GW – 028

Annual DP Report (Part 9 of 16)

2015

	HALL ENVIRONMENTAL	ANALYSIS LABORATORY		- Albuqu	lel. 505-345-3975 Fax 505-345-4107	Analysis Kequest	{8}		9 9 9 9 9 9 9 9	-52	ae JK9 JK9	35.4: Total (170: Mercur 170: Mercur 015: GRO, I adicactivity (11ate Chlorid adicactivity (11ate Chlorid 11ate	88 87 87 87 87 87 87 87 87 87 87 87 87 8							<							Metalis: As, Ai, Bo, B, Cc, Cr, Oo, Cu, Fe, Pb, Mr, Hg, Mo, Ni, Se, Ag, U, Zn VOCs: 1,1,1 Trichloroethane: 1,1,2,2-Teteschloroettane: 11,2,2,7-Marchinomitrione: 11,2	Trichforoethane; 1.1.2-Trichforoethyfene 1,1-Löckforoethane; 1.5-Dichforoethane; 1.2-Dichforoethane; 1.2-Dichforoethane; Benzene; Carbon Teteochlonde; Chloroform; Dichforomethere; Ethylbenzene; Tolvene; Jotal Xylenes; Vryl/Chloride; Chloroform; SVOGs benzoteiporetere; Dinterluitzethiolenes; 2 constituents.	
			4		lei.				OAS	3 1 5	c II	2106: MGC 5100: MGC 5608-MGC	:8	×							×					Remarks:	letals: As, Ai, B; OCs: 1, 1, 1 Tric	Trichloroethane, Dibrornocthane, Dichloromethere, SVOCs benzo(a	
											C	HEAL No.	100	3											200-	Time	6160	BILL	
t i	ush		Raiort	6		-			Salsberry	ON C	100 4															Date	cel patter	ŧ.	Nar This same
Around Time:	d 🗆 Rush		ncorarv R (0. # 16779		acer:		şq	Elizabeth Salsberry	X Yes	Derature	Preservative Type	1-unpres H2SCM	Ę	HN03	HND3	NaOH	HNO3	Na2S2O3	unpres	unpres	HCI	unpres	H2SO4	HCL				the second second
I um-Aroun	X Standard	Project Name	- Monthly Ter	Project #: P.O. # 167796	- <u></u> -	Project Menader		Robert Combs	Sampler.	On lce:	Sample Temperature	Container Type and #	2 - 500ml P	3-40ml VOA	1-500ml P	1-125ml P	1-500ml P	2-1L P	3-40ml VOA	2 - 1L Glass	1 - 1L Glass	3-40ml VOA	IGlas:	1 - 1L Glass	¥	Received by:	Redun S	Received by.	ritacted to other and
Uniain-or-Custody Record			Mailing Address. P.O. Box 159 Artesia,			451		Level 4 (Full Validation)				Sample Request ID	Temporary R.O. Reject	Temporary R.O. Reject	Temporary R.O. Reject	Temporary R.O. Reject	Temporary R.O. Reject	Temporary R.O. Reject	Temporary R.O. Reject	Temporary R.O. Reject	Temporary R.O. Reject	Temporary R.O. Reject	Temporary R.O. Reject	Temporary R.O. Reject	Trip Blank	Keinquished by:Elizorodo Oxisound Received by:	Cezaret dullar	>	it recostany, samples submitted to Itali Envirormental may be subcontracted to other approximation termetrical
riain-or-u	n venuery		ss: P.O. Bo	60	748-3311	email or Fax#: 575-746-5451				South States and the second		Matrix	liquid	biupi	liquid	liquid	liquid	liguid	liquid	liquid	iquid	liquid	liquid	liquid	liquid	xeinquished	20522	Keinquisned	samples submit
L'Nevel			ng Addre:	NM 88211-0159	Phone #: 575-748-3311	Or Fax#:	QAQC Package;	X Standard	her	U EDD (Type)		Tme	6550	660	0350	8315 0920	635 030	080	630		8 B	- 1	8.3150930		7803		10.50		Messavau u
	ē		Maili	NM 8	Phon	email	QAQ	X Sta	Other	UED		Date	8315	834S	8:345 0920	580	569	8-315	8315	8-3-15 0930	N W W	23	8.315	83.6		040			

HOLLYFRONTIER The HolyFronter Companies	Physical Froperty Solid [] Liquid U Slucge [] Type of Sampler Directly to sample jars				PH. CI F, SUM, NU2INO3 TDS	8015 GRO	6020 total metals, 7470 Hc	6020 Dissolved Metals	Cyanide Bodine Openan	Radium ZZ6VZZ6 8260 see attached list	8270 see attached list	8082 PCB5	8015 DRQ	Radium 226/228	Storage Method		Shipping Media Ice 2 Other 0
Monthly RO Reject Sample Details HOLL Attachment	Sample Type Grab [2] Time Weighted Composite [1] Frow Weighted Composite [1] Parts / Sample Intervals One	2 South Fred K.O. Reject Discarge	Preservatives	MSHIN KOSSEN HOEN POSSH	X			X							80.6 17. Humady Sext. Mind Dr. MY, Mind Speed 4.6 upb. Conditions Clear		
Arvaje Rofining Gagrapy, Liff 304 E. Main Artesia, MM 88210 (161 575 746 5451 (Fax) 575 746 5451		U North Field R.O. Rejoci Distange	T	Containers (None) HCI HNO3	×	×			3	×	-	2 ×	-		Placeto Tup 806 F. Manday 50		
	Project Name Biannusi RO Reject Samplers Name Elexabeth Selsperty Samplers Affilation Navajo Refining Co. LLC Start Date and Time 8222015 @ 0925 End Date and Time 8222015 @ 0.41	Outfail / Sample Location-			3 500m Plastic	200ml		5 500ml Plastic	16	40ml		40ml	11 40ml VOA		Dete and Time:	Field Terror 261%	

HALL ENVIRONMENTAL ANALYSIS LABORATORY

August 26, 2015

Robert Combs Navajo Refining Company P.O. Box 159 Artesia, NM 88211-0159 TEL: (575) 748-3311 FAX Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: <u>www.hallenvironmental.com</u>

RE: Monthly R.O. Reject

OrderNo.: 1508065

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 8/4/2015 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 <u>www.hallenvironmental.com</u> or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

andy

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

CLIENT:	Navai	o Refining Company			C	lient Sample	• ID• R	O Reject	
	-	ly R.O. Reject				-		3/2015 10:10:00 AM	
		-							
Lab ID:	15080	65-001	Matrix:	AQUEOUS		Received I	Date: 8 /4	/2015 9:13:00 AM	
Analyses			Result	RL Q	ual	Units	DF	Date Analyzed	Batch
EPA 200.8	: DIS	SOLVED METALS						Analyst	DBD
Arsenic			ND	0.0050		mg/L	5	8/12/2015 8:24:51 PM	D28151
Lead			ND	0.00050		mg/L	1	8/11/2015 9:43:20 PM	R2811
Selenium			0.0067	0.0010		mg/L	1	8/11/2015 9:43:20 PM	R2811
Uranium			0.0047	0.00050		mg/L	1	8/11/2015 9:43:20 PM	R28115
EPA 903.1	: RA 2	26 AND EPA 904.0: RA	228-SUBBE	D				Analyst	SUB
Radium-2	26		0.144	0.867		pCi/L	1	8/18/2015	R28452
Radium-2	26 ±		0.448	0.867		pCi/L	1	8/18/2015	R28452
Radium-2	28		0.151	0.690		pCi/L	1	8/18/2015	R28452
Radium-2	28 ±		0.313	0.690		pCi/L	1	8/18/2015	R28452
EPA METH	HOD 3	00.0: ANIONS						Analyst	LGT
Fluoride			2.4	0.10		mg/L	1	8/4/2015 7:37:13 PM	R27968
Chloride			230	10		mg/L	20	8/4/2015 7:49:37 PM	R27968
Nitrogen,	Nitrate	(As N)	1.6	0.10		mg/L	1	8/4/2015 7:37:13 PM	R27968
Sulfate			1400	25		mg/L	50	8/14/2015 3:09:51 AM	R28192
SM2540C	MOD:	TOTAL DISSOLVED S	OLIDS					Analyst	KS
Total Diss	olved S	Solids	2860	20.0	*	mg/L	1	8/6/2015 8:33:00 PM	20626
EPA 335.4	: тот	AL CYANIDE SUBBED						Analyst	SUB
Cyanide			ND	0.0100		mg/L	1	8/12/2015	R28452
SM4500-H	+B: P	H						Analyst	JRR
pН			8.09	1.68	н	pH units	1	8/6/2015 8:11:30 PM	R28029
	HOD 2	00.7: DISSOLVED MET	ALS					Analyst	ELS
Aluminum	I		ND	0.020		mg/L	1	8/5/2015 9:52:54 PM	R27986
Barium			0.056	0.0020		mg/L	1	8/5/2015 9:52:54 PM	R27986
Boron			0.083	0.040		mg/L	1	8/5/2015 9:52:54 PM	R27986
Cadmium			ND	0.0020		mg/L	1	8/5/2015 9:52:54 PM	R27986
Chromium	۱		ND	0.0060		mg/L	1	8/5/2015 9:52:54 PM	R27986
Cobalt			ND	0.0060		mg/L	1	8/5/2015 9:52:54 PM	R27986
Copper			ND	0.0060		mg/L	1	8/6/2015 3:44:28 PM	C28013
Iron			ND	0.020		mg/L	1	8/7/2015 2:07:43 PM	R28044
Manganes			ND	0.0020		mg/L	1	8/5/2015 9:52:54 PM	R27986
Molybden	um		ND	0.0080		mg/L	1	8/5/2015 9:52:54 PM	R27986
Nickel			ND	0.010		mg/L	1	8/5/2015 9:52:54 PM	R27986
Silver			ND	0.0050		mg/L	1	8/5/2015 9:52:54 PM	R27986
			0.051	0.010		mg/L	1	8/6/2015 3:44:28 PM	C28013
	HOD 2	45.1: MERCURY						Analyst	
Mercury			ND	0.00020		mg/L	1	8/7/2015 2:04:07 PM	20665
Refe	er to th	ne QC Summary report a	nd sample log	gin checklist f	for fl	agged QC da	ita and p	reservation information	ı.
Qualifiers:	*	Value exceeds Maximum C	ontaminant Leve	1.		B Analyte de	etected in t	he associated Method Blank	
	D	Sample Diluted Due to Mat	rix			E Value abo	ve quantit	ation range	
	н	Holding times for preparation	•	reeded		J Analyte de	tected bel	ow quantitation limits Page	1 of 26
	ND	Not Detected at the Reporting	ng Limit			P Sample pH	I Not In R	ange	

