# GW - 028

# 2015 Annual Discharge Permit Report

**PART 3 OF 16** 

March 2016

#### 2015 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

							Average	Maximum	Minimum		i			TOTAL
1	Average	Maximum	Minimum	Average	Maximum	Minimum	Annular	Annular	Annular	Average	Maximum	Minimum		CUMULATIVE
l	Pressure	Pressure	Pressure	Flow	Flow	Flow	Pressure	Pressure	Pressure	Volume	Volume	Volume	Volume	Volume
	(psig)	(psig)	(psig)	(gpm)	(gpm)	(gpm)	Av (psig)	Mx (psig)	Mn (psig)	(bpd)	(bpd)	(bpd)	(barrels)	(barrels)
WDW-1												Previ	ous Quarter	37,147,100
Oct-15	1,379	1,400	1,234	124	129	95	480	837	305	4,251	4,423	3,257	131,794	37,278,894
Nov-15	1,376	1,400	1,252	121	128	94	335	447	91	4,149	4,389	3,223	124,457	37,403,351
Dec-15	1,342	1,400	1,256	124	256	99	398	661	193	4,251	8,777	3,394	131,794	37,535,146
WDW-2												Previ	ous Quarter	24,267,637
Oct-15	1,378	1,234	1,252	102	181	59	467	769	248	3,497	6,206	2,023	108,411	24,376,048
Nov-15	1,376	1,400	1,252	92	100	54	341	787	217	3,154	3,429	1,851	94,629	24,470,677
Dec-15	1,326	1,400	1,253	79	99	55	281	345	209	2,709	3,394	1,886	83,966	24,554,643
WDW-3	-				1							Previ	ous Quarter	14,329,329
Oct-15	1,370	1,390	1,233	141	769	52	855	1,006	708	4,834	26,366	1,783	149,863	14,479,192
Nov-15	1,369	1,390	1,252	143	151	110	857	983	686	4,903	5,177	3,771	147,086	14,626,278
Dec-15	1,334	1,390	1,255	135	151	108	812	965	715	4,629	5,177	3,703	143,486	14,769,763
				'								Total Inje	ected fluids:	76,859,552

#### 2015 FOURTH QUARTER WEEKLY WAMS LEVEL TABLE

	10/6/15	10/12/15	10/19/15	10/26/15	11/2/15	11/9/15	11/16/15	11/23/15	11/30/15	12/7/15	12/14/16	12/16/15	12/21/15	12/28/15
A(D)A( 41	400	400	455++	450	450	450	445	445	445	4.5	T			
WDW -11	100	100	155**	150	150	150	145	145	145	145	145		145	Inaccessible
WDW-2 <sup>1</sup>	100	100	150**	150	145	145	150	150	150	150	150		150	Inaccessible
WDW-31	255*	170	250	310***	150	250	130****	150	200	245	255	300****	145	Inaccessible

<sup>&</sup>lt;sup>1</sup> Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne

WDW-2 is Chukka

WDW-3 is Gaines



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 24, 2015

Micki Schultz Navajo Refining Company P.O. Box 159 Artesia, NM 88211-0159 TEL: (575) 746-5281

FAX

RE: Quarterly WDW-1, 2, & 3 Inj Well

OrderNo.: 1510908

#### Dear Micki Schultz:

Hall Environmental Analysis Laboratory received 2 sample(s) on 10/20/2015 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 <a href="www.hallenvironmental.com">www.hallenvironmental.com</a> 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 qualifiers 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

#### Lab Order 1510908

Date Reported: 11/24/2015

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: WDW-1,2,&3 Effluent

Project: Quarterly WDW-1, 2, & 3 Inj Well

**Collection Date:** 10/19/2015 7:40:00 AM

Lab ID: 1510908-001

Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
IGNITABILITY METHOD 1010						Analy	st: SUB
Ignitability	>200	0		°F	1	10/23/2015	R30423
SULFIDE, REACTIVE						Analy	st: SUB
Reactive Sulfide	ND	1.0		mg/L	1	10/23/2015	R30423
SPECIFIC GRAVITY						Analy	st: JRR
Specific Gravity	0.9991	0			1	10/20/2015 1:22:00 P	
EPA METHOD 300.0: ANIONS						Analy	st: LGT
Fluoride	5.5	0.50	*	mg/L	5	10/20/2015 2:08:09 P	
Chloride	520	50		mg/L		10/27/2015 11:24:40	
Bromide	0.72	0.50		mg/L	5	10/20/2015 2:08:09 P	M R29684
Phosphorus, Orthophosphate (As P)	ND	10	Н	mg/L	20	11/7/2015 4:57:03 AM	A30103
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	11/3/2015 11:53:29 P	M R29992
Sulfate	2700	50		mg/L	100	10/27/2015 11:24:40	PM R29842
Nitrate+Nitrite as N	ND	1.0		mg/L	5	10/30/2015 11:15:10	AM R29930
SM2510B: SPECIFIC CONDUCTANCE						Analy	st: <b>JRR</b>
Conductivity	6800	0.010		µmhos/cm	1	10/20/2015 2:13:12 F	M R29677
SM2320B: ALKALINITY						Analy	st: <b>JRR</b>
Bicarbonate (As CaCO3)	296.6	20.00		mg/L CaCO3	1	10/20/2015 2:13:12 P	M R29677
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	10/20/2015 2:13:12 P	M R29677
Total Alkalinity (as CaCO3)	296.6	20.00		mg/L CaCO3	1	10/20/2015 2:13:12 P	M R29677
SM2540C MOD: TOTAL DISSOLVED SC	DLIDS					Analy	st: <b>KS</b>
Total Dissolved Solids	4880	100	*D	mg/L	1	10/23/2015 11:44:00	AM 21952
CORROSIVITY						Analy	st: SUB
рН	7.63			pH Units	1	10/26/2015	R30423
CYANIDE, REACTIVE						Analy	st: SUB
Cyanide, Reactive	ND	1.00		mg/L	1	10/28/2015	R30423
SM4500-H+B: PH						Analy	st: JRR
рН	7.75	1.68	Н	pH units	1	10/20/2015 2:13:12 F	
EPA METHOD 7470: MERCURY						Analy	st: JLF
Mercury	ND	0.00020		mg/L	1	10/21/2015 3:46:07 P	
MERCURY, TCLP				v			st: DBD
Mercury	ND	0.020		mg/L	1	11/3/2015 4:41:03 PM	
EPA METHOD 6010B: TCLP METALS	140	0.020		.119/			
	ND			II			st: MED
Arsenic	ND	5.0		mg/L	1	10/22/2015 5:15:45 P	M 21978

Matrix: AQUEOUS

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits Page 1 of 29
- P Sample pH Not In Range
- RL Reporting Detection Limit

Lab Order 1510908

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 11/24/2015

CLIENT: Navajo Refining Company

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Collection Date: 10/19/2015 7:40:00 AM

Lab ID: 1510908-001 Matrix: AQUEOUS Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 6010B: TCLP METALS					Analyst	MED
Barium	ND	100	mg/L	1	10/22/2015 5:15:45 PM	21978
Cadmium	ND	1.0	mg/L	1	10/22/2015 5:15:45 PM	21978
Chromium	ND	5.0	mg/L	1	10/22/2015 5:15:45 PM	21978
Lead	ND	5.0	mg/L	1	10/22/2015 5:15:45 PM	21978
Selenium	ND	1.0	mg/L	1	10/22/2015 5:15:45 PM	21978
Silver	ND	5.0	mg/L	1	10/22/2015 5:15:45 PM	21978
EPA 6010B: TOTAL METALS					Analyst	MED
Aluminum	0.57	0.040	mg/L	2	10/22/2015 4:50:43 PM	21972
Antimony	ND	0.10	mg/L	2	10/22/2015 4:50:43 PM	21972
Arsenic	ND	0.040	mg/L	2	10/22/2015 4:50:43 PM	21972
Barium	ND.	0.040	mg/L	2	10/22/2015 4:50:43 PM	21972
Beryllium	ND	0.0060	mg/L	2	10/22/2015 4:50:43 PM	21972
Cadmium	ND	0.0040	mg/L	2	10/22/2015 4:50:43 PM	21972
Calcium	65	2,0	mg/L	2	10/22/2015 4:50:43 PM	21972
Chromium	ND	0.012	mg/L	2	10/22/2015 4:50:43 PM	21972
Cobalt	ND	0.012	mg/L	2	10/22/2015 4:50:43 PM	21972
Copper	0.016	0.012	mg/L	2	10/22/2015 4:50:43 PM	21972
Iron	0.45	0.10	mg/L	2	10/22/2015 4:50:43 PM	21972
Lead	ND	0.010	mg/L	2	10/22/2015 4:50:43 PM	21972
Magnesium	20	2.0	mg/L	2	10/22/2015 4:50:43 PM	21972
Manganese	0.089	0.0040	mg/L	2	10/22/2015 4:50:43 PM	21972
Nickel	ND	0.020	mg/L	2	10/22/2015 4:50:43 PM	21972
Potassium	28	2.0	mg/L	2	10/22/2015 4:50:43 PM	21972
Selenium	0.27	0.10	mg/L	2	10/22/2015 4:50:43 PM	21972
Silver	ND	0.010	mg/L	2	10/22/2015 4:50:43 PM	21972
Sodium	1400	50	mg/L	50	10/22/2015 4:46:39 PM	21972
Thallium	ND	0.10	mg/L	2	10/22/2015 4:50:43 PM	21972
Vanadium	ND	0.10	mg/L	2	10/22/2015 4:50:43 PM	21972
Zinc	ND	0.040	mg/L	2	10/22/2015 4:50:43 PM	21972
EPA METHOD 8260B: VOLATILES					Analyst:	SUB
Acetonitrile	ŃD	2.0	μg/L	1	11/2/2015	R30423
,Allyl chloride	ND	2.0	μg/L	1	11/2/2015	R30423
Chloroprene	ND	2.0	μg/L	1	11/2/2015	R30423
Cyclohexane	ND	2.0	μg/L	1	11/2/2015	R30423
Diethyl ether	ND	0.50	μg/L	1	11/2/2015	R30423
Diisopropyl ether	ND	2.0	μg/L	1	11/2/2015	R30423
Epichlorohydrin	ND	5.0	μg/L	1	11/2/2015	R30423
Ethyl acetate	ND	2.0	µg/L	1	11/2/2015	R30423

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Project: Quarterly WDW-1, 2, & 3 Inj Well

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analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Anal	yst: SUB
Ethyl methacrylate	ND	2.0	μg/L	1	11/2/2015	R3042
Ethyl tert-butyl ether	ND	2.0	μg/L	1	11/2/2015	R3042
Freon-113	ND	2.0	µg/L	1	11/2/2015	R3042
Isobutanol	ND	2.0	μg/L	1	11/2/2015	R3042
Isopropyl acetate	ND	2.0	μg/L	1	11/2/2015	R3042
Methacrylonitrile	ND	2.0	μg/L	1	11/2/2015	R3042
Methyl acetate	ND	2.0	μg/L	1	11/2/2015	R3042
Methyl ethyl ketone	ND	2.5	μg/L	1	11/2/2015	R3042
Methyl isobutyl ketone	ND	2.5	μg/L	1	11/2/2015	R3042
Methyl methacrylate	ND	2.0	μg/L	1	11/2/2015	R3042
Methylcyclohexane	ND	2.0	μg/L	1	11/2/2015	R3042
n-Amyl acetate	ND	2.0	μg/L	1	11/2/2015	R3042
n-Hexane	ND	0.50	μg/L	1	11/2/2015	R3042
Nitrobenzene	ND	5.0	μg/L	1	11/2/2015	R3042
Pentachloroethane	ND	5.0	µg/L	1	11/2/2015	R3042
p-isopropyltoluene	ND	0.50	μg/L	1	11/2/2015	R3042
Propionitrile	ND	2.0	µg/L	1	11/2/2015	R3042
Tetrahydrofuran	ND	2.0	μg/L	1	11/2/2015	R3042
Benzene	ND	0.50	μg/L	1	11/2/2015	R304
Toluene	ND	0.50	μg/L	1	11/2/2015	R3042
Ethylbenzene	ND	0.50	μg/L	1	11/2/2015	R3042
Methyl tert-butyl ether (MTBE)	ND	10	µg/L	1	11/2/2015	R3042
1,2,4-Trimethylbenzene	ND	0.50	μg/L	1	11/2/2015	R3042
1,3,5-Trimethylbenzene	ND	0.50	μg/L	1	11/2/2015	R3042
1,2-Dichloroethane (EDC)	ND	0.50	μg/L	1	11/2/2015	R3042
1,2-Dibromoethane (EDB)	ND	0.50	μg/L	1	11/2/2015	R3042
Naphthalene	ND	0.50	μg/L	1	11/2/2015	R3042
Acetone	ND	2.5	μg/L	1	11/2/2015	R3042
Bromobenzene	ND	0.50	µg/L	1	11/2/2015	R304
Bromodichloromethane	ND	0.50	μg/L	1	11/2/2015	R304
Bromoform	ND	0.50	µg/L	1	11/2/2015	R3042
Bromomethane	ND	0.50	μg/L	1	11/2/2015	R3042
Carbon disulfide	ND.	0.50	μg/L	1	11/2/2015	R3042
Carbon Tetrachloride	ND	0.50	μg/L	1	11/2/2015	R3042
Chlorobenzene	ND	0.50	μg/L	1	11/2/2015	R3042
Chloroethane	ND	0.50	μg/L	1	11/2/2015	R3042
Chloroform	ND	0.50	μg/L	1	11/2/2015	R3042
Chloromethane	ND	0.50	μg/L	1	11/2/2015	R3042
2-Chlorotoluene	ND	0.50	μg/L	1	11/2/2015	R3042

Matrix: AQUEOUS

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#### Analytical Report Lab Order 1510908

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 11/24/2015

CLIENT: Navajo Refining Company

Client Sample ID: WDW-1,2,&3 Effluent

Project: Quarterly WDW-1, 2, & 3 Inj Well

Collection Date: 10/19/2015 7:40:00 AM

Lab ID: 1510908-001

Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Ana	lyst: SUB
4-Chlorotoluene	ND	0.50	μg/L	1	11/2/2015	R3042
cis-1,2-DCE	ND	0.50	μg/L	1	11/2/2015	R3042
cis-1,3-Dichloropropene	ND	0.50	μg/L	1	11/2/2015	R3042
1,2-Dibromo-3-chloropropane	ND	0.50	μg/L	1	11/2/2015	R3042
Dibromochloromethane	ND	0.50	μg/L	1	11/2/2015	R3042
Dibromomethane	ND	0.50	μg/L.	1	11/2/2015	R3042
1,2-Dichlorobenzene	ND	0.50	μg/L	1	11/2/2015	R3042
1,3-Dichlorobenzene	ND	0.50	μg/L	1	11/2/2015	R304
1,4-Dichlorobenzene	ND	0.50	μg/L	1	11/2/2015	R304
Dichlorodifluoromethane	ND	0.50	μg/L	1	11/2/2015	R304
1,1-Dichloroethane	ND	0.50	μg/L	1	11/2/2015	R304
1,1-Dichloroethene	ND	0.50	μg/L.	1	11/2/2015	R304
1,2-Dichloropropane	ND	0.50	μg/L	1	11/2/2015	R304
1,3-Dichloropropane	ND	0.50	μg/L	1	11/2/2015	R304
2,2-Dichloropropane	ND	0.50	μg/L	1	11/2/2015	R304
1,1-Dichloropropene	ND	0.50	μg/L	1	11/2/2015	R304
Hexachlorobutadiene	ND	0.50	μg/L	1	11/2/2015	R304
2-Hexanone	ND	0.50	μg/L	1	11/2/2015	R304
Isopropylbenzene	ND	0.50	μg/L	1	11/2/2015	R304
Methylene Chloride	ND	2.5	μg/L	1	11/2/2015	R304
n-Butylbenzene	ND	0.50	μg/L	1	11/2/2015	R304
n-Propylbenzene	ND	0.50	μg/L	1	11/2/2015	R304
sec-Butylbenzene	ND	0.50	μg/L	1	11/2/2015	R304
Styrene	ND	0.50	μg/L	1	11/2/2015	R304
tert-Butylbenzene	ND	0.50	µg/L	1	11/2/2015	R304
1,1,1,2-Tetrachloroethane	ND	0.50	μg/L	1	11/2/2015	R304
1,1,2,2-Tetrachloroethane	ND	0.50	μg/L	1	11/2/2015	R304
Tetrachloroethene (PCE)	ND	0.50	μg/L	1	11/2/2015	R304
trans-1,2-DCE	ND	0.50	μg/L	1	11/2/2015	R304
trans-1,3-Dichloropropene	ND	0.50	µg/L	1	11/2/2015	R304
1,2,3-Trichlorobenzene	ND	0.50	µg/L	1	11/2/2015	R304
1,2,4-Trichlorobenzene	ND	0.50	μg/L	1	11/2/2015	R304
1,1,1-Trichloroethane	ND	0.50	μg/L	1	11/2/2015	R304
1,1,2-Trichloroethane	ND	0.50	μg/L	1	11/2/2015	R304
Trichloroethene (TCE)	ЙD	0.50	μg/L	1	11/2/2015	R304
Trichlorofluoromethane	ND	0.50	μg/L	1	11/2/2015	R304
1,2,3-Trichloropropane	ND	0.50	μg/L	1	11/2/2015	R304
Vinyl chloride	ND	0.50	μg/L	1	11/2/2015	R304
mp-Xylenes	ND	1.0	μg/L	1	11/2/2015	R304

Matrix: AQUEOUS

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#### Analytical Report Lab Order 1510908

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# Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: WDW-1,2,&3 Effluent

Project: Quarterly WDW-1, 2, & 3 Inj Well

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CLIENT: Navajo Refining Company

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Analyses	Result	RL Qual	Units	DF	Date Analyze	đ Batch
EPA METHOD 8260B: VOLATILES						Analyst: SUB
o-Xylene	. ND	0.50	μg/ <b>L</b>	1	11/2/2015	R3042
tert-Amyl methyl ether	ND	2.0	μg/L	1	11/2/2015	R3042
tert-Butyl alcohol	ND	0.50	μg/L	1	11/2/2015	R3042
Acrolein	ND	2.0	μg/L	1	11/2/2015	R3042
Acrylonitrile ·	ND	2.0	μg/L	1	11/2/2015	R3042
Bromochloromethane	ND	0.50	μg/L	1	11/2/2015	R3042
2-Chloroethyl vinyl ether	ND	2.0	μg/L	1	11/2/2015	R3042
Iodomethane	ND	0.50	μg/L	1	11/2/2015	R3042
trans-1,4-Dichloro-2-butene	ND	0.50	μg/L	1	11/2/2015	R3042
Vinyl acetate	ND	2.0	μg/L	1	11/2/2015	· R3042
1,4-Dioxane	ND	20	μg/L	1	11/2/2015	R3042
Surr: 1,2-Dichlorobenzene-d4	111	70-130	%REC	1	11/2/2015	R3042
Surr: 4-Bromofluorobenzene	106	70-130	%REC	1	11/2/2015	R3042
Surr: Toluene-d8	104	70-130	%REC	1	11/2/2015	R3042
EPA 8270C: SEMIVOLATILES/MOD						Analyst: SUB
1,1-Biphenyl	ND	2.0	μg/L	1	10/30/2015	R3042
Atrazine	ND	2.0	μg/L	1	10/30/2015	R3042
Benzaldehyde	3.6	2.0	μg/L	1	10/30/2015	R3042
Caprolactam	ND	2.0	μg/L	1	10/30/2015	R3042
N-Nitroso-di-n-butylamine	ND	2,0	μg/L	1	10/30/2015	R3042
Acetophenone	ND	5,0	μg/L	1	10/30/2015	R3042
1-Methylnaphthalene	ND	5.0	μg/Ĺ	1	10/30/2015	R3042
2,3,4,6-Tetrachlorophenol	ND	5.0	µg/L	1	10/30/2015	R3042
2,4,5-Trichlorophenol	ND	5.0	μg/L	1	10/30/2015	R3042
2,4,6-Trichlorophenol	ND	5.0	μg/L	1	10/30/2015	R3042
2,4-Dichlorophenoi	ND	5.0	µg/L	1	10/30/2015	R3042
2,4-Dimethylphenol	ND	5.0	μg/L	1	10/30/2015	R3042
2,4-Dinitrophenol	ND	5.0	μg/L	1	10/30/2015	. R3042
2,4-Dinitrotoluene	ND	5.0	μg/L	1	10/30/2015.	R3042
2,6-Dinitrotoluene	ND	5.0	μg/L	1	10/30/2015	R3042
2-Chloronaphthalene	ND	5.0	μg/L	1	10/30/2015	R3042
2-Chlorophenol	- · · ND -	5.0 · ·	µg/l	1	10/30/2015	R3042
2-Methylnaphthalene	ND	5.0	µg/l_	1	10/30/2015	R3042
2-Methylphenol	ND	5.0	µg/L	1	10/30/2015	R3042
2-Nitroaniline	ND	5.0	µg/L	1	10/30/2015	R3042
2-Nitrophenol	ND	5.0	µg/L	1	10/30/2015	R3042
3,3'-Dichlorobenzidine	ND	5.0	µg/L	1	10/30/2015	R3042
3-Nitroaniline	ND	5.0	μg/L	1	10/30/2015	R3042
4,6-Dinitro-2-methylphenol	ND	5,0	μg/L	1	10/30/2015	R3042

