110	0.788	20	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

SUB	Analysis subcontracted to NELAC accredited laboratory, Advanced Analysis, Inc. T104704437-14-11
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

CARDINAL LABORATORIES
101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name: Navajo Refining Co.	**BILL TO**
Project Manager: Mike Holder	P.O. #: 167813
Address: P.O. Box 159	Company: Navajo Refinery LLC
City: Artesia State: NM Zip: 88211-0159	Attn: Christie Coons
Phone #: 575-748-3311 Fax #:	Address: P.O. Box 159
Project #: Project Owner:	City: Artesia
Project Name: ABT Inlet / Outlet Monthly	State: NM Zip: 88211-0159
Project Location: Navajo Refinery	Phone #: 575-748-3311
Sampler Name:	Fax #:

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST													
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE: HNO3	ICE / COOL	OTHER : H2SO4	DATE	TIME	TKN (351), COD (410.1)	BOD	Phenolics (420)											
H403276	ABT Inlet T-836 (1-250mL H2SO4)	G	1		X						X	X	10-03	10am	X												
	ABT Inlet T-836 (1-Liter Plastic)	G	1		X						X					X												
	ABT Inlet T-836 (1-L Amber w/H2SO	G	1		X						X	X					X											
	ABT Outlet T-836 (1-250mL H2SO4)	G	2		X						X	X			X													
	ABT Outlet T-836 (1-Liter Plastic)	G	1		X						X					X												
	ABT Outlet T-836(1-L Amber w/H2S	G	1		X						X	X					X											

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequental damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: James Pettie	Date: 10-03-14	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
	Time: 10am		Fax Result: ☐ Yes ☐ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS:
	Time:		Please Email Results to Aaron.Strange@hollyfrontier.com

Delivered By: (Circle One)
Sampler - UPS - Bus - Other: 4.0°c

Sample Condition: Cool ☑ Yes ☐ No; Intact ☑ Yes ☐ No

CHECKED BY: (Initials) KP

FORM-006
Revision 1.0

#54

† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

December 03, 2014

MIKE HOLDER

HOLLYFRONTIER NAVAJO REFINING

501 EAST MAIN STREET

ARTESIA, NM 88210

RE: ABT INLET - OUTLET MONTHLY

Enclosed are the results of analyses for samples received by the laboratory on 11/18/14 11:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 03-Dec-14 16:57

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
ABT INLET T-836	H403542-01	Wastewater	17-Nov-14 12:00	18-Nov-14 11:00
ABT OUTLET T-836	H403542-02	Wastewater	17-Nov-14 12:00	18-Nov-14 11:00

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 03-Dec-14 16:57

ABT INLET T-836

H403542-01 (Wastewater)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Biochemical Oxygen Demand	> 330			mg/L	1	4112507	CK	24-Nov-14	SM 5210B	SUB
Chemical Oxygen Demand	**1320**		200	mg/L	20	4102402	AP	18-Nov-14	EPA 410.4	
Green Analytical Laboratories										
General Chemistry										
Total Kjeldahl Nitrogen*	**53.5**		2.50	mg/L	5	B411197	KLJ	24-Nov-14	EPA351.2	
Phenolics*	**15.8**		0.450	mg/L	90	B411216	KLJ	02-Dec-14	EPA420.4	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 03-Dec-14 16:57

ABT OUTLET T-836

H403542-02 (Wastewater)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Biochemical Oxygen Demand	**140**			mg/L	1	4112507	CK	24-Nov-14	SM 5210B	SUB
Chemical Oxygen Demand	**1480**		100	mg/L	10	4102402	AP	18-Nov-14	EPA 410.4	
Green Analytical Laboratories										
General Chemistry										
Total Kjeldahl Nitrogen*	**66.5**		2.50	mg/L	5	B411197	KLJ	24-Nov-14	EPA351.2	
Phenolics*	**0.0442**		0.0250	mg/L	5	B411216	KLJ	02-Dec-14	EPA420.4	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 03-Dec-14 16:57

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4102402 - General Prep - Wet Chem										
Blank (4102402-BLK1)				Prepared & Analyzed: 24-Oct-14						
Chemical Oxygen Demand	ND	10.0	mg/L							
LCS (4102402-BS1)				Prepared & Analyzed: 24-Oct-14						
Chemical Oxygen Demand	82.0	10.0	mg/L	80.0		102	80-120			
LCS Dup (4102402-BSD1)				Prepared & Analyzed: 24-Oct-14						
Chemical Oxygen Demand	78.0	10.0	mg/L	80.0		97.5	80-120	5.00	20	
Batch 4112507 - General Prep										
Blank (4112507-BLK1)				Prepared: 19-Nov-14 Analyzed: 24-Nov-14						
Biochemical Oxygen Demand	0.190		mg/L							
LCS (4112507-BS1)				Prepared: 19-Nov-14 Analyzed: 24-Nov-14						
Biochemical Oxygen Demand	200		mg/L	198		101	85-115			
LCS Dup (4112507-BSD1)				Prepared: 19-Nov-14 Analyzed: 24-Nov-14						
Biochemical Oxygen Demand	202		mg/L	198		102	85-115	0.995	20	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 03-Dec-14 16:57

General Chemistry - Quality Control

Green Analytical Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B411197 - General Prep - Wet Chem										
Blank (B411197-BLK1)				Prepared: 20-Nov-14 Analyzed: 24-Nov-14						
Total Kjeldahl Nitrogen	ND	0.500	mg/L							
LCS (B411197-BS1)				Prepared: 20-Nov-14 Analyzed: 24-Nov-14						
Total Kjeldahl Nitrogen	3.62	0.500	mg/L	4.00		90.5	90-110			
LCS Dup (B411197-BSD1)				Prepared: 20-Nov-14 Analyzed: 24-Nov-14						
Total Kjeldahl Nitrogen	3.81	0.500	mg/L	4.00		95.3	90-110	5.11	20	
Batch B411216 - General Prep - Wet Chem										
Blank (B411216-BLK1)				Prepared: 01-Dec-14 Analyzed: 02-Dec-14						
Phenolics	ND	0.00500	mg/L							
LCS (B411216-BS1)				Prepared: 01-Dec-14 Analyzed: 02-Dec-14						
Phenolics	0.0533	0.00500	mg/L	0.0500		107	90-110			
LCS Dup (B411216-BSD1)				Prepared: 01-Dec-14 Analyzed: 02-Dec-14						
Phenolics	0.0518	0.00500	mg/L	0.0500		104	90-110	2.86	20	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

Z-01	> 330
SUB	Analysis subcontracted to NELAC accredited laboratory, Advanced Analysis, Inc. T104704437-14-11
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL LABORATORIES
101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Navajo Refining Co.
Project Manager: Mike Holder
Address: P.O. Box 159
City: Artesia State: NM Zip: 88211-0159
Phone #: 575-748-3311 Fax #:
Project #: Project Owner:
Project Name: ABT Inlet / Outlet Monthly
Project Location: Navajo Refinery
Sampler Name:

BILL TO
P.O. #: 167813
Company: Navajo Refinery LLC
Attn: Christie Coons
Address: P.O. Box 159
City: Artesia
State: NM Zip: 88211-0159
Phone #: 575-748-3311
Fax #:

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE: HNO3	ICE / COOL	OTHER : H2SO4	SAMPLING: DATE	TIME	TKN (351), COD (410.1)	BOD	Phenolics (420)
H403542																	
1	ABT Inlet T-836 (1-250mL H2SO4)	G	1		X						X	X	11/17	12pm	X		
	ABT Inlet T-836 (1-Liter Plastic)	G	1		X						X					X	
	ABT Inlet T-836 (1-L Amber w/H2SO	G	1		X						X	X					X
2	ABT Outlet T-836 (1-250mL H2SO4)	G	2		X						X	X			X		
	ABT Outlet T-836 (1-Liter Plastic)	G	1		X						X					X	
	ABT Outlet T-836(1-L Amber w/H2S	G	1		X						X	X					X

Relinquished By: James Potts Date: 11/17 Time: 3pm
Received By:

Relinquished By: Date: 11-18-14 Time: 11:00
Received By:

Delivered By: (Circle One)
Sampler - UPS - Bus - Other: 1.8°c

Sample Condition: Cool ☑ Yes ☐ No; Intact ☐ Yes ☐ No
CHECKED BY: (Initials) KP

Phone Result: ☐ Yes ☐ No Add'l Phone #:
Fax Result: ☐ Yes ☐ No Add'l Fax #:
REMARKS:

Please Email Results to Aaron.Strange@hollyfrontier.com

FORM-006
Revision 1.0

#04

† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

January 06, 2015

MIKE HOLDER

HOLLYFRONTIER NAVAJO REFINING

501 EAST MAIN STREET

ARTESIA, NM 88210

RE: ABT INLET - OUTLET MONTHLY

Enclosed are the results of analyses for samples received by the laboratory on 12/16/14 13:15.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 06-Jan-15 10:09

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
ABT INLET T-836	H403821-01	Wastewater	15-Dec-14 09:30	16-Dec-14 13:15
ABT OUTLET T-836	H403821-02	Wastewater	15-Dec-14 09:30	16-Dec-14 13:15

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 06-Jan-15 10:09

ABT INLET T-836

H403821-01 (Wastewater)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Biochemical Oxygen Demand	**177**			mg/L	1	4122905	CK	22-Dec-14	SM 5210B	SUB
Chemical Oxygen Demand	**515**		40.0	mg/L	4	4102402	AP	19-Dec-14	EPA 410.4	
Green Analytical Laboratories										
General Chemistry										
Total Kjeldahl Nitrogen*	**28.6**		5.00	mg/L	10	B412225	KLJ	29-Dec-14	EPA351.2	
Phenolics*	**13.4**		0.150	mg/L	30	B412250	KLJ	30-Dec-14	EPA420.4	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 06-Jan-15 10:09

ABT OUTLET T-836

H403821-02 (Wastewater)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Biochemical Oxygen Demand	**79.0**			mg/L	1	4122905	CK	22-Dec-14	SM 5210B	SUB
Chemical Oxygen Demand	**736**		80.0	mg/L	8	4102402	AP	19-Dec-14	EPA 410.4	
Green Analytical Laboratories										
General Chemistry										
Total Kjeldahl Nitrogen*	**59.5**		2.50	mg/L	5	B412225	KLJ	29-Dec-14	EPA351.2	
Phenolics*	**0.0472**		0.0300	mg/L	6	B412250	KLJ	30-Dec-14	EPA420.4	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 06-Jan-15 10:09