PSample pH Not In RangeRLReporting Detection Limit

Analytical Report

S % Recovery outside of range due to dilution or matrix

RPD outside accepted recovery limits

R

.

Hall Environmental Analysis	Labora	atory, Ir	ıc.			Lab Order 1508065 Date Reported: 8/26/20	15
CLIENT: Navajo Refining CompanyProject: Monthly R.O. RejectLab ID: 1508065-001	Matrix:	AQUEOU			Date: 8/3	O. Reject 3/2015 10:10:00 AM 4/2015 9:13:00 AM	-
Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGI						Analys	t: DJF
Gasoline Range Organics (GRO) Surr: BFB	0.072 103	0.050 70-130		mg/L %REC	_ 1 _ 1	8/5/2015 8:34:25 PM 8/5/2015 8:34:25 PM	R2799 R2799
EPA METHOD 8011/504.1: EDB						Analys	: JME
1,2-Dibromoethane	ND	0.010		µg/L	1	8/7/2015 12:22:21 PM	20627
EPA METHOD 8082: PCB'S						Analys	t: SCC
Aroclor 1016	ND	1.0		µg/L	1	8/10/2015 12:08:32 PM	
Aroclor 1221	ND	1.0		μg/L	1	8/10/2015 12:08:32 PM	
Aroclor 1232	ND	1.0		μg/L	1	8/10/2015 12:08:32 PM	20661
Aroclor 1242	ND	1.0		μg/L	1	8/10/2015 12:08:32 PM	1 20661
Aroclor 1248	ND	1.0		μg/L	1	8/10/2015 12:08:32 PM	1 20661
Aroclor 1254	ND	1.0		µg/L	1	8/10/2015 12:08:32 PM	20661
Aroclor 1260	ND	1.0		µg/L	1	8/10/2015 12:08:32 PM	20661
Surr: Decachlorobiphenyl	90.0	44.5-110		%REC	1	8/10/2015 12:08:32 PM	20661
Surr: Tetrachloro-m-xylene	108	31.8-95.7	s	%REC	1	8/10/2015 12:08:32 PM	20661
EPA METHOD 8015M/D: DIESEL RANGE						Analys	: KJH
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	8/5/2015 11:43:27 PM	20617
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	8/5/2015 11:43:27 PM	20617
Surr: DNOP	102	72-136		%REC	1	8/5/2015 11:43:27 PM	20617
EPA METHOD 8310: PAHS						Analys	t: SCC
Naphthalene	ND	2.0		µg/L	1	8/10/2015 10:49:51 AN	20677
1-Methylnaphthalene	ND	2.0		μg/L	1	8/10/2015 10:49:51 AN	
2-Methylnaphthalene	ND	2.0		μg/L	1	8/10/2015 10:49:51 AN	20677
Benzo(a)pyrene	ND	0.070		μg/L	1	8/10/2015 10:49:51 AM	1 20677
Surr: Benzo(e)pyrene	75.6	37.2-136		%REC	1	8/10/2015 10:49:51 AN	1 20677
EPA METHOD 8260B: VOLATILES						Analysi	t: DJF
Benzene	ND	1.0		µg/L	1	8/5/2015 8:34:25 PM	R2799
Toluene	ND	1.0		μg/L	1	8/5/2015 8:34:25 PM	R2799
Ethylbenzene	ND	1.0		μg/L	1	8/5/2015 8:34:25 PM	R2799
1,2-Dichloroethane (EDC)	ND	1.0		μg/L	1	8/5/2015 8:34:25 PM	R2799
1,2-Dibromoethane (EDB)	ND	1.0		μg/L	1	8/5/2015 8:34:25 PM	R2799
Carbon Tetrachloride	ND	1.0		μg/L	1	8/5/2015 8:34:25 PM	R2799
Chloroform	ND	1.0		µg/L	.1	8/5/2015 8:34:25 PM	R2799
1,1-Dichloroethane	ND	1.0		µg/L	1	8/5/2015 8:34:25 PM	R2799
1,1-Dichloroethene	ND	1.0		μg/L	1	8/5/2015 8:34:25 PM	R2799
Methylene Chloride	ND	3.0		μg/L	1	8/5/2015 8:34:25 PM	R2799
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/5/2015 8:34:25 PM	R2799
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/5/2015 8:34:25 PM	R2799

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 2 of 26

Analytical Report

P Sample pH Not In Range

RL Reporting Detection Limit

Hall Environmental Analysi	s Labora	tory, Inc.			Lab Order 1508065 Date Reported: 8/26/20	015
CLIENT: Navajo Refining Company			Client Sampl	e ID: R.	O. Reject	
Project: Monthly R.O. Reject			Collection 1	Date: 8/3	3/2015 10:10:00 AM	
Lab ID: 1508065-001	Matrix:	AQUEOUS	Received	Date: 8/4	4/2015 9:13:00 AM	
Analyses	Result	RL Qua	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	t: DJF
1,1,1-Trichloroethane	ND	1.0	μg/L	1	8/5/2015 8:34:25 PM	R27991
1,1,2-Trichloroethane	ND	1.0	μg/L	1	8/5/2015 8:34:25 PM	R27991
Trichloroethene (TCE)	ND	1.0	μg/L	1	8/5/2015 8:34:25 PM	R27991
Vinyl chloride	ND	1.0	μg/L	1	8/5/2015 8:34:25 PM	R27991
Xylenes, Total	ND	1.5	μg/L	1	8/5/2015 8:34:25 PM	R27991
Surr: 1,2-Dichloroethane-d4	96.6	70-130	%REC	1	8/5/2015 8:34:25 PM	R27991
Surr: 4-Bromofluorobenzene	112	70-130	%REC	1	8/5/2015 8:34:25 PM	R27991
Surr: Dibromofluoromethane	107	70-130	%REC	1	8/5/2015 8:34:25 PM	R27991
Surr: Toluene-d8	104	70-130	%REC	1	8/5/2015 8:34:25 PM	R27991
TOTAL PHENOLICS BY SW-846 9067					Analys	t: SCC
Phenolics, Total Recoverable	ND	2.5	µg/L	1	8/6/2015	20629

Ous	lifiers:	
- Vua		

*

- 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
- Ε Value above quantitation range
- Analyte detected below quantitation limits Page 3 of 26 J