Matrix: AQUEOUS

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits Page 5 of 29
- P Sample pH Not In Range
- RL Reporting Detection Limit

#### Lab Order 1510908

Date Reported: 11/24/2015

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: WDW-1,2,&3 Effluent

Project: Quarterly WDW-1, 2, & 3 Inj Well

**Collection Date:** 10/19/2015 7:40:00 AM

Lab ID: 1510908-001

Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD					Anal	yst: SUB
4-Bromophenyl phenyl ether	ND	5.0	μg/L	1	10/30/2015	R3042
4-Chloro-3-methylphenol	ND	5.0	μg/L	1	10/30/2015	R3042
4-Chloroaniline	ND	5.0	μg/L	. 1	10/30/2015	R3042
4-Chlorophenyl phenyl ether	ND	5.0	μg/L	1	10/30/2015	R3042
4-Nitroaniline	ND	5.0	μg/L	1	10/30/2015	R3042
4-Nitrophenol	ND	5.0	μg/L.	1	10/30/2015	R3042
Acenaphthene	ND	5.0	μg/L	1	10/30/2015	R3042
Acenaphthylene	ND	5.0	μg/L	1	10/30/2015	R3042
Anthracene	ND	5.0	μg/L	1	10/30/2015	R3042
Benzo(g,h,i)perylene	ND	5.0	μg/L	1	10/30/2015	R3042
Benz(a)anthracene	ND	0.10	μg/L	1	10/30/2015	R3042
Benzo(a)pyrene	ND	0.10	μg/L	1	10/30/2015	R304
Benzo(b)fluoranthene	ND	0.10	μg/L	1	10/30/2015	R304
Benzo(k)fluoranthene	ND	0.10	μg/L	1	10/30/2015	R304
Bis(2-chloroethoxy)methane	ND	5.0	μg/L	1	10/30/2015	R304
Bis(2-chloroethyl)ether	, ND	5.0	μg/L	1	10/30/2015	R304:
Bis(2-chloroisopropyl)ether	ND	5.0	μg/L	1	10/30/2015	R304
Bis(2-ethylhexyl)phthalate	ND	5.0	μg/L	1	10/30/2015	R304
Butyl benzyl phthalate	ND	5.0	μg/L	1	10/30/2015	R304
Carbazole	ND	5.0	µg/L	1	10/30/2015	R304
Chrysene	ND	0.10	μg/L	1	10/30/2015	R304
Dibenz(a,h)anthracene	ND	0.10	μg/L	1	10/30/2015	R304
Dibenzofuran	ND	5.0	μg/L	1	10/30/2015	R304
Diethyl phthalate	ND	5.0	μg/L	1	10/30/2015	R304
Dimethyl phthalate	ND	5.0	μg/L	1	10/30/2015	R304
Di-n-butyl phthalate	ND	5.0	μg/L	1	10/30/2015	R304
Di-n-octyl phthalate	ND	5.0	µg/L	1	10/30/2015	R304
Fluoranthene	ND	5.0	μg/L	1	10/30/2015	R304
Fluorene	ND	5.0	μg/L	1	10/30/2015	R304
Hexachlorobenzene	.ND	1.0	µg/L	1	10/30/2015	R304
Hexachlorobutadiene	ND	5.0	µg/L	1	10/30/2015	R304
Hexachlorocyclopentadiene	ND	5.0	µg/L	1	10/30/2015	R304
Hexachloroethane	ND	5.0	µg/L	1	10/30/2015	R304
Indeno(1,2,3-cd)pyrene	ND	0.10	μg/L	1	10/30/2015	R304
Isophorone	ND	5.0	μg/L	1	10/30/2015	R304
Naphthalene	ND	5.0	μg/L	1	10/30/2015	R304
Nitrobenzene	ND	5.0	μg/L	1	10/30/2015	R304
N-Nitrosodi-n-propylamine	ND	5.0	μg/L	1	10/30/2015	R3042
N-Nitrosodiphenylamine	ND	2.0	μg/L	1	10/30/2015	R3042

Matrix: AQUEOUS

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Duc to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits Page 6 of 29
- P Sample pH Not In Range
- RL Reporting Detection Limit

#### Lab Order 1510908

Date Reported: 11/24/2015

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: WDW-1,2,&3 Effluent

Project: Quarterly WDW-1, 2, & 3 Inj Well

Collection Date: 10/19/2015 7:40:00 AM

Lab ID: 1510908-001

Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyz	ed Batch
EPA 8270C: SEMIVOLATILES/MOD						Analyst: SUB
Pentachlorophenol	ND	5.0	μg/L	1	10/30/2015	R30423
Phenanthrene	ND	5.0	μg/L	1	10/30/2015	R30423
Phenol	ND	5.0	μg/L.	1	10/30/2015	R30423
Pyrene	ND	5.0	μg/L	1	10/30/2015	R30423
o-Toluidine	ND	2.0	μg/L	1	10/30/2015	R30423
Pyridine	ND	5.0	μg/L	1	10/30/2015	R30423
1,2,4,5-Tetrachlorobenzene	ND	5.0	μg/L	1	10/30/2015	R30423
Surr: 2,4,6-Tribromophenol	104	10-123	%REC	1	10/30/2015	R30423
Surr: 2-Fluorobiphenyl	90.8	19-130	%REC	1	10/30/2015	R30423
Surr: 2-Fluorophenol	70.2	21-120	%REC	1	10/30/2015	R30423
Surr: Nitrobenzene-d5	85.6	25-130	%REC	1	10/30/2015	R30423
Surr: Phenol-d5	121	10-130	%REC	1	10/30/2015	R30423
Surr: Terphenyl-d14	44.4	21-141	%REC	1	10/30/2015	R30423

Matrix: AQUEOUS

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits Page 7 of 29
- P Sample pH Not In Range
- RL Reporting Detection Limit

#### Lab Order 1510908

Date Reported: 11/24/2015

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: TRIP BLANK

Quarterly WDW-1, 2, & 3 Inj Well Project:

**Collection Date:** 

1510908-002 Lab ID:

Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Anal	yst: SUB
Acetonitrile	ND	0.50	μg/L	1	11/2/2015	R3042
Allyl chloride	ND	0.50	μg/L	1	11/2/2015	R3042
Chloroprene	ND	0.50	µg/L	1	11/2/2015	R3042
Cyclohexane	ND	0.50	μg/L	1	11/2/2015	R3042
Diethyl ether	ND	0.50	μg/L	1	11/2/2015	R3042
Diisopropyl ether	ND	0.50	μg/L	1	11/2/2015	R3042
Epichlorohydrin	ND	5.0	μg/L	1	11/2/2015	R3042
Ethyl acetate	ND	0.50	μg/L	1	11/2/2015	R3042
Ethyl methacrylate	ND	0.50	µg/L	1	11/2/2015	R3042
Ethyl tert-butyl ether	ND	0.50	μg/L	1	11/2/2015	R3042
Freon-113	ŃD	0.50	μg/L	1	11/2/2015	R3042
Isobutanoi	ND	0.50	μg/L	1	11/2/2015	R3042
Isopropyl acetate	ND	0.50	μg/L	1	11/2/2015	R3042
Methacrylonitrile	ND	0.50	μg/L	1	11/2/2015	R3042
Methyl acetate	ND	0.50	μg/L	1	11/2/2015	R3042
Methyl ethyl ketone	ND	2.5	μg/L	. 1	11/2/2015	R3042
Methyl isobutyl ketone	ND	2.5	μg/L	1	11/2/2015	R3042
Methyl methacrylate	ND	0.50	μg/L	1	11/2/2015	R3042
Methylcyclohexane	ND	1.0	μg/L	1 -	11/2/2015	R3042
n-Amyl acetate	ND	0.50	μg/L	1	11/2/2015	R3042
n-Hexane	ND	0.50	μg/L	1	11/2/2015	R3042
Nitrobenzene	ND	5.0	`μg/L	1	11/2/2015	R3042
Pentachloroethane	ND.	5.0	μg/L	1	11/2/2015	R3042
p-isopropyltoluene	ND	0.50	μg/L	1	11/2/2015	R3042
Propionitrile	ND	0.50	μg/L	1	11/2/2015	R3042
Tetrahydrofuran	ND	0.50	μg/L	1	11/2/2015	R3042
Benzene	ND	0.50	μg/L	1	11/2/2015	R3042
Toluene	ND	0.50	μg/L	1	11/2/2015	R3042
Ethylbenzene	ND	0.50	μg/L	1	11/2/2015	R3042
Methyl tert-butyl ether (MTBE)	ND	10	μg/L	1	11/2/2015	R3042
1,2,4-Trimethylbenzene	ND	0.50	μg/L	1	11/2/2015	R3042
1,3,5-Trimethylbenzene	ND	0.50	μg/L	1	11/2/2015	R3042
1,2-Dichloroethane (EDC)	ND	0.50	µg/L	1	11/2/2015	R3042
1,2-Dibromoethane (EDB)	ND	0.50	μg/L	1	11/2/2015	R3042
Naphthalene	ND	0.50	μg/L	1	11/2/2015	R3042
Acetone	ND	2.5	µg/L	1	11/2/2015	R3042
Bromobenzene	ND	0.50	μg/L	1	11/2/2015	R3042
Bromodichloromethane	ND	0.50	μg/L	1	11/2/2015	R3042
Bromoform	ND	0.50	μg/L	1	11/2/2015	R3042

Matrix: TRIP BLANK

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND
- RPD outside accepted recovery limits
- % Recovery outside of range due to dilution or matrix
- Analyte detected in the associated Method Blank В
- Value above quantitation range Ε
- Analyte detected below quantitation limits Page 8 of 29
- Sample pH Not In Range
- Reporting Detection Limit

# Analytical Report Lab Order 1510908

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 11/24/2015

CLIENT: Navajo Refining Company

Client Sample ID: TRIP BLANK

Project: Quarterly WDW-1, 2, & 3 Inj Well

**Collection Date:** 

Lab ID:

1510908-002

Matrix: TRIP BLANK

Received Date: 10/20/2015 8:55:00 AM

Bromomethane	Analyses	Result	RL Qu	al Units	DF	Date Analyzo	ed Batch
Carbon disulfide         ND         0.50         μg/L         1         11/2/2015         R30423           Carbon Tetrachloride         ND         0.50         μg/L         1         11/2/2015         R30423           Chlorobernane         ND         0.50         μg/L         1         11/2/2015         R30423           Chlororform         ND         0.50         μg/L         1         11/2/2015         R30423           Chlororformethane         ND         0.50         μg/L         1         11/2/2015         R30423           2-Chiorofoluene         ND         0.50         μg/L         1         11/2/2015         R30423           2-Chiorofoluene         ND         0.50         μg/L         1         11/2/2015         R30423           2-Chiorofoluene         ND         0.50         μg/L         1         11/2/2015         R30423           4-Chiorofoluene         ND         0.50         μg/L         1         11/2/2015         R30423           4-Chiorofoluene         ND         0.50         μg/L         1         11/2/2015         R30423           3-Libinoromethane         ND         0.50         μg/L         1         11/2/2015         R30423	EPA METHOD 8260B: VOLATILES						Analyst: SUB
Carbon Tetrachloride         ND         0.50         μg/L         1         11/2/2015         R30423           Chlorobenzene         ND         0.50         μg/L         1         11/2/2015         R30423           Chloroform         ND         0.50         μg/L         1         11/2/2015         R30423           Chlorofolume         ND         0.50         μg/L         1         11/2/2015         R30423           Chlorofolume         ND         0.50         μg/L         1         11/2/2015         R30423           4-Chiorofolume         ND         0.50         μg/L         1         11/2/2015         R30423           4-Chiorofolume         ND         0.50         μg/L         1         11/2/2015         R30423           4-Chiorofolume         ND         0.50         μg/L         1         11/2/2015         R30423           6is-1,3-Dichloropropane         ND         0.50         μg/L         1         11/2/2015         R30423           1,2-Dichloropropane         ND         0.50         μg/L         1         11/2/2015         R30423           1,2-Dichloropropane         ND         0.50         μg/L         1         11/2/2015         R30423	Bromomethane	ND	0.50	μg/L	1	11/2/2015	R30423
Chlorobenzane	Carbon disulfide	ND	0.50	μg/L	1	11/2/2015	R30423
Chloroethane         ND         0.50         μg/L         1         11/2/2015         R30423           Chloroform         ND         0.50         μg/L         1         11/2/2015         R30423           Chlororolume         ND         0.50         μg/L         1         11/2/2015         R30423           2-Chiorololume         ND         0.50         μg/L         1         11/2/2015         R30423           4-Chlorololume         ND         0.50         μg/L         1         11/2/2015         R30423           cls-1,3-Dichloropropene         ND         0.50         μg/L         1         11/2/2015         R30423           cls-1,3-Dichloropropane         ND         0.50         μg/L         1         11/2/2015         R30423           1,2-Dibromo-3-chloropropane         ND         0.50         μg/L         1         11/2/2015         R30423           1,2-Dibromo-dioromethane         ND         0.50         μg/L         1         11/2/2015         R30423           1,2-Dichlorobenzene         ND         0.50         μg/L         1         11/2/2015         R30423           1,3-Dichlorobenzene         ND         0.50         μg/L         1         11/2/2015	Carbon Tetrachloride	ND	0.50	μg/L	1	11/2/2015	R30423
Chloroform  ND  0.50  µg/L  1 11/2/2015  R30423  Chloromethane  ND  0.50  µg/L  1 11/2/2015  R30423  4-Chlorotoluene  ND  0.50  µg/L  1 11/2/2015  R30423  4-Chlorotoluene  ND  0.50  µg/L  1 11/2/2015  R30423  cis-1,2-DCE  ND  0.50  µg/L  1 11/2/2015  R30423  cis-1,3-Dichloropropene  ND  0.50  µg/L  1 11/2/2015  R30423  cis-1,3-Dichloropropene  ND  0.50  µg/L  1 11/2/2015  R30423  Dibromochloromethane  ND  0.50  µg/L  1 11/2/2015  R30423  Dibromochloromethane  ND  0.50  µg/L  1 11/2/2015  R30423  1,2-Dichlorobenzene  ND  0.50  µg/L  1 11/2/2015  R30423  1,3-Dichlorobenzene  ND  0.50  µg/L  1 11/2/2015  R30423  1,4-Dichlorobenzene  ND  0.50  µg/L  1 11/2/2015  R30423  1,4-Dichlorobenzene  ND  0.50  µg/L  1 11/2/2015  R30423  1,1-Dichlorobenzene  ND  0.50  µg/L  1 11/2/2015  R30423  1,1-Dichloropenzene  ND  0.50  µg/L  1 11/2/2015  R30423  1,1-Dichloropenzene  ND  0.50  µg/L  1 11/2/2015  R30423  1,1-Dichloropenzene  ND  0.50  µg/L  1 11/2/2015  R30423  1,1-Dichloropropane  ND  0.50  µg/L  1 11/2/2015  R30423  R30	Chlorobenzene	ND	0.50	μg/L	1	11/2/2015	R30423
Chloromethane         ND         0.50         μg/L         1         11/2/2015         R30423           2-Chiorotoluene         ND         0.50         μg/L         1         11/2/2015         R30423           d-Chiorotoluene         ND         0.50         μg/L         1         11/2/2015         R30423           cis-1,2-DCE         ND         0.50         μg/L         1         11/2/2015         R30423           cis-1,2-Dibroropapene         ND         0.50         μg/L         1         11/2/2015         R30423           1,2-Dibroropapene         ND         0.50         μg/L         1         11/2/2015         R30423           Dibromomethane         ND         0.50         μg/L         1         11/2/2015         R30423           1,2-Dichlorobenzene         ND         0.50         μg/L         1         11/2/2015         R30423           1,3-Dichlorobenzene         ND         0.50         μg/L         1         11/2/2015         R30423           1,3-Dichlorobenzene         ND         0.50         μg/L         1         11/2/2015         R30423           1,4-Dichlorobenzene         ND         0.50         μg/L         1         11/2/2015         R3	Chloroethane	ND	0.50	μg/L	1	11/2/2015	R30423
2-Chlorotoluene         ND         0.50         μg/L         1         11/2/2015         R30423           4-Chlorotoluene         ND         0.50         μg/L         1         11/2/2015         R30423           cis-1,2-DCE         ND         0.50         μg/L         1         11/2/2015         R30423           cis-1,3-Dichloropropane         ND         0.50         μg/L         1         11/2/2015         R30423           1,2-Dibromo-3-chloropropane         ND         0.50         μg/L         1         11/2/2015         R30423           1,2-Dichlorobenzene         ND         0.50         μg/L         1         11/2/2015         R30423           1,2-Dichlorobenzene         ND         0.50         μg/L         1         11/2/2015         R30423           1,3-Dichlorobenzene         ND         0.50         μg/L         1         11/2/2015         R30423           1,3-Dichlorobenzene         ND         0.50         μg/L         1         11/2/2015         R30423           1,4-Dichlorobenzene         ND         0.50         μg/L         1         11/2/2015         R30423           1,1-Dichlorobenzene         ND         0.50         μg/L         1         11/2/2	Chloroform	ND	0.50	μg/L	1	11/2/2015	R30423
4-Chlorotoluene         ND         0.50         μg/L         1         11/2/2015         R30423           cis-1,2-DCE         ND         0.50         μg/L         1         11/2/2015         R30423           cis-1,3-Dichloropropene         ND         0.50         μg/L         1         11/2/2015         R30423           1,2-Dibromo-3-chloropropane         ND         0.50         μg/L         1         11/2/2015         R30423           Dibromo-chloromethane         ND         0.50         μg/L         1         11/2/2015         R30423           1,2-Dichlorobenzene         ND         0.50         μg/L         1         11/2/2015         R30423           1,2-Dichlorobenzene         ND         0.50         μg/L         1         11/2/2015         R30423           1,3-Dichlorobenzene         ND         0.50         μg/L         1         11/2/2015         R30423           1,4-Dichlorobenzene         ND         0.50         μg/L         1         11/2/2015         R30423           1,4-Dichlorobenzene         ND         0.50         μg/L         1         11/2/2015         R30423           1,1-Dichlorobenzene         ND         0.50         μg/L         1	Chloromethane	ND	0.50	μg/L	1	11/2/2015	R30423
cis-1,2-DCE         ND         0.50         µg/L         1         11/2/2015         R30423           cis-1,3-Dichloropropene         ND         0.50         µg/L         1         11/2/2015         R30423           L;2-Dibromo-3-chloropropane         ND         0.50         µg/L         1         11/2/2015         R30423           Dibromochloromethane         ND         0.50         µg/L         1         11/2/2015         R30423           Dibromochloromethane         ND         0.50         µg/L         1         11/2/2015         R30423           1,3-Dichlorobenzene         ND         0.50         µg/L         1         11/2/2015         R30423           1,4-Dichlorobenzene         ND         0.50         µg/L         1         11/2/2015         R30423           1,4-Dichlorobenzene         ND         0.50         µg/L         1         11/2/2015         R30423           1,4-Dichlorobenzene         ND         0.50         µg/L         1         11/2/2015         R30423           1,1-Dichloroprotentane         ND         0.50         µg/L         1         11/2/2015         R30423           1,2-Dichloropropane         ND         0.50         µg/L         1	2-Chlerotoluene	ND	0.50	μg/L	1	11/2/2015	R30423
cis-1,3-Dichloropropene         ND         0.50         µg/L         1         11/2/2015         R30423           1,2-Dibromo-3-chloropropane         ND         0.50         µg/L         1         11/2/2015         R30423           Dibromochloromethane         ND         0.50         µg/L         1         11/2/2015         R30423           Dibromochloromethane         ND         0.50         µg/L         1         11/2/2015         R30423           1,2-Dichlorobenzene         ND         0.50         µg/L         1         11/2/2015         R30423           1,3-Dichlorobenzene         ND         0.50         µg/L         1         11/2/2015         R30423           1,4-Dichloroethane         ND         0.50         µg/L         1         11/2/2015         R30423           1,1-Dichloroethane         ND         0.50         µg/L         1         11/2/2015         R30423           1,1-Dichloropropane         ND         0.50         µg/L         1         11/2/2015         R30423           1,2-Dichloropropane         ND         0.50         µg/L         1         11/2/2015         R30423           2,2-Dichloropropane         ND         0.50         µg/L         1	4-Chlorotoluene	ND	0.50	μg/L	1	11/2/2015	R30423
1,2-Dibromo-3-chloropropane	cis-1,2-DCE	ND	0.50	μg/L	1	11/2/2015	R30423
Dibromochloromethane         ND         0.50         µg/L         1         11/2/2015         R30423           Dibromomethane         ND         0.50         µg/L         1         11/2/2015         R30423           1,2-Dichlorobenzene         ND         0.50         µg/L         1         11/2/2015         R30423           1,3-Dichlorobenzene         ND         0.50         µg/L         1         11/2/2015         R30423           1,4-Dichlorobenzene         ND         0.50         µg/L         1         11/2/2015         R30423           Dichlorodifluoromethane         ND         0.50         µg/L         1         11/2/2015         R30423           1,1-Dichloroethane         ND         0.50         µg/L         1         11/2/2015         R30423           1,1-Dichloroptopane         ND         0.50         µg/L         1         11/2/2015         R30423           1,2-Dichloropropane         ND         0.50         µg/L         1         11/2/2015         R30423           1,3-Dichloropropane         ND         0.50         µg/L         1         11/2/2015         R30423           1,2-Dichloropropane         ND         0.50         µg/L         1         11/2	cis-1,3-Dichloropropene	ND	0.50	μg/L	1	11/2/2015	R30423
Dibromomethane	1,2-Dibromo-3-chloropropane	· ND	0.50	μg/L	1	11/2/2015	R30423
1,2-Dichlorobenzene         ND         0.50         µg/L         1         11/2/2015         R30423           1,3-Dichlorobenzene         ND         0.50         µg/L         1         11/2/2015         R30423           1,4-Dichlorobenzene         ND         0.50         µg/L         1         11/2/2015         R30423           Dichlorodifluoromethane         ND         0.50         µg/L         1         11/2/2015         R30423           1,1-Dichloroethane         ND         0.50         µg/L         1         11/2/2015         R30423           1,1-Dichloropropane         ND         0.50         µg/L         1         11/2/2015         R30423           1,2-Dichloropropane         ND         0.50         µg/L         1         11/2/2015         R30423           1,3-Dichloropropane         ND         0.50         µg/L         1         11/2/2015         R30423           1,1-Dichloropropane         ND         0.50         µg/L         1         11/2/2015         R30423           1,2-Dichloropropane         ND         0.50         µg/L         1         11/2/2015         R30423           1,1-Dichloropropane         ND         0.50         µg/L         1	Dibromochloromethane	ND	0.50	μg/L	1	11/2/2015	R30423
1,3-Dichlorobenzene         ND         0.50         μg/L         1         11/2/2015         R30423           1,4-Dichlorobenzene         ND         0.50         μg/L         1         11/2/2015         R30423           1,4-Dichloroethane         ND         0.50         μg/L         1         11/2/2015         R30423           1,1-Dichloroethane         ND         0.50         μg/L         1         11/2/2015         R30423           1,1-Dichloroethane         ND         0.50         μg/L         1         11/2/2015         R30423           1,2-Dichloropropane         ND         0.50         μg/L         1         11/2/2015         R30423           1,2-Dichloropropane         ND         0.50         μg/L         1         11/2/2015         R30423           2,2-Dichloropropane         ND         0.50         μg/L         1         11/2/2015         R30423           2,2-Dichloropropane         ND         0.50         μg/L         1         11/2/2015         R30423           1,1-Dichloropropane         ND         0.50         μg/L         1         11/2/2015         R30423           1,2-Dichloropropane         ND         0.50         μg/L         1         11/2/	Dibromomethane	ND	0.50	μg/L	1	11/2/2015	R30423
1,4-Dichlorobenzene         ND         0.50         µg/l.         1 11/2/2015         R30423           Dichlorodiffluoromethane         ND         0.50         µg/l.         1 11/2/2015         R30423           1,1-Dichloroethane         ND         0.50         µg/l.         1 11/2/2015         R30423           1,1-Dichloroethane         ND         0.50         µg/l.         1 11/2/2015         R30423           1,2-Dichloropropane         ND         0.50         µg/l.         1 11/2/2015         R30423           1,3-Dichloropropane         ND         0.50         µg/l.         1 11/2/2015         R30423           2,2-Dichloropropane         ND         0.50         µg/l.         1 11/2/2015         R30423           2,2-Dichloropropane         ND         0.50         µg/l.         1 11/2/2015         R30423           1,1-Dichloropropane         ND         0.50         µg/l.         1 11/2/2015         R30423           2,2-Dichloropropane         ND         0.50         µg/l.         1 11/2/2015         R30423           1,1-Dichloropropane         ND         0.50         µg/l.         1 11/2/2015         R30423           1,1-Dichloropropane         ND         0.50         µg/l.         1 11	1,2-Dichlorobenzene	ND	0.50	μg/L	1	11/2/2015	R30423
Dichlorodifluoromethane         ND         0.50         µg/L         1 11/2/2015         R30423           1,1-Dichloroethane         ND         0.50         µg/L         1 11/2/2015         R30423           1,1-Dichloroethene         ND         0.50         µg/L         1 11/2/2015         R30423           1,2-Dichloropropane         ND         0.50         µg/L         1 11/2/2015         R30423           2,2-Dichloropropane         ND         0.50         µg/L         1 11/2/2015         R30423           2,2-Dichloropropane         ND         0.50         µg/L         1 11/2/2015         R30423           1,1-Dichloropropane         ND         0.50         µg/L         1 11/2/2015         R30423           1,1-Dichloropropane         ND         0.50         µg/L         1 11/2/2015         R30423           1,1-Dichloropropane         ND         0.50         µg/L         1 11/2/2015         R30423           1,1-Dichloropropene         ND         0.50         µg/L         1 11/2/2015         R30423           1,1-Dichloropropene         ND         0.50         µg/L         1 11/2/2015         R30423           1,1-Dichloropropene         ND         0.50         µg/L         1 11/2/2015	1,3-Dichlorobenzene	ND	0.50	μg/L.	1	11/2/2015	R30423
1,1-Dichloroethane         ND         0.50         µg/L         1         11/2/2015         R30423           1,1-Dichloroethene         ND         0.50         µg/L         1         11/2/2015         R30423           1,2-Dichloropropane         ND         0.50         µg/L         1         11/2/2015         R30423           1,3-Dichloropropane         ND         0.50         µg/L         1         11/2/2015         R30423           2,2-Dichloropropane         ND         0.50         µg/L         1         11/2/2015         R30423           1,1-Dichloropropane         ND         0.50         µg/L         1         11/2/2015         R30423           2-Hexachlorobutane         ND         0.50         µg/L         1         11/2/2	1,4-Dichlorobenzene	ND	0.50	μg/L	1	11/2/2015	R30423
1,1-Dichloroethane         ND         0.50         µg/L         1         11/2/2015         R30423           1,1-Dichloroethene         ND         0.50         µg/L         1         11/2/2015         R30423           1,2-Dichloropropane         ND         0.50         µg/L         1         11/2/2015         R30423           1,3-Dichloropropane         ND         0.50         µg/L         1         11/2/2015         R30423           2,2-Dichloropropane         ND         0.50         µg/L         1         11/2/2015         R30423           1,1-Dichloropropane         ND         0.50         µg/L         1         11/2/2015         R30423           2-Hexachlorobutane         ND         0.50         µg/L         1         11/2/2	Dichlorodifluoromethane	· ND	0.50	μg/L	1	11/2/2015	R30423
1,2-Dichloropropane         ND         0.50         µg/L         1         11/2/2015         R30423           1,3-Dichloropropane         ND         0.50         µg/L         1         11/2/2015         R30423           2,2-Dichloropropane         ND         0.50         µg/L         1         11/2/2015         R30423           1,1-Dichloropropene         ND         0.50         µg/L         1         11/2/2015         R30423           Hexachlorobutadiene         ND         0.50         µg/L         1         11/2/2015         R30423           2-Hexanone         ND         0.50         µg/L         1         11/2/2015         R30423           1-Evanone         ND         0.50         µg/L         1         11/2/2015         R30423           2-Hexanone         ND         0.50         µg/L         1         11/2/2015         R30423           1-Hexanone         ND         0.50         µg/L         1         11/2/2015         R30423           2-Hexanone         ND         0.50         µg/L         1         11/2/2015         R30423           1-Hexanone         ND         0.50         µg/L         1         11/2/2015         R30423	1,1-Dichloroethane	ND	0.50		1	11/2/2015	R30423
1,3-Dichloropropane       ND       0.50       µg/L       1 11/2/2015       R30423         2,2-Dichloropropane       ND       0.50       µg/L       1 11/2/2015       R30423         1,1-Dichloropropene       ND       0.50       µg/L       1 11/2/2015       R30423         Hexachlorobutadiene       ND       0.50       µg/L       1 11/2/2015       R30423         2-Hexanone       ND       0.50       µg/L       1 11/2/2015       R30423         Isopropylbenzene       ND       0.50       µg/L       1 11/2/2015       R30423         Methylene Chloride       ND       0.50       µg/L       1 11/2/2015       R30423         n-Butylbenzene       ND       0.50       µg/L       1 11/2/2015       R30423         n-Propylbenzene       ND       0.50       µg/L       1 11/2/2015       R30423         sec-Butylbenzene       ND       0.50       µg/L       1 11/2/2015       R30423         styrene       ND       0.50       µg/L       1 11/2/2015       R30423         tert-Butylbenzene       ND       0.50       µg/L       1 11/2/2015       R30423         1,1,2-Tetrachloroethane       ND       0.50       µg/L       1 11/2/2015 <t< td=""><td>1,1-Dichloroethene</td><td>ND.</td><td>0.50</td><td>μg/L</td><td>1</td><td>11/2/2015</td><td>R30423</td></t<>	1,1-Dichloroethene	ND.	0.50	μg/L	1	11/2/2015	R30423
2,2-Dichloropropane         ND         0.50         µg/L         1         11/2/2015         R30423           1,1-Dichloropropene         ND         0.50         µg/L         1         11/2/2015         R30423           Hexachlorobutadiene         ND         0.50         µg/L         1         11/2/2015         R30423           2-Hexanone         ND         0.50         µg/L         1         11/2/2015         R30423           Isopropylbenzene         ND         0.50         µg/L         1         11/2/2015         R30423           Methylene Chloride         ND         0.50         µg/L         1         11/2/2015         R30423           n-Butylbenzene         ND         0.50         µg/L         1         11/2/2015         R30423           n-Propylbenzene         ND         0.50         µg/L         1         11/2/2015         R30423           sec-Butylbenzene         ND         0.50         µg/L         1         11/2/2015         R30423           Styrene         ND         0.50         µg/L         1         11/2/2015         R30423           1,1,2-Tetrachloroethane         ND         0.50         µg/L         1         11/2/2015         R30423 <td>1,2-Dichloropropane</td> <td>ND</td> <td>0.50</td> <td>μg/L</td> <td>1</td> <td>11/2/2015</td> <td>R30423</td>	1,2-Dichloropropane	ND	0.50	μg/L	1	11/2/2015	R30423
1,1-Dichloropropene       ND       0.50       μg/L       1 11/2/2015       R30423         Hexachlorobutadiene       ND       0.50       μg/L       1 11/2/2015       R30423         2-Hexanone       ND       0.50       μg/L       1 11/2/2015       R30423         Isopropylbenzene       ND       0.50       μg/L       1 11/2/2015       R30423         Methylene Chloride       ND       2.5       μg/L       1 11/2/2015       R30423         n-Butylbenzene       ND       0.50       μg/L       1 11/2/2015       R30423         n-Propylbenzene       ND       0.50       μg/L       1 11/2/2015       R30423         sec-Butylbenzene       ND       0.50       μg/L       1 11/2/2015       R30423         Styrene       ND       0.50       μg/L       1 11/2/2015       R30423         tert-Butylbenzene       ND       0.50       μg/L       1 11/2/2015       R30423         1,1,2-Tetrachloroethane       ND       0.50       μg/L       1 11/2/2015       R30423         1,1,2,2-Tetrachloroethane       ND       0.50       μg/L       1 11/2/2015       R30423         Tetrachloroethene (PCE)       ND       0.50       μg/L       1 11/2/2015 <td>1,3-Dichloropropane</td> <td>ND</td> <td>0.50</td> <td>μg/L</td> <td>1</td> <td>11/2/2015</td> <td>R30423</td>	1,3-Dichloropropane	ND	0.50	μg/L	1	11/2/2015	R30423
Hexachlorobutadiene         ND         0.50         μg/L         1         11/2/2015         R30423           2-Hexanone         ND         0.50         μg/L         1         11/2/2015         R30423           Isopropylbenzene         ND         0.50         μg/L         1         11/2/2015         R30423           Methylene Chloride         ND         0.50         μg/L         1         11/2/2015         R30423           n-Butylbenzene         ND         0.50         μg/L         1         11/2/2015         R30423           n-Propylbenzene         ND         0.50         μg/L         1         11/2/2015         R30423           sec-Butylbenzene         ND         0.50         μg/L         1         11/2/2015         R30423           Styrene         ND         0.50         μg/L         1         11/2/2015         R30423           tert-Butylbenzene         ND         0.50         μg/L         1         11/2/2015         R30423           1,1,2,2-Tetrachloroethane         ND         0.50         μg/L         1         11/2/2015         R30423           1,1,2,2-Tetrachloroethane         ND         0.50         μg/L         1         11/2/2015         R3	2,2-Dichloropropane	ND	0.50	μg/L	1	11/2/2015	R30423
2-Hexanone         ND         0.50         μg/L         1         11/2/2015         R30423           Isopropylbenzene         ND         0.50         μg/L         1         11/2/2015         R30423           Methylene Chloride         ND         0.50         μg/L         1         11/2/2015         R30423           n-Butylbenzene         ND         0.50         μg/L         1         11/2/2015         R30423           n-Propylbenzene         ND         0.50         μg/L         1         11/2/2015         R30423           sec-Butylbenzene         ND         0.50         μg/L         1         11/2/2015         R30423           Styrene         ND         0.50         μg/L         1         11/2/2015         R30423           tert-Butylbenzene         ND         0.50         μg/L         1         11/2/2015         R30423           1,1,1,2-Tetrachloroethane         ND         0.50         μg/L         1         11/2/2015         R30423           1,1,2,2-Tetrachloroethane         ND         0.50         μg/L         1         11/2/2015         R30423           1 trans-1,2-DCE         ND         0.50         μg/L         1         11/2/2015         R30423	1,1-Dichloropropene	ND	0.50	μg/L	1	11/2/2015	R30423
Isopropylbenzene	Hexachlorobutadiene	ND	0.50	μg/L	1	11/2/2015	R30423
Methylene Chloride         ND         2.5         μg/L         1         11/2/2015         R30423           n-Butylbenzene         ND         0.50         μg/L         1         11/2/2015         R30423           n-Propylbenzene         ND         0.50         μg/L         1         11/2/2015         R30423           sec-Butylbenzene         ND         0.50         μg/L         1         11/2/2015         R30423           Styrene         ND         0.50         μg/L         1         11/2/2015         R30423           tert-Butylbenzene         ND         0.50         μg/L         1         11/2/2015         R30423           1,1,1,2-Tetrachloroethane         ND         0.50         μg/L         1         11/2/2015         R30423           1,1,2,2-Tetrachloroethane         ND         0.50         μg/L         1         11/2/2015         R30423           Tetrachloroethene (PCE)         ND         0.50         μg/L         1         11/2/2015         R30423           trans-1,2-DCE         ND         0.50         μg/L         1         11/2/2015         R30423           trans-1,3-Dichloropropene         ND         0.50         μg/L         1         11/2/2015	2-Hexanone	ND	0.50	μg/L	1	11/2/2015	R30423
n-Butylbenzene         ND         0.50         μg/L         1         11/2/2015         R30423           n-Propylbenzene         ND         0.50         μg/L         1         11/2/2015         R30423           sec-Butylbenzene         ND         0.50         μg/L         1         11/2/2015         R30423           Styrene         ND         0.50         μg/L         1         11/2/2015         R30423           tert-Butylbenzene         ND         0.50         μg/L         1         11/2/2015         R30423           1,1,1,2-Tetrachloroethane         ND         0.50         μg/L         1         11/2/2015         R30423           1,1,2,2-Tetrachloroethane         ND         0.50         μg/L         1         11/2/2015         R30423           Tetrachloroethene (PCE)         ND         0.50         μg/L         1         11/2/2015         R30423           trans-1,2-DCE         ND         0.50         μg/L         1         11/2/2015         R30423           trans-1,3-Dichloropropene         ND         0.50         μg/L         1         11/2/2015         R30423	Isopropylbenzene	ND	0.50	μg/L	1	11/2/2015	R30423
n-Propylbenzene ND 0.50 µg/L 1 11/2/2015 R30423 sec-Butylbenzene ND 0.50 µg/L 1 11/2/2015 R30423 Styrene ND 0.50 µg/L 1 11/2/2015 R30423 tert-Butylbenzene ND 0.50 µg/L 1 11/2/2015 R30423 1,1,1,2-Tetrachloroethane ND 0.50 µg/L 1 11/2/2015 R30423 1,1,2,2-Tetrachloroethane ND 0.50 µg/L 1 11/2/2015 R30423 Tetrachloroethene (PCE) ND 0.50 µg/L 1 11/2/2015 R30423 trans-1,2-DCE ND 0.50 µg/L 1 11/2/2015 R30423 trans-1,3-Dichloropropene ND 0.50 µg/L 1 11/2/2015 R30423	Methylene Chloride	ND	2.5	μg/L	1	11/2/2015	R30423
sec-Butylbenzene         ND         0.50         µg/L         1         11/2/2015         R30423           Styrene         ND         0.50         µg/L         1         11/2/2015         R30423           tert-Butylbenzene         ND         0.50         µg/L         1         11/2/2015         R30423           1,1,2-Tetrachloroethane         ND         0.50         µg/L         1         11/2/2015         R30423           1,1,2,2-Tetrachloroethane         ND         0.50         µg/L         1         11/2/2015         R30423           Tetrachloroethene (PCE)         ND         0.50         µg/L         1         11/2/2015         R30423           trans-1,2-DCE         ND         0.50         µg/L         1         11/2/2015         R30423           trans-1,3-Dichloropropene         ND         0.50         µg/L         1         11/2/2015         R30423	n-Butylbenzene	ND	0.50	μg/L	1	11/2/2015	R30423
Styrene         ND         0.50         μg/L         1         11/2/2015         R30423           tert-Butylbenzene         ND         0.50         μg/L         1         11/2/2015         R30423           1,1,2,2-Tetrachloroethane         ND         0.50         μg/L         1         11/2/2015         R30423           1,1,2,2-Tetrachloroethane         ND         0.50         μg/L         1         11/2/2015         R30423           Tetrachloroethene (PCE)         ND         0.50         μg/L         1         11/2/2015         R30423           trans-1,2-DCE         ND         0.50         μg/L         1         11/2/2015         R30423           trans-1,3-Dichloropropene         ND         0.50         μg/L         1         11/2/2015         R30423	n-Propylbenzene	ND	0.50	μg/L	1	11/2/2015	R30423
tert-Butylbenzene ND 0.50 µg/L 1 11/2/2015 R30423 1,1,1,2-Tetrachloroethane ND 0.50 µg/L 1 11/2/2015 R30423 1,1,2,2-Tetrachloroethane ND 0.50 µg/L 1 11/2/2015 R30423 1,1,2,2-Tetrachloroethane ND 0.50 µg/L 1 11/2/2015 R30423 Tetrachloroethene (PCE) ND 0.50 µg/L 1 11/2/2015 R30423 trans-1,2-DCE ND 0.50 µg/L 1 11/2/2015 R30423 trans-1,3-Dichloropropene ND 0.50 µg/L 1 11/2/2015 R30423	sec-Butylbenzene	ND	0.50	μg/L	1	11/2/2015	R30423
tert-Butylbenzene ND 0.50 µg/L 1 11/2/2015 R30423 1,1,1,2-Tetrachloroethane ND 0.50 µg/L 1 11/2/2015 R30423 1,1,2,2-Tetrachloroethane ND 0.50 µg/L 1 11/2/2015 R30423 1,1,2,2-Tetrachloroethane ND 0.50 µg/L 1 11/2/2015 R30423 Tetrachloroethene (PCE) ND 0.50 µg/L 1 11/2/2015 R30423 trans-1,2-DCE ND 0.50 µg/L 1 11/2/2015 R30423 trans-1,3-Dichloropropene ND 0.50 µg/L 1 11/2/2015 R30423	Styrene	ND	0.50	μg/Ľ	1	11/2/2015	R30423
1,1,2,2-Tetrachloroethane       ND       0.50       μg/L       1       11/2/2015       R30423         Tetrachloroethene (PCE)       ND       0.50       μg/L       1       11/2/2015       R30423         trans-1,2-DCE       ND       0.50       μg/L       1       11/2/2015       R30423         trans-1,3-Dichloropropene       ND       0.50       μg/L       1       11/2/2015       R30423	tert-Butylbenzene	ND	0.50	µg/L	1	11/2/2015	R30423
Tetrachloroethene (PCE)         ND         0.50         μg/L         1         11/2/2015         R30423           trans-1,2-DCE         ND         0.50         μg/L         1         11/2/2015         R30423           trans-1,3-Dichloropropene         ND         0.50         μg/L         1         11/2/2015         R30423	1,1,1,2-Tetrachloroethane	ND	0,50		1	11/2/2015	R30423
trans-1,2-DCE ND 0.50 μg/L 1 11/2/2015 R30423 trans-1,3-Dichloropropene ND 0.50 μg/L 1 11/2/2015 R30423	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L .	1	11/2/2015	R30423
trans-1,3-Dichloropropene ND 0.50 µg/L 1 11/2/2015 R30423	Tetrachloroethene (PCE)	ND	0.50		1	11/2/2015	R30423
trans-1,3-Dichloropropene ND 0.50 µg/L 1 11/2/2015 R30423	trans-1,2-DCE	ND	0.50	μg/L	1	11/2/2015	R30423
	trans-1,3-Dichloropropene	ND	0.50		1	11/2/2015	R30423
	1,2,3-Trichlorobenzene	ND	0.50		1	11/2/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits Page 9 of 29
- P Sample pH Not In Range
- RL Reporting Detection Limit