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4102402 - General Prep - Wet Chem										
Blank (4102402-BLK1)				Prepared & Analyzed: 24-Oct-14						
Chemical Oxygen Demand	ND	10.0	mg/L							
LCS (4102402-BS1)				Prepared & Analyzed: 24-Oct-14						
Chemical Oxygen Demand	82.0	10.0	mg/L	80.0		102	80-120			
LCS Dup (4102402-BSD1)				Prepared & Analyzed: 24-Oct-14						
Chemical Oxygen Demand	78.0	10.0	mg/L	80.0		97.5	80-120	5.00	20	
Batch 4122905 - General Prep										
Blank (4122905-BLK1)				Prepared: 17-Dec-14 Analyzed: 22-Dec-14						
Biochemical Oxygen Demand	0.180		mg/L							
LCS (4122905-BS1)				Prepared: 17-Dec-14 Analyzed: 22-Dec-14						
Biochemical Oxygen Demand	184		mg/L	200		91.8	85-115			
LCS Dup (4122905-BSD1)				Prepared: 17-Dec-14 Analyzed: 22-Dec-14						
Biochemical Oxygen Demand	198		mg/L	200		99.1	85-115	7.69	20	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING 501 EAST MAIN STREET ARTESIA NM, 88210	Project: ABT INLET - OUTLET MONTHLY Project Number: NONE GIVEN Project Manager: MIKE HOLDER Fax To: NONE	Reported: 06-Jan-15 10:09

General Chemistry - Quality Control

Green Analytical Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B412225 - General Prep - Wet Chem										
Blank (B412225-BLK1)				Prepared: 23-Dec-14 Analyzed: 29-Dec-14						
Total Kjeldahl Nitrogen	ND	0.500	mg/L							
LCS (B412225-BS1)				Prepared: 23-Dec-14 Analyzed: 29-Dec-14						
Total Kjeldahl Nitrogen	4.06	0.500	mg/L	4.00		102	90-110			
LCS Dup (B412225-BSD1)				Prepared: 23-Dec-14 Analyzed: 29-Dec-14						
Total Kjeldahl Nitrogen	3.95	0.500	mg/L	4.00		98.8	90-110	2.75	20	
Batch B412250 - General Prep - Wet Chem										
Blank (B412250-BLK1)				Prepared & Analyzed: 30-Dec-14						
Phenolics	ND	0.00500	mg/L							
LCS (B412250-BS1)				Prepared & Analyzed: 30-Dec-14						
Phenolics	0.0503	0.00500	mg/L	0.0500		101	90-110			
LCS Dup (B412250-BSD1)				Prepared & Analyzed: 30-Dec-14						
Phenolics	0.0515	0.00500	mg/L	0.0500		103	90-110	2.30	20	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

SUB	Analysis subcontracted to NELAC accredited laboratory, Advanced Analysis, Inc. T104704437-14-11
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL LABORATORIES
101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Navajo Refining Co.		**BILL TO**	
Project Manager: Mike Holder		P.O. #: 167813	
Address: P.O. Box 159		Company: Navajo Refinery LLC	
City: Artesia	State: NM Zip: 88211-0159	Attn: Christie Coons	
Phone #: 575-748-3311	Fax #:	Address: P.O. Box 159	
Project #:	Project Owner:	City: Artesia	
Project Name: ABT Inlet / Outlet Monthly		State: NM Zip: 88211-0159	
Project Location: Navajo Refinery		Phone #: 575-748-3311	
Sampler Name:		Fax #:	

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST										
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE: HNO3	ICE / COOL	OTHER : H2SO4	DATE	TIME	TKN (351)	BOD	COD (410.1)	Phenolics (420)							
H403821-																									
01	ABT Inlet T-836	G	2		X						X	X	12-15-14 8/ /2014	0930	X										
	ABT Inlet T-836	G	1		X						X		12-15-14 8/ /2014	0930		X									
	ABT Inlet T-836	G	1		X						X	X	12-15-14 8/ /2014	0930			X								
	ABT Inlet T-836	G	1		X						X	X	12-15-14 8/ /2014	0930				X							
02	ABT Outlet T-836	G	2		X						X	X	12-15-14 8/ /2014	0930	X										
	ABT Outlet T-836	G	1		X						X		12-15-14 8/ /2014	0930		X									
	ABT Outlet T-836	G	1		X						X	X	12-15-14 8/ /2014	0930			X								
	ABT Outlet T-836	G	1		X						X	X	12-15-14 8/ /2014	0930				X							
	Trip Blank		2								X														

Relinquished By: Elizabeth Salsbery / Elizabeth Salsbery	Date: 12-15-14 ~~8/ /2014~~ Time: 9:30 am ~~10:20~~	Received By: [signature]	12/16/14 11:15
Relinquished By:	Date: Time:	Received By:	
Delivered By: (Circle One) Sampler - UPS - Bus - Other: 5.6°C	Sample Condition Cool ☑ Yes ☐ No Intact ☑ Yes ☐ No	CHECKED BY: (Initials) CdH	

Phone Result: ☐ Yes ☐ No Add'l Phone #:
Fax Result: ☐ Yes ☐ No Add'l Fax #:
REMARKS:

Please Email Results to Aaron.Strange@hollyfrontier.com

FORM-006
Revision 1.0

† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476

#54

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

February 11, 2014

Mike Holder

Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: DAF Bins OrderNo.: 1402230

Dear Mike Holder:

Hall Environmental Analysis Laboratory received 1 sample(s) on 2/6/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: DAF Bin 20S10 1/31/14
Project: DAF Bins
Collection Date: 2/3/2014 6:00:00 PM
Lab ID: 1402230-001 **Matrix:** SOLID **Received Date:** 2/6/2014 2:20:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
MERCURY, TCLP						Analyst: **JML**	
Mercury	ND	0.020		mg/L	1	2/7/2014 4:06:55 PM	11611
EPA METHOD 6010B: TCLP METALS						Analyst: **JLF**	
Arsenic	ND	5.0		mg/L	5	2/11/2014 1:21:35 PM	11641
Barium	ND	100		mg/L	5	2/11/2014 1:21:35 PM	11641
Cadmium	ND	1.0		mg/L	5	2/11/2014 1:21:35 PM	11641
Chromium	ND	5.0		mg/L	5	2/11/2014 1:21:35 PM	11641
Lead	ND	5.0		mg/L	5	2/11/2014 1:21:35 PM	11641
Selenium	ND	1.0		mg/L	5	2/11/2014 1:21:35 PM	11641
Silver	ND	5.0		mg/L	5	2/11/2014 1:21:35 PM	11641
EPA METHOD 8270C TCLP						Analyst: **DAM**	
2-Methylphenol	ND	200		mg/L	1	2/11/2014 11:09:11 AM	11616
3+4-Methylphenol	ND	200		mg/L	1	2/11/2014 11:09:11 AM	11616
Phenol	ND	200		mg/L	1	2/11/2014 11:09:11 AM	11616
2,4-Dinitrotoluene	ND	0.13		mg/L	1	2/11/2014 11:09:11 AM	11616
Hexachlorobenzene	ND	0.13		mg/L	1	2/11/2014 11:09:11 AM	11616
Hexachlorobutadiene	ND	0.50		mg/L	1	2/11/2014 11:09:11 AM	11616
Hexachloroethane	ND	3.0		mg/L	1	2/11/2014 11:09:11 AM	11616
Nitrobenzene	ND	2.0		mg/L	1	2/11/2014 11:09:11 AM	11616
Pentachlorophenol	ND	100		mg/L	1	2/11/2014 11:09:11 AM	11616
Pyridine	ND	5.0		mg/L	1	2/11/2014 11:09:11 AM	11616
2,4,5-Trichlorophenol	ND	400		mg/L	1	2/11/2014 11:09:11 AM	11616
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	2/11/2014 11:09:11 AM	11616
Cresols, Total	ND	200		mg/L	1	2/11/2014 11:09:11 AM	11616
Surr: 2-Fluorophenol	59.5	18.6-88.6		%REC	1	2/11/2014 11:09:11 AM	11616
Surr: Phenol-d5	45.4	19.5-61.8		%REC	1	2/11/2014 11:09:11 AM	11616
Surr: 2,4,6-Tribromophenol	79.4	29.7-130		%REC	1	2/11/2014 11:09:11 AM	11616
Surr: Nitrobenzene-d5	88.4	45.1-101		%REC	1	2/11/2014 11:09:11 AM	11616
Surr: 2-Fluorobiphenyl	83.0	46.6-99.3		%REC	1	2/11/2014 11:09:11 AM	11616
Surr: 4-Terphenyl-d14	75.6	40.8-109		%REC	1	2/11/2014 11:09:11 AM	11616
VOLATILES BY 8260B/1311						Analyst: **DJF**	
Benzene	ND	0.30		mg/L	1	2/10/2014 7:07:38 PM	11607
2-Butanone	ND	10		mg/L	1	2/10/2014 7:07:38 PM	11607
Carbon Tetrachloride	ND	0.50		mg/L	1	2/10/2014 7:07:38 PM	11607
Chlorobenzene	ND	0.30		mg/L	1	2/10/2014 7:07:38 PM	11607
Chloroform	ND	6.0		mg/L	1	2/10/2014 7:07:38 PM	11607
1,4-Dichlorobenzene	ND	7.5		mg/L	1	2/10/2014 7:07:38 PM	11607
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	2/10/2014 7:07:38 PM	11607
1,1-Dichloroethene	ND	0.30		mg/L	1	2/10/2014 7:07:38 PM	11607

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: DAF Bin 20S10 1/31/14
Project: DAF Bins
Collection Date: 2/3/2014 6:00:00 PM
Lab ID: 1402230-001
Matrix: SOLID
Received Date: 2/6/2014 2:20:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
VOLATILES BY 8260B/1311						Analyst:	**DJF**
Hexachlorobutadiene	ND	0.50		mg/L	1	2/10/2014 7:07:38 PM	11607
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	2/10/2014 7:07:38 PM	11607
Trichloroethene (TCE)	ND	0.30		mg/L	1	2/10/2014 7:07:38 PM	11607
Vinyl chloride	ND	0.20		mg/L	1	2/10/2014 7:07:38 PM	11607
Surr: 1,2-Dichloroethane-d4	99.1	69.9-130		%REC	1	2/10/2014 7:07:38 PM	11607
Surr: 4-Bromofluorobenzene	84.8	71.2-123		%REC	1	2/10/2014 7:07:38 PM	11607
Surr: Dibromofluoromethane	92.3	73.9-134		%REC	1	2/10/2014 7:07:38 PM	11607
Surr: Toluene-d8	102	81.9-122		%REC	1	2/10/2014 7:07:38 PM	11607
CORROSIVITY						Analyst:	**SUB**
pH	Non-Corrosive			pH Units	1	2/11/2014	R16670
IGNITABILITY METHOD 1010						Analyst:	**SUB**
Ignitability	>170	0		°F	1	2/8/2014	R16671
CYANIDE, REACTIVE						Analyst:	**SUB**
Reactive Cyanide	ND	0.125		mg/Kg	1	2/11/2014	R16672
SULFIDE, REACTIVE						Analyst:	**SUB**
Reactive Sulfide	ND	25		mg/Kg	1	2/10/2014	R16673