Analytical Report

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

Hall Environmental Analys	is Labora	tory, Inc.			Lab Order 1508065 Date Reported: 8/26/20	15
CLIENT: Navajo Refining Company Project: Monthly R.O. Reject		(Client Samp Collection		p Blank	
Lab ID: 1508065-002	Matrix:	TRIP BLANK	Received	Date: 8/4	/2015 9:13:00 AM	
Analyses	Result	RL Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RAN	IGE				Analys	t: DJF
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	8/5/2015 9:02:06 PM	R2799
Surr: BFB	97.5	70-130	%REC	1	8/5/2015 9:02:06 PM	R2799
EPA METHOD 8011/504.1; EDB				-	Analys	.JME
1.2-Dibromoethane	ND	0.010	µg/L	1	8/7/2015 1:04:28 PM	20627
	ND	0.010	р9/L	•		
EPA METHOD 8260B: VOLATILES					Analys	C DJF
Benzene	ND	1.0	µg/L	1	8/5/2015 9:02:06 PM	R27991
Toluene	ND	1.0	µg/L	. 1	8/5/2015 9:02:06 PM	R27991
Ethylbenzene	ND	1.0	µg/L	1	8/5/2015 9:02:06 PM	R27991
Methyl tert-butyl ether (MTBE)	ND	1.0	µg/L	1	8/5/2015 9:02:06 PM	R27991
1,2,4-Trimethylbenzene	ND	1.0	µg/L	1	8/5/2015 9:02:06 PM	R2799
1,3,5-Trimethylbenzene	ND	1.0	µg/L	1	8/5/2015 9:02:06 PM	R2799
1,2-Dichloroethane (EDC)	ND	1.0	µg/L	1	8/5/2015 9:02:06 PM	R2799
1,2-Dibromoethane (EDB)	ND	1.0	µg/L	. 1	8/5/2015 9:02:06 PM	R2799
Naphthalene	ND	2.0	µg/L	· 1	8/5/2015 9:02:06 PM	R2799
1-Methylnaphthalene	ND	4.0	µg/L	1	8/5/2015 9:02:06 PM	R2799
2-Methylnaphthalene	ND	4.0	µg/L	1	8/5/2015 9:02:06 PM	R2799
Acetone	ND	10	µg/L	1	8/5/2015 9:02:06 PM	R2799
Bromobenzene	ND	1.0	µg/L	- 1	8/5/2015 9:02:06 PM	R2799
Bromodichloromethane	ND	1.0	µg/L	1	8/5/2015 9:02:06 PM	R2799
Bromoform	ND	1.0	µg/L	1	8/5/2015 9:02:06 PM	R2799
Bromomethane	ND	3.0	µg/L	1	8/5/2015 9:02:06 PM	R2799
2-Butanone	ND	10	µg/L	1	8/5/2015 9:02:06 PM	R2799
Carbon disulfide	ND	10	µg/L	1	8/5/2015 9:02:06 PM	R2799
Carbon Tetrachloride	ND	1.0	µg/L	1	8/5/2015 9:02:06 PM	R2799
Chlorobenzene	ND	1.0	µg/L	1	8/5/2015 9:02:06 PM	R2799
Chloroethane	ND	2.0	µg/L	1	8/5/2015 9:02:06 PM	R2799
Chloroform	ND	1.0	µg/L	1	8/5/2015 9:02:06 PM	R2799
Chloromethane	ND	3.0	µg/L	1	8/5/2015 9:02:06 PM	R2799
2-Chlorotoluene	ND	1.0	µg/L	1	8/5/2015 9:02:06 PM	R2799
4-Chlorotoluene	ND	1.0	µg/L	1	8/5/2015 9:02:06 PM	R2799
cis-1,2-DCE	ND	1.0	µg/L	1	8/5/2015 9:02:06 PM	R2799
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R2799
1,2-Dibromo-3-chloropropane	ND	2.0	μg/L	1	8/5/2015 9:02:06 PM	R2799
Dibromochloromethane	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R2799
Dibromomethane	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R2799
1,2-Dichlorobenzene	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R2799
1,3-Dichlorobenzene	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R2799
1,4-Dichlorobenzene	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R2799

Value exceeds Maximum Contaminant Level. **Qualifiers**: *

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

- Analyte detected in the associated Method Blank В
- Е Value above quantitation range
- Analyte detected below quantitation limits Page 4 of 26 J
- Р Sample pH Not In Range
- RL Reporting Detection Limit

Analytical Report

Hall Environmental Analys	is Laborat	ory, Inc.		Analytical Report Lab Order 1508065 Date Reported: 8/26/2015
CLIENT: Navajo Refining Company Project: Monthly R.O. Reject Lab ID: 1508065-002	Matrix: 7		Collection	ple ID: Trip Blank n Date: d Date: 8/4/2015 9:13:00 AM
Analyses	Result	RL Qual	Units	DF Date Analyzed Batch
EPA METHOD 8260B: VOLATILES				Analyst: DJF
Dichlorodifluoromethane	ND	1.0	µg/L	1 8/5/2015 9:02:06 PM R2799
1,1-Dichloroethane	ND	1.0	⊢s⊢ µg/L	1 8/5/2015 9:02:06 PM R2799
1,1-Dichloroethene	ND	1.0	⊢s/– µg/L	1 8/5/2015 9:02:06 PM R2799
1,2-Dichloropropane	ND	1.0	⊧s/− µg/L	1 8/5/2015 9:02:06 PM R2799
1,3-Dichloropropane	ND	1.0	⊢9/L	1 8/5/2015 9:02:06 PM R2799
2,2-Dichloropropane	ND	2.0	µg/L	1 8/5/2015 9:02:06 PM R2799
1,1-Dichloropropene	ND	1.0	μg/L	1 8/5/2015 9:02:06 PM R2799
Hexachlorobutadiene	ND	1.0	μg/L	1 8/5/2015 9:02:06 PM R2799
2-Hexanone	ND	10	µg/L	1 8/5/2015 9:02:06 PM R2799
Isopropylbenzene	ND	1.0	μg/L	1 8/5/2015 9:02:06 PM R2799
4-Isopropyltoluene	ND	1.0	μg/L	1 8/5/2015 9:02:06 PM R2799
4-Methyl-2-pentanone	ND	10	μg/L	1 8/5/2015 9:02:06 PM R2799
Methylene Chloride	ND	3.0	μg/L	1 8/5/2015 9:02:06 PM R2799
n-Butylbenzene	ND	3.0	μg/L	1 8/5/2015 9:02:06 PM R2799
n-Propylbenzene	ND	1.0	μg/L	1 8/5/2015 9:02:06 PM R2799
sec-Butylbenzene	ND	1.0	μg/L	1 8/5/2015 9:02:06 PM R2799
Styrene	ND	1.0	μg/L	1 8/5/2015 9:02:06 PM R2799
tert-Butylbenzene	ND	1.0	μg/L	1 8/5/2015 9:02:06 PM R2799
1,1,1,2-Tetrachloroethane	ND	1.0	μg/L	1 8/5/2015 9:02:06 PM R2799
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1 8/5/2015 9:02:06 PM R2799
Tetrachloroethene (PCE)	ND	1.0	μg/L	1 8/5/2015 9:02:06 PM R2799
trans-1,2-DCE	ND	1.0	μg/L	1 8/5/2015 9:02:06 PM R2799
trans-1,3-Dichloropropene	ND	1.0	μg/L	1 8/5/2015 9:02:06 PM R2799
1,2,3-Trichlorobenzene	ND	1.0	μg/L	1 8/5/2015 9:02:06 PM R2799
1,2,4-Trichlorobenzene	ND	1.0	μg/L	1 8/5/2015 9:02:06 PM R2799
1,1,1-Trichloroethane	ND	1.0	μg/L	1 8/5/2015 9:02:06 PM R2799
1,1,2-Trichloroethane	ND	1.0	μg/L	1 8/5/2015 9:02:06 PM R2799
Trichloroethene (TCE)	ND	1.0	μg/L	1 8/5/2015 9:02:06 PM R2799
Trichlorofluoromethane	ND	1.0	μg/L	1 8/5/2015 9:02:06 PM R2799
1,2,3-Trichloropropane	ND	2.0	μg/L	1 8/5/2015 9:02:06 PM R2799
Vinyl chloride	ND	1.0	μg/L	1 8/5/2015 9:02:06 PM R2799
Xylenes, Total	ND	1.5	μg/L	1 8/5/2015 9:02:06 PM R2799
Surr: 1,2-Dichloroethane-d4	104	70-130	%REC	1 8/5/2015 9:02:06 PM R2799
Surr: 4-Bromofluorobenzene	106	70-130	%REC	1 8/5/2015 9:02:06 PM R2799
Surr: Dibromofluoromethane	109	70-130	%REC	1 8/5/2015 9:02:06 PM R2799
Surr: Toluene-d8	102	70-130	%REC	1 8/5/2015 9:02:06 PM R2799

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Ε	Value above quantitation range
	н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 5 of 26
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix		