#### Lab Order 1510908

Date Reported: 11/24/2015

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: TRIP BLANK

Project: Quarterly WDW-1, 2, & 3 Inj Well

**Collection Date:** 

Lab ID: 1510908-002

Matrix: TRIP BLANK Received

Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL. Qu	al Units	DF	Date Analyze	d Batch
EPA METHOD 8260B: VOLATILES	,					Analyst: SUB
1,2,4-Trichlorobenzene	ND	0.50	μg/L	-1	11/2/2015	R30423
1,1,1-Trichloroethane	ND	0.50	μg/L	1	11/2/2015	R30423
1,1,2-Trichloroethane	ND	0.50	μg/L	1	11/2/2015	R3042
Trichloroethene (TCE)	ND	0.50	μg/L	1	11/2/2015	R3042
Trichlorofluoromethane	ND	0.50	μg/L	1	11/2/2015	R30423
1,2,3-Trichloropropane	ND	0.50	μg/L	1	11/2/2015	R3042
Vinyl chloride	ND	0.50	μg/L	1	11/2/2015	R3042
mp-Xylenes	ND	1.0	μg/L	1	11/2/2015	R30423
o-Xylene	ND	0.50	μg/L	1	11/2/2015	R3042
tert-Amyl methyl ether	ND ·	0.50	μg/L	1	11/2/2015	R3042
tert-Butyl alcohol	ND	0.50	μ <b>g/</b> L	1	11/2/2015	R3042
Acrolein	ND	0.50	μg/L	1	11/2/2015	R30423
Acrylonitrile	ND	0.50	μg/L	1	11/2/2015	R30423
Bromochloromethane	ND	0.50	μg/L	1	11/2/2015	R3042
2-Chloroethyl vinyl ether	ND	0.50	μg/L	1	11/2/2015	R30423
Iodomethane	ND	0.50	μg/L	1	11/2/2015	R3042
trans-1,4-Dichloro-2-butene	ND	0.50	μg/L	1	11/2/2015	R3042
Vinyl acetate	ND	0.50	μg/L	1	11/2/2015	R3042
1,4-Dioxane	ND	20	μg/L	1	11/2/2015	R3042
Surr: 1,2-Dichlorobenzene-d4	108	70-130	%REC	1	11/2/2015	R3042
Surr: 4-Bromofluorobenzene	105	70-130	%REC	1	11/2/2015	R3042
Surr: Toluene-d8	102	70-130	%REC	1	11/2/2015	R3042

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits Page 10 of 29
- P Sample pH Not In Range
- RL Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

WO#:

1510908 24-Nov-15

Client:

Navajo Refining Company

	Quarterly WDW-1, 2, & 3 Inj Well			
Sample ID MB	SampType: MBLK	TestCode: EPA Method 3	300.0: Anions	
Client ID: PBW	Batch ID: R29842	RunNo: 29842		
Prep Date:	Analysis Date: 10/27/2015	SeqNo: 908890	Units: mg/L	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Chloride	ND 0.50			
Sulfate	ND 0.50			
Sample ID LCS	SampType: LCS	TestCode: EPA Method 3	300.0: Anions	
Client ID: LCSW	Batch ID: R29842	RunNo: 29842		
Prep Date:	Analysis Date: 10/27/2015	SeqNo: 908891	Units: mg/L	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Chloride	4.8 0.50 5.000	0 97.0 90	110	.,
Sulfate	9.8 0.50 10.00	0 98.3 90	110	
Sample ID: MB	SampType: MBLK	TestCode: EPA Method 3	300.0: Anions	
Client ID: PBW	Batch ID: R29930	RunNo: 29930		
Prep Date:	Analysis Date: 10/30/2015	SeqNo: 911773	Units: mg/L	
Analyte	Result PQI. SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Nitrate+Nitrite as N	ND 0.20			
Sample ID LCS	SampType: LCS	TestCode: EPA Method 3	300.0: Anions	
Client ID: LCSW	Batch ID: R29930	RunNo: 29930		
Prep Date:	Analysis Date: 10/30/2015	SeqNo: 911774	Units: mg/L	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Nitrate+Nitrite as N	3.4 0.20 3.500	0 96.6 90	110	
Sample ID MB	SampType: MBLK	TestCode: EPA Method 3	300,0: Anions	
Client ID: PBW	Batch ID: R29992	RunNo: 29992		
Prep Date:	Analysis Date: 11/3/2015	SeqNo: 913762	Units: mg/L	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Phosphorus, Orthophosph	ate (As P ND 0.50			
Sample ID LCS	SampType: LCS	TestCode: EPA Method 3	300.0: Anions	
Client ID: LCSW	Batch ID: R29992	RunNo: 29992		
Prep Date:	Analysis Date: 11/3/2015	SeqNo: 913763	Units: mg/L	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Phosphorus, Orthophosph	ate (As P 5.0 0.50 5.000	0 99.1 90	110	

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits

Page 11 of 29

- P Sample pH Not In Range
- RL Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

WO#:

1510908

24-Nov-15

Client:

Navajo Refining Company

Project:

Quarterly WDW-1, 2, & 3 Inj Well

Sample ID MB

Prep Date:

SampType: MBLK

TestCode: EPA Method 300.0: Anions

Client ID:

Batch ID: A30103

**PQL** 

RunNo: 30103

Analysis Date: 11/6/2015

SeqNo: 916979

%REC LowLimit

Units: mg/L HighLimit

**RPDLimit** 

Qual

Analyte Phosphorus, Orthophosphate (As P Result

ND 0.50

SampType: LCS

TestCode: EPA Method 300.0: Anions

Sample ID LCS Client ID: LCSW

Batch ID: A30103

RunNo: 30103

Prep Date:

Analysis Date: 11/6/2015

SeqNo: 916980

%REC

Units: mg/L

%RPD **RPDLimit** 

%RPD

Qual

Analyte

0.50

5.000

SPK value SPK Ref Val

SPK value SPK Ref Val

99.3

HighLimit

Phosphorus, Orthophosphate (As P

5.0

Result

PQL

90

LowLimit

110

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix Analyte detected in the associated Method Blank

 $\mathbf{E}$ Value above quantitation range

Analyte detected below quantitation limits

Page 12 of 29

Sample pH Not In Range

# Hall Environmental Analysis Laboratory, Inc.

WO#:

1510908 24-Nov-15

Client:

Navajo Refining Company

Project:

Quarterly WDW-1, 2, & 3 Inj Well

Methyl structure	Sample ID MB-R30423	SampType:	MBLK	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Analyte	Client ID: PBW	Batch ID:	R30423	F	RunNo: 3	0423				
Methyl ethyl ketone	Prep Date:	Analysis Date:	11/2/2015	S	SeqNo: 9	28381	Units: µg/L			
Methyl kebne         ND         2.5 b           p-isoproyloblene         ND         0.50           Benzene         ND         0.50           Tolluene         ND         0.50           Ethyluenzane         ND         0.50           Methyl futr-buly other (MTBE)         ND         0.50           1,2.4-Trimethylbenzene         ND         0.50           1,2.4-Trimethylbenzene         ND         0.50           1,2.2-Dibromoethane (EDB)         ND         0.50           1,2-Dibromoethane (EDB)         ND         0.50           Naphthalene         ND         0.50           Romobenzene         ND         0.50           Bromobenzene         ND         0.50           Bromomethane         ND         0.50           Garbon Tetrachlaride         ND         0.50           Carbon Tetrachlaride         ND         0.50           Chlorothane         ND         <	Analyte	Result PQI	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
p-leoprogylfoklore Banzene ND 0.50 Tollene ND 0.50 Ethytienzene ND 0.50 Ethytienzene ND 0.50 Ethytienzene ND 0.50 Methyt terb-tulyl elher (MTBE) ND 0.50 1.2.4-Trimethytienzene ND 0.50 1.2.2-Trimethytienzene ND 0.50 1.2.2-Dibromoethane (EDC) ND 0.50 1.2-Dibromoethane (EDB) ND 0.50 Naphthalene ND 0.50 Acetone ND 0.50 Bromodohorzene ND 0.50 Bromodohorzene ND 0.50 Bromodohorzene ND 0.50 Bromoethane ND 0.50 Bromoethane ND 0.50 Carbon Saulfide ND 0.50 Carbon Saulfide ND 0.50 Chicrobenzene ND 0.50 Chicromethane ND 0.50 Dibromoethicromethane ND 0.50 Dibromoethicromethane ND 0.50 Dibromoethicromethane ND 0.50 Lillorodibromethane ND 0.50	Methyl ethyl ketone				-					
Benzene         ND         0.50           Toluene         ND         0.50           Ethyloenzene         ND         0.50           Methyl terl-butyl elher (MTBE)         ND         0.50           1.2.4-Trimethylbenzene         ND         0.50           1.2.2-Dichloredhane (EDC)         ND         0.50           1.2-Dichloredhane (EDC)         ND         0.50           Naphthalene         ND         0.50           Acetone         ND         0.50           Bromobenzene         ND         0.50           Bromodichloromethane         ND         0.50           Bromodishlide         ND         0.50           Bromomethane         ND         0.50           Carbon Tatrachloride         ND         0.50           Chlorobenzene         ND         0.50           Chlorobensene         ND         0.50           Chlorotoluene         ND         0.50           Chlorotoluene         ND         0.50           Chlorotoluene         ND         0.50           ds-1,2-Dickloropropene         ND         0.50           ds-1,2-Dickloromethane         ND         0.50           Dibromomethane         ND	Methyl isobutyl ketone	ND 2	.5							
Toluene         ND         0.50           Ethyloracene         ND         0.50           Methyl ter-bubyl ether (NTBE)         ND         0.50           1,2,4-Trimethylberzene         ND         0.50           1,2,2-Dichloroethane (EDC)         ND         0.50           1,2-Dichloroethane (EDB)         ND         0.50           Naphthalene         ND         0.50           Acetone         ND         0.50           Bromodichloromethane         ND         0.50           Bromodichloromethane         ND         0.50           Bromodichloromethane         ND         0.50           Bromodethane         ND         0.50           Bromodethane         ND         0.50           Carbon disulide         ND         0.50           Carbon Tetrachloride         ND         0.50           Carbon Tetrachloride         ND         0.50           Chloroform         ND         0.50           Chloroform         ND         0.50           Chloroformethane         ND         0.50           Chloroformethane         ND         0.50           4-Chlorofoluene         ND         0.50           dis-1,3-Dichlorobrop	p-isopropyltoluene	ND 0.5	0							
Ethyticenzene         ND         0.50           Methyt terb-uityl ether (MTBE)         ND         0.50           1,2,4-Trimethylbenzene         ND         0.50           1,2-Dichloroethane (EDC)         ND         0.50           1,2-Dichloroethane (EDB)         ND         0.50           Naphthalene         ND         0.50           Acetone         ND         2.5           Bromobenzene         ND         0.50           Bromoderiname         ND         0.50           Bromothane         ND         0.50           Bromothane         ND         0.50           Carbon Issuifide         ND         0.50           Carbon Issuifide         ND         0.50           Chloroethane         ND         0.50           Chloroethane         ND         0.50           Chloroethane         ND         0.50           Chloroethane         ND         0.50           4-Chlorotoluene         ND         0.50           4-Chlorotoluene         ND         0.50           4-Clorotoluene         ND         0.50           4-L'Jobinoro-3-chloropropene         ND         0.50           1,2-Dibinoro-3-chloropropene	Benzene	ND 0.5								
Methyl terl-butyl ether (MTBE)         ND         0.50           1.2.4-Trimethylberzene         ND         0.50           1.2.2-Dichloroethane (EDC)         ND         0.50           1.2-Dichoroethane (EDB)         ND         0.50           Naphthalene         ND         0.50           Acetone         ND         0.50           Bromobenzene         ND         0.50           Bromofdhoromethane         ND         0.50           Bromoffma         ND         0.50           Bromoffma         ND         0.50           Bromoffmae         ND         0.50           Carbon disulfide         ND         0.50           Carbon Tetrachloride         ND         0.50           Chloroethane         ND         0.50           Chloroform         ND         0.50           Chloroform         ND         0.50           Chloroformethane         ND         0.50           4-Chlorofoluene         ND         0.50           4-Chlorofoluene         ND         0.50           4-Lj-Dichloropropene         ND         0.50           1,2-Dibloropropene         ND         0.50           1,2-Dibloropropene <td< td=""><td>Toluene</td><td>ND 0.5</td><td>60</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	Toluene	ND 0.5	60							
1,2,4-Trimethylberzene         ND         0.50           1,3,5-Trimethylberzene         ND         0.50           1,2-Dichloreethane (EDB)         ND         0.50           Naphthalene         ND         0.50           Naphthalene         ND         0.50           Acetone         ND         0.50           Bromobenzene         ND         0.50           Bromofichloromethane         ND         0.50           Bromofithane         ND         0.50           Bromofithane         ND         0.50           Carbon disulfide         ND         0.50           Carbon disulfide         ND         0.50           Chlorobenzene         ND         0.50           Chlorobenzene         ND         0.50           Chlorobenzene         ND         0.50           Chlorobethane         ND         0.50           Chloroboluene         ND         0.50           2-Chloroboluene         ND         0.50           4-Chloroboluene         ND         0.50           dis-1,3-Dichloropropene         ND         0.50           1,2-Dibloromo-3-chloropropane         ND         0.50           Dibromomethane	Ethylbenzene	ND 0.5	0							
1,3,5-Trimethylbenzene         ND         0.50           1,2-Dichloroethane (EDC)         ND         0.50           1,2-Dichloroethane (EDB)         ND         0.50           Apettinalene         ND         0.50           Acetone         ND         0.50           Bromobenzene         ND         0.50           Bromodichloromethane         ND         0.50           Bromomethane         ND         0.50           Carbon disulfide         ND         0.50           Carbon Tetrachforide         ND         0.50           Chlorobrazene         ND         0.50           Chlorodorm         ND         0.50           Chlorodorm         ND         0.50           Chlorodothane         ND         0.50           Chlorodothane         ND         0.50           Chlorodothane         ND         0.50           cls-1,2-DCE         ND         0.50           cls-1,3-Dichloropropene         ND         0.50           1,2-Dichlorodo-zene         ND         0.50           1,2-Dichlorobenzene         ND         0.50           1,4-Dichlorobenzene         ND         0.50           1,4-Dichloroehane         <	Methyl tert-butyl ether (MTBE)	ND 0.5	0							
1,2-Dichloroethane (EDC)         ND         0.50           1,2-Dichloromethane (EDB)         ND         0.50           Naphthalene         ND         0.50           Acetone         ND         0.50           Bromobenzene         ND         0.50           Bromodichloromethane         ND         0.50           Bromoeffame         ND         0.50           Bromoeffane         ND         0.50           Carbon Tetrachloride         ND         0.50           Carbon Tetrachloride         ND         0.50           Chloroehane         ND         0.50           Chloroehane         ND         0.50           Chloroethane         ND         0.50           Chloroethane         ND         0.50           Chlorotoluene         ND         0.50           Chlorotoluene         ND         0.50           4-Chlorotoluene         ND         0.50           ds-1,3-Dichloropropene         ND         0.50           ds-1,3-Dichloropropene         ND         0.50           1,2-Dichlorobenzene         ND         0.50           1,2-Dichlorobenzene         ND         0.50           1,3-Dichlorobenzene         <	1,2,4-Trimethylbenzene	ND 0.5	60							
1,2-Ditromoethane (EDB)         ND         0.50           Naphthalene         ND         0.50           Acetone         ND         0.50           Bromobenzene         ND         0.50           Bromoferm         ND         0.50           Bromoferm         ND         0.50           Bromoferm         ND         0.50           Carbon Tetrachloride         ND         0.50           Carbon Tetrachloride         ND         0.50           Chloroethane         ND         0.50           Chlorotoluene         ND         0.50           cls-1,2-DCE         ND         0.50           cls-1,3-Dichloropropene         ND         0.50           1,2-Dichnoro-3-chloropropane         ND         0.50           1,2-Dichloroethane         ND         0.50           1,2-Dichloroebnzene         ND         0.50	1,3,5-Trimethylbenzene	ND 0.5	0							
Naphthalene         ND         0.50           Acetone         ND         2.5           Bromodenzene         ND         0.50           Bromoderhane         ND         0.50           Bromomethane         ND         0.50           Carbon disulfide         ND         0.50           Carbon Tetrachloride         ND         0.50           Chlorobenzene         ND         0.50           Chlorothane         ND         0.50           Chlorothane         ND         0.50           Chlorothune         ND         0.50           Chlorotoluene         ND         0.50           4-Chlorotoluene         ND         0.50           4s-1,2-DER         ND         0.50           4s-1,2-DER         ND         0.50           1,2-Dikhoropropene         ND         0.50           Dibromo-3-chloropropene         ND         0.50           Dibromoethane         ND         0.50           1,2-Dichlorobenzene         ND         0.50           1,4-Dichlorobenzene         ND         0.50           1,4-Dichlorobenzene         ND         0.50           1,1-Dichlorobenzene         ND         0.50	1,2-Dichloroethane (EDC)	ND 0.5	60							
Acetone         ND         2.5           Bromobenzene         ND         0.50           Bromodichloromethane         ND         0.50           Bromoderm         ND         0.50           Bromomethane         ND         0.50           Carbon Tetrachloride         ND         0.50           Chlorobenzene         ND         0.50           Chloroethane         ND         0.50           Chloroform         ND         0.50           Chlorodoluene         ND         0.50           4-Chlorotoluene         ND         0.50           4-Chlorotoluene         ND         0.50           4s-1,2-DCE         ND         0.50           dis-1,2-Dichloropropene         ND         0.50           Dibromo-3-chloropropane         ND         0.50           Dibromo-dhane         ND         0.50           1,2-Dichlorobenzene         ND         0.50           1,3-Dichlorobenzene         ND         0.50           1,4-Dichlorobenzene         ND         0.50           1,1-Dichloroethane         ND         0.50           1,1-Dichloroethane         ND         0.50           1,1-Dichloroethane         ND	1,2-Dibromoethane (EDB)	ND 0.5	0							
Bromobenzene         ND         0.50           Bromodichloromethane         ND         0.50           Bromoform         ND         0.50           Bromomethane         ND         0.50           Carbon Tetrachloride         ND         0.50           Carbon Tetrachloride         ND         0.50           Chlorothane         ND         0.50           Chloroform         ND         0.50           Chloroformethane         ND         0.50           2-Chlorotoluene         ND         0.50           4-Chlorotoluene         ND         0.50           ds-1,2-DCE         ND         0.50           ds-1,3-Dichloropropene         ND         0.50           1,2-Dibromo-3-chloropropane         ND         0.50           Dibromochloromethane         ND         0.50           1,2-Dichlorobenzene         ND         0.50           1,3-Dichlorobenzene         ND         0.50           1,4-Dichlorobenzene         ND         0.50           1,4-Dichlorobenzene         ND         0.50           1,1-Dichlorobenzene         ND         0.50           1,1-Dichlorobenzene         ND         0.50           1,1-Dichlor	Naphthalene	ND 0.5	0							
Bromodichloromethane         ND         0.50           Bromoethane         ND         0.50           Bromodisulfide         ND         0.50           Carbon disulfide         ND         0.50           Chlorobenzene         ND         0.50           Chlorobenzene         ND         0.50           Chloroform         ND         0.50           Chlorofoluene         ND         0.50           2-Chlorotoluene         ND         0.50           4-Chlorotoluene         ND         0.50           4-Chlorotoluene         ND         0.50           dis-1,2-DCE         ND         0.50           dis-1,3-Dichloropropene         ND         0.50           1,2-Dibromo-3-chloropropane         ND         0.50           Dibromochloromethane         ND         0.50           1,2-Dichlorobenzane         ND         0.50           1,3-Dichlorobenzane         ND         0.50           1,4-Dichlorobenzane         ND         0.50           1,1-Dichlorobenzane         ND         0.50           1,1-Dichlorobenzane         ND         0.50           1,1-Dichlorobethane         ND         0.50           1,1-Dichlorobe	Acetone	ND 2	.5							
Bromoferm         ND         0.50           Bromomethane         ND         0.50           Carbon disulfide         ND         0.50           Carbon Tetrachloride         ND         0.50           Chlorobenzene         ND         0.50           Chlororelhane         ND         0.50           Chlororform         ND         0.50           Chlorordoluene         ND         0.50           4-Chlorofoluene         ND         0.50           ds-1,2-DCE         ND         0.50           ds-1,3-Dichloropropene         ND         0.50           1,2-Dibromo-3-chloropropane         ND         0.50           Dibromoethoromethane         ND         0.50           1,2-Dichlorobenzene         ND         0.50           1,3-Dichlorobenzene         ND         0.50           1,4-Dichlorobenzene         ND         0.50           1,4-Dichlorobenzene         ND         0.50           Dicklorodifluoromethane         ND         0.50           1,1-Dichlorobehane         ND         0.50           1,1-Dichlorobehane         ND         0.50           1,1-Dichlorobehane         ND         0.50	Bromobenzene	ND 0.5	60							
Bromomethane         ND         0.50           Carbon disulfide         ND         0.50           Carbon Tetrachloride         ND         0.50           Chlorobenzene         ND         0.50           Chloroform         ND         0.50           Chloroform         ND         0.50           Chlorofoluene         ND         0.50           4-Chlorofoluene         ND         0.50           4-Chlorofoluene         ND         0.50           ds-1,2-DCE         ND         0.50           ds-1,3-Dichloropropene         ND         0.50           1,2-Dibromo-3-chloropropane         ND         0.50           Dibromomethane         ND         0.50           Dibromomethane         ND         0.50           1,2-Diblorobenzene         ND         0.50           1,3-Dichlorobenzene         ND         0.50           Dichlorodifluoromethane         ND         0.50           Dichlorodifluoromethane         ND         0.50           1,1-Dichloroelhane         ND         0.50           1,1-Dichloroelhane         ND         0.50	Bromodichloromethane	ND 0.5	60							
Carbon disulfide         ND         0.50           Carbon Tetrachloride         ND         0.50           Chlorobenzene         ND         0.50           Chloroform         ND         0.50           Chloroformethane         ND         0.50           2-Chlorofoluene         ND         0.50           4-Chlorofoluene         ND         0.50           ds-1,2-DCE         ND         0.50           dis-1,3-Dichloropropene         ND         0.50           1,2-Dichoro-3-chloropropane         ND         0.50           Dibromomethane         ND         0.50           1,2-Dichlorobenzene         ND         0.50           1,3-Dichlorobenzene         ND         0.50           1,4-Dichlorobenzene         ND         0.50           Dichlorodifluoromethane         ND         0.50           1,1-Dichloroethane         ND         0.50           1,1-Dichloroethane         ND         0.50           1,1-Dichloroethane         ND         0.50           1,1-Dichloroethane         ND         0.50	Bromoform	ND 0.5	60							
Carbon Tetrachloride         ND         0.50           Chlorobenzene         ND         0.50           Chloroform         ND         0.50           Chloroform         ND         0.50           Chlorofoluene         ND         0.50           2-Chlorofoluene         ND         0.50           4-Chlorofoluene         ND         0.50           cis-1,2-DCE         ND         0.50           dis-1,3-Dichloropropene         ND         0.50           1,2-Dibromo-3-chloropropane         ND         0.50           Dibromomethane         ND         0.50           1,2-Dichlorobenzene         ND         0.50           1,3-Dichlorobenzene         ND         0.50           1,4-Dichlorobenzene         ND         0.50           Dichlorofilluoromethane         ND         0.50           1,1-Dichloroethane         ND         0.50           1,1-Dichloroethane         ND         0.50           1,1-Dichloroethane         ND         0.50           1,1-Dichloroethane         ND         0.50	Bromomethane	ND 0.5	60							
Chlorobenzene         ND         0.50           Chloroefhane         ND         0.50           Chloroform         ND         0.50           Chlorotoluene         ND         0.50           2-Chlorotoluene         ND         0.50           cls-1,2-DCE         ND         0.50           cls-1,3-Dichloropropene         ND         0.50           1,2-Dibromo-3-chloropropane         ND         0.50           Dibromomethane         ND         0.50           1,2-Dichlorobenzene         ND         0.50           1,2-Dichlorobenzene         ND         0.50           1,4-Dichlorobenzene         ND         0.50           Dichlorodifluoromethane         ND         0.50           1,1-Dichlorotelhane         ND         0.50           1,1-Dichlorotelhane         ND         0.50           1,1-Dichlorotelhane         ND         0.50	Carbon disulfide	ND 0.5	0							
Chloroethane         ND         0.50           Chloroform         ND         0.50           Chloromethane         ND         0.50           2-Chlorotoluene         ND         0.50           4-Chlorotoluene         ND         0.50           cls-1,2-DCE         ND         0.50           cls-1,3-Dichloropropene         ND         0.50           1,2-Dibromo-3-chloropropane         ND         0.50           Dibromomethane         ND         0.50           1,2-Dichlorobenzene         ND         0.50           1,2-Dichlorobenzene         ND         0.50           1,4-Dichlorobenzene         ND         0.50           1,1-Dichloroethane         ND         0.50           1,1-Dichloroethane         ND         0.50           1,1-Dichloroethane         ND         0.50	Carbon Tetrachloride	ND 0.5	60							
Chloroform         ND         0.50           Chloromethane         ND         0.50           2-Chlorotoluene         ND         0.50           4-Chlorotoluene         ND         0.50           cls-1,2-DCE         ND         0.50           cls-1,3-Dichloropropene         ND         0.50           1,2-Dibromo-3-chloropropane         ND         0.50           Dibromochloromethane         ND         0.50           1,2-Dichlorobenzene         ND         0.50           1,3-Dichlorobenzene         ND         0.50           1,4-Dichlorobenzene         ND         0.50           Dichlorodifluoromethane         ND         0.50           1,1-Dichloroethane         ND         0.50           1,1-Dichloroethene         ND         0.50	Chlorobenzene	ND 0.5								
Chloromethane       ND       0.50         2-Chlorotoluene       ND       0.50         4-Chlorotoluene       ND       0.50         cis-1,2-DCE       ND       0.50         cis-1,3-Dichloropropene       ND       0.50         1,2-Dibromo-3-chloropropane       ND       0.50         Dibromoethane       ND       0.50         Dibromomethane       ND       0.50         1,2-Dichlorobenzene       ND       0.50         1,3-Dichlorobenzene       ND       0.50         Dichlorodifluoromethane       ND       0.50         1,1-Dichloroethane       ND       0.50         1,1-Dichloroethane       ND       0.50         1,1-Dichloroethene       ND       0.50	Chloroethane	ND 0.5	60							
Chloromethane         ND         0.50           2-Chlorotoluene         ND         0.50           4-Chlorotoluene         ND         0.50           cis-1,2-DCE         ND         0.50           cis-1,3-Dichloropropene         ND         0.50           1,2-Dibromo-3-chloropropane         ND         0.50           Dibromoethane         ND         0.50           Dibromomethane         ND         0.50           1,2-Dichlorobenzene         ND         0.50           1,3-Dichlorobenzene         ND         0.50           1,4-Dichlorobenzene         ND         0.50           Dichlorodifluoromethane         ND         0.50           1,1-Dichloroethane         ND         0.50           1,1-Dichloroethene         ND         0.50	Chloroform	ND 0.5	60							
2-Chlorotoluene       ND       0.50         4-Chlorotoluene       ND       0.50         cis-1,2-DCE       ND       0.50         cis-1,3-Dichloropropene       ND       0.50         1,2-Dibromo-3-chloropropane       ND       0.50         Dibromoethlane       ND       0.50         1,2-Dichlorobenzene       ND       0.50         1,3-Dichlorobenzene       ND       0.50         1,4-Dichlorobenzene       ND       0.50         Dichlorodifluoromethane       ND       0.50         1,1-Dichloroethane       ND       0.50         1,1-Dichloroethene       ND       0.50	Chloromethane									
4-Chlorotoluene       ND       0.50         cis-1,2-DCE       ND       0.50         cis-1,3-Dichloropropene       ND       0.50         1,2-Dibromo-3-chloropropane       ND       0.50         Dibromoethane       ND       0.50         Dibromomethane       ND       0.50         1,2-Dichlorobenzene       ND       0.50         1,3-Dichlorobenzene       ND       0.50         1,4-Dichlorobenzene       ND       0.50         Dichlorodifluoromethane       ND       0.50         1,1-Dichloroethane       ND       0.50         1,1-Dichloroethene       ND       0.50	2-Chlorotoluene									
cis-1,3-Dichloropropene         ND         0.50           1,2-Dibromo-3-chloropropane         ND         0.50           Dibromochloromethane         ND         0.50           Dibromomethane         ND         0.50           1,2-Dichlorobenzene         ND         0.50           1,3-Dichlorobenzene         ND         0.50           1,4-Dichlorobenzene         ND         0.50           Dichlorodifluoromethane         ND         0.50           1,1-Dichloroethane         ND         0.50           1,1-Dichloroethene         ND         0.50	4-Chlorotoluene									
cis-1,3-Dichloropropene         ND         0.50           1,2-Dibromo-3-chloropropane         ND         0.50           Dibromochloromethane         ND         0.50           Dibromomethane         ND         0.50           1,2-Dichlorobenzene         ND         0.50           1,3-Dichlorobenzene         ND         0.50           1,4-Dichlorobenzene         ND         0.50           Dichlorodifluoromethane         ND         0.50           1,1-Dichloroethane         ND         0.50           1,1-Dichloroethene         ND         0.50										
1,2-Dibromo-3-chloropropane         ND         0.50           Dibromochloromethane         ND         0.50           Dibromomethane         ND         0.50           1,2-Dichlorobenzene         ND         0.50           1,3-Dichlorobenzene         ND         0.50           1,4-Dichlorobenzene         ND         0.50           Dichlorodifluoromethane         ND         0.50           1,1-Dichloroethane         ND         0.50           1,1-Dichloroethene         ND         0.50										
Dibromochloromethane         ND         0.50           Dibromomethane         ND         0.50           1,2-Dichlorobenzene         ND         0.50           1,3-Dichlorobenzene         ND         0.50           1,4-Dichlorobenzene         ND         0.50           Dichlorodifluoromethane         ND         0.50           1,1-Dichloroethane         ND         0.50           1,1-Dichloroethene         ND         0.50										
Dibromomethane         ND         0.50           1,2-Dichlorobenzene         ND         0.50           1,3-Dichlorobenzene         ND         0.50           1,4-Dichlorobenzene         ND         0.50           Dichlorodifluoromethane         ND         0.50           1,1-Dichloroethane         ND         0.50           1,1-Dichloroethene         ND         0.50										
1,2-Dichlorobenzene       ND       0.50         1,3-Dichlorobenzene       ND       0.50         1,4-Dichlorobenzene       ND       0.50         Dichlorodifluoromethane       ND       0.50         1,1-Dichloroethane       ND       0.50         1,1-Dichloroethene       ND       0.50										
1,3-Dichlorobenzene         ND         0.50           1,4-Dichlorobenzene         ND         0.50           Dichlorodifluoromethane         ND         0.50           1,1-Dichloroethane         ND         0.50           1,1-Dichloroethene         ND         0.50										
1,4-Dichlorobenzene         ND         0.50           Dichlorodifluoromethane         ND         0.50           1,1-Dichloroethane         ND         0.50           1,1-Dichloroethene         ND         0.50										
Dichlorodifluoromethane         ND         0.50           1,1-Dichloroethane         ND         0.50           1,1-Dichloroethene         ND         0.50	•									
1,1-Dichloroethane         ND         0.50           1,1-Dichloroethene         ND         0.50										
1,1-Dichloroethene ND 0.50										
1,2-Dichloropropane ND 0.50	1,2-Dichloropropane									
1,3-Dichloropropane ND 0.50										
2,2-Dichloropropane ND 0.50										
2,ε-ιοιιιοιογιοραίτο ΝΟ 0.00	z,z-Diolitoroproparie	אט טא								

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits

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- P Sample pH Not In Range
- RL Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

WO#:

1510908

24-Nov-15

Client:

Navajo Refining Company

Project:

Quarterly WDW-1, 2, & 3 Inj Well

Sample ID MB-R30423	SampT	ype: MI	BLK	Test	Code: El	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	ID: R3	0423	R	unNo: 3	0423				
Prep Date:	Analysis D	ate: 11	1/2/2015	S	eqNo: 9	28381	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	<b>RPDLimit</b>	Qual
1,1-Dichloropropene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
2-Hexanone	ND	2.5								
Isopropylbenzene	ND	0.50								
Methylene Chloride	ND	2.5								
n-Butylbenzene	ND	0.50								
n-Propylbenzene	ND	0.50								
sec-Butylbenzene	ND	0.50								
Styrene	ND	0.50								
tert-Butylbenzene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,2,3-Trichlorobenzene	NĎ	0.50								
1,2,4-Trichlorobenzene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	0.50	-							
o-Xylene	ND	0.50								
Acrylonitrile	ND	0.50								
Bromochloromethane	ND	0.50								

Sample ID LCS-R30423	SampT	ype: LC	S	TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch	ID: R3	0423	F	RunNo: 3	0423				
Prep Date:	Anaíysis D	ate: 11	1/2/2015	8	SeqNo: 9	28382	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.2	0	10.00	0	92.1	. 80	120			
Toluene	9.6	0	10.00	0	96.5	80	120			
Ethylbenzene,	9.7	0	10.00	0	96.9	80	120			
Chlorobenzene	9.5	0	10.00	0	94.7	80	120			
1,1-Dichloroethene	10	0	10.00	0	102	80	120			
Tetrachloroethene (PCE)	9.9	0	10.00	0	99.4	80	120			

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits

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- P Sample pH Not In Range
- RL Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

WO#:

1510908

24-Nov-15

Client:

Navajo Refining Company

Project:

Quarterly WDW-1, 2, & 3 Inj Well

Sample ID LCS-R30423	SampT	ype: LC	s	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: LCSW	Batch	ID: R3	0423	F	RunNo: 3	0423				
Prep Date:	Analysis D	ate: 11	1/2/2015	S	SeqNo: 9	28382	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	10	0	10.00	0	102	80	120			
o-Xylene	10	0	10.00	0	105	80	120			

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits

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- P Sample pH Not In Range
- RL Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

WO#:

1510908

24-Nov-15

Client:

Navajo Refining Company

Project:

Quarterly WDW-1, 2, & 3 Inj Well

Batch I	D. Da								
	D. KS	80423	F	RunNo: 3	0423				
Analysis Dat				SeqNo: 92		Units: µg/L			
Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
ND	5.0								
ND	5.0								
ND	5.0								
ND	5.0								
ND	5.0								
ND	5.0								
ND									
ND	5.0								
ND	5.0								
ND	5.0								
МD	5.0								
ND	5.0								
ND	5.0								
ND	5.0								
ND	5.0								
ND .	5.0								
ND	5.0								
ND	5.0								
ND	5.0								
ND	5.0								
ND	5.0								
ND	5.0								
ND	5.0								
ND	5.0								
ND	5.0								
ND	5.0								
ND	5.0								
ND	5.0								
ND	5.0								
ND	0.10								
ND	0.10								
ND -	0.10			-					- · · -
ND	0.10								
ND	5,0								
ND	5.0								
ND .	5.0								
ND	5.0								
ND	5.0								
ND	5.0								
	ND N	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits

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- P Sample pH Not In Range
- RL Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

WO#:

1510908

24-Nov-15

Client:

Navajo Refining Company

Project:

Quarterly WDW-1, 2, & 3 Inj Well

Sample ID MB-R30423	SampT	уре: МЕ	BLK	Tes	tCode: El	PA 8270C:	Semivolatiles	/Mod		
Client ID: PBW	Batch	ID: R3	0423	F	Run <b>N</b> o: 3	0423				
Prep Date:	Analysis D	ate: 10	0/30/2015	S	SeqNo: 9	28385	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Dibenzofuran .	ND	5.0								
Diethyl phthalate	ND	5.0								
Dimethyl phthalate	ND	5.0								
Di-n-butyl phthalate	ND	5.0								
Di-n-octyl phthalate	ND	5.0								
Fluoranthene	ND	5.0								
Fluorene	ND	5.0								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	5.0								
Hexachlorocyclopentadiene	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	0.10								
Isophorone	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	2.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	1.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
o-Toluidine	ND	2.0								
Pyridine	ND	5.0								
1,2,4,5-Tetrachlorobenzene	ND	5.0								

Sample ID LCS-R30423	SampT	ypo: LC	S	TestCode: EPA 8270C: Semivolatiles/Mod						
Client ID: LCSW	Batch	ID: R3	0423	F	RunNo: 3	0423				
Prep Date:	Analysis D	ate: 10	/30/2015	8	SeqNo: 9	28386	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit.	HighLimit _	%RPD	_RPDLimit_	Qual
2,4-Dinitrotoluene	4.8	0	5.000	0	95.6	49	134			
2-Chlorophenol	4.7	0	5.000	0	94.4	50	31			S
4-Chloro-3-methylphenol	4.8	0	5.000	0	95.4	42	139			
4-Nitrophenol	3.2	0	5.000	0	65.0	19	137			
Acenaphthene	5.2	0	5.000	0	105	36	122			
Bis(2-ethylhexyl)phthalate	5.9	0	5.000	0	118	43	142			
N-Nitrosodi-n-propylamine	4.7	0	5.000	0	94.4	46	140			

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level,
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits

Page 17 of 29

- P Sample pH Not In Range
- RL Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

WO#:

1510908

24-Nov-15

Client:

Navajo Refining Company

Project:

Quarterly WDW-1, 2, & 3 Inj Well

Sample ID LCS-R30423	SampT	ype: LC	S	Tes	TestCode: EPA 8270C: Semivolatiles/Mod					
Client ID: LCSW	Batch	ID: R3	0423	F	RunNo: 3	0423				
Prep Date:	Analysis D	ate: <b>1</b> (	0/30/2015	8	SeqNo: 9	28386	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	<b>RPDLimit</b>	Qual
Pentachlorophenol	4.8	0	5.000	0	95.4	22	138			
Phenol	4.5	0	5.000	0	90.8	45	134			
Pyrene	4.6	0	5.000	0	92,2	45	138			