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

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1402230**

11-Feb-14

Client: Navajo Refining Company

Project: DAF Bins

Sample ID **MB-11607**	SampType: **MBLK**	TestCode: **Volatiles by 8260B/1311**
Client ID: **PBS**	Batch ID: **11607**	RunNo: **16650**
Prep Date: **2/6/2014**	Analysis Date: **2/10/2014**	SeqNo: **479338** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.30								
2-Butanone	ND	10								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.30								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,2-Dichloroethane (EDC)	ND	0.50								
1,1-Dichloroethene	ND	0.30								
Hexachlorobutadiene	ND	0.50								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.30								
Vinyl chloride	ND	0.20								
Surr: 1,2-Dichloroethane-d4	0.20		0.2000		101	69.9	130			
Surr: 4-Bromofluorobenzene	0.17		0.2000		84.9	71.2	123			
Surr: Dibromofluoromethane	0.19		0.2000		94.5	73.9	134			
Surr: Toluene-d8	0.20		0.2000		98.3	81.9	122			

Sample ID **LCS-11607**	SampType: **LCS**	TestCode: **Volatiles by 8260B/1311**
Client ID: **LCSS**	Batch ID: **11607**	RunNo: **16650**
Prep Date: **2/6/2014**	Analysis Date: **2/10/2014**	SeqNo: **479340** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.42	0.30	0.4000	0	106	51.1	171			
Chlorobenzene	0.35	0.30	0.4000	0	87.6	36.1	191			
1,1-Dichloroethene	0.47	0.30	0.4000	0	117	49.1	162			
Trichloroethene (TCE)	0.34	0.30	0.4000	0	86.2	41.2	166			
Surr: 1,2-Dichloroethane-d4	0.20		0.2000		97.6	69.9	130			
Surr: 4-Bromofluorobenzene	0.18		0.2000		90.1	71.2	123			
Surr: Dibromofluoromethane	0.15		0.2000		75.6	73.9	134			
Surr: Toluene-d8	0.20		0.2000		98.2	81.9	122			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1402230**

11-Feb-14

Client: Navajo Refining Company

Project: DAF Bins

Sample ID **mb-11616**	SampType: **MBLK**	TestCode: **EPA Method 8270C TCLP**
Client ID: **PBS**	Batch ID: **11616**	RunNo: **16627**
Prep Date: **2/7/2014**	Analysis Date: **2/7/2014**	SeqNo: **478790** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	ND	200								
3+4-Methylphenol	ND	200								
Phenol	ND	200								
2,4-Dinitrotoluene	ND	0.13								
Hexachlorobenzene	ND	0.13								
Hexachlorobutadiene	ND	0.50								
Hexachloroethane	ND	3.0								
Nitrobenzene	ND	2.0								
Pentachlorophenol	ND	100								
Pyridine	ND	5.0								
2,4,5-Trichlorophenol	ND	400								
2,4,6-Trichlorophenol	ND	2.0								
Cresols, Total	ND	200								
Surr: 2-Fluorophenol	0.12		0.2000		58.1	18.6	88.6			
Surr: Phenol-d5	0.093		0.2000		46.6	19.5	61.8			
Surr: 2,4,6-Tribromophenol	0.16		0.2000		82.4	29.7	130			
Surr: Nitrobenzene-d5	0.096		0.1000		95.8	45.1	101			
Surr: 2-Fluorobiphenyl	0.089		0.1000		88.6	46.6	99.3			
Surr: 4-Terphenyl-d14	0.088		0.1000		87.9	40.8	109			

Sample ID **lcs-11616**	SampType: **LCS**	TestCode: **EPA Method 8270C TCLP**
Client ID: **LCSS**	Batch ID: **11616**	RunNo: **16627**
Prep Date: **2/7/2014**	Analysis Date: **2/7/2014**	SeqNo: **478792** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.093	0.010	0.1000	0	93.1	31.5	114			
3+4-Methylphenol	0.33	0.010	0.2000	0	163	25.5	149			S
2,4-Dinitrotoluene	0.087	0.010	0.1000	0	87.0	25.9	130			
Hexachlorobenzene	0.074	0.010	0.1000	0	74.4	40.7	93.9			
Hexachlorobutadiene	0.080	0.010	0.1000	0	79.8	25.2	96			
Hexachloroethane	0.087	0.010	0.1000	0	86.6	22.6	106			
Nitrobenzene	0.094	0.010	0.1000	0	93.6	37.8	125			
Pentachlorophenol	0.046	0.010	0.1000	0	46.3	10.8	91.7			
Pyridine	0.072	0.010	0.1000	0	71.8	9.61	88.8			
2,4,5-Trichlorophenol	0.087	0.010	0.1000	0	87.0	31.9	115			
2,4,6-Trichlorophenol	0.078	0.010	0.1000	0	77.5	29.7	113			
Cresols, Total	0.42	0.010	0.3000	0	140	30	136			S
Surr: 2-Fluorophenol	0.11		0.2000		56.4	18.6	88.6			
Surr: Phenol-d5	0.10		0.2000		50.1	19.5	61.8			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1402230**

11-Feb-14

Client: Navajo Refining Company

Project: DAF Bins

Sample ID	**lcs-11616**	SampType:	**LCS**	TestCode:	**EPA Method 8270C TCLP**					
Client ID:	**LCSS**	Batch ID:	**11616**	RunNo:	**16627**					
Prep Date:	**2/7/2014**	Analysis Date:	**2/7/2014**	SeqNo:	**478792**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2,4,6-Tribromophenol	0.16		0.2000		78.3	29.7	130			
Surr: Nitrobenzene-d5	0.092		0.1000		92.1	45.1	101			
Surr: 2-Fluorobiphenyl	0.084		0.1000		84.5	46.6	99.3			
Surr: 4-Terphenyl-d14	0.095		0.1000		95.3	40.8	109			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1402230**

11-Feb-14

Client: Navajo Refining Company

Project: DAF Bins

Sample ID	**MB-11611**	SampType:	**MBLK**	TestCode:	**MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID:	**11611**	RunNo:	**16631**					
Prep Date:	**2/6/2014**	Analysis Date:	**2/7/2014**	SeqNo:	**478494**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-11611**	SampType:	**LCS**	TestCode:	**MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID:	**11611**	RunNo:	**16631**					
Prep Date:	**2/6/2014**	Analysis Date:	**2/7/2014**	SeqNo:	**478495**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1402230**

11-Feb-14

Client: Navajo Refining Company

Project: DAF Bins

Sample ID	**MB-11641**	SampType:	**MBLK**	TestCode:	**EPA Method 6010B: TCLP Metals**
Client ID:	**PBW**	Batch ID:	**11641**	RunNo:	**16669**
Prep Date:	**2/10/2014**	Analysis Date:	**2/11/2014**	SeqNo:	**479961** Units: **mg/L**

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

Sample ID	**LCS-11641**	SampType:	**LCS**	TestCode:	**EPA Method 6010B: TCLP Metals**
Client ID:	**LCSW**	Batch ID:	**11641**	RunNo:	**16669**
Prep Date:	**2/10/2014**	Analysis Date:	**2/11/2014**	SeqNo:	**479962** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	98.0	80	120			
Barium	ND	100	0.5000	0	87.0	80	120			
Cadmium	ND	1.0	0.5000	0	91.2	80	120			
Chromium	ND	5.0	0.5000	0	86.6	80	120			
Lead	ND	5.0	0.5000	0	87.4	80	120			
Selenium	ND	1.0	0.5000	0	91.4	80	120			
Silver	ND	5.0	0.1000	0	99.5	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1402230**

11-Feb-14

Client: Navajo Refining Company

Project: DAF Bins

Sample ID	**MB-R16672**	SampType:	**MBLK**	TestCode:	**CYANIDE, Reactive**					
Client ID:	**PBS**	Batch ID:	**R16672**	RunNo:	**16672**					
Prep Date:		Analysis Date:	**2/11/2014**	SeqNo:	**480019**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Cyanide	<.125									

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1402230**

11-Feb-14

Client: Navajo Refining Company

Project: DAF Bins

Sample ID	**MB-R16673**	SampType:	**MBLK**	TestCode:	**SULFIDE, Reactive**					
Client ID:	**PBS**	Batch ID:	**R16673**	RunNo:	**16673**					
Prep Date:		Analysis Date:	**2/10/2014**	SeqNo:	**480023**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	<25									

Sample ID	**LCS-R16673**	SampType:	**LCS**	TestCode:	**SULFIDE, Reactive**					
Client ID:	**LCSS**	Batch ID:	**R16673**	RunNo:	**16673**					
Prep Date:		Analysis Date:	**2/10/2014**	SeqNo:	**480024**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	85		100.0	0	85.0	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING COM Work Order Number: 1402230 RcptNo: 1

Received by/date: 02/06/14

Logged By: **Lindsay Mangin** 2/6/2014 2:20:00 PM

Completed By: **Lindsay Mangin** 2/6/2014 2:52:58 PM

Reviewed By: 2/6/14

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

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

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.8	Good	Not Present			

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

☐ Standard ☑ **Rush**

Project Name:

DAF Bins

Project #:

Project Manager:

Mike Holder

Sampler: Aqua Microbics

On Ice: ☑ Yes ☐ No

Sample Temperature: 1.8

HEAL No. 1402230 1204

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	Analysis Request: TCLP Volitiles	TCLP Semi-Volitiles	TCLP Metals	R.C.I.
2/3/14	18:00	Solid	DAF Bin 20S10 1/31/14	1 gass	Neat	-001	X	X	X	X

Date:	Time:	Relinquished by:	Received by:	Date	Time
2/6/14	10:00	Aaron Strange			
Date:	Time:	Relinquished by:	Received by:	02/06/14	1420

Remarks:
Expedited turn-around and results sent to Aaron Strange

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

April 23, 2014

Micki Schultz

Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: DAF Quarterly OrderNo.: 1404506

Dear Micki Schultz:

Hall Environmental Analysis Laboratory received 1 sample(s) on 4/10/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: DAF Bin
Project: DAF Quarterly
Collection Date: 4/8/2014 1:30:00 PM
Lab ID: 1404506-001 **Matrix:** SOIL **Received Date:** 4/10/2014 1:05:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
MERCURY, TCLP						Analyst: **JML**	
Mercury	ND	0.020		mg/L	1	4/11/2014 4:59:39 PM	12671
EPA METHOD 6010B: TCLP METALS						Analyst: **ELS**	
Arsenic	ND	5.0		mg/L	1	4/12/2014 3:32:17 PM	12672
Barium	ND	100		mg/L	1	4/12/2014 3:32:17 PM	12672
Cadmium	ND	1.0		mg/L	1	4/12/2014 3:32:17 PM	12672
Chromium	ND	5.0		mg/L	1	4/12/2014 3:32:17 PM	12672
Lead	ND	5.0		mg/L	1	4/12/2014 3:32:17 PM	12672
Selenium	ND	1.0		mg/L	1	4/12/2014 3:32:17 PM	12672
Silver	ND	5.0		mg/L	1	4/12/2014 3:32:17 PM	12672
EPA METHOD 8270C TCLP						Analyst: **JDC**	
2-Methylphenol	ND	200		mg/L	1	4/15/2014 1:15:06 PM	12680
3+4-Methylphenol	ND	200		mg/L	1	4/15/2014 1:15:06 PM	12680
Phenol	ND	200		mg/L	1	4/15/2014 1:15:06 PM	12680
2,4-Dinitrotoluene	ND	0.13		mg/L	1	4/15/2014 1:15:06 PM	12680
Hexachlorobenzene	ND	0.13		mg/L	1	4/15/2014 1:15:06 PM	12680
Hexachlorobutadiene	ND	0.50		mg/L	1	4/15/2014 1:15:06 PM	12680
Hexachloroethane	ND	3.0		mg/L	1	4/15/2014 1:15:06 PM	12680
Nitrobenzene	ND	2.0		mg/L	1	4/15/2014 1:15:06 PM	12680
Pentachlorophenol	ND	100		mg/L	1	4/15/2014 1:15:06 PM	12680
Pyridine	ND	5.0		mg/L	1	4/15/2014 1:15:06 PM	12680
2,4,5-Trichlorophenol	ND	400		mg/L	1	4/15/2014 1:15:06 PM	12680
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	4/15/2014 1:15:06 PM	12680
Cresols, Total	ND	200		mg/L	1	4/15/2014 1:15:06 PM	12680
Surr: 2-Fluorophenol	64.5	18.6-88.6		%REC	1	4/15/2014 1:15:06 PM	12680
Surr: Phenol-d5	47.3	19.5-61.8		%REC	1	4/15/2014 1:15:06 PM	12680
Surr: 2,4,6-Tribromophenol	87.6	29.7-130		%REC	1	4/15/2014 1:15:06 PM	12680
Surr: Nitrobenzene-d5	88.3	45.1-101		%REC	1	4/15/2014 1:15:06 PM	12680
Surr: 2-Fluorobiphenyl	84.0	46.6-99.3		%REC	1	4/15/2014 1:15:06 PM	12680
Surr: 4-Terphenyl-d14	84.8	40.8-109		%REC	1	4/15/2014 1:15:06 PM	12680
VOLATILES BY 8260B/1311						Analyst: **cadg**	
Benzene	ND	0.50		mg/L	1	4/15/2014 5:52:37 PM	12656
2-Butanone	ND	10		mg/L	1	4/15/2014 5:52:37 PM	12656
Carbon Tetrachloride	ND	0.50		mg/L	1	4/15/2014 5:52:37 PM	12656
Chlorobenzene	ND	100		mg/L	1	4/15/2014 5:52:37 PM	12656
Chloroform	ND	6.0		mg/L	1	4/15/2014 5:52:37 PM	12656
1,4-Dichlorobenzene	ND	7.5		mg/L	1	4/15/2014 5:52:37 PM	12656
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	4/15/2014 5:52:37 PM	12656
1,1-Dichloroethene	ND	0.70		mg/L	1	4/15/2014 5:52:37 PM	12656

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: DAF Bin
Project: DAF Quarterly
Collection Date: 4/8/2014 1:30:00 PM
Lab ID: 1404506-001 **Matrix:** SOIL **Received Date:** 4/10/2014 1:05:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
VOLATILES BY 8260B/1311						Analyst: **cadg**	
Hexachlorobutadiene	ND	0.50		mg/L	1	4/15/2014 5:52:37 PM	12656
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	4/15/2014 5:52:37 PM	12656
Trichloroethene (TCE)	ND	0.50		mg/L	1	4/15/2014 5:52:37 PM	12656
Vinyl chloride	ND	0.20		mg/L	1	4/15/2014 5:52:37 PM	12656
Surr: 1,2-Dichloroethane-d4	105	69.9-130		%REC	1	4/15/2014 5:52:37 PM	12656
Surr: 4-Bromofluorobenzene	103	71.2-123		%REC	1	4/15/2014 5:52:37 PM	12656
Surr: Dibromofluoromethane	105	73.9-134		%REC	1	4/15/2014 5:52:37 PM	12656
Surr: Toluene-d8	93.6	81.9-122		%REC	1	4/15/2014 5:52:37 PM	12656

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1404506**

23-Apr-14

Client: Navajo Refining Company

Project: DAF Quarterly

Sample ID **mb-12656**	SampType: **MBLK**	TestCode: **Volatiles by 8260B/1311**
Client ID: **PBS**	Batch ID: **12656**	RunNo: **18006**
Prep Date: **4/10/2014**	Analysis Date: **4/15/2014**	SeqNo: **519519** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
2-Butanone	ND	10								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	100								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,2-Dichloroethane (EDC)	ND	0.50								
1,1-Dichloroethene	ND	0.70								
Hexachlorobutadiene	ND	0.50								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Surr: 1,2-Dichloroethane-d4	0.21		0.2000		104	69.9	130			
Surr: 4-Bromofluorobenzene	0.21		0.2000		103	71.2	123			
Surr: Dibromofluoromethane	0.21		0.2000		104	73.9	134			
Surr: Toluene-d8	0.19		0.2000		95.3	81.9	122			

Sample ID **lcs-12656**	SampType: **LCS**	TestCode: **Volatiles by 8260B/1311**
Client ID: **LCSS**	Batch ID: **12656**	RunNo: **18006**
Prep Date: **4/10/2014**	Analysis Date: **4/15/2014**	SeqNo: **519520** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.39	0.10	0.4000	0	96.8	51.1	171			
Chlorobenzene	0.32	0.10	0.4000	0	79.2	36.1	191			
1,1-Dichloroethene	0.39	0.10	0.4000	0	96.6	49.1	162			
Trichloroethene (TCE)	0.35	0.10	0.4000	0	87.3	41.2	166			
Surr: 1,2-Dichloroethane-d4	0.22		0.2000		110	69.9	130			
Surr: 4-Bromofluorobenzene	0.21		0.2000		103	71.2	123			
Surr: Dibromofluoromethane	0.21		0.2000		106	73.9	134			
Surr: Toluene-d8	0.18		0.2000		91.8	81.9	122			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1404506**

23-Apr-14

Client: Navajo Refining Company

Project: DAF Quarterly

Sample ID **mb-12680**	SampType: **MBLK**	TestCode: **EPA Method 8270C TCLP**
Client ID: **PBS**	Batch ID: **12680**	RunNo: **17998**
Prep Date: **4/12/2014**	Analysis Date: **4/15/2014**	SeqNo: **519319** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	ND	200								
3+4-Methylphenol	ND	200								
Phenol	ND	200								
2,4-Dinitrotoluene	ND	0.13								
Hexachlorobenzene	ND	0.13								
Hexachlorobutadiene	ND	0.50								
Hexachloroethane	ND	3.0								
Nitrobenzene	ND	2.0								
Pentachlorophenol	ND	100								
Pyridine	ND	5.0								
2,4,5-Trichlorophenol	ND	400								
2,4,6-Trichlorophenol	ND	2.0								
Cresols, Total	ND	200								
Surr: 2-Fluorophenol	0.14		0.2000		72.5	18.6	88.6			
Surr: Phenol-d5	0.10		0.2000		50.8	19.5	61.8			
Surr: 2,4,6-Tribromophenol	0.18		0.2000		91.3	29.7	130			
Surr: Nitrobenzene-d5	0.083		0.1000		83.4	45.1	101			
Surr: 2-Fluorobiphenyl	0.085		0.1000		84.6	46.6	99.3			
Surr: 4-Terphenyl-d14	0.089		0.1000		88.9	40.8	109			

Sample ID **lcs-12680**	SampType: **LCS**	TestCode: **EPA Method 8270C TCLP**
Client ID: **LCSS**	Batch ID: **12680**	RunNo: **17998**
Prep Date: **4/12/2014**	Analysis Date: **4/15/2014**	SeqNo: **519320** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.087	0.010	0.1000	0	87.2	52.2	95.7			
3+4-Methylphenol	0.17	0.010	0.2000	0	84.2	52.4	142			
2,4-Dinitrotoluene	0.067	0.010	0.1000	0	66.6	43.4	110			
Hexachlorobenzene	0.070	0.010	0.1000	0	70.1	43.6	88.4			
Hexachlorobutadiene	0.071	0.010	0.1000	0	71.5	38.6	88.4			
Hexachloroethane	0.074	0.010	0.1000	0	74.2	45.7	83.6			
Nitrobenzene	0.077	0.010	0.1000	0	77.0	51.9	112			
Pentachlorophenol	0.075	0.010	0.1000	0	74.7	15.2	81.5			
Pyridine	0.043	0.010	0.1000	0	43.4	11.2	95.1			
2,4,5-Trichlorophenol	0.078	0.010	0.1000	0	78.1	46.9	110			
2,4,6-Trichlorophenol	0.080	0.010	0.1000	0	79.6	36.1	111			
Cresols, Total	0.26	0.010	0.3000	0	85.2	30	136			
Surr: 2-Fluorophenol	0.13		0.2000		65.9	18.6	88.6			
Surr: Phenol-d5	0.10		0.2000		51.3	19.5	61.8			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1404506**

23-Apr-14

Client: Navajo Refining Company

Project: DAF Quarterly

Sample ID	**lcs-12680**	SampType:	**LCS**	TestCode:	**EPA Method 8270C TCLP**					
Client ID:	**LCSS**	Batch ID:	**12680**	RunNo:	**17998**					
Prep Date:	**4/12/2014**	Analysis Date:	**4/15/2014**	SeqNo:	**519320**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2,4,6-Tribromophenol	0.21		0.2000		107	29.7	130			
Surr: Nitrobenzene-d5	0.087		0.1000		86.5	45.1	101			
Surr: 2-Fluorobiphenyl	0.093		0.1000		92.6	46.6	99.3			
Surr: 4-Terphenyl-d14	0.097		0.1000		97.4	40.8	109			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1404506**

23-Apr-14

Client: Navajo Refining Company

Project: DAF Quarterly

Sample ID	**MB-12671**	SampType:	**MBLK**	TestCode:	**MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID:	**12671**	RunNo:	**17943**					
Prep Date:	**4/11/2014**	Analysis Date:	**4/11/2014**	SeqNo:	**517806**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-12671**	SampType:	**LCS**	TestCode:	**MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID:	**12671**	RunNo:	**17943**					
Prep Date:	**4/11/2014**	Analysis Date:	**4/11/2014**	SeqNo:	**517807**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	99.8	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1404506**

23-Apr-14

Client: Navajo Refining Company

Project: DAF Quarterly

Sample ID	**MB-12672**	SampType:	**MBLK**	TestCode:	**EPA Method 6010B: TCLP Metals**
Client ID:	**PBW**	Batch ID:	**12672**	RunNo:	**17947**
Prep Date:	**4/11/2014**	Analysis Date:	**4/12/2014**	SeqNo:	**517873** Units: **mg/L**

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

Sample ID	**LCS-12672**	SampType:	**LCS**	TestCode:	**EPA Method 6010B: TCLP Metals**
Client ID:	**LCSW**	Batch ID:	**12672**	RunNo:	**17947**
Prep Date:	**4/11/2014**	Analysis Date:	**4/12/2014**	SeqNo:	**517874** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	109	80	120			
Barium	ND	100	0.5000	0	96.5	80	120			
Cadmium	ND	1.0	0.5000	0	102	80	120			
Chromium	ND	5.0	0.5000	0	98.0	80	120			
Lead	ND	5.0	0.5000	0	94.8	80	120			
Selenium	ND	1.0	0.5000	0	105	80	120			
Silver	ND	5.0	0.1000	0	107	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING COM Work Order Number: 1404506 RcptNo: 1