Client: Project:		Navajo Refining C Monthly R.O. Reje									
Sample ID	МВ	Samp	оТуре: МЕ	3LK	Tes	stCode: E	PA Method	200.7: Dissol	ved Meta	ls	
Client ID:	PBW	Bate	ch ID: R2	7986	I	RunNo: 2	7986				
Prep Date:		Analysis	Date: 8/	5/2015	:	SeqNo: 8	42241	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum		ND	0.020		of fit field		LOWENIN		/01.01 2		
Barium		ND	0.0020								
Boron		ND	0.040								
Cadmium		ND	0.0020								
Chromium		ND	0.0060								
Cobalt		ND	0.0060								
Manganese		ND	0.0020								
Molybdenum		ND	0.0080								
Nickel		ND	0.010								
Silver		ND	0.0050								
Sample ID	LCS	Samr	Type: LC		Tos	tCodo: E	PA Mothod	200.7: Dissol	vod Mota		
1 .		-	ch ID: R2			RunNo: 2		200.7. 015501	veu meta	12	
Prep Date:	LCOW		Date: 8/					linitor mad			
		·				SeqNo: 8	42242	Units: mg/L			
Analyte		Result	PQL		SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum		0.52	0.020	0.5000	0	104	85	115			
Barium		0.49	0.0020	0.5000	0	98.4	85	115			
Boron		0.51	0.040	0.5000	0	102	85	115			
Cadmium		0.49	0.0020	0.5000	0	98.2	85	115			
Chromium		0.49	0.0060	0.5000	0	98.1	85	115			
Cobalt		0.47	0.0060	0.5000	0	93.6	85	115			
Mangariese		0.48	0.0020	0.5000	0	95.6	85	115			
Molybdenum		0.51	0.0080	0.5000	0	102	85	115			
Nickel		0.47	0.010	0.5000	0	94.3	85	115			
Silver		0.10	0.0050	0.1000	0	99.7	85	115			
Sample ID	LLLCS	Samp	Type: LC	SLL	Tes	tCode: E	PA Method	200.7: Dissol	ved Meta	s	
Client ID:	BatchC	C Bate	ch ID: R2	7986	F	RunNo: 2	7986				
Prep Date:		Analysis	Date: 8/	5/2015	5	SeqNo: 8	42243	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum		ND	0.020	0.01000	0	115	50	150			
Barium		ND	0.0020	0.002000	0	85.0	50	150			
Boron		ND	0.040	0.04000	0	97.3	50	150			
Cadmium		ND	0.0020	0.002000	0	95.5	50	150			
Chromium		0.0062	0.0060	0.006000	0	104	50	150			
Cobalt		ND	0.0060	0.006000	0	99.3	50	150			
Manganese		0.0026	0.0020	0.002000	0	131	50	150			

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
- R RPD outside accepted recovery limits
- % Recovery outside of range due to dilution or matrix S
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
 - Р Sample pH Not In Range Reporting Detection Limit

RL

Page 6 of 26

WO#: 1508065

Client:

Navajo Refining Company

1508065 26-Aug-15

Project:	Μ	Ionthly R.O. R	eject									
Sample ID	LLLCS	Sar	прТуре	: LC	SLL	Tes	tCode: El	PA Method	200.7: Dissol	ved Meta	İs	
Client ID:	BatchQC	В	atch ID	: R2	7986	F	RunNo: 2	7986				
Prep Date:		Analys					SeqNo: 84		Units: mg/L			
-		-							-	4/ DDD		
Analyte lickel		Resu		QL .010	0.005000	SPK Ref Val	%REC 93.4	LowLimit 50	HighLimit 150	%RPD	RPDLimit	Qual
Silver		N		050	0.005000	0	93.4 93.8	50 50	150			
						· · · · · ·						
Sample ID	MB	Sar	прТуре	: M8	ILK	Tes	tCode: Ef	PA Method	200.7: Dissol	ved Meta	ls	
Client ID:	PBW	В	atch ID	: R2]	7986	F	RunNo: 2	7986				
Prep Date:		Analys	is Date	: 8/	5/2015	S	SeqNo: 84	42244	Units: mg/L			
Analyte		Resu	t P	QL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum		NI) 0.	.020								
Barium		NI		020								
loron		N		.040								
Cadmium		N		020								
hromium		N		060								
obalt		NI		060								
langanese		N		020								
lolybdenum		N) ()	080								
•												
•		N		.010								
lickel			0.									
lickel Silver	LCS	NI	0.	.010	<u></u> s	Tes	tCode: El	PA Method	200.7: Dissol	ved Meta	ls	
lickel iilver Sample ID		NI NI Sar	0 0. 0 0.0	.010 050 e: LC			tCode: EF		200.7: Dissol	ved Meta	ls	
lickel ilver Sample ID Client ID:	LCSW	NI NI Sar	D 0.0 D 0.0 npType atch ID	.010 1050 e: LC : R2	7986	F		7986	200.7: Dissol Units: mg/L	ved Meta	ls	
ickel ilver Sample ID Client ID: Prep Date:	LCSW	NI NI Sar B	D 0.0 D 0.0 mpType atch ID is Date	.010 1050 e: LC : R2	7986 5/2015	F	RunNo: 2	7986		ved Metal %RPD	l s RPDLimit	Qual
lickel Sample ID Client ID: Prep Date: Analyte	LCSW	NI Sar B Analys	0 0. 0 0.0 npType atch ID is Date It P	.010 1050 : LC : R2 : 8/	7986 5/2015	F	RunNo: 2 SeqNo: 84	7986 42245	Units: mg/L			Qual
lickel Silver Sample ID Client ID: Prep Date: Analyte Juminum	LCSW	NI Sar B Analys Resu	0 0. 0 0.0 npType atch ID is Date It P 2 0.	.010 0050 :: LC :: R2 : 8/ ?QL	7986 5/2015 SPK value	F S SPK Ref Val	RunNo: 23 SeqNo: 84 %REC	7986 42245 LowLimit	Units: mg/L HighLimit			Qual
lickel Sample ID Client ID: Prep Date: Analyte Juminum Barium	LCSW	NI NI Sar B Analys Resu 0.5	0 0. 0 0.0 npType atch ID is Date t P 2 0. 0 0.0	.010 0050 : LC : R2 : 8/ 2QL .020	7986 5/2015 SPK value 0.5000	F S SPK Ref Val 0	RunNo: 23 SeqNo: 84 %REC 103	7986 42245 LowLimit 85	Units: mg/L HighLimit 115			Qual
lickel Sample ID Client ID: Prep Date: Analyte Numinum Barium Boron	LCSW	NI Ni Sar B Analys Resu 0.5 0.5	0 0. 0 0.0 npType atch ID is Date it P 2 0. 0.0 1 0.0	.010 1050 2: LC 2: R2 2: 8/ 2: 8/ 2: 020 1020	7986 5/2015 SPK value 0.5000 0.5000	F S SPK Ref Val 0 0	RunNo: 23 SeqNo: 84 %REC 103 99.0	7986 42245 LowLimit 85 85	Units: mg/L HighLimit 115 115			Qual
lickel Silver Sample ID Client ID: Prep Date: Analyte Juminum Barium Boron Cadmium	LCSW	NI Sar B Analys Resu 0.5 0.5 0.5	0 0. 0 0.0 npType atch ID is Date it P 2 0. 0 0.0 1 0. 0 0.0	.010 0050 :: LC: : R2 : 8/ : 8/ : 020 0020 .040	7986 5/2015 SPK value 0.5000 0.5000 0.5000	F S SPK Ref Val 0 0 0 0	RunNo: 23 SeqNo: 84 <u>%REC</u> 103 99.0 103	7986 42245 LowLimit 85 85 85	Units: mg/L HighLimit 115 115 115			Qual
lickel Silver Sample ID Client ID: Prep Date: Analyte Numinum Banum Barium Cadmium Chromium	LCSW	NI Sar B Analys Resu 0.5 0.5 0.5 0.5	D 0.0 D 0.0 ImpType atch ID atch ID is Date It P D 0.0 D 0.0 D 0.0 D 0.0 D 0.0 D 0.0	.010 050 : LC : R2 : 8/ 2QL .020 0020 .040 0020	7986 5/2015 0.5000 0.5000 0.5000 0.5000 0.5000	F S SPK Ref Val 0 0 0 0 0	RunNo: 23 SeqNo: 84 %REC 103 99.0 103 99.2	7986 42245 LowLimit 85 85 85 85	Units: mg/L HighLimit 115 115 115 115			Qual
lickel Silver Sample ID Client ID: Prep Date: Analyte Numinum Barium Barium Boron Cadmium Chromium Cobalt	LCSW	NI Sar B Analys Resu 0.5 0.5 0.5 0.5 0.5 0.5	D 0.0 mpType atch ID atch ID is Date is Date 0.0 1 0.0 0 0.00 0 0.00 1 0.0 0 0.00 0 0.00 0 0.00	010 050 : LC: : R2 : 8/! : 020 020 020 0020 0020	7986 5/2015 SPK value 0.5000 0.5000 0.5000 0.5000 0.5000	F SPK Ref Val 0 0 0 0 0 0	RunNo: 23 SeqNo: 84 %REC 103 99.0 103 99.2 98.2	7986 42245 LowLimit 85 85 85 85 85	Units: mg/L HighLimit 115 115 115 115 115			Qual
Vickel Silver Sample ID Client ID: Prep Date: Analyte Numinum Banum Banum Cadmium Cadmium Chromium Cobalt Manganese	LCSW	NI NI Sar B Analys Resu 0.5 0.5 0.5 0.5 0.5 0.4 0.4	D 0.0 mpType atch ID atch ID is Date is Date 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	.010 0050 : LC : R2 : 8/ 2QL .020 0020 .040 0020 0060	7986 5/2015 SPK value 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000	F SPK Ref Val 0 0 0 0 0 0 0 0	RunNo: 23 SeqNo: 84 %REC 103 99.0 103 99.2 98.2 94.6	7986 42245 LowLimit 85 85 85 85 85 85 85	Units: mg/L HighLimit 115 115 115 115 115 115 115			Qual
Vickel Silver Sample ID Client ID: Prep Date: Analyte Numinum Barium Barium Cadmium Cadmium Cobalt Manganese Molybdenum	LCSW	NI NI Sar B Analys Resu 0.5 0.5 0.5 0.5 0.5 0.4 0.4 0.4 0.4	D 0.0 mpType atch ID atch ID is Date is Date 0.0 1 0.0 0 0.00 0 0.00 1 0.0 2 0.0 3 0.00 1 0.0 3 0.00	.010 0050 2: LC 2: R2 2: 8/ 0020 0020 0020 0060 0020	7986 5/2015 SPK value 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000	F SPK Ref Val 0 0 0 0 0 0 0 0 0 0	RunNo: 23 SeqNo: 84 <u>%REC</u> 103 99.0 103 99.2 98.2 94.6 96.3	7986 42245 LowLimit 85 85 85 85 85 85 85 85	Units: mg/L HighLimit 115 115 115 115 115 115 115 115			Qual
lickel ilver Sample ID Client ID: Prep Date: Analyte Juminum arium coron cadmium cron cobalt fanganese folybdenum lickel	LCSW	NI NI Sar B Analys Resu 0.5 0.5 0.5 0.5 0.5 0.4 0.4 0.4 0.4 0.4 0.5	D 0.0 mpType atch ID atch ID is Date is Date 0.0 is Date 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 1 0.0 7 0.0 7 0.0	0.010 0050 201 2020 0020 0020 0020 0020 00	7986 5/2015 SPK value 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000	F SPK Ref Val 0 0 0 0 0 0 0 0 0 0 0 0	RunNo: 23 SeqNo: 84 <u>%REC</u> 103 99.0 103 99.2 98.2 94.6 96.3 103	7986 42245 LowLimit 85 85 85 85 85 85 85 85 85	Units: mg/L HighLimit 115 115 115 115 115 115 115 115 115			Qual
lickel Silver Sample ID Client ID: Prep Date: Analyte Juminum Barium Barium Cadmium Cadmium Chromium Cobalt Manganese Molybdenum lickel Silver	LCSW	NI NI Sar B Analys Resu 0.5 0.5 0.5 0.5 0.5 0.5 0.4 0.4 0.4 0.4 0.4 0.4 0.5 0.4	D 0.0 mpType atch ID atch ID is Date is Date 0.0 is Date 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 1 0.0 7 0.0 7 0.0	0.010 1050 2: LC 2: R2 1020 10	7986 5/2015 SPK value 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000	F SPK Ref Val 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	RunNo: 23 SeqNo: 84 <u>%REC</u> 103 99.0 103 99.2 98.2 94.6 96.3 103 94.8 100	7986 42245 LowLimit 85 85 85 85 85 85 85 85 85 85 85 85	Units: mg/L HighLimit 115 115 115 115 115 115 115 115 115 11	%RPD	RPDLimit	Qual
Vickel Silver Sample ID Client ID: Prep Date: Analyte Numinum Barium Barium Chromium Chromium Cobalt Manganese Molybdenum Vickel Silver	LCSW	NI NI Sar B Analys Resu 0.5 0.5 0.5 0.5 0.5 0.4 0.4 0.4 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.5	D 0.0 mpType atch ID atch ID is Date is Date 0.0 is 0.0 0.0	0.010 0050 0050 0050 0020 0020 0020 0020 0020 0020 0020 0020 0020 0020 0020 0020 0020 0020 0020 0050	7986 5/2015 SPK value 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000	F SPK Ref Val 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 7 Tes	RunNo: 23 SeqNo: 84 <u>%REC</u> 103 99.0 103 99.2 98.2 94.6 96.3 103 94.8 100	7986 42245 LowLimit 85 85 85 85 85 85 85 85 85 85 85 85	Units: mg/L HighLimit 115 115 115 115 115 115 115 115 115 11	%RPD	RPDLimit	Qual
Vickel Silver Sample ID Client ID: Prep Date: Analyte Aluminum Barium Barium Barium Cadmium Chromium Cobalt Manganese Volybdenum Vickel Silver Sample ID	LCSW LLLCS BatchQC	NI NI Sar B Analys Resu 0.5 0.5 0.5 0.5 0.5 0.4 0.4 0.4 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.5	D 0.0 D 0.0 npType atch ID is Date is it P 2 0.0 1 0.0 2 0.0 1 0.0 3 0.0 7 0.0 3 0.0 7 0.0 3 0.0 7 0.0 3 0.0 7 0.0 3 0.0 7 0.0 3 0.0 7 0.0 9 0.0 7 0.0 9 0.0 9 0.0 9 0.0 9 0.0 9 0.0 9 0.0 9 0.0 9 0.0 9 0.0 9 0.0 9 0.0 0.0	0.010 0050 0050 0050 0050 0020 0020 0020 0020 0020 0020 0020 0020 0020 0020 0020 0020 0020 0020 0050	7986 5/2015 SPK value 0.5000 0.500	F SPK Ref Val 0 0 0 0 0 0 0 0 0 0 0 0 0 5 Fes	RunNo: 2: SeqNo: 84 %REC 103 99.0 103 99.2 98.2 94.6 96.3 103 94.8 100 tCode: EF	7986 42245 LowLimit 85 85 85 85 85 85 85 85 85 85 85 85 85	Units: mg/L HighLimit 115 115 115 115 115 115 115 115 115 11	%RPD	RPDLimit	Qual

- * 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

- S % Recovery outside of range due to dilution or matrix
- Analyte detected in the associated Method Blank В
- Ε Value above quantitation range
- J Analyte detected below quantitation limits

- Р Sample pH Not In Range
- RL **Reporting Detection Limit**

- Page 7 of 26

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	LLLCS	Samp	Type: LC	SLL	Test	Code: E	PA Method	200.7: Dissol	ved Metal	s	
Client ID:	BatchQC	Bato	h ID: R2	7986	R	unNo: 2	7986				
Prep Date:		Analysis I	Date: 8 /	5/2015	s	eqNo: 8	42246	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum		ND	0.020	0.01000	0	112	50	150			
Barium		ND	0.0020	0.002000	0	98.5	50	150			
Boron		ND	0.0 4 0	0.04000	0	99.7	50	150			
Cadmium		ND	0.0020	0.002000	0	77.5	50	150			
Chromium		0.0062	0.0060	0.006000	0	103	50	150			
Cobalt		ND	0.0060	0.006000	0	99.8	50	150			
Manganese		0.0021	0.0020	0.002000	0	104	50	150			
Molybdenum		0.0093	0.0080	0.008000	0	116	50	150			
Nickel		ND	0.010	0.005000	0	97.4	50	150			
Silver		ND	0.0050	0.005000	0	95.4	50	150			· · · ·
Sample ID	МВ	Samp	Type: ME	BLK	Test	Code: E	PA Method	200.7: Dissol	ved Metal	S	
Client ID:	PBW	Bato	h ID: C2	8013	R	lunNo: 2	8013				
Prep Date:		Analysis I	Date: 8/	6/2015	s	eqNo: 8	43253	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper		ND	0.0060						-		
Zinc		ND	0.010								
Sample ID	LCS	Samp	Type: LC	S	Test	tCode: E	PA Method	200.7: Dissol	ved Meta	s	
Client ID:	LCSW	Bato	:h ID: C2	8013	R	tunNo: 2	8013				
Prep Date:		Analysis	Date: 8/	6/2015	s	eqNo: 8	43254	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper		0.50	0.0060	0.5000	0	99.7	85	115			
Zinc		0.50	0.010	0.5000	0	101	85	115			
Sample ID	LLLCS	Samp	Type: LC	SLL	Tes	tCode: E	PA Method	200.7: Dissol	ved Meta	S	
Client ID:	BatchQC	Bato	:h ID: C2	8013	F	RunNo: 2	8013				
Prep Date:		Analysis	Date: 8/	6/2015	Š	eqNo: 8	43255	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
L		0.0063	0.0060	0.006000	0	105	50	150			
Copper						128	50	150			
Copper Zinc		ND	0.010	0.005000	0	128					
••	MB		0.010 Type: ME					200.7: Dissol	ved Meta	s	
Zinc	MB PBW	Samp		BLK	Tes		PA Method		ved Meta	s	
Zinc Sample ID	PBW	Samp	Type: ME	3LK 8044	Tes F	tCode: E	PA Method 8044		ved Meta	S	