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits

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- P Sample pH Not In Range
- RL Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

WO#:

1510908

24-Nov-15

Client:

Navajo Refining Company

Project:

Quarterly WDW-1, 2, & 3 Inj Well

Sample ID MB-21960

Prep Date: 10/21/2015

Sample ID LCS-21960

Prep Date: 10/21/2015

SampType: MBLK

TestCode: EPA Method 7470: Mercury

Client ID: PBW

Batch ID: 21960 Analysis Date: 10/21/2015 RunNo: 29703

SeqNo: 904542

Units: mg/L

**RPDLimit** 

Analyte

PQL

SPK value SPK Ref Val %REC LowLimit

HighLimit

Mercury

ND 0.00020

TestCode: EPA Method 7470: Mercury

Client ID:

LCSW

SampType: LCS Batch ID: 21960

Analysis Date: 10/21/2015

RunNo: 29703

%REC

SegNo: 904543

Units: mg/L

%RPD **RPDLimit** 

HighLimit

0.0049 0.00020 Mercury

80

120

0.005000 98.3

SPK value SPK Ref Val

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RPD outside accepted recovery limits R
- % Recovery outside of range due to dilution or matrix
- $\mathbf{B}$ Analyte detected in the associated Method Blank
- E Value above quantitation range
- Analyte detected below quantitation limits

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- Sample pH Not In Range
- Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

WO#:

1510908

24-Nov-15

Client:

Navajo Refining Company

Project:

Quarterly WDW-1, 2, & 3 Inj Well

Sample ID MB-22145

SampType: MBLK

TestCode: MERCURY, TCLP

%REC LowLimit

Client ID:

Batch ID: 22145

RunNo: 29977

Prep Date: 11/3/2015

Prep Date: 11/3/2015

SeqNo: 913123

Units: mg/L

Analyte

Analysis Date: 11/3/2015

**RPDLimit** 

Mercury

Result PQL ND 0.020

HighLimit

Qual

Sample ID LCS-22145

SampType: LCS

TestCode: MERCURY, TCLP

LCSW

Batch ID: 22145

RunNo: 29977 SeqNo: 913124

Units: mg/L

Analyte

Client ID:

Analysis Date: 11/3/2015

SPK value SPK Ref Val %REC HighLimit

%RPD **RPDLimit**  Qual

LowLimit

120

Mercury

ND

0.005000

101

%RPD

PQL 0.020

SPK value SPK Ref Val

#### Qualifiers:

- Value exceeds Maximum Contaminant Level,
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
  - E Value above quantitation range
    - Analyte detected below quantitation limits
  - Sample pH Not In Range
- Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#:

1510908

24-Nov-15

Client:

Navajo Refining Company

Project:

Quarterly WDW-1, 2, & 3 Inj Well

Sample ID MB-21978	SampT	SampType: MBLK			tCode: El	Metals				
Client ID: PBW	Batch ID: 21978			F	RunNo: 2	9736				
Prep Date: 10/22/2015	Analysis D	ate: 10	)/22/2015	8	SeqNo: 9	05688	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-21978	SampT	ype: LC	S	Tes	tCode: El	PA Method	6010B: TCL	P Metals		
Client ID: LCSW	Batch	ID: <b>21</b>	978	F	Run <b>N</b> o: <b>2</b> !	9736				
Prep Date: 10/22/2015	Analysis D	ate: 10	0/22/2015	8	SeqNo: 9	05689	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	107	80	120			
Barium	ND	100	0.5000	0	100	80	120			
Cadmium	ND	1.0	0.5000	0	102	80	120			
Chromium	ND	5.0	0.5000	0	100	80	120			
Lead	ND	5.0	0.5000	0	101	80	120			
Selenium	ND	1.0	0.5000	0	107	80	120			
Silver	ND	5.0	0.1000	0	101	80	120			

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits

Page 21 of 29

- P Sample pH Not In Range
- RL Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

WO#:

1510908

24-Nov-15

Client:

Navajo Refining Company

Project:

Quarterly WDW-1, 2, & 3 Inj Well

Sample ID MB-21972	Samp	Туре: МЕ	BLK	Tes	tCode: E	PA 6010B:	Total Metals			
Client ID: PBW	Bato	h ID: 21	972	, F	Run <b>N</b> o: 2	9736				
Prep Date: 10/21/2015	Analysis	Date: 10	0/22/2015	9	SeqNo: 9	05617	Units: mg/L			
	Result	PQL					_	% BBB	DDDI imit	Ougl
Analyte Aluminum	ND	0.020	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
	ND ND	0.050								
Antimony	ND ND	0.030								
Arsenic										
Barium	ND ND	0.020								
Beryllium Cadmium	ND ND	0.0030								
Calcium	ND	1.0								
	ND	0.0060								
Chromium .										
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID LCS-21972	Samp	Type: LC	s	Tes	tCode: El	PA 6010B:	Total Metals			
Client ID: LCSW	Bato	th ID: 21	972	F	RunNo: 2	9736				
Prep Date: 10/21/2015	Analysis	Date: 10	0/22/2015	8	SeqNo: 9	05618	Units: mg/L			
Analyte	Resul <b>t</b>	PQL	SPK value	SPK Rof Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.52	0.020	0.5000	0	103	80	120			
Antimony	0.52	0.050	0.5000	0	103	80	120			
Arsenic	0.51	0.020	0.5000	0	101	80	120			
Barium	0.49	0.020	0.5000	0	97.9	_80	120			
Beryllium	0.51	0.0030	0.5000	0	103	80	120			
Cadmium ·	0.50	0.0020	0.5000	0	99.2	80	120			
Calcium	49	1.0	50.00	0	97.9	80	120			
Chromium	0.49	0.0060	0.5000	0	97.6	80	120			
Cobalt	0.48	0.0060	0.5000	0	95.3	80	120			
Copper	0.51	0.0060	0.5000	0	102	80	120			
Iron	0.49	0.050	0.5000	0	97.9	80	120			

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits

Page 22 of 29

- P Sample pH Not In Range
- RL Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

WO#:

1510908

24-Nov-15

Client:

Navajo Refining Company

Project:

Sample ID 1510908-001BMS

Quarterly WDW-1, 2, & 3 Inj Well

SampType: MS

Sample ID LCS-21972	Samp	Type: LC	s	Tes	tCode: El	PA 6010B:	Total Metals		<u> </u>	
Client ID: LCSW	Bato	h ID: 21	972	F	RunNo: 2	9736				
Prep Date: 10/21/2015	Analysis (	Date: 10	/22/2015	S	SeqNo: 9	05618	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.49	0.0050	0.5000	0	97.9	. 80	120			
Magnesium	50	1.0	50.00	0	99.1	80	120			
Manganese	0.48	0.0020	0.5000	0	96.9	80	. 120			
Nickel	0.48	0.010	0.5000	0	95.8	80	120			
Potassium	47	1.0	50.00	0	94.3	80	120			
Selenium	0.49	0.050	0.5000	0	98.4	- 80	120			
Silver	0.099	0.0050	0.1000	0	99.2	80	120			
Sodium	49	1.0	50,00	0	98.4	80	120			
Thallium	0.51	0.050	0.5000	0	103	80	120			
Vanadium	0.51	0.050	0.5000	0	102	. 80	120			
Zinc	0.48	0.020	0.5000	0	95.3	80	120			

Client ID:	WDW-1,2,&3 Efflu	en Bato	ch ID: 21	972	RunNo: 29736						
Prep Date:	10/21/2015	Analysis	Date: 10	)/22/2015	8	SeqNo: 9	05634	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum		. 1.2	0.040	0.5000	0.5719	126	75	125			S
Antimony		0.60	0.10	0.5000	0	120	75	125			
Arsenic		0.63	0.040	0.5000	0	126	75	125			S
Barium		0.54	0.040	0.5000	0.01050	106	75	125			
Beryllium		0.55	0.0060	0.5000	0	110	75	125			
Cadmium		0.56	0.0040	0.5000	0	11 <b>1</b>	75	125			
Calcium		120	2.0	50.00	65.14	113	75	125			
Chromium		0.52	0.012	0.5000	0	105	75	125			
Cobalt		0.53	0.012	0.5000	0	106	75	125			
Copper		0.62	0.012	0.5000	0.01570	. 121	75	125			
Iron		0.99	0.10	0.5000	0.4468	110	75	125			
Lead		0.55	0.010	0.5000	0	110	75	125			
Magnesium.		74	2.0	50.00	19.57	110	75	125			
Manganese		0.62	0.0040	0.5000	0.08908	106	75	125			
Nickel		0.54	0.020	0.5000	0	108	75	125			
Potassium		85	2.0	50.00	27.55	115	75	125			
Selenium		0.86	0.10	0.5000	0.2670	118	75	125			
Silver		0.11	0.010	0.1000	0	112	75	125			
Thallium		0.58	0.10	0.5000	0	115	75	125			
Vanadium		0.57	0.10	0.5000	0.01404	110	75	125			
Zinc		0.59	0.040	0.5000	0.03952	110	75	125			

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Loyel.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank

TestCode: EPA 6010B: Total Metals

- E Value above quantitation range
- J Analyte detected below quantitation limits

Page 23 of 29

- P Sample pH Not In Range
- RL Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

WO#:

1510908

24-Nov-15

Client:

Navajo Refining Company

Project:

Quarterly WDW-1, 2, & 3 Inj Well

Sample ID 1510908-001BMSD SampType: MSD TestCode: EPA 6010B: Total Metals Client ID: WDW-1,2,&3 Effluen Batch ID: 21972 RunNo: 29736 Prep Date: 10/21/2015 Analysis Date: 10/22/2015 SeqNo: 905635 Units: mg/L Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Aluminum 1.1 0.040 0.5000 0.5719 115 75 125 4.76 20 Antimony 0.54 0.10 0.5000 0 108 75 125 10.5 20 0.59 0.040 0.5000 0 118 75 125 6.26 20 Arsenic 0.040 0.5000 0.01050 99.5 125 20 0.51 75 6.53 Barium 75 20 Beryllium 0.50 0.0060 0.5000 0 101 125 8.90 0.0040 0.5000 75 125 20 Cadmium 0.52 0 104 6.55 50.00 88.0 75 125 20 110 2.0 65.14 11.0 Calcium 98.8 75 125 5.80 20 Chromium 0.490.012 0.5000 0 20 Cobalt 0.50 0.012 0.5000 0 99.8 75 125 6.05 125 0.5000 75 7.19 20 Copper 0.58 0.012 0.01570 112 20 Iron 0.90 0.10 0.5000 0.446891.6 75 125 9.48 0.5000 102 75 20 Lead 0.51 0.010 0 125 7.39 99.3 20 69 2.0 50.00 19.57 75 125 7.30 Magnesium Manganese 0.58 0.0040 0.5000 0.08908 98.6 75 125 6,53 20 125 20 Nickel 0.51 0.020 0.5000 0 101 75 6.22 77 125 20 2.0 50.00 27.55 98.0 75 10.6 **Potassium** Selenium 0.80 0.10 0.5000 0.2670 108 75 125 6.07 20 20 Silver 0.10 0.010 0.1000 0 102 75 125 8.73 Thallium 0.54 0.10 0.5000 107 75 125 7.22 20 Ω Vanadium 0.53 0.10 0.5000 0.01404 103 75 125 6.69 20 Zinc 0.55 0.040 0.5000 0.03952 103 75 125 6.44 20

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

Page 24 of 29

# Hall Environmental Analysis Laboratory, Inc.

WO#:

1510908

24-Nov-15

Client:

Navajo Refining Company

Project:

Quarterly WDW-1, 2, & 3 Inj Well

Sample ID MB-R30423

SampType: MBLK

TestCode: CYANIDE, Reactive

%REC LowLimit

TestCode: CYANIDE, Reactive

Client ID: PBW

Batch ID: R30423

RunNo: 30423

Prep Date: Analyte

Analysis Date: 10/28/2015

SeqNo: 928390

Units: mg/L HighLimit

Qual

Cyanide, Reactive

Result PQL 1.00

%RPD

ND

**RPDLimit** 

Sample ID LCS-R30423

SampType: LCS

Client ID: LCSW Batch ID: R30423

RunNo: 30423

Units: mg/L

Prep Date: Analyte

Result

Analysis Date: 10/28/2015 SPK value SPK Ref Val PQL

SeqNo: 928391 %REC

**HighLimit** LowLimit

%RPD **RPDLimit**  Qual

Cyanide, Reactive

0.478

0,5000

SPK value SPK Ref Val

95.6

80

120

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Holding times for preparation or analysis exceeded н
- Not Detected at the Reporting Limit ND
- RPD outside accepted recovery limits R
- % Recovery outside of range due to dilution or matrix S
- Analyte detected in the associated Method Blank В
- E Value above quantitation range
- Analyte detected below quantitation limits

Page 25 of 29

- Sample pH Not In Range
- Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

WO#:

1510908

24-Nov-15

Client:

Navajo Refining Company

Project:

Quarterly WDW-1, 2, & 3 Inj Well

Sample ID MB-R30423

SampType: MBLK

TestCode: SULFIDE, Reactive

LowLimit

Client ID:

Batch ID: R30423

1.0

RunNo: 30423

%REC

Analysis Date: 10/23/2015

SeqNo: 928393

Units: mg/L

HìghLimit

**RPDLimit** Qual

Analyte Reactive Sulfide

Prep Date:

Result PQL ND

SampType: LCS

TestCode: SULFIDE, Reactive

Client ID: LCSW

Sample ID LCS-R30423

Batch ID: R30423

RunNo: 30423

Analysis Date: 10/23/2015 PQL

SeqNo: 928394

Units: mg/L

Analyte

Result

SPK value SPK Ref Val

%REC

**HighLimit** LowLimit

%RPD **RPDL**Imit Qual

0.2000

SPK value SPK Ref Val

Reactive Sulfide

Prep Date:

100

130

0.20

70

%RPD

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Holding times for preparation or analysis exceeded Н

Not Detected at the Reporting Limit ND

RPD outside accepted recovery limits R

% Recovery outside of range due to dilution or matrix

Analyte detected in the associated Method Blank В

Value above quantitation range

Analyte detected below quantitation limits

Page 26 of 29

Sample pH Not In Range

# Hall Environmental Analysis Laboratory, Inc.

WO#:

1510908

24-Nov-15

Client:

Navajo Refining Company

Project:

Quarterly WDW-1, 2, & 3 Inj Well

Sample ID mb-1

SampType: MBLK

TestCode: SM2320B: Alkalinity

Client ID:

PBW

Batch ID: R29677

RunNo: 29677

Prep Date:

Analysis Date: 10/20/2015

SeqNo: 904176

Units: mg/L CaCO3

Analyte

Result PQL. SPK value SPK Ref Val %REC LowLimit

HighLimit

Qual

Total Alkalinity (as CaCO3)

ND 20.00

%RPD

**RPDLimit** 

Sample ID Ics-1

Client ID: LCSW

SampType: LCS

Batch ID: R29677

Analysis Date: 10/20/2015

LowLimit

RunNo: 29677 SeqNo: 904177

TestCode: SM2320B: Aikalinity

Units: mg/L CaCO3

%RPD

Prep Date: Analyte

Result

SPK value SPK Ref Val PQL 80.00

96.3

90

HighLimit

Qual

%REC

**RPDLimit** 

Total Alkalinity (as CaCO3)

77.04

20.00

110

Qualifiers:

Value exceeds Maximum Contaminant Level.

 $\mathbf{D}$ Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

Not Detected at the Reporting Limit ND

RPD outside accepted recovery limits R

% Recovery outside of range due to dilution or matrix S

Analyte detected in the associated Method Blank В

Е Value above quantitation range

Analyte detected below quantitation limits

Page 27 of 29

Sample pH Not In Range

# Hall Environmental Analysis Laboratory, Inc.

WO#:

1510908

24-Nov-15

Client:

Navajo Refining Company

Project:

Quarterly WDW-1, 2, & 3 Inj Well

Sample ID 1510908-001ADUP

SampType: DUP

TestCode: Specific Gravity

Client ID:

WDW-1,2,&3 Effluen

Batch ID: R29675

RunNo: 29675

Prep Date:

Analysis Date: 10/20/2015

SeqNo: 903627

Units:

**RPDLimit** Qual

Specific Gravity

Result

PQL

SPK value SPK Ref Val %REC LowLimit

HighLimit

%RPD

Analyte

1.000

0

0.0900

20

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

 $\mathbf{H}$ Holding times for preparation or analysis exceeded

Not Detected at the Reporting Limit ND

RPD outside accepted recovery limits R

% Recovery outside of range due to dilution or matrix

В Analyte detected in the associated Method Blank

Е Value above quantitation range

Analyte detected below quantitation limits

Page 28 of 29

Sample pH Not In Range

# Hall Environmental Analysis Laboratory, Inc.

WO#:

1510908

24-Nov-15

Client:

Navajo Refining Company

Project:

Quarterly WDW-1, 2, & 3 Inj Well

Sample ID MB-21952

SampType: MBLK

TestCode: SM2540C MOD: Total Dissolved Solids

Client ID:

PBW

Batch ID: 21952

RunNo: 29751

%RPD

Prep Date: 10/21/2015

SeqNo: 906219

Units: mg/L HighLimit

**RPDLimit** 

Analyte

Analysis Date: 10/23/2015

%REC LowLimit

Qual

Total Dissolved Solids

Result PQL ND 20,0

Sample ID LCS-21952

Client ID: LCSW

Prep Date: 10/21/2015

SampType: LCS Batch ID: 21952

RunNo: 29751

TestCode: SM2540C MOD: Total Dissolved Solids

Units: mg/L

Analysis Date: 10/23/2015

SeqNo: 906220

Analyte

%REC

Total Dissolved Solids

LowLimit

HighLimit

Result 1030

120

Qual

1000

**RPDLimit** 

Page 29 of 29

SPK value SPK Ref Val

SPK value SPK Ref Val

PQL 20.0

103

%RPD

Qualifiers:

R

Value exceeds Maximum Contaminant Level.