Received by/date: AT 04/10/14

Logged By: **Lindsay Mangin** 4/10/2014 1:05:00 PM

Completed By: **Lindsay Mangin** 4/10/2014 1:23:55 PM

Reviewed By: 04/10/14

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? _____
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.2	Good	Yes			

Chain-of-Custody Record

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

☐ Standard ☐ Rush

Project Name:

DAF Quarterly

Project #:

Project Manager:

Micki Schultz

Sampler: Aqua Microbics JF

On Ice: X Yes ☐ No

Sample Temperature: 2.2

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1408506	TCLP Volitiles	TCLP Semi-Volitiles	TCLP Metals
4/8/14	~~0815~~ 04/10/14 13:30	Solid	DAF Bin	1 gass	Neat	-001	X	X	X

Date:	Time:	Relinquished by:	Received by:	Date	Time
4/10/14	10:00	Aaron Strange			
Date:	Time:	Relinquished by:	Received by:	Date	Time
				04/10/14	1325

Remarks: Copy analytical report to Aaron.Strange@hollyfrontier.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

July 25, 2014

Micki Schultz

Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: DAF Quarterly OrderNo.: 1407869

Dear Micki Schultz:

Hall Environmental Analysis Laboratory received 1 sample(s) on 7/18/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: DAF Bin 56
Project: DAF Quarterly
Collection Date: 7/17/2014 8:45:00 AM
Lab ID: 1407869-001 **Matrix:** SOIL **Received Date:** 7/18/2014 11:18:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
MERCURY, TCLP						Analyst: **MMD**	
Mercury	ND	0.020		mg/L	1	7/23/2014 3:34:04 PM	14373
EPA METHOD 6010B: TCLP METALS						Analyst: **ELS**	
Arsenic	ND	5.0		mg/L	5	7/23/2014 10:48:16 AM	14367
Barium	ND	100		mg/L	5	7/23/2014 10:48:16 AM	14367
Cadmium	ND	1.0		mg/L	5	7/23/2014 10:48:16 AM	14367
Chromium	ND	5.0		mg/L	5	7/23/2014 10:48:16 AM	14367
Lead	ND	5.0		mg/L	5	7/23/2014 10:48:16 AM	14367
Selenium	ND	1.0		mg/L	5	7/23/2014 10:48:16 AM	14367
Silver	ND	5.0		mg/L	5	7/23/2014 10:48:16 AM	14367
EPA METHOD 8270C TCLP						Analyst: **JDC**	
2-Methylphenol	ND	200		mg/L	1	7/25/2014 10:50:55 AM	14405
3+4-Methylphenol	ND	200		mg/L	1	7/25/2014 10:50:55 AM	14405
Phenol	ND	200		mg/L	1	7/25/2014 10:50:55 AM	14405
2,4-Dinitrotoluene	ND	0.13		mg/L	1	7/25/2014 10:50:55 AM	14405
Hexachlorobenzene	ND	0.13		mg/L	1	7/25/2014 10:50:55 AM	14405
Hexachlorobutadiene	ND	0.50		mg/L	1	7/25/2014 10:50:55 AM	14405
Hexachloroethane	ND	3.0		mg/L	1	7/25/2014 10:50:55 AM	14405
Nitrobenzene	ND	2.0		mg/L	1	7/25/2014 10:50:55 AM	14405
Pentachlorophenol	ND	100		mg/L	1	7/25/2014 10:50:55 AM	14405
Pyridine	ND	5.0		mg/L	1	7/25/2014 10:50:55 AM	14405
2,4,5-Trichlorophenol	ND	400		mg/L	1	7/25/2014 10:50:55 AM	14405
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	7/25/2014 10:50:55 AM	14405
Cresols, Total	ND	200		mg/L	1	7/25/2014 10:50:55 AM	14405
Surr: 2-Fluorophenol	23.0	25-105	S	%REC	1	7/25/2014 10:50:55 AM	14405
Surr: Phenol-d5	31.1	22.3-70.3		%REC	1	7/25/2014 10:50:55 AM	14405
Surr: 2,4,6-Tribromophenol	35.0	30.4-134		%REC	1	7/25/2014 10:50:55 AM	14405
Surr: Nitrobenzene-d5	107	54.8-128		%REC	1	7/25/2014 10:50:55 AM	14405
Surr: 2-Fluorobiphenyl	94.2	53.3-122		%REC	1	7/25/2014 10:50:55 AM	14405
Surr: 4-Terphenyl-d14	95.3	51.8-133		%REC	1	7/25/2014 10:50:55 AM	14405
VOLATILES BY 8260B/1311						Analyst: **RAA**	
Benzene	ND	0.50		mg/L	1	7/22/2014 3:46:31 PM	14335
2-Butanone	ND	10		mg/L	1	7/22/2014 3:46:31 PM	14335
Carbon Tetrachloride	ND	0.50		mg/L	1	7/22/2014 3:46:31 PM	14335
Chlorobenzene	ND	100		mg/L	1	7/22/2014 3:46:31 PM	14335
Chloroform	ND	6.0		mg/L	1	7/22/2014 3:46:31 PM	14335
1,4-Dichlorobenzene	ND	7.5		mg/L	1	7/22/2014 3:46:31 PM	14335
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	7/22/2014 3:46:31 PM	14335
1,1-Dichloroethene	ND	0.70		mg/L	1	7/22/2014 3:46:31 PM	14335

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: DAF Bin 56
Project: DAF Quarterly
Collection Date: 7/17/2014 8:45:00 AM
Lab ID: 1407869-001 **Matrix:** SOIL **Received Date:** 7/18/2014 11:18:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
VOLATILES BY 8260B/1311						Analyst: **RAA**	
Hexachlorobutadiene	ND	0.50		mg/L	1	7/22/2014 3:46:31 PM	14335
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	7/22/2014 3:46:31 PM	14335
Trichloroethene (TCE)	ND	0.50		mg/L	1	7/22/2014 3:46:31 PM	14335
Vinyl chloride	ND	0.20		mg/L	1	7/22/2014 3:46:31 PM	14335
Surr: 1,2-Dichloroethane-d4	92.1	69.9-130		%REC	1	7/22/2014 3:46:31 PM	14335
Surr: 4-Bromofluorobenzene	97.5	71.2-123		%REC	1	7/22/2014 3:46:31 PM	14335
Surr: Dibromofluoromethane	105	73.9-134		%REC	1	7/22/2014 3:46:31 PM	14335
Surr: Toluene-d8	90.0	81.9-122		%REC	1	7/22/2014 3:46:31 PM	14335

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1407869**

25-Jul-14

Client: Navajo Refining Company

Project: DAF Quarterly

Sample ID **MB-14335**	SampType: **MBLK**	TestCode: **Volatiles by 8260B/1311**
Client ID: **PBS**	Batch ID: **14335**	RunNo: **20081**
Prep Date: **7/21/2014**	Analysis Date: **7/22/2014**	SeqNo: **583895** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
2-Butanone	ND	10								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	100								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,2-Dichloroethane (EDC)	ND	0.50								
1,1-Dichloroethene	ND	0.70								
Hexachlorobutadiene	ND	0.50								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Surr: 1,2-Dichloroethane-d4	0.19		0.2000		94.1	69.9	130			
Surr: 4-Bromofluorobenzene	0.20		0.2000		98.1	71.2	123			
Surr: Dibromofluoromethane	0.21		0.2000		105	73.9	134			
Surr: Toluene-d8	0.18		0.2000		91.3	81.9	122			

Sample ID **LCS-14335**	SampType: **LCS**	TestCode: **Volatiles by 8260B/1311**
Client ID: **LCSS**	Batch ID: **14335**	RunNo: **20081**
Prep Date: **7/21/2014**	Analysis Date: **7/22/2014**	SeqNo: **583897** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.41	0.10	0.4000	0	102	51.1	171			
Chlorobenzene	0.38	0.10	0.4000	0	94.2	36.1	191			
1,1-Dichloroethene	0.44	0.10	0.4000	0	110	49.1	162			
Trichloroethene (TCE)	0.39	0.10	0.4000	0	96.3	41.2	166			
Surr: 1,2-Dichloroethane-d4	0.18		0.2000		92.0	69.9	130			
Surr: 4-Bromofluorobenzene	0.19		0.2000		96.9	71.2	123			
Surr: Dibromofluoromethane	0.20		0.2000		102	73.9	134			
Surr: Toluene-d8	0.17		0.2000		86.4	81.9	122			

Sample ID **1407869-001AMS**	SampType: **MS**	TestCode: **Volatiles by 8260B/1311**
Client ID: **DAF Bin 56**	Batch ID: **14335**	RunNo: **20081**
Prep Date: **7/21/2014**	Analysis Date: **7/22/2014**	SeqNo: **583898** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.43	0.10	0.4000	0	107	51.1	171			
Chlorobenzene	0.37	0.10	0.4000	0	91.9	36.1	191			
1,1-Dichloroethene	0.46	0.10	0.4000	0	114	49.1	162			
Trichloroethene (TCE)	0.40	0.10	0.4000	0	100	41.2	166			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1407869**

25-Jul-14

Client: Navajo Refining Company

Project: DAF Quarterly

Sample ID **1407869-001AMS**	SampType: **MS**	TestCode: **Volatiles by 8260B/1311**
Client ID: **DAF Bin 56**	Batch ID: **14335**	RunNo: **20081**
Prep Date: **7/21/2014**	Analysis Date: **7/22/2014**	SeqNo: **583898** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.19		0.2000		93.9	69.9	130			
Surr: 4-Bromofluorobenzene	0.19		0.2000		96.5	71.2	123			
Surr: Dibromofluoromethane	0.21		0.2000		106	73.9	134			
Surr: Toluene-d8	0.17		0.2000		85.0	81.9	122			

Sample ID **1407869-001AMSD**	SampType: **MSD**	TestCode: **Volatiles by 8260B/1311**
Client ID: **DAF Bin 56**	Batch ID: **14335**	RunNo: **20081**
Prep Date: **7/21/2014**	Analysis Date: **7/22/2014**	SeqNo: **583899** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.39	0.10	0.4000	0	96.3	51.1	171	11.0	20	
Chlorobenzene	0.38	0.10	0.4000	0	94.4	36.1	191	2.67	20	
1,1-Dichloroethene	0.43	0.10	0.4000	0	108	49.1	162	5.17	20	
Trichloroethene (TCE)	0.38	0.10	0.4000	0	95.9	41.2	166	4.41	20	
Surr: 1,2-Dichloroethane-d4	0.18		0.2000		88.2	69.9	130	0	0	
Surr: 4-Bromofluorobenzene	0.20		0.2000		97.9	71.2	123	0	0	
Surr: Dibromofluoromethane	0.20		0.2000		102	73.9	134	0	0	
Surr: Toluene-d8	0.18		0.2000		91.5	81.9	122	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1407869**