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 8 of 26

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

WO#: 1508065

Client: Project:	•	Refining Co R.O. Rejec									
Sample ID	МВ	SampT	ype: ME	BLK	Tes	tCode: E	PA Method	200.7: Dissol	ved Meta	ls	
Client ID:	PBW	Batch	ID: R2	8044	F	RunNo: 2	8044				
Prep Date:		Analysis Da	ate: 8/	7/2015	5	eqNo: 8	44435	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron		ND	0.020								
Sample ID	LCS	SampT	ype: LC	S	Tes	tCode: E	PA Method	200.7: Dissol	ved Meta	s	
Client ID:	LCSW	Batch	ID: R2	8044	F	RunNo: 2	28044				
Prep Date:		Analysis Da	ate: 8/	7/2015	SeqNo: 844436 Units: mg/L						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron		0.51	0.020	0.5000	0	102	85	115			
Sample ID	LLLCS	SampT	ype: LC	SLL	Tes	tCode: E	PA Method	200.7: Dissol	ved Meta	ls	
Client ID:	BatchQC	Batch	ID: R2	8044	F	RunNo: 2	8044				
Prep Date:		Analysis Da	ate: 8/	7/2015	S	SeqNo: 8	44437	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron		0.026	0.020	0.02000	0	131	50	150			
Sample ID	MB	SampT	ype: ME	BLK	Tes	tCode: E	PA Method	200.7: Dissol	ved Meta	ls	
Client ID:	PBW	Batch	ID: R2	8044	F	RunNo: 2	8044				
Prep Date:		Analysis D	ate: 8/	7/2015	S	SeqNo: 8	44438	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron		ND	0.020								
Sample ID	LCS	SampT	ype: LC	s	Tes	tCode: E	PA Method	200.7: Dissol	ved Meta	s	
Client ID:	LCSW	Batch	ID: R2	8044	F	RunNo: 2	8044				
Prep Date:		Analysis D	ate: 8/	7/2015	S	SeqNo: 8	44439	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron		0.49	0.020	0.5000	0	99.0	85	115			
Sample ID	LLLCS	SampT	ype: LC	SLL	Tes	tCode: E	PA Method	200.7: Dissol	ved Meta	ls	
Client ID:	BatchQC	Batch	ID: R2	8044	F	RunNo: 2	8044				
Prep Date:		Analysis D	ate: 8/	7/2015	S	SeqNo: 8	44440	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron		0.020	0.020	0.02000	0	101	50	150			

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
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- Analyte detected in the associated Method Blank В
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range

RL

- Reporting Detection Limit
- Page 9 of 26

26-Aug-15

1508065

WO#:

Navajo Refining Company

Monthly R.O. Reject

Client:

Project:

Prep Date:

Analyte

Selenium

Uranium

Lead

Client ID: R.O. Reject

Sample ID 1508065-001GMS SampType: MS TestCode: EPA 200.8: Dissolved Metals Batch ID: R28115 RunNo: 28115 Analysis Date: 8/11/2015 SeqNo: 847552 Units: mg/L Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD 0.013 0.00050 0.01250 130 0 107 70 0.031 0.0010 0.02500 99.1 70 130 0.006711 0.019 0.00050 0.01250 0.004729 117 70 130

Sample ID 1	508065-001GMSD	Samp	Type: MS	D	Tes	tCode: El	PA 200.8: I	Dissolved Me	tals		
Client ID: F	R.O. Reject	Bat	ch ID: R2	8115	F	tunNo: 2	8115				
Prep Date:		Analysis	Date: 8 /	11/2015	S	eqNo: 8	47553	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead		0.013	0.00050	0.01250	0	105	70	130	2.13	20	
Selenium		0.032	0.0010	0.02500	0.006711	100	70	130	0.805	20	
Uranium		0.019	0.00050	0.01250	0.004729	115	70	130	1.42	20	

Sample ID LCS	SampType: LCS			Test	tCode: El	PA 200.8: I	Dissolved Met	als		
Client ID: LCSW	Batch ID: R28115			F	RunNo: 28115					
Prep Date:	Analysis	Date: 8/	11/2015	s	eqNo: 8	47560	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.012	0.00050	0.01250	0	99.5	85	115			
Selenium	0.025	0.0010	0.02500	0	101	85	115			
Uranium	0.012	0.00050	0.01250	0	99.9	85	115			

Sample ID LCS	SampTyp	e: LCS	Tes	tCode: El	PA 200.8:	Dissolved Me			
Client ID: LCSW	lient ID: LCSW Batch ID: R28115				8115				
Prep Date:	Analysis Date	e: 8/11/2015	S	47561	Units: mg/L				
Analyte	Result F	PQL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.012 0.0	0050 0.01250	0	98.8	85	115			
Selenium	0.025 0.0	0010 0.02500	0	101	85	115			
Uranium	0.012 0.00	0050 0.01250	0	99.1	85	115			
Samala ID LLLCC	0 T					51	4 - 1		

Sample ID LLLCS	SampType: I	_CSLL	Tes	tCode: El	PA 200.8:	Dissolved Me	tals	ls				
Client ID: BatchQC	Batch ID: 1	28115	F	RunNo: 2	8115							
Prep Date:	Analysis Date:	8/11/2015	S	SeqNo: 8	47562	Units: mg/L						
Analyte	Result PQI	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual			
Lead	0.00051 0.0005	0 0.0005000	0	103	50	150						
Selenium	0.0010 0.001	0 0.001000	0	103	50	150						
Uranium	0.00051 0.0005	0 0.0005000	0	103	50	150						

Ε

RL

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
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- Analyte detected in the associated Method Blank В
 - Value above quantitation range
- J Analyte detected below quantitation limits
- Page 10 of 26

- Р Sample pH Not In Range
 - **Reporting Detection Limit**

Qual

WO#:

RPDLimit

Client:	Navajo Refining Company
---------	-------------------------

Project:	Monthly	R.O. Rej	ect	-							
Sample ID	LLLCS	Samp	oType:	LCSLL	Tes	tCode: E	PA 200.8: [)issolved Met	ais		
Client ID:	BatchQC	Bat	ch ID:	R28115	F	RunNo: 2	8115				
Prep Date:		Analysis	Date:	8/11/2015	5	SeqNo: 8	47563	Units: mg/L			
Analyte		Result	PQ	L SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead		0.00053	0.0005	0.0005000	0	105	50	150			
Selenium		0.0011	0.001		0	113	50	150			
Uranium		0.00052	0.0005	0.0005000	0	104	50	150			
Sample ID	МВ	Samp	Type:	MBLK	Tes	tCode: E	PA 200.8: [)issolved Met	als		
Client ID:	PBW	Bat	ch ID:	R28115	F	RunNo: 2	8115				
Prep Date:		Analysis	Date:	8/11/2015	5	SeqNo: 8	47564	Units: mg/L			
Analyte		Result	PQ	L SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead		ND	0.0005								
Selenium		ND	0.001	0							
Uranium		ND	0.0005	50							
Sample ID	МВ	Samp	Type:	MBLK	Tes	tCode: E	PA 200.8: [issolved Met	als		
Client ID:	PBW	Bat	ch ID:	R28115	F	RunNo: 2	8115				
Prep Date:		Analysis	Date:	8/11/2015	5	SeqNo: 8	47565	Units: mg/L			
Analyte		Result	PQ	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead		ND	0.0005	50							
Selenium		ND	0.001	0							
Uranium		ND	0.0005	50							
Sample ID	1508065-001GMS	Samp	Type:	MS	Tes	tCode: E	PA 200.8: [issolved Met	als		
Client ID:	R.O. Reject	Bat	ch ID:	D28151	F	RunNo: 2	8151				
Prep Date:		Analysis	Date:	8/12/2015	S	SeqNo: 8	48111	Units: mg/L			
Analyte		Result	PQ	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.12	0.005	0.1250	0.001284	9 7 .9	70	130			
Sample ID	LCS	Samp	оТуре:	LCS	Tes	tCode: E	PA 200.8: [Dissolved Met	als		
Client ID:	LCSW	Bat	ch ID:	D28151	F	RunNo: 2	8151				
Prep Date:		Analysis	Date:	8/12/2015	5	SeqNo: 8	48117	Units: mg/L			
Analyte		Result	PQ	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.024	0.001	0 0.02500	0	97.0	85	115			