D Sample Difuted Due to Matrix

Holding times for preparation or analysis exceeded Н

Not Detected at the Reporting Limit ND

RPD outside accepted recovery limits

% Recovery outside of range due to dilution or matrix

Analyte detected in the associated Method Blank В

Value above quantitation range

Analyte detected below quantitation limits

Sample pH Not In Range



#### Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109

TEL: 505-345-3975 FAX: 505-345-4107 Website: www.fiallenvironmental.com

# Sample Log-In Check List

Olient Name:	NAVAJO REFINING CO	Work Order Numbe	r. 1510908		ReptNo:	•
Received by/dai		10/20/15	and the species of the order of the species to the common of the Section .	nga mananangananananananananananandahadihadih	ilmuhihkuhungamaruuri I = ===+* + + + + + + + + + + + + + + + +	
Logged By:	Lindsay Mangin	10/20/2015 8:65:00 A	M	JulyHlagos		5
Completed By:	Lindsay Mangin	10/20/2015 9:15:21 A	M	Andy Allego		٠.
Reviewed By:	120	10/20/15				
Chain of Cus	tody 200	- i year		And the district of the second	a marananan a marani (aba) 196 mga ga yanin dalamin ngabunga mananga mananga mananga mananga mananga mananga m	g by and agreement and a second process and a second process of the second position of the
	als infact on sample boliles?	i,	Yes []	No D	Not Present	
	Custody complete?		Yes 🗹	No □.	Not Present	
	e sample delivered?		Courier			
Log In						
4. Was an atte	empt made to cool the sample	es?	Yes 🗹	No C	NA []	
5. Were all sar	mples received at a temperat	ure of >0° C to 6.0°C	Yes 🔽	No [	NA 🗀	
6. Sample(s) i	n proper container(s)?		Yes 🗹	No □		
7. Sufficient se	imple volume for Indicated to	st(s)?	Yes 🗹	No D		
	s (except VOA and ONG) pro		Yes V	No 🗀		
	valive added to bottles?		Yes 🗌	No 🗵	NA L	
10. VOA viais h	ave zero headspace?		Yes 🗹	No 🗆	No VOA Vials	
	ample containers received br	oken?	Yes [	No 🗹	# of preserved	the appearance to the state of
			g-mirgs.		bottles checked	. 1
	work match bottle labels? apancies on chain of custody)		Yes V	No L	for pH:	12 unless noted
9.	s correctly identified on Chair		Yes 🗹	No []	Adjusted?	70
	hat analyses were requested		Yes 🗹	No C		A: 63
16. Were all ho	iding times able to be met? customer for authorization.)		Yes 🗹	No 🗆	Checked by:	
la sid-trocks	i ven diene tiene lede dann him helmanistik					
Special Hand	dling (if applicable)		Alexander	-	- generale	
16, Was client i	notified of all discrepancies w	ith this order?	Yes []	No.L.	NA M	Resi
Perso	on Notified:	Date		CHARLES AND A STATE OF THE STAT		
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17. Additional	remarks:					
18. Cooler Inf	ormation					
	No Temp C Condition	Seal Intact   Seal No	Seal Date	Signed By		
[1]	2.4 Godd	Yes				

O	<u>La</u>	of CL	Chain-of-Custody Record	Drugak-mul	ime.			e la	HALL ENVIRONMENTAL		OX	II VIT		proces	
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Mailing Address; P.O. Box 159 Artesia.	dress; P.	O. Box 1		Cuerterly Wil	Cuanerly WDW-1, 2, 8,3 mj Well	Well	48	31 Hawkii	4901 Hawkins NE - Albuquerque, NM 87109	ndneton	a, NM 8710	Ø.			
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Phone # 575-748-3311	75-748-3	द्धाः		- A A A A A A A A A A A A A A A A A A A		The state of the s				Analysis Request	equest				
email or Fax#, 575-746-5451	X本, 575-	748-5451		Project Manager.	Ger.		-	<b>G</b> 0.	(,s i	****					
OA/OC Package.	kage.		The level 4 (Full Validation)	Micki Schult	/ Scott Dento	Micki Schultz / Scott Denton / Mike Holder	1 8500 140	TS8 bo		laikavassakinnesen	1311				
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				Sample Terr	Centifore 7		Нq d пq	) 8-V	148-		l SÞ	***********		haranometri aranimetri	
Date	Tine	Matrix	Sample Request ID	Container Type and #	Preservative	HEALNO 1510-103	Speoifie Gr SOA, TDS, Catlon/ank VOCs/SW-	(see attach (see attach	R,C,U40 C Metals/SW 7470 (see	Cs, K. Mg.	8-MS/19Z				i i
10/19/15	7.40	Liquid	WDW-1, 2, 8 3 Effluent	e)	Neat/H2SO4	100-	×		and the second	×	ALIANA MADE	· ·			i
10/19/15	7.40	Liquid	WDWL1, 2, 8.3 Effluent	-	HNO3	3		talatana	×	×					
10/19/15	7:40	Liquid	WDW-1, 2, 8.3 Effuert	g)	걒	8	×	AMPRICACION							- 1
10rigits	7:40	Liquid	WDW-1, 2, & 3 Effuent	ΈV	Neat	ē		×	*****		- Common				
10/19/15	1.80	Liquid	WDW-1, 2, & 3 Efficent	7 .	Neat	100-			×			incid		1	1
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10/19/15	7.40	Liquid	Temperature Blank	•	Neat	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -		THE REAL PROPERTY.						EART AND THE	1
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	Pingopola		And the second section of the second	abresed to other s	practited laboratorie	Thorstones as native services as native of this pressibility. Fary sub-contraded data will be deathy notated on the analytical report.	president. Any su	o-contracted d	ata will be dead	raptated sm	the associations are	out.			E



News to Herisains Consumy, Life 501 E. Main

# Injection Well Quarterly Sample

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HOLLYFRONTIER The Hayfronter Companies	Substitute of Prostet Property Substitute of Social Constitution of Substitution of Substitution (Substitution Officeally to sample jars	
Details Attachment	Trine Weighted Composite   D	
Artesia, NM, 88210 (Tel) 575,748,3311 (Finx) 575,746,5451	olect Name IMDM 1.2. & 9 Orty in Well less Name Elizabeth Salebery  OMTBation Navajo Refining Co. L.C  Batic Trice IMPRISE Self IMA  Batic Trice IMPRISE Self IMA  Batic Trice IMPRISE Self IMA  Batic Trice IMPRISE Self IMA	Sample Eccanon Waste water effuert; pumps to hyecton wells

þ	8, 108, Br/80,	attached	(\$6e		366	-	-1.S.F.	-		
or Method Register	peoring Shavity, MCO3, CO3, CJ, SO4, TD8 0H, cond., Fl, Caticorferion bal., Br, ETv40 CFR 136.3	VCCs/SW-846 Mathod 8260C (see attached	SVOCs/SW-446 Method 82700 (see attached iist 'SVOCs')	R.C. MO CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached 8st "Metals")	Ca, K, Mg, NEMO CFR 136.3	TOLP Metals, only 400 CFR Part 261/ SW-845 Method 1311			
pus swiaur.	Specific Gravity, MOO3, CO3, Cl. 804, TDS, 0H, cond. Ft, Calbridgian bal., Br. EV40 CFR 136.3	VCCs/SW-846 Me	SVOCS/SW-8	R.C.U4	Metals/SW-846	Car. K. Mg.	TCLP Metals, cm			
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Source Storage Methods		Retrigerated C			CHEMICAL CARGOLICAN CONTRACTOR		口意思
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Energy, Minerals & Natural Resources Department

## Form C-115 First Page Revised October 17, 1993 Instruction on Reverse Side

District II

P. O. Drawer DD, Artesia, NM 88211-0719

District III

1000 Rio Brazos, Aztec, NM 84710

## OIL CONSERVATION DIVISION

P. O. Box 6429 Santa Fe, NM 87505 OPERATOR'S MONTHLY REPORT Amended Report

2 Operator NAVAJO REFINING CO													4 Month/Yea	ar	1/2015
501 E MAIN PO BOX 159, ARTESIA, N.M.	88210												6 Page 1		
	INJE	CTION			PRODUC	TION				DISPOSITI	ON OF OIL	, GAS, AN	D WATER		
7 8 POOL NO. AND NAME C Property No. and Name O Well No. & U-L-S-T-R D API No. E	9	10 Pressure	11 C O D E 2	12 Barrels of Oil/conden- sate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Prod- uced	16 C O D E 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 C O D E 4	Oil o hand end e mon
D 78890 ILLINOIS CAMP; MORROW NORTH 023592 WDW #003	132,986 122,685	1,393	**												

I hereby certify that the informa	ntion contained in this report is true and	complete to the best of my	knowledge.		
			78	2/9/2015	
Signature	Printed Name & Title	Micki Schultz	Date	Phone Number	575-748-3311
		Environmental Specialist			

Energy, Minerals & Natural Resources Department

Form C-115 First Page Revised October 17, 1993 Instruction on Reverse Side

Amended Report

### District II

P. O. Drawer DD, Artesia, NM 88211-0719

District III

## OIL CONSERVATION DIVISION

P. O. Box 6429
Santa Fe, NM 87505
DERATOR'S MONTHLY REPOR

1000 Rio Brazos, Aztec, NM 84710					OP	ERATOR	S MONTE	ILY RI	EPO	RT						
2 Operator NAVAJO REFINING CO					,					3 OGRID:	15694			4 Month/Yea	ar	2/2015
501 E MAIN PO BOX 159, ARTESIA, N.M.	<b>VI.</b> 8	38210	_											6 Page 1		
		INJE	CTION			PRODUC	TION				DISPOSIT	ION OF OIL	., GAS, AN	D WATER		
7 POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.	8 C O D E 1	9 Volume	10 Pressure	11 C O D E	12 Barrels of Oil/conden- sate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Prod- uced	16 C O D E 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	Volume	21 Transporter Ogrid	22 C O D E 4	23 Oil on hand at end of month
30-015-20894 78890 ILLINOIS CAMP; MORROW NOR 023592 WDW #003	D <b>TH</b>	118,968 108,866 111,941		w												

I hereby certify that the informati	on contained in this report is true and	complete to the best of my	knowledge.		
				3/9/2015	
Signature	Printed Name & Title	Micki Schultz	Date	Phone Number	575-748-3311
		Environmental Specialis	t		

Energy, Minerals & Natural Resources Department

# Form C-115 First Page Revised October 17, 1993

District II

P. O. Drawer DD, Artesia, NM 88211-0719

District III

1000 Rio Brazos, Aztec, NM 84710

## OIL CONSERVATION DIVISION

P. O. Box 6429 Santa Fe, NM 87505 OPERATOR'S MONTHLY REPORT Instruction on Reverse Side

1 Amended Report

2 Operator NAVAJO REFINING CO									3 OGRID:	15694			4 Month/Yea	ar	3/2015
501 E MAIN PO BOX 159, ARTESIA, N.M.	1. 8821	10								_			6 Page 1		
		INJECTION			PRODUC	TION				DISPOSIT	ION OF OIL	, GAS, AN	D WATER		
POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.		9 10 Pressure	11 C O D E 2	12 Barrels of Oil/conden- sate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Prod- uced	16 C O D E 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter	22 C O D E 4	23 Oil on hand at end of month
30-015-20894 78890 ILLINOIS CAMP; MORROW NOR 023592 WDW #003			w												

24	rmation contained in this report is true and	complete to the best of my	knowledge.			
				4/7/2015		
Signature	Printed Name & Title	Micki Schultz	Date	Phone Number	575-748-3311	
		Environmental Specialis	t			

Energy, Minerals & Natural Resources Department

Form C-115 First Page Revised October 17, 1993

### District II

P. O. Drawer DD, Artesia, NM 88211-0719

District III

1000 Rio Brazos, Aztec, NM 84710

## OIL CONSERVATION DIVISION

P. O. Box 6429 Santa Fe, NM 87505 OPERATOR'S MONTHLY REPORT Instruction on Reverse Side

1 Amended Report

2 Operator NAVAJO REFINING CO									3 OGRID:	15694			4 Month/Yea	ar	4/2015
501 E MAIN PO BOX 159, ARTESIA, N.M.	88210												6 Page 1		
	INJE	CTION			PRODUC	TION				DISPOSIT	ION OF OIL	, GAS, AN	D WATER		
7 POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.	9 Volume	10 Pressure	11 C O D E 2	12 Barrels of Oil/conden- sate produced	13 Barrels of water produced	14 MCF Gas Produced	15	16 C O D E 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	Volume	21 Transporter Ogrid	22 C O D E 4	23 Oil on hand at end of month
30-015-20894 <u>78890 ILLINOIS CAMP; MORROW NORTH</u> 023592 WDW #003	124,144 115,053 1 1 129,740	1,365	w												

I hereby certify that the inform 24	nation contained in this report is true and	complete to the best of my	knowledge.			
				5/7/2015		
Signature	Printed Name & Title	Micki Schultz	Date	Phone Number	575-748-3311	
		Environmental Specialis	st			

Energy, Minerals & Natural Resources Department

# Form C-115 First Page Revised October 17, 1993

P. O. Drawer DD, Artesia, NM 88211-0719

District III

1000 Rio Brazos, Aztec, NM 84710

## OIL CONSERVATION DIVISION

P. O. Box 6429 Santa Fe, NM 87505 OPERATOR'S MONTHLY REPORT Instruction on Reverse Side

Amended Report

2 Operator NAVAJO REFINING CO									3 OGRID:	15694			4 Month/Yea	ır	5/2015
501 E MAIN PO BOX 159, ARTESIA, N.M.	88210												6 Page 1		
	INJE	CTION			PRODUC	TION				DISPOSIT	ION OF OIL	, GAS, AN	D WATER		
7 POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.  96918 NAVAJO PERMO-PENN 023592 WDW 30-015-27592	9 Volume	10 Pressure	11 C O D E 2	12 Barrels of Oil/conden- sate produced	13	14 MCF Gas	Prod-	16 C O D E 3	17 Point of Disposition	18 Gas BTU	19 Oil on hand at beginning of month	20 Volume	21 Transporter	22 C O D E 4	23 Oil on hand at end of month
30-015-20894  78890 ILLINOIS CAMP;MORROW NORTH 023592 WDW #003 30-015-26575			× ×												

24						
			W-1000	6/5/2015		
Signature	Printed Name & Title	Micki Schultz	Date	Phone Number	575-748-3311	
		<b>Environmental Specialist</b>				

I hereby certify that the information contained in this report is true and complete to the best of my knowledge.

Energy, Minerals & Natural Resources Department

# Form C-115 First Page

P. O. Drawer DD, Artesia, NM 88211-0719

District III

1000 Rio Brazos, Aztec, NM 84710

## OIL CONSERVATION DIVISION

P. O. Box 6429 Santa Fe, NM 87505 OPERATOR'S MONTHLY REPORT

Rev	ised October 17, 1993
Instru	ction on Reverse Side
1	Amended Report

2 Operator NAVAJO REFINING CO									3 OGRID:	15694			4 Month/Yea	ar	6/2015
501 E MAIN PO BOX 159, ARTESIA, N.M	. 88210												6 Page 1		
	INJE	CTION			PRODUC	TION				DISPOSIT	ION OF OIL	, GAS, AN	D WATER		
POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.	S S S S S S S S S S S S S S S S S S S	10	11 C O D E 2	12 Barrels of Oil/conden- sate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Prod- uced	16 C O D E 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 C O D E 4	23 Oil on hand at end of month
30-015-20894 78890 ILLINOIS CAMP; MORROW NORT 023592 WDW #003	H 133,424 124,945 H 132,203	1,399	**												

I hereby certify that the informa	ation contained in this report is true and	complete to the best of my k	nowledge.			
			776	7/5/2015		
Signature	Printed Name & Title	Micki Schultz	Date	Phone Number	575-748-3311	
		Environmental Specialist				

Energy, Minerals & Natural Resources Department

## Form C-115 First Page Revised October 17, 1993 Instruction on Reverse Side

District II

P. O. Drawer DD, Artesia, NM 88211-0719

District III

1000 Rio Brazos, Aztec, NM 84710

## OIL CONSERVATION DIVISION

P. O. Box 6429 Santa Fe, NM 87505 OPERATOR'S MONTHLY REPORT Struction on Reverse Side
Amended Report

2 Operator NAVAJO REFINING CO										3 OGRID:	15694			4 Month/Yea	ar	7/2015
501 E MAIN PO BOX 159, ARTESIA, N.I	м.	88210												6 Page 1		
		INJE	CTION			PRODUC	TION				DISPOSIT	ION OF OIL	, GAS, AN	D WATER		
7 POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.	8 C O D E 1		10 Pressure	11 C O D E	Barrels of Oil/conden- sate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Prod- uced	16 C O D E 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	Volume	21 Transporter Ogrid	22 C O D E 4	23 Oil on hand at end of month
96918 NAVAJO PERMO-PENN 023592 WDW 30-015-27592 30-015-20894  78890 ILLINOIS CAMP:MORROW NOR 023592 WDW #003 30-015-26575	TH	135,690 158,617	1,391													

I hereby certify that the inforn 24	nation contained in this report is true and	complete to the best of my	knowledge.			
			- w	8/12/2015		
Signature	Printed Name & Title	Micki Schultz	Date	Phone Number	575-748-3311	
		Environmental Specialis	st			

Energy, Minerals & Natural Resources Department

# Form C-115 First Page Revised October 17, 1993

District II

P. O. Drawer DD, Artesia, NM 88211-0719

District III

1000 Rio Brazos, Aztec, NM 84710

## OIL CONSERVATION DIVISION

P. O. Box 6429 Santa Fe, NM 87505 OPERATOR'S MONTHLY REPORT Instruction on Reverse Side Amended Report

2 Operator NAVAJO REFINING CO										3 OGRID:	15694			4 Month/Yea	ar	8/2015
501 E MAIN PO BOX 159, ARTESIA, N.M.	и. 8	88210												6 Page 1		
		INJE	CTION			PRODUC	TION				DISPOSIT	ION OF OIL	, GAS, AN	D WATER		
7 POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.	8 C O D E 1	9 Volume	10 Pressure	11 C O D E 2	12 Barrels of Oil/conden- sate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Prod- uced	16 C O D E 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 C O D E 4	23 Oil on hand at end of month
30-015-20894 78890 ILLINOIS CAMP; MORROW NOR 023592 WDW #003	D <b>TH</b>	133,695 214,764 126,544	1,389 1,392 1,381	\$\$ \$												

I hereby certify that the information contained in this report is true and complete to the best of my knowledge. 24												
				9/14/2015								
Signature	Printed Name & Title	Micki Schultz	Date	Phone Number	575-748-3311							
		Environmental Specialis	st									

Energy, Minerals & Natural Resources Department

# Form C-115 First Page

District II

P. O. Drawer DD, Artesia, NM 88211-0719

District III

1000 Rio Brazos, Aztec, NM 84710

## OIL CONSERVATION DIVISION

P. O. Box 6429 Santa Fe, NM 87505 OPERATOR'S MONTHLY REPORT

Revi	sed October 17, 1993
nstruc	tion on Reverse Side
1	Amended Report

2 Operator NAVAJO REFINING CO									3 OGRID:	15694			4 Month/Yea	ar	9/2015
501 E MAIN PO BOX 159, ARTESIA, N.M	. 88210												6 Page 1		
	INJE	CTION			PRODUC	TION				DISPOSIT	ION OF OIL	, GAS, AN	D WATER		
Property No. and Name Well No. & U-L-S-T-R API No.	9 Volume	10	11 C O D E 2	12 Barrels of Oil/conden- sate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Prod- uced	16 C O D E 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	Volume	21 Transporter Ogrid	22 C O D E 4	23 Oil on hand at end of month
30-015-20894 78890 ILLINOIS CAMP:MORROW NORT 023592 WDW #003		1,369	<b>* * *</b>												

24	rmation contained in this report is true and	complete to the best of my	knowledge.			
				10/12/2015		
Signature	Printed Name & Title	Micki Schultz	Date	Phone Number	575-748-3311	
		Environmental Specialis	st			

Energy, Minerals & Natural Resources Department

# Form C-115 First Page

District II

P. O. Drawer DD, Artesia, NM 88211-0719

District III

1000 Rio Brazos, Aztec, NM 84710

## OIL CONSERVATION DIVISION

P. O. Box 6429 Santa Fe, NM 87505 OPERATOR'S MONTHLY REPORT

Revised October 17, 1993									
Instru	ction on Reverse Side								
1	Amended Report								

2 Operator NAVAJO REFINING CO										3 OGRID:	15694			4 Month/Yea	ar	10/2015
501 E MAIN PO BOX 159, ARTESIA, N.I	M. 8	88210												6 Page 1		
		INJE	CTION			PRODUC	TION				DISPOSIT	ION OF OIL	, GAS, AN	D WATER		
7 POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.	8 C O D E 1	9 Volume	10 Pressure	11 C O D E 2	12 Barrels of Oil/conden- sate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Prod- uced	16 C O D E 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)		22 C O D E 4	23 Oil on hand at end of month
96918 NAVAJO PERMO-PENN 023592 WDW 30-015-27592 30-015-20894  78890 ILLINOIS CAMP; MORROW NOR 023592 WDW #003 30-015-26575	D <b>TH</b>	131,332 107,845	1,378	<b>*</b>												

I hereby certify that the inform 24	ation contained in this report is true and	complete to the best of my	knowledge.			
			- w	11/6/2015		
Signature	Printed Name & Title	Micki Schultz	Date	Phone Number	575-748-3311	
		Environmental Specialis	st			

Energy, Minerals & Natural Resources Department

# Form C-115 First Page Revised October 17, 1993

District II

P. O. Drawer DD, Artesia, NM 88211-0719

District III

1000 Rio Brazos, Aztec, NM 84710

### OIL CONSERVATION DIVISION

P. O. Box 6429 Santa Fe, NM 87505 OPERATOR'S MONTHLY REPORT Instruction on Reverse Side

1 Amended Report

4 Month/Year 11/2015 2 Operator NAVAJO REFINING CO 3 OGRID: 15694 501 E MAIN PO BOX 159, ARTESIA, N.M. 88210 6 Page 1 INJECTION **PRODUCTION** DISPOSITION OF OIL, GAS, AND WATER 12 19 23 С POOL NO. AND NAME C Barrels of 13 14 15 17 18 Oil on hand 20 21 Oil on 0 0 Transporter O 9 10 Oil/conden-Barrels of MCF Days Point of **Gas BTU** Volume Property No. and Name at hand at D D or Oil API Ogrid Well No. & U-L-S-T-R water Prod-Disposition beginning (Bbls/mcf) end of sate Gas Volume Pressure E Ε E API No. produced produced Produced uced Gravity of month month 2 96918 NAVAJO PERMO-PENN 023592 WDW D 124,530 1,376 30-015-27592 W 30-015-20894 94,793 1,376 W 78890 ILLINOIS CAMP; MORROW NORTH 023592 WDW #003 30-015-26575 D 147,493 1,369 W