25-Jul-14

Client: Navajo Refining Company

Project: DAF Quarterly

Sample ID **mb-14405**	SampType: **MBLK**	TestCode: **EPA Method 8270C TCLP**
Client ID: **PBS**	Batch ID: **14405**	RunNo: **20118**
Prep Date: **7/24/2014**	Analysis Date: **7/24/2014**	SeqNo: **584882** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	ND	200								
3+4-Methylphenol	ND	200								
Phenol	ND	200								
2,4-Dinitrotoluene	ND	0.13								
Hexachlorobenzene	ND	0.13								
Hexachlorobutadiene	ND	0.50								
Hexachloroethane	ND	3.0								
Nitrobenzene	ND	2.0								
Pentachlorophenol	ND	100								
Pyridine	ND	5.0								
2,4,5-Trichlorophenol	ND	400								
2,4,6-Trichlorophenol	ND	2.0								
Cresols, Total	ND	200								
Surr: 2-Fluorophenol	0.15		0.2000		77.1	25	105			
Surr: Phenol-d5	0.11		0.2000		56.3	22.3	70.3			
Surr: 2,4,6-Tribromophenol	0.16		0.2000		82.3	30.4	134			
Surr: Nitrobenzene-d5	0.11		0.1000		111	54.8	128			
Surr: 2-Fluorobiphenyl	0.096		0.1000		95.9	53.3	122			
Surr: 4-Terphenyl-d14	0.11		0.1000		111	51.8	133			

Sample ID **1407869-001Ams**	SampType: **MS**	TestCode: **EPA Method 8270C TCLP**
Client ID: **DAF Bin 56**	Batch ID: **14405**	RunNo: **20118**
Prep Date: **7/24/2014**	Analysis Date: **7/24/2014**	SeqNo: **584891** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.087	0.010	0.1000	0	87.1	32.1	120			
3+4-Methylphenol	0.37	0.010	0.2000	0.06784	153	10.9	204			
2,4-Dinitrotoluene	0.092	0.010	0.1000	0	92.5	41.9	116			
Hexachlorobenzene	0.076	0.010	0.1000	0	75.6	37.7	99.4			
Hexachlorobutadiene	0.072	0.010	0.1000	0	71.8	30.6	107			
Hexachloroethane	0.083	0.010	0.1000	0	83.3	27.4	121			
Nitrobenzene	0.10	0.010	0.1000	0	101	28.6	134			
Pentachlorophenol	0.073	0.010	0.1000	0	72.7	7.71	111			
Pyridine	0.079	0.010	0.1000	0	78.7	8.54	92.4			
2,4,5-Trichlorophenol	0.081	0.010	0.1000	0	81.3	25.3	146			
2,4,6-Trichlorophenol	0.081	0.010	0.1000	0	81.5	21.5	145			
Cresols, Total	0.48	0.010	0.3000	0.06784	137	10.6	179			
Surr: 2-Fluorophenol	0.12		0.2000		59.6	25	105			
Surr: Phenol-d5	0.098		0.2000		49.0	22.3	70.3			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1407869**

25-Jul-14

Client: Navajo Refining Company

Project: DAF Quarterly

Sample ID **1407869-001Ams**	SampType: **MS**	TestCode: **EPA Method 8270C TCLP**
Client ID: **DAF Bin 56**	Batch ID: **14405**	RunNo: **20118**
Prep Date: **7/24/2014**	Analysis Date: **7/24/2014**	SeqNo: **584891** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2,4,6-Tribromophenol	0.17		0.2000		82.6	30.4	134			
Surr: Nitrobenzene-d5	0.11		0.1000		105	54.8	128			
Surr: 2-Fluorobiphenyl	0.10		0.1000		104	53.3	122			
Surr: 4-Terphenyl-d14	0.10		0.1000		104	51.8	133			

Sample ID **1407869-001Amsd**	SampType: **MSD**	TestCode: **EPA Method 8270C TCLP**
Client ID: **DAF Bin 56**	Batch ID: **14405**	RunNo: **20118**
Prep Date: **7/24/2014**	Analysis Date: **7/24/2014**	SeqNo: **584892** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.089	0.010	0.1000	0	88.9	32.1	120	2.04	20	
3+4-Methylphenol	0.42	0.010	0.2000	0.06784	174	10.9	204	10.3	20	
2,4-Dinitrotoluene	0.094	0.010	0.1000	0	94.5	41.9	116	2.14	23.2	
Hexachlorobenzene	0.078	0.010	0.1000	0	78.4	37.7	99.4	3.63	20	
Hexachlorobutadiene	0.075	0.010	0.1000	0	75.1	30.6	107	4.47	20	
Hexachloroethane	0.083	0.010	0.1000	0	82.7	27.4	121	0.651	31.3	
Nitrobenzene	0.11	0.010	0.1000	0	106	28.6	134	4.96	26.6	
Pentachlorophenol	0.031	0.010	0.1000	0	30.9	7.71	111	80.8	27.9	R
Pyridine	0.079	0.010	0.1000	0	78.6	8.54	92.4	0.127	47.4	
2,4,5-Trichlorophenol	0.037	0.010	0.1000	0	37.5	25.3	146	73.8	36.9	R
2,4,6-Trichlorophenol	0.031	0.010	0.1000	0	30.6	21.5	145	90.9	37.2	R
Cresols, Total	0.52	0.010	0.3000	0.06784	151	10.6	179	8.07	27.4	
Surr: 2-Fluorophenol	0.048		0.2000		24.2	25	105	0	0	S
Surr: Phenol-d5	0.077		0.2000		38.5	22.3	70.3	0	0	
Surr: 2,4,6-Tribromophenol	0.080		0.2000		40.0	30.4	134	0	0	
Surr: Nitrobenzene-d5	0.11		0.1000		106	54.8	128	0	0	
Surr: 2-Fluorobiphenyl	0.091		0.1000		90.8	53.3	122	0	0	
Surr: 4-Terphenyl-d14	0.11		0.1000		106	51.8	133	0	0	

Sample ID **lcs-14405**	SampType: **LCS**	TestCode: **EPA Method 8270C TCLP**
Client ID: **LCSS**	Batch ID: **14405**	RunNo: **20144**
Prep Date: **7/24/2014**	Analysis Date: **7/25/2014**	SeqNo: **585755** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.094	0.010	0.1000	0	94.4	52.2	95.7			
3+4-Methylphenol	0.21	0.010	0.2000	0	104	52.4	142			
2,4-Dinitrotoluene	0.090	0.010	0.1000	0	89.6	43.4	110			
Hexachlorobenzene	0.078	0.010	0.1000	0	77.7	43.6	88.4			
Hexachlorobutadiene	0.066	0.010	0.1000	0	65.7	38.6	88.4			
Hexachloroethane	0.081	0.010	0.1000	0	81.0	45.7	83.6			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1407869**

25-Jul-14

Client: Navajo Refining Company

Project: DAF Quarterly

Sample ID	**lcs-14405**	SampType:	**LCS**	TestCode:	**EPA Method 8270C TCLP**					
Client ID:	**LCSS**	Batch ID:	**14405**	RunNo:	**20144**					
Prep Date:	**7/24/2014**	Analysis Date:	**7/25/2014**	SeqNo:	**585755**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrobenzene	0.11	0.010	0.1000	0	108	51.9	112			
Pentachlorophenol	0.034	0.010	0.1000	0	33.8	15.2	81.5			
Pyridine	0.070	0.010	0.1000	0	69.8	11.2	95.1			
2,4,5-Trichlorophenol	0.057	0.010	0.1000	0	57.0	46.9	110			
2,4,6-Trichlorophenol	0.045	0.010	0.1000	0	45.0	36.1	111			
Cresols, Total	0.30	0.010	0.3000	0	101	30	136			
Surr: 2-Fluorophenol	0.092		0.2000		46.1	25	105			
Surr: Phenol-d5	0.095		0.2000		47.3	22.3	70.3			
Surr: 2,4,6-Tribromophenol	0.13		0.2000		65.6	30.4	134			
Surr: Nitrobenzene-d5	0.11		0.1000		106	54.8	128			
Surr: 2-Fluorobiphenyl	0.090		0.1000		90.4	53.3	122			
Surr: 4-Terphenyl-d14	0.11		0.1000		110	51.8	133			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1407869**

25-Jul-14

Client: Navajo Refining Company

Project: DAF Quarterly

Sample ID	**MB-14373**	SampType:	**MBLK**		TestCode:	**MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID:	**14373**		RunNo:	**20095**					
Prep Date:	**7/23/2014**	Analysis Date:	**7/23/2014**		SeqNo:	**584049**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	ND	0.020									

Sample ID	**LCS-14373**	SampType:	**LCS**		TestCode:	**MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID:	**14373**		RunNo:	**20095**					
Prep Date:	**7/23/2014**	Analysis Date:	**7/23/2014**		SeqNo:	**584050**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	ND	0.020	0.005000	0	99.5	80	120				

Sample ID	**TCLP Fluid1 #1345**	SampType:	**MBLK**		TestCode:	**MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID:	**14373**		RunNo:	**20095**					
Prep Date:	**7/23/2014**	Analysis Date:	**7/23/2014**		SeqNo:	**584051**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	ND	0.020									

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1407869**

25-Jul-14

Client: Navajo Refining Company

Project: DAF Quarterly

Sample ID	**MB-14367**	SampType:	**MBLK**	TestCode:	**EPA Method 6010B: TCLP Metals**					
Client ID:	**PBW**	Batch ID:	**14367**	RunNo:	**20076**					
Prep Date:	**7/22/2014**	Analysis Date:	**7/23/2014**	SeqNo:	**583587**	Units:	**mg/L**			

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

Sample ID	**LCS-14367**	SampType:	**LCS**	TestCode:	**EPA Method 6010B: TCLP Metals**					
Client ID:	**LCSW**	Batch ID:	**14367**	RunNo:	**20076**					
Prep Date:	**7/22/2014**	Analysis Date:	**7/23/2014**	SeqNo:	**583588**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	106	80	120			
Barium	ND	100	0.5000	0	96.1	80	120			
Cadmium	ND	1.0	0.5000	0	103	80	120			
Chromium	ND	5.0	0.5000	0	97.3	80	120			
Lead	ND	5.0	0.5000	0	92.3	80	120			
Selenium	ND	1.0	0.5000	0	101	80	120			
Silver	ND	5.0	0.1000	0	90.8	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING COM Work Order Number: 1407869 RcptNo: 1

Received by/date: CS 07/18/14

Logged By: **Lindsay Mangin** 7/18/2014 11:18:00 AM

Completed By: **Lindsay Mangin** 7/18/2014 1:20:03 PM

Reviewed By: CS 07/18/14

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

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

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.9	Good	Yes			

Chain-of-Custody Record

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Client: Navajo Refining Co.	☐ Standard ☐ Rush
	Project Name: DAF Quarterly
Mailing Address: P.O. Box 159 Artesia, NM 88211-0159	Project #: P.O. # 167796
Phone #: 575-748-3311	
email or Fax#: 575-746-5451	Project Manager: Micki Schultz
QA/QC Package: ☐ Standard ☐ Level 4 (Full Validation) ☐ Other ☐ EDD (Type)	Sampler: Aqua Microbics
	On Ice: ☒ Yes ☐ No
	Sample Temperature: 4.9°