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 26

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

1508065

WO#:

Client:Navajo Refining CompanyProject:Monthly R.O. Reject

-

Sample ID LLLCS	SampType: LCSLL TestCode: EPA 200.8: Dissolved Metals					
Client ID: BatchQC	Batch ID: D28151 RunNo: 28151					
Prep Date:	Analysis Date: 8/12/2015 SeqNo: 848119 Units: mg/L	g/L				
Analyte	Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD	RPDLimit	Qual			
Arsenic	0.0010 0.0010 0.001000 0 104 50 150					
Sample ID MB	SampType: MBLK TestCode: EPA 200.8: Dissolved Metals					
Client ID: PBW	Batch ID: D28151 RunNo: 28151					
Prep Date:	Analysis Date: 8/12/2015 SeqNo: 848122 Units: mg/L					
Analyte	Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD	RPDLimit	Qual			
Arsenic	ND 0.0010					

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 12 of 26

WO#: 1508065

26-Aug-15

PSample pH Not In RangeRLReporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

Result

0.0050 0.00020

PQL

	jo Refining Company hly R.O. Reject	
Sample ID MB-20665 Client ID: PBW	SampType: MBLK Batch ID: 20665	TestCode: EPA Method 245.1: Mercury RunNo: 28038
Prep Date: 8/7/2015	Analysis Date: 8/7/2015	SeqNo: 844199 Units: mg/L
Analyte Mercury	Result PQL SPK value ND 0.00020	SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Sample ID LCS-20665	SampType: LCS	TestCode: EPA Method 245.1: Mercury
Client ID: LCSW	Batch ID: 20665	RunNo: 28038
Prep Date: 8/7/2015	Analysis Date: 8/7/2015	SeqNo: 844200 Units: mg/L

0

%REC

99.8

LowLimit

80

HighLimit

120

%RPD

RPDLimit

Qual

SPK value SPK Ref Val

0.005000

Qualifiers:

Analyte

Mercury

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

RL

- Page 13 of 26
- **Reporting Detection Limit**

1508065

WO#:

Client:	Navajo Refining	g Compan	у							
Project:	Monthly R.O. R	eject								-
Sample ID MB	Sa	mpType: N	IBLK	Tes	tCode: E	PA Method	300.0: Anions			<u> </u>
Client ID: PBV	/ E	atch ID: R	27968	Ē	RunNo: 27968					
Prep Date:	Analys	sis Date:	8/5/2015	\$	SeqNo: 8	41566	Units: mg/L			
Analyte	Resu	ilt PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	N	D 0.10)		-					
Chloride	N	D 0.50)							
Nitrogen, Nitrate (As	N) N	D 0.10).							
Sample ID LCS	Sa	mpType: L	cs	Tes	tCode: E	PA Method	300.0: Anions			
Client ID: LCS	W E	atch ID: R	27968	F	RunNo: 2	7968				
Prep Date:	Analys	sis Date:	8/5/2015	\$	SeqNo: 8	41567	Units: mg/L			
Analyte	Resu	ilt PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.5	2 0.10	0.5000	0	104	90	110			
Chloride	4	.8 0.50) 5.000	0	96.4	90	110			/
Nitrogen, Nitrate (As	N) 2	.5 0.10) 2.500	0	101	90	110			
Sample ID MB	Sa	mpType: N	IBLK	Tes	tCode: E	PA Method	300.0: Anions	;		
Client ID: PBV	/ E	atch ID: R	28192	F	RunNo: 2	8192				
Prep Date:	Analys	sis Date: 4	8/13/2015		SeqNo: 8	49498	Units: mg/L			
Analyte	Resu	ilt PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	N	D 0.50)							
Sample ID LCS	Sa	mpType: L	cs	Tes	tCode: El	PA Method	300.0: Anions			
Client ID: LCS	W E	atch ID: R	28192	F	RunNo: 2	8192				
Prep Date:	Analys	sis Date: 1	8/13/2015	5	SeqNo: 8	49499	Units: mg/L			
Analyte	Resu	ilt PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9	.9 0.50) 10.00	0	99.0	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
- P Sample pH Not In Range

RL

Reporting Detection Limit

- Page 14 of 26

1508065

WO#:

Client: Project:	5	efining Co R.O. Rejec									
Sample ID	MB-20627	SampTy	/pe: ME	BLK	Tes	tCode: E	PA Method	8011/504.1: E	DB		
Client ID:	PBW	Batch	ID: 20	627	RunNo: 28045						
Prep Date:	8/6/2015	Analysis Da	ate: 8 /	7/2015	s	eqNo: 8	344775	Units: µg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoet	nane	ND	0.010								
Sample ID	LCS-20627	SampTy	/pe: LC	s	Test	Code: E	PA Method	8011/504.1: E	DB		
Client ID:	LCSW	Batch	ID: 20	627	R	RunNo: 28045					
Prep Date:	8/6/2015	Analysis Da	ate: 8 /	7/2015	s	eqNo: 8	344776	Units: µg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoet	nane	0.11	0.010	0.1000	0	110	70	130			
Sample ID	1508065-001BMS	SampTy	/pe: M \$;	Test	Code: E	PA Method	8011/504.1: E	DB		
Client ID:	R.O. Reject	Batch	ID: 20	627	R	unNo: 2	28045				
Prep Date:	8/6/2015	Analysis Da	ate: 8/	7/2015	s	eqNo: 8	344786	Units: µg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoet	nane	0.13	0.010	0.1000	0	127	45.7	164			
Sample ID	1508065-001BMS	D SampTy	/pe: MS	SD	Test	Code: E	PA Method	8011/504.1: E	DB		
Client ID:	R.O. Reject	Batch	ID: 20	627	R	unNo: 2	28045				
Prep Date:	8/6/2015	Analysis Da	ate: 8/	7/2015	s	eqNo: 8	344787	Units: µg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoet	nane	0.14	0.010	0.1000	0	135	45.7	164	6.11	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
- PSample pH Not In RangeRLReporting Detection Limit

- Page 15 of 26

1508065

WO#:

Navajo Refining Company Monthly R.O. Reject Sample ID LCS-20617 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Client ID: LCSW Batch ID: 20617 RunNo: 27957 8/5/2015 Analysis Date: 8/5/2015 SeqNo: 842448 Units: mg/L Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit **Diesel Range Organics (DRO)** 5.9 1.0 5.000

0

118

60.1

156

Surr: DNOP	0.52		0.5000		104	72	136				
Sample ID MB-20617	SampT	ype: MI	BLK	Tes	TestCode: EPA Method 8015M/D: Diesel Range						
Client ID: PBW	Batch	n ID: 20	617	F	RunNo: 2	7957					
Prep Date: 8/5/2015	Analysis D	ate: 8/	5/2015	SeqNo: 842468 Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	ND	1.0									
Motor Oil Range Organics (MRO)	ND	5.0									
Surr: DNOP	0.95		1.000		95.5	72	136				

Qualifiers:

Client:

Project:

Prep Date:

Analyte

- 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
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- в Analyte detected in the associated Method Blank
- Ε Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range

RL

Page 16 of 26

Reporting Detection Limit

WO#:

1508065

Qual

Client: Navajo Refining Company

Sample ID MB-20661	Samp1	ype: ME	BLK	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: PBW	Batc	h ID: 20	661	F	RunNo: 2	8049				
Prep Date: 8/7/2015	Analysis [)ate: 8/	/10/2015	5	SeqNo: 8	45110	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	1.8		2.500		73.6	44.5	110			
Surr: Tetrachloro-m-xylene	2.3		2.500		90.4	31.8	95.7			
Sample ID LCS-20661	SampT	ype: LC	s	Tes	tCode: El	PA Method	8082: PCB's		E.1.1. 1	
Client ID: LCSW	Batcl	h ID: 20	661	F	RunNo: 2	8049				
Prep Date: 8/7/2015	Analysis E	Date: 8/	10/2015	S	SeqNo: 8	45133	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	5.9	1.0	5.000	0	117	9.01	142			
Aroclor 1260	6.0	1.0	5.000	0	119	25.6	164			
Surr: Decachlorobiphenyl	2.2		2.500		89.2	44.5	110			
Surr: Tetrachloro-m-xylene	2.7		2.500		107	31.8	95.7			s