I hereby certify that the inform 24	mation contained in this report is true and	complete to the best of my	knowledge.	12/7/2015		
Signature	Printed Name & Title	Micki Schultz	Date	Phone Number	575-748-3311	
		Environmental Specialis	st			

### District I

P. O. Box 1980, Hobbs, NM 88241-1980

District II

P. O. Drawer DD, Artesia, NM 88211-0719 <u>District III</u>

1000 Rio Brazos, Aztec, NM 84710

### State of New Mexico

Energy, Minerals & Natural Resources Department

## OIL CONSERVATION DIVISION

P. O. Box 6429 Santa Fe, NM 87505

OPERATOR'S MONTHLY REPORT

Form C-115 First Page Revised October 17, 1993 Instruction on Reverse Side 1 Amended Report

2 Operator NAVAJO REFINING CO									3 OGRID:	15694			4 Month/Yea	ar	11/2015
501 E MAIN PO BOX 159, ARTESIA, N.M.	88210									-			6 Page 1		
	INJE	CTION			PRODUC	TION				DISPOSIT	ION OF OIL	, GAS, AN	D WATER		
7 8 POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No. E	9 Volume	10	11 C O D E	12 Barrels of Oil/conden- sate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Prod- uced	16 C O D E 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	Volume		22 C O D E 4	23 Oil on hand at end of month
30-015-20894 D 78890 ILLINOIS CAMP; MORROW NORTH 023592 WDW #003		1,326	\$\$												

I hereby certify that the informat 24	tion contained in this report is true and	complete to the best of my	knowledge.		
				12/7/2015	
Signature	Printed Name & Title	Micki Schultz	Date	Phone Number	575-748-3311
		<b>Environmental Specialis</b>	st		

B.2 Treated Wastewater to Artesia POTW

Cooling Tower Blowdown to City	Y-11 GPM	Y-1 GPM	Total GPM	WWT to POTW GPM
2/1/14	56	41	97	2.6
2/2/14	56	41	96	0.0
2/3/14	57	41	98	0.0
2/4/14	50	42	92	0.0
2/5/14	63	42	104	2.1
2/6/14	45	42	87	0.0
2/7/14	47	43	89	2.6
2/8/14	53	43	96	0.0
2/9/14	52	41	94	0.0
2/10/14	57	44	101	0.0
2/11/14	47	45	92	0.0
2/12/14	50	44	94	0.0
2/13/14	51	44	95	0.0
2/14/14	47	44	91	0.0
2/15/14	55	43	98	2.7
2/16/14	55	43	98	3.8
2/17/14	56	39	96	3.8
2/18/14	66	35	101	3.7
2/19/14	63	35	98	4.0
2/20/14	64	34	98	1.5
2/21/14	74	33	107	1.4
2/22/14	70	34	104	0.0
2/23/14	67	37	104	2.2
2/24/14	75	43	118	2.8
2/25/14	95	46	141	3.2
2/26/14	95	45	140	1.4
2/27/14	71	46	117	4.3
2/28/14	67	46	113	3.7
3/1/14	61	45	106	5.6
3/2/14	95	45	140	5.0
3/3/14	95	43	138	5.6
3/4/14	71	42	113	5.9
3/5/14	95	42	137	2.8
3/6/14	71	42	112	0.7

Cooling Tower	Y-11 GPM	Y-1 GPM	Total GPM	WWT to POTW GPM
Blowdown to City 3/7/14	66 66	42	108	4.4
3/8/14	95	45	140	0.6
3/9/14	93	45 45	138	4.9
3/10/14	93 66	45 45	110	4.9 4.5
3/11/14	64	45 45	109	4.3 6
3/11/14	95	43	139	4.1
3/13/14	93 60	44	104	1.2
3/14/14	54	45	99	3
3/15/14	66	39	106	0
3/16/14	85	37	122	3.7
3/17/14	46	44	90	0
3/18/14	52	43	95	2.6
3/19/14	83	44	127	0
3/20/14	46	44	90	3.3
3/21/14	43	43	86	5.4
3/22/14	58	43	101	1.5
3/23/14	92	43	135	0
3/24/14	48	44	92	0
3/25/14	64	43	107	0
3/26/14	35	42	77	5.4
3/27/14	13	42	54	7.2
3/28/14	37	42	79	6.6
3/29/14	46	43	89	9.5
3/30/14	33	42	75	7.5
3/31/14	33	39	71	4.5
4/1/14	38	38	75	0.6
4/2/14	28	37	64	0
4/3/14	25	36	62	7.3
4/4/14	53	36	89	9.3
4/5/14	37	14	51	8.2
4/6/14	46	12	58	3.6
4/7/14	56	38	94	0
4/8/14	42	38	80	0
4/9/14	35	37	72	0
4/10/14	16	33	49	0

Cooling Tower Blowdown to City	Y-11 GPM	Y-1 GPM	Total GPM	WWT to POTW GPM
4/11/14	33	32	64	0
4/12/14	24	31	55	0
4/13/14	5	32	37	0
4/14/14	95	31	126	0
4/15/14	42	31	73	0
4/16/14	32	31	63	0
4/17/14	44	30	74	0
4/18/14	28	30	58	0
4/19/14	17	30	47	0
4/20/14	24	30	54	3.8
4/21/14	17	28	45	8.7
4/22/14	0	28	28	9.6
4/23/14	0	24	24	7.8
4/24/14	0	24	24	0
4/25/14	2	23	25	0
4/26/14	0	13	13	0
4/27/14	16	31	46	2
4/28/14	50	46	95	4.6
4/29/14	80	47	128	1.2
4/30/14	79	47	127	3.9
5/1/14	59	48	106	0
5/2/14	45	48	92	6.6
5/3/14	28	48	76	2.8
5/4/14	18	48	66	0
5/5/14	0	23	24	3.3
5/6/14	4	33	37	0
5/7/14	7	32	39	3.8
5/8/14	48	43	91	5.1
5/9/14	45	46	91	0
5/10/14	40	46	86	0
5/11/14	13	46	59	0
5/12/14	53	49	102	0
5/13/14	85	47	132	8.8
5/14/14	55	47	102	4.5
5/15/14	37	47	84	4.7

Cooling Tower Blowdown to City	Y-11 GPM	Y-1 GPM	Total GPM	WWT to POTW GPM
5/16/14	25	48	73	0
5/17/14	26	48	74	0
5/18/14	14	48	62	5.4
5/19/14	11	48	59	0.6
5/20/14	16	48	64	0
5/21/14	19	48	67	0
5/22/14	33	48	81	3.4
5/23/14	58	47	106	13.4
5/24/14	66	48	114	9.7
5/25/14	47	48	95	6.1
5/26/14	51	45	97	0
5/27/14	38	43	81	0
5/28/14	23	44	67	0
5/29/14	26	43	69	0
5/30/14	20	43	63	2.2
5/31/14	29	44	73	3.1
6/1/14	14	43	57	6.6
6/2/14	28	45	73	0
6/3/14	20	47	67	7.9
6/4/14	28	47	75	8.9
6/5/14	30	47	77	9.9
6/6/14	34	47	81	5.5
6/7/14	48	47	95	0
6/8/14	80	48	128	0
6/9/14	87	48	135	0
6/10/14	60	47	107	0
6/11/14	45	48	93	7.1
6/12/14	49	47	96	7.7
6/13/14	37	48	85	6.8
6/14/14	17	48	64	10.1
6/15/14	24	46	70	10.6
6/16/14	38	44	82	11.5
6/17/14	49	44	93	11.4
6/18/14	58	49	107	2
6/19/14	69	55	124	0

Cooling Tower Blowdown to City	Y-11 GPM	Y-1 GPM	Total GPM	WWT to POTW GPM
6/20/14	48	46	95	10.7
6/21/14	52	46	98	10.4
6/22/14	40	46	86	4.1
6/23/14	67	46	113	5.5
6/24/14	72	50	122	0
6/25/14	60	46	106	0
6/26/14	41	46	87	0
6/27/14	22	45	67	0
6/28/14	28	43	71	0
6/29/14	30	41	71	0
6/30/14	52	42	95	0
7/1/14	95	46	141	0
7/2/14	95	44	139	0
7/3/14	87	42	129	0
7/4/14	70	41	111	0
7/5/14	59	39	98	0
7/6/14	92	40	132	0
7/7/14	62	39	101	0
7/8/14	43	36	79	0
7/9/14	0	31	31	0
7/10/14	0	31	31	0
7/11/14	0	31	31	0
7/12/14	0	31	31	0
7/13/14	1	29	29	0
7/14/14	14	28	42	0
7/15/14	34	28	62	0
7/16/14	25	26	51	0
7/17/14	9	24	33	0
7/18/14	17	26	43	0
7/19/14	4	27	31	0
7/20/14	29	23	52 74	0
7/21/14	48 05	26	74 124	0
7/22/14	95 05	29	124	0
7/23/14	95 04	30	125	0
7/24/14	94	30	124	0

Cooling Tower Blowdown to City	Y-11 GPM	Y-1 GPM	Total GPM	WWT to POTW GPM
7/25/14	87	29	116	0
7/26/14	82	27	110	0
7/27/14	95	20	115	0
7/28/14	89	22	111	0
7/29/14	91	24	115	0
7/30/14	91	23	114	0
7/31/14	95	23	118	0
8/1/14	95	23	118	0
8/2/14	92	20	112	0
8/3/14	71	18	89	0
8/4/14	48	18	66	0
8/5/14	49	18	67	0
8/6/14	46	19	65	0
8/7/14	64	22	86	0
8/8/14	79	23	102	0
8/9/14	79	22	101	0
8/10/14	72	22	94	0
8/11/14	80	20	100	0
8/12/14	63	19	82	0
8/13/14	42	18	60	0
8/14/14	52	18	70	0
8/15/14	59	17	76	0
8/16/14	62	17	79	0
8/17/14	55	15	70	0
8/18/14	45	9	54	0
8/19/14	36	8	44	0
8/20/14	39	9	48	0
8/21/14	62	24	86	0
8/22/14	88	41	129	0
8/23/14	53	45	98	0
8/24/14	42	49	91	0
8/25/14	66	49	115	0
8/26/14	74	49	123	0
8/27/14	78	49	127	0
8/28/14	55	49	104	0

Cooling Tower Blowdown to City	Y-11 GPM	Y-1 GPM	Total GPM	WWT to POTW GPM
8/29/14	62	49	111	0
8/30/14	43	49	92	0
8/31/14	37	49	86	0
9/1/14	27	49	76	0
9/2/14	33	49	82	0
9/3/14	22	49	71	0
9/4/14	33	49	82	0
9/5/14	76	49	125	0
9/6/14	95	49	144	0
9/7/14	88	49	137	0
9/8/14	40	49	89	0
9/9/14	24	49	73	0
9/10/14	27	49	76	0
9/11/14	47	49	96	0
9/12/14	88	48	136	0
9/13/14	94	48	142	0
9/14/14	79	48	127	0
9/15/14	43	49	92	0
9/16/14	34	49	83	0
9/17/14	34	49	83	0
9/18/14	35	49	84	0
9/19/14	55	49	104	0
9/20/14	38	49	86	0
9/21/14	56	49	104	0
9/22/14	64	48	112	0
9/23/14	33	48	82	0
9/24/14	37	48	85	0
9/25/14	41	48	89	0
9/26/14	33	48	81	0
9/27/14	26	48	74	0
9/28/14	18	48	66 63	0
9/29/14	13	48	62 67	0
9/30/14	19	48	67 84	0
10/1/14	36	48	84	0
10/2/14	36	48	85	0

Cooling Tower Blowdown to City	Y-11 GPM	Y-1 GPM	Total GPM	WWT to POTW GPM
10/3/14	52	48	100	0
10/4/14	37	48	85	0
10/5/14	41	48	89	0
10/6/14	43	47	90	0
10/7/14	37	47	84	0
10/8/14	37	47	84	1.3
10/9/14	9	47	56	1.3
10/10/14	77	51	128	2.5
10/11/14	54	48	102	3
10/12/14	13	48	61	2.8
10/13/14	39	49	88	3
10/14/14	42	49	91	2.6
10/15/14	41	49	90	2.7
10/16/14	36	49	85	2.8
10/17/14	31	49	80	2.8
10/18/14	44	46	90	1.6
10/19/14	35	49	84	0
10/20/14	29	49	78	0
10/21/14	22	49	71	1.6
10/22/14	0	49	49	0.1
10/23/14	11	49	60	0
10/24/14	26	49	75	0
10/25/14	18	49	67	0
10/26/14	18	49	67	2.8
10/27/14	6	49	55	2.7
10/28/14	68	49	117	0
10/29/14	47	49	96	0
10/30/14	49	49	98	0.8
10/31/14	51	49	100	2.8
11/1/14	41	48	89	1.7
11/2/14	23	49	72	1.7
11/3/14	34	47	81	2.8
11/4/14	93	45	138	3
11/5/14	87	45	132	1
11/6/14	70	42	112	0.2

Cooling Tower Blowdown to City	Y-11 GPM	Y-1 GPM	Total GPM	WWT to POTW GPM
11/7/14	49	40	89	2.8
11/8/14	47	44	91	1
11/9/14	34	42	76	0.8
11/10/14	11	42	53	2.3
11/11/14	88	45	133	0
11/12/14	95	48	143	2.9
11/13/14	94	39	133	2.6
11/14/14	69	44	113	2.9
11/15/14	45	42	87	3
11/16/14	87	49	136	2.6
11/17/14	77	52	129	2.9
11/18/14	71	45	116	2.8
11/19/14	64	41	105	2.8
11/20/14	46	52	98	3
11/21/14	31	44	75	2.8
11/22/14	29	43	72	2.8
11/23/14	27	45	72	3
11/24/14	27	47	74	0.5
11/25/14	33	45	78	2
11/26/14	26	43	69	0.8
11/27/14	22	47	69	1.1
11/28/14	23	49	72	0.3
11/29/14	18	43	61	0.9
11/30/14	18	44	62	2.8
12/1/14	0	45	45	2.8
12/2/14	11	46	57	0.4
12/3/14	24	45	69	0.0
12/4/14	95	43	138	0.0
12/5/14	86	47	133	0.0
12/6/14	33	40	73	0.0
12/7/14	0	45	45	2.0
12/8/14	0	47	47	2.8
12/9/14	0	44	44	2.7
12/10/14	0	44	44	1.9
12/11/14	0	43	43	0.8

<b>Cooling Tower</b>	Y-11	Y-1	Total	ww	/T to POTW	
Blowdown to City	GPM	GPM	GPM		GPM	
12/12/14	0	40	40		1.7	
12/13/14	0	43	43		3.0	
12/14/14	0	39	39		1.2	
12/15/14	0	44	44		2.3	
12/16/14	0	44	44		2.7	
12/17/14	0	40	40		0.9	
12/18/14	0	44	44		1.9	
12/19/14	0	44	44		0.0	
12/20/14	0	39	39		0.0	
12/21/14	0	40	40		2.2	
12/22/14	0	49	49		1.9	
12/23/14	0	43	43		2.0	
12/24/14	0	37	37		3.7	
12/25/14	0	45	45		2.6	
12/26/14	0	50	50		1.6	
12/27/14	0	42	42		2.0	
12/28/14	0	37	37		1.0	
12/29/14	0	43	43		8.0	
12/30/14	0	44	44		2.7	
12/31/14	0	80	80		2.6	
1/1/15	0	76	76	109440	2.8	4032
1/2/15	0	22	22	31680	2.6	3744
1/3/15	0	39	39	56160	2.8	4032
1/4/15	0	41	41	59040	0.8	1152
1/5/15	0	47	47	67680	1.8	2592
1/6/15	0	46	46	66240	1.5	2160
1/7/15	0	44	44	63360	1.1	1584
1/8/15	0	42	42	60480	1.4	2016
1/9/15	0	43	43	61920	0.5	720
1/10/15	0	51	51	73440	2.8	4032
1/11/15	2	49	51	73440	1.5	2160
1/12/15	0	19	19	27360	1.1	1584
1/13/15	0	26	26	37440	0.5	720
1/14/15	0	28	28	40320	2.7	3888
1/15/15	0	24	24	34560	2.9	4176

Cooling Tower	Y-11	Y-1	Total GPM	W	WT to POTW	
Blowdown to City	GPM	GPM		00400	GPM	0.450
1/16/15	0	23	23	33120	2.4	3456
1/17/15	0	23	23	33120	2.7	3888
1/18/15	0	25	25	36000	2.7	3888
1/19/15	1	24	25	36000	2.8	4032
1/20/15	0	25	25	36000	2.8	4032
1/21/15	0	24	24	34560	2.8	4032
1/22/15	0	0	0	0	2.8	4032
1/23/15	0	0	0	0	1.2	1728
1/24/15	0	0	0	0	2.7	3888
1/25/15	0	0	0	0	2.8	4032
1/26/15	1	0	1	1440	2.8	4032
1/27/15	10	0	10	14400	2.5	3600
1/28/15	11	0	11	15840	2.8	4032
1/29/15	0	0	0	0	2.5	3600
1/30/15	0	0	0	0	3.0	4320
1/31/15	0	0	0	0	2.8	4032
2/1/15	0	0	0	0	2.6	3744
2/2/15	3	0	3	4320	2.5	3600
2/3/15	24	0	24	34560	2.8	4032
2/4/15	24	0	24	34560	2.8	4032
2/5/15	10	0	10	14400	0.6	864
2/6/15	36	0	36	51840	2.9	4176
2/7/15	51	0	51	73440	2.5	3600
2/8/15	52	0	52	74880	1.0	1440
2/9/15	37	15	52	74880	1.4	2016
2/10/15	38	14	52	74880	0.7	1008
2/11/15	1	15	16	23040	1.9	2736
2/12/15	4	18	22	31680	0.6	864
2/13/15	29	13	42	60480	0.0	0
2/14/15	41	13	54	77760	0.0	0
2/15/15	45	12	57	82080	0.0	0
2/16/15	0	11	11	15840	0.0	0
2/17/15	5	11	16	23040	1.7	2448
2/18/15	36	12	48	69120	2.8	4032
2/19/15	43	11	55	78494.92048	3.0	4320

Cooling Tower	Y-11	Y-1	Total	wv	WWT to POTW	
Blowdown to City	GPM	GPM	GPM		GPM	
2/20/15	44	11	55	79338.89381	2.2	3168
2/21/15	95	11	106	153020.8772	1.7	2448
2/22/15	81	12	92	132990.6247	2.8	4032
2/23/15	67	13	80	115200	2.6	3744
2/24/15	70	23	93	133920	2.7	3888
2/25/15	78	12	90	129600	2.7	3888
2/26/15	59	12	71	102240	2.8	4032
2/27/15	45	12	56	81281.82414	3.0	4320
2/28/15	47	11	58	83604.79921	2.8	4032
3/1/15	50	11	61	88224.14654	2.8	4032
3/2/15	49	11	60	86400	3.0	4320
3/3/15	49	11	60	86400	1.5	2160
3/4/15	57	13	70	100800	2.1	3024
3/5/15	58	27	85	122400	2.8	4032
3/6/15	47	36	83	119520	2.8	4032
3/7/15	41	33	74	106560	2.7	3888
3/8/15	38	31	69	99360	3.0	4320
3/9/15	35	30	65	93600	3.0	4320
3/10/15	50	34	84	120960	0.5	720
3/11/15	59	36	95	136800	0.4	576
3/12/15	58	36	94	135360	2.9	4176
3/13/15	60	33	93	133920	1.3	1872
3/14/15	60	30	90	129600	2.5	3600
3/15/15	61	29	90	129600	3.0	4320
3/16/15	61	27	88	126720	3.0	4320
3/17/15	62	27	89	128160	0.4	576
3/18/15	70	4	74	106560	0.4	576
3/19/15	61	31	92	132480	0.0	0
3/20/15	64	31	95	136800	0.9	1296
3/21/15	62	40	102	146880	0.6	864
3/22/15	62	40	102	146880	2.5	3600
3/23/15	61	41	102	146880	2.9	4176
3/24/15	60	41	101	145440	2.5	3600
3/25/15	57	41	98	141120	0.1	144
3/26/15	56	41	97	139680	1.4	2016