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1407869	TCLP Volitiles	TCLP Semi-Volitiles	TCLP Metals
7/17/14	9:45	Solid	DAF Bin 56	2 gass	Neat	-001	X	X	X

Date	Time	Relinquished by:	Received by:	Date	Time
7/17/14	12:45	Aaron Strange	Ellin Sun	07/18/14	11:18

Remarks: Copy analytical report to Aaron.Strange@hollyfrontier.com

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

October 29, 2014

Micki Schultz

Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: DAF Quarterly OrderNo.: 1410622

Dear Micki Schultz:

Hall Environmental Analysis Laboratory received 1 sample(s) on 10/14/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: DAF Bin
Project: DAF Quarterly
Collection Date: 10/13/2014 8:45:00 AM
Lab ID: 1410622-001 **Matrix:** SOLID **Received Date:** 10/14/2014 9:41:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
MERCURY, TCLP						Analyst: **MMD**	
Mercury	ND	0.020		mg/L	1	10/23/2014 12:34:18 PM	16038
EPA METHOD 6010B: TCLP METALS						Analyst: **JLF**	
Arsenic	ND	5.0		mg/L	5	10/20/2014 12:01:50 PM	15965
Barium	ND	100		mg/L	5	10/20/2014 12:01:50 PM	15965
Cadmium	ND	1.0		mg/L	5	10/20/2014 12:01:50 PM	15965
Chromium	ND	5.0		mg/L	5	10/20/2014 12:01:50 PM	15965
Lead	ND	5.0		mg/L	5	10/20/2014 12:01:50 PM	15965
Selenium	ND	1.0		mg/L	5	10/20/2014 12:01:50 PM	15965
Silver	ND	5.0		mg/L	5	10/20/2014 12:01:50 PM	15965
EPA METHOD 8270C TCLP						Analyst: **DAM**	
2-Methylphenol	ND	200		mg/L	1	10/15/2014 7:03:51 PM	15923
3+4-Methylphenol	ND	200		mg/L	1	10/15/2014 7:03:51 PM	15923
Phenol	ND	200		mg/L	1	10/15/2014 7:03:51 PM	15923
2,4-Dinitrotoluene	ND	0.13		mg/L	1	10/15/2014 7:03:51 PM	15923
Hexachlorobenzene	ND	0.13		mg/L	1	10/15/2014 7:03:51 PM	15923
Hexachlorobutadiene	ND	0.50		mg/L	1	10/15/2014 7:03:51 PM	15923
Hexachloroethane	ND	3.0		mg/L	1	10/15/2014 7:03:51 PM	15923
Nitrobenzene	ND	2.0		mg/L	1	10/15/2014 7:03:51 PM	15923
Pentachlorophenol	ND	100		mg/L	1	10/15/2014 7:03:51 PM	15923
Pyridine	ND	5.0		mg/L	1	10/15/2014 7:03:51 PM	15923
2,4,5-Trichlorophenol	ND	400		mg/L	1	10/15/2014 7:03:51 PM	15923
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	10/15/2014 7:03:51 PM	15923
Cresols, Total	ND	200		mg/L	1	10/15/2014 7:03:51 PM	15923
Surr: 2-Fluorophenol	50.8	25-105		%REC	1	10/15/2014 7:03:51 PM	15923
Surr: Phenol-d5	38.2	22.3-70.3		%REC	1	10/15/2014 7:03:51 PM	15923
Surr: 2,4,6-Tribromophenol	79.5	30.4-134		%REC	1	10/15/2014 7:03:51 PM	15923
Surr: Nitrobenzene-d5	67.0	54.8-128		%REC	1	10/15/2014 7:03:51 PM	15923
Surr: 2-Fluorobiphenyl	69.4	53.3-122		%REC	1	10/15/2014 7:03:51 PM	15923
Surr: 4-Terphenyl-d14	69.9	51.8-133		%REC	1	10/15/2014 7:03:51 PM	15923
EPA METHOD 8260B: TCLP COMPOUNDS						Analyst: **DJF**	
Benzene	ND	0.50		ppm	10	10/21/2014 1:31:28 PM	15883
1,2-Dichloroethane (EDC)	ND	0.50		ppm	10	10/21/2014 1:31:28 PM	15883
2-Butanone	ND	200		ppm	10	10/21/2014 1:31:28 PM	15883
Carbon tetrachloride	ND	0.50		ppm	10	10/21/2014 1:31:28 PM	15883
Chlorobenzene	ND	100		ppm	10	10/21/2014 1:31:28 PM	15883
Chloroform	ND	6.0		ppm	10	10/21/2014 1:31:28 PM	15883
1,4-Dichlorobenzene	ND	7.5		ppm	10	10/21/2014 1:31:28 PM	15883
1,1-Dichloroethene	ND	0.70		ppm	10	10/21/2014 1:31:28 PM	15883

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: DAF Bin
Project: DAF Quarterly
Collection Date: 10/13/2014 8:45:00 AM
Lab ID: 1410622-001 **Matrix:** SOLID **Received Date:** 10/14/2014 9:41:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: TCLP COMPOUNDS						Analyst: **DJF**	
Tetrachloroethene (PCE)	ND	0.70		ppm	10	10/21/2014 1:31:28 PM	15883
Trichloroethene (TCE)	ND	0.50		ppm	10	10/21/2014 1:31:28 PM	15883
Vinyl chloride	ND	0.20		ppm	10	10/21/2014 1:31:28 PM	15883
Surr: 1,2-Dichloroethane-d4	81.9	70-130		%REC	10	10/21/2014 1:31:28 PM	15883
Surr: 4-Bromofluorobenzene	89.2	70-130		%REC	10	10/21/2014 1:31:28 PM	15883
Surr: Dibromofluoromethane	72.5	70-130		%REC	10	10/21/2014 1:31:28 PM	15883
Surr: Toluene-d8	95.0	70-130		%REC	10	10/21/2014 1:31:28 PM	15883

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1410622**

29-Oct-14

Client: Navajo Refining Company

Project: DAF Quarterly

Sample ID **mb-15883**	SampType: **MBLK**	TestCode: **EPA Method 8260B: TCLP Compounds**
Client ID: **PBS**	Batch ID: **15883**	RunNo: **22054**
Prep Date: **10/14/2014**	Analysis Date: **10/21/2014**	SeqNo: **648534** Units: **ppm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
2-Butanone	ND	20								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	10								
Chloroform	ND	0.60								
1,4-Dichlorobenzene	ND	0.75								
1,1-Dichloroethene	ND	0.070								
Tetrachloroethene (PCE)	ND	0.070								
Trichloroethene (TCE)	ND	0.050								
Vinyl chloride	ND	0.020								
Surr: 1,2-Dichloroethane-d4	0.41		0.5000		83.0	70	130			
Surr: 4-Bromofluorobenzene	0.42		0.5000		83.8	70	130			
Surr: Dibromofluoromethane	0.41		0.5000		83.0	70	130			
Surr: Toluene-d8	0.44		0.5000		88.9	70	130			

Sample ID **lcs-15883**	SampType: **LCS**	TestCode: **EPA Method 8260B: TCLP Compounds**
Client ID: **LCSS**	Batch ID: **15883**	RunNo: **22054**
Prep Date: **10/14/2014**	Analysis Date: **10/21/2014**	SeqNo: **648536** Units: **ppm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.78	0.050	1.000	0	77.8	70	130			
Chlorobenzene	0.82	0.050	1.000	0	82.4	70	130			
1,1-Dichloroethene	0.69	0.070	1.000	0	68.5	60.5	160			
Trichloroethene (TCE)	0.79	0.050	1.000	0	78.6	58.8	139			
Surr: 1,2-Dichloroethane-d4	0.40		0.5000		80.5	70	130			
Surr: 4-Bromofluorobenzene	0.46		0.5000		93.0	70	130			
Surr: Dibromofluoromethane	0.42		0.5000		84.0	70	130			
Surr: Toluene-d8	0.44		0.5000		88.3	70	130			

Sample ID **1410622-001ams**	SampType: **MS**	TestCode: **EPA Method 8260B: TCLP Compounds**
Client ID: **DAF Bin**	Batch ID: **15883**	RunNo: **22054**
Prep Date: **10/14/2014**	Analysis Date: **10/21/2014**	SeqNo: **648540** Units: **ppm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50	1.002	0	40.2	32.2	145			
Chlorobenzene	ND	100	1.002	0	48.3	32.4	142			
1,1-Dichloroethene	ND	0.70	1.002	0	32.9	32.6	155			
Trichloroethene (TCE)	ND	0.50	1.002	0	42.0	29.2	150			
Surr: 1,2-Dichloroethane-d4	4.9		5.010		98.4	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1410622**

29-Oct-14

Client: Navajo Refining Company

Project: DAF Quarterly

Sample ID	**1410622-001ams**	SampType:	**MS**		TestCode:	**EPA Method 8260B: TCLP Compounds**				
Client ID:	**DAF Bin**	Batch ID:	**15883**		RunNo:	**22054**				
Prep Date:	**10/14/2014**	Analysis Date:	**10/21/2014**		SeqNo:	**648540**	Units:	**ppm**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	4.3		5.010		86.3	70	130			
Surr: Dibromofluoromethane	4.3		5.010		85.8	70	130			
Surr: Toluene-d8	4.9		5.010		97.2	70	130			

Sample ID	**1410622-001amsd**	SampType:	**MSD**		TestCode:	**EPA Method 8260B: TCLP Compounds**				
Client ID:	**DAF Bin**	Batch ID:	**15883**		RunNo:	**22054**				
Prep Date:	**10/14/2014**	Analysis Date:	**10/21/2014**		SeqNo:	**648541**	Units:	**ppm**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50	1.001	0	38.9	32.2	145	0	20	
Chlorobenzene	ND	100	1.001	0	43.2	32.4	142	0	20	
1,1-Dichloroethene	ND	0.70	1.001	0	29.5	32.6	155	0	20	S
Trichloroethene (TCE)	ND	0.50	1.001	0	38.9	29.2	150	0	20	
Surr: 1,2-Dichloroethane-d4	4.5		5.005		90.7	70	130	0	0	
Surr: 4-Bromofluorobenzene	4.2		5.005		84.2	70	130	0	0	
Surr: Dibromofluoromethane	4.0		5.005		80.5	70	130	0	0	
Surr: Toluene-d8	4.4		5.005		87.2	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1410622**

29-Oct-14

Client: Navajo Refining Company

Project: DAF Quarterly

Sample ID **mb-15923**	SampType: **MBLK**	TestCode: **EPA Method 8270C TCLP**
Client ID: **PBS**	Batch ID: **15923**	RunNo: **21943**
Prep Date: **10/15/2014**	Analysis Date: **10/15/2014**	SeqNo: **644603** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	ND	200								
3+4-Methylphenol	ND	200								
Phenol	ND	200								
2,4-Dinitrotoluene	ND	0.13								
Hexachlorobenzene	ND	0.13								
Hexachlorobutadiene	ND	0.50								
Hexachloroethane	ND	3.0								
Nitrobenzene	ND	2.0								
Pentachlorophenol	ND	100								
Pyridine	ND	5.0								
2,4,5-Trichlorophenol	ND	400								
2,4,6-Trichlorophenol	ND	2.0								
Cresols, Total	ND	200								
Surr: 2-Fluorophenol	0.13		0.2000		63.8	25	105			
Surr: Phenol-d5	0.096		0.2000		48.0	22.3	70.3			
Surr: 2,4,6-Tribromophenol	0.17		0.2000		86.8	30.4	134			
Surr: Nitrobenzene-d5	0.083		0.1000		83.3	54.8	128			
Surr: 2-Fluorobiphenyl	0.085		0.1000		84.8	53.3	122			
Surr: 4-Terphenyl-d14	0.088		0.1000		88.3	51.8	133			

Sample ID **lcs-15923**	SampType: **LCS**	TestCode: **EPA Method 8270C TCLP**
Client ID: **LCSS**	Batch ID: **15923**	RunNo: **21943**
Prep Date: **10/15/2014**	Analysis Date: **10/15/2014**	SeqNo: **644615** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.079	0.010	0.1000	0	79.1	52.2	95.7			
3+4-Methylphenol	0.20	0.010	0.2000	0	100	52.4	142			
2,4-Dinitrotoluene	0.073	0.010	0.1000	0	73.4	43.4	110			
Hexachlorobenzene	0.095	0.010	0.1000	0	94.7	43.6	88.4			S
Hexachlorobutadiene	0.078	0.010	0.1000	0	77.9	38.6	88.4			
Hexachloroethane	0.078	0.010	0.1000	0	78.5	45.7	83.6			
Nitrobenzene	0.096	0.010	0.1000	0	95.9	51.9	112			
Pentachlorophenol	0.064	0.010	0.1000	0	64.3	15.2	81.5			
Pyridine	0.061	0.010	0.1000	0	61.4	11.2	95.1			
2,4,5-Trichlorophenol	0.092	0.010	0.1000	0	92.3	46.9	110			
2,4,6-Trichlorophenol	0.093	0.010	0.1000	0	93.2	36.1	111			
Cresols, Total	0.28	0.010	0.3000	0	93.2	30	136			
Surr: 2-Fluorophenol	0.13		0.2000		64.9	25	105			
Surr: Phenol-d5	0.095		0.2000		47.6	22.3	70.3			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1410622**

29-Oct-14

Client: Navajo Refining Company

Project: DAF Quarterly

Sample ID **lcs-15923**	SampType: **LCS**	TestCode: **EPA Method 8270C TCLP**
Client ID: **LCSS**	Batch ID: **15923**	RunNo: **21943**
Prep Date: **10/15/2014**	Analysis Date: **10/15/2014**	SeqNo: **644615** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2,4,6-Tribromophenol	0.18		0.2000		90.5	30.4	134			
Surr: Nitrobenzene-d5	0.094		0.1000		93.8	54.8	128			
Surr: 2-Fluorobiphenyl	0.095		0.1000		95.0	53.3	122			
Surr: 4-Terphenyl-d14	0.089		0.1000		89.5	51.8	133			

Sample ID **1410622-001ams**	SampType: **MS**	TestCode: **EPA Method 8270C TCLP**
Client ID: **DAF Bin**	Batch ID: **15923**	RunNo: **21943**
Prep Date: **10/15/2014**	Analysis Date: **10/15/2014**	SeqNo: **644623** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.074	0.010	0.1000	0	74.2	43.1	114			
3+4-Methylphenol	0.23	0.010	0.2000	0	113	37.8	128			
2,4-Dinitrotoluene	0.073	0.010	0.1000	0	73.4	36.5	125			
Hexachlorobenzene	0.094	0.010	0.1000	0	94.1	41.4	108			
Hexachlorobutadiene	0.080	0.010	0.1000	0	79.6	30.4	101			
Hexachloroethane	0.084	0.010	0.1000	0	83.5	37.3	115			
Nitrobenzene	0.091	0.010	0.1000	0	91.3	40.2	132			
Pentachlorophenol	0.071	0.010	0.1000	0	70.9	8.72	103			
Pyridine	0.054	0.010	0.1000	0	54.2	9.36	106			
2,4,5-Trichlorophenol	0.094	0.010	0.1000	0	93.9	16.5	123			
2,4,6-Trichlorophenol	0.096	0.010	0.1000	0	96.5	11.3	117			
Cresols, Total	0.31	0.010	0.3000	0	104	23.2	151			
Surr: 2-Fluorophenol	0.12		0.2000		60.5	25	105			
Surr: Phenol-d5	0.090		0.2000		44.8	22.3	70.3			
Surr: 2,4,6-Tribromophenol	0.18		0.2000		90.3	30.4	134			
Surr: Nitrobenzene-d5	0.090		0.1000		90.0	54.8	128			
Surr: 2-Fluorobiphenyl	0.092		0.1000		92.4	53.3	122			
Surr: 4-Terphenyl-d14	0.079		0.1000		79.3	51.8	133			

Sample ID **1410622-001amsd**	SampType: **MSD**	TestCode: **EPA Method 8270C TCLP**
Client ID: **DAF Bin**	Batch ID: **15923**	RunNo: **21943**
Prep Date: **10/15/2014**	Analysis Date: **10/15/2014**	SeqNo: **644624** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.079	0.010	0.1000	0	79.1	43.1	114	6.29	28.4	
3+4-Methylphenol	0.26	0.010	0.2000	0	128	37.8	128	12.7	29.4	
2,4-Dinitrotoluene	0.066	0.010	0.1000	0	66.2	36.5	125	10.2	24.7	
Hexachlorobenzene	0.090	0.010	0.1000	0	89.6	41.4	108	4.99	10	
Hexachlorobutadiene	0.080	0.010	0.1000	0	79.7	30.4	101	0.126	29	
Hexachloroethane	0.083	0.010	0.1000	0	82.7	37.3	115	0.986	25.2	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1410622**

29-Oct-14

Client: Navajo Refining Company

Project: DAF Quarterly

Sample ID **1410622-001amsd**	SampType: **MSD**	TestCode: **EPA Method 8270C TCLP**							
Client ID: **DAF Bin**	Batch ID: **15923**	RunNo: **21943**							
Prep Date: **10/15/2014**	Analysis Date: **10/15/2014**	SeqNo: **644624**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrobenzene	0.090	0.010	0.1000	0	89.8	40.2	132	1.74	26.9	
Pentachlorophenol	0.069	0.010	0.1000	0	69.3	8.72	103	2.28	59.2	
Pyridine	0.024	0.010	0.1000	0	23.7	9.36	106	78.3	48	R
2,4,5-Trichlorophenol	0.085	0.010	0.1000	0	85.4	16.5	123	9.50	70.8	
2,4,6-Trichlorophenol	0.091	0.010	0.1000	0	91.0	11.3	117	5.84	78	
Cresols, Total	0.35	0.010	0.3000	0	116	23.2	151	11.0	30.8	
Surr: 2-Fluorophenol	0.13		0.2000		65.0	25	105	0	0	
Surr: Phenol-d5	0.093		0.2000		46.6	22.3	70.3	0	0	
Surr: 2,4,6-Tribromophenol	0.18		0.2000		91.9	30.4	134	0	0	
Surr: Nitrobenzene-d5	0.086		0.1000		86.4	54.8	128	0	0	
Surr: 2-Fluorobiphenyl	0.085		0.1000		84.8	53.3	122	0	0	
Surr: 4-Terphenyl-d14	0.082		0.1000		81.6	51.8	133	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1410622**

29-Oct-14

Client: Navajo Refining Company

Project: DAF Quarterly

Sample ID	**MB-16038**	SampType:	**MBLK**	TestCode:	**MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID:	**16038**	RunNo:	**22103**					
Prep Date:	**10/22/2014**	Analysis Date:	**10/23/2014**	SeqNo:	**650140**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-16038**	SampType:	**LCS**	TestCode:	**MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID:	**16038**	RunNo:	**22103**					
Prep Date:	**10/22/2014**	Analysis Date:	**10/23/2014**	SeqNo:	**650141**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	104	80	120			

Sample ID	**TCLP Fluid1 #1460**	SampType:	**MBLK**	TestCode:	**MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID:	**16038**	RunNo:	**22103**					
Prep Date:	**10/22/2014**	Analysis Date:	**10/23/2014**	SeqNo:	**650143**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1410622**

29-Oct-14

Client: Navajo Refining Company

Project: DAF Quarterly

Sample ID	**MB-15965**	SampType:	**MBLK**	TestCode:	**EPA Method 6010B: TCLP Metals**
Client ID:	**PBW**	Batch ID:	**15965**	RunNo:	**22015**
Prep Date:	**10/17/2014**	Analysis Date:	**10/20/2014**	SeqNo:	**647203** Units: **mg/L**

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

Sample ID	**LCS-15965**	SampType:	**LCS**	TestCode:	**EPA Method 6010B: TCLP Metals**
Client ID:	**LCSW**	Batch ID:	**15965**	RunNo:	**22015**
Prep Date:	**10/17/2014**	Analysis Date:	**10/20/2014**	SeqNo:	**647204** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	100	80	120			
Barium	ND	100	0.5000	0	90.0	80	120			
Cadmium	ND	1.0	0.5000	0	95.1	80	120			
Chromium	ND	5.0	0.5000	0	90.5	80	120			
Lead	ND	5.0	0.5000	0	89.8	80	120			
Selenium	ND	1.0	0.5000	0	102	80	120			
Silver	ND	5.0	0.1000	0	97.9	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING COM Work Order Number: 1410622 RcptNo: 1

Received by/date: CS 10/14/14

Logged By: **Michelle Garcia** 10/14/2014 9:41:00 AM Michelle Garcia

Completed By: **Michelle Garcia** 10/14/2014 10:16:02 AM Michelle Garcia

Reviewed By: 10/14/14

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

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

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

Chain of Custody Record

Client: Navajo Refining Co.	☑ Standard ☐ Rush (Per Mick VM)
	Project Name: DAF Quarterly
Mailing Address: P.O. Box 159 Artesia, NM 88211-0159	Project #: P.O. # 167796
Phone #: 575-748-3311	
email or Fax#: 575-746-5451	Project Manager: Micki Schultz
QA/QC Package: ☐ Standard ☐ Level 4 (Full Validation) ☐ Other ☐ EDD (Type)	Sampler: Steven Urban
	On Ice: ☒ Yes ☐ No
	Sample Temperature: 1.0°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1410122	Analysis Request: TCLP Volitiles	TCLP Semi-Volitiles	TCLP Metals
10-13-14	08:45	Solid	DAF Bin	2 gass	Neat	- 001	X	X	X

10-13-14	Time: 08:45	Relinquished by: Steven Urban	Received by: Celina Sanchez	Date: 10/14/14	Time: 0941
Date:	Time:	Relinquished by:	Received by:	Date:	Time:

Remarks: Copy analytical report to Aaron.Strange@hollyfrontier.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.