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceededND 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 17 of 26

1508065

WO#:

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID RB	SampT	ype: ME	BLK	Tes	tCode:	EPA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	ID: R2	7991	F	RunNo:	27991				
Prep Date:	Analysis D	ate: 8 /	5/2015	S	SeqNo:	842681	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%RE	C LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methyinaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
I,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								

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 R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Ε Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range

Page 18 of 26

RL Reporting Detection Limit WO#: 1508065

Client: Navajo Refining Company

Project: Monthly R.O. Reject

								<u>.</u>		
Sample ID RB	SampT	ype: MI	BLK	Tes	tCode: E	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	h ID: R2	27 99 1	F	RunNo: 2	7991				
Prep Date:	Analysis D	Date: 8/	/5/2015	5	SeqNo: 8	42681	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	1.0				+				
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	2.0 1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11	1.5	10.00		405	70	100			
Surr: 4-Bromofluorobenzene			10.00		105	70	130			
Surr: Dibromofluoromethane	10 12		10.00		102	70	130			
Surr: Dibromoliuoromethane Surr: Toluene-d8	12 9.7		10.00 10.00		116 9 7 .0	70 70	130 130			
	· · · · · · · · · · · · · · · · · · ·									
Sample ID 100ng Ics Client ID: LCSW		ype: LC					8260B: VOL	ATILES		
Prep Date:	Batcr Analysis D	n ID: R2			RunNo: 2		Unite:/			
·					SeqNo: 8		Units: µg/L	#/ DDD		0.1
Analyte	Result	PQL		SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	103	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Chlorobenzene	20	1.0	20.00	0	98.4	70	130			

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 19 of 26

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

WO#: 1508065

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID 100ng ics	Sampl	fype: LC	S	Tes	tCode: E	PA Method	8260B: VOL	ATILES		
Client ID: LCSW	Batc	h ID: R2	7991	F	RunNo: 2	7991				
Prep Date:	Analysis E	Date: 8/	5/2015	S	6eqNo: 8	42682	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	20	1.0	20.00	0	101	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		99.9	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		110	70	130			
Surr: Dibromofluoromethane	10		10.00		105	70	130			
Surr: Toluene-d8	9.8		10.00		98.3	70	130			

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

WO#: 1508065

26-Aug-15

Page 20 of 26

Client:	Navajo Refining									
Project:	Monthly R.O. R	eject								
Sample ID MB-20	677 Sar	mpType: MI	BLK	Tes	tCode: E	PA Method	8310: PAHs			
Client ID: PBW	В	atch ID: 20	677	F	RunNo: 2	8051				
Prep Date: 8/10/	2015 Analys	is Date: 8	/10/2015	5	SeqNo: 8	44835	Units: µg/L			
Analyte	Resu	lt PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	NI	D 2.0								
1-Methylnaphthalene	N	D 2.0								
2-Methylnaphthalene	N	D 2.0								
Benzo(a)pyrene	NI	0.070								
Surr: Benzo(e)pyrene	1	4	20.00		68.8	37.2	136			
Sample ID LCS-2	0677 Sar	npType: LC	s	Tes	tCode: El	PA Method	8310: PAHs			<u>-</u>
Client ID: LCSW	В	atch ID: 20	677	F	RunNo: 2	8051				
Prep Date: 8/10/	2015 Analys	is Date: 8	/10/2015	S	SeqNo: 8	45107	Units: µg/ L			
Analyte	Resu	t PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	7	1 2.0	80.00	0	89.4	57.8	83.9			S
I-Methylnaphthalene	74	4 2.0	80.20	0	91.8	43.5	88.5			S
2-Methylnaphthalene	7.	2 2.0	80.00	0	89.4	34.2	94.5			
Benzo(a)pyrene	0.4	4 0.070	0.5020	0	87.6	56.3	98.6			
Surr: Benzo(e)pyrene										

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 21 of 26

1508065

WO#:

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

Client:	Navajo Refining Company
Project:	Monthly R.O. Reject

Sample ID MB-20629	SampType: MBLK	TestCode: Total Pheno	ics by SW-846 9067	
Client ID: PBW	Batch ID: 20629	RunNo: 27992		
Prep Date: 8/6/2015	Analysis Date: 8/6/2015	SeqNo: 842690	Units: µg/L	
Analyte Phenolics, Total Recoverable	Result PQL SPK value ND 2.5	SPK Ref Val %REC LowLimit	HighLimit %RPD RF	PDLimit Qual
Sample ID LCS-20629	SampType: LCS	TestCode: Total Pheno	ics by SW-846 9067	
Client ID: LCSW	Batch ID: 20629	RunNo: 27992		
Prep Date: 8/6/2015	Analysis Date: 8/6/2015	SeqNo: 842691	Units: µg/L	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD RF	PDLimit Qual
Phenolics, Total Recoverable	21 2.5 20.00	0 104 64.4	135	
Sample ID LCSD-20629	SampType: LCSD	TestCode: Total Pheno	ics by SW-846 9067	
Client ID: LCSS02	Batch ID: 20629	RunNo: 27992		
Prep Date: 8/6/2015	Analysis Date: 8/6/2015	SeqNo: 842692	Units: µg/L	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD RF	PDLimit Qual
Phenolics, Total Recoverable	18 2.5 20.00	0 91.6 64.4	135 12.7	21.4

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H. Holding times for preparation or analysis exceededND 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 22 of 26

1508065

WO#:

WO#: 1508065

26-Aug-15

3	Refining Company ly R.O. Reject				
Sample ID MB-R28452 Client ID: PBW	SampType: MBLK Batch ID: R28452	TestCode: EPA 335.4: 1 RunNo: 28452	otal Cyanide Subbed		
Prep Date:	Analysis Date: 8/12/2015	SeqNo: 859841	Units: mg/L		
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit	Quat
Cyanide	ND 0.0100	· · · · ·			
Sample ID LCS-R28452	SampType: LCS	TestCode: EPA 335.4: 1	otal Cyanide Subbed		
Client ID: LCSW	Batch ID: R28452	RunNo: 28452			
Prep Date:	Analysis Date: 8/12/2015	SeqNo: 859842	Units: mg/L		
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit	Qual
Cyanide	0.521 0.5000	0 104 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
 - P Sample pH Not In Range
- RL Reporting Detection Limit

Page 23 of 26

-	Refining Co ly R.O. Rejec									
Sample ID RB	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8015D: Gaso	line Rang	e	
Client ID: PBW	Batch	n ID: R2	7991	F	RunNo: 2	799 1				
Prep Date:	Analysis D	0ate: 8/	5/2015	S	6 SeqNo: 8	42759	Units: mg/L			
Analyte	Result .	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	11		10.00		110	70	130			
Sample ID 2.5ug gro Ics	SampT	ype: LC	S	Tes	tCode: El	PA Method	8015D: Gaso	line Rang	e	
Client ID: LCSW	Batch	n ID: R2	7991	F	RunŇo: 2	7991				
Prep Date:	Analysis D)ate: 8/	5/2015	S	SeqNo: 84	42760	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.50	0.050	0.5000	0	100	80.6	122			
Surr: BFB	10		10.00		103	70	130			

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

Page 24 of 26

RL Reporting Detection Limit

ЪΤ.

	Navajo Refining Co Monthly R.O. Rejea									
Sample ID MB-R284	152 SampT	ype: ME	BLK	Tes	Code: E	PA 903.1: R	a 226 and EF	PA 904.0: I	Ra 228-Subbe	ed .
Client ID: PBW	Batcl	n ID: R2	8452	F	unNo: 2	8452				
Prep Date:	Analysis D)ate: 8 /	18/2015	S	eqNo: 8	59845	Units: pCi/L	-		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	ND	0.551								
Radium-226 ±	0.342	0.551								
Radium-228	0.014	0.860								
Radium-228 ±	0.371	0.860						. 0.		
Sample ID MB-R284	I52 SampT	ype: ME	BLK	Tes	Code: El	PA 903.1: R	a 226 and EF	PA 904.0: I	Ra 228-Subbe	ed .
Client ID: PBW	Batcl	n ID: R2	8452	F	unNo: 2	8452				
Prep Date:	Analysis D)ate: 8/	18/2015	S	eqNo: 8	59847	Units: pCi/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.556	0.599								
Radium-226 ±	0.441	0.599								
Radium-228	0.314	0.882								

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
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range

Page 25 of 26

RL Reporting Detection Limit

WO#: 1508065

Client:Navajo Refining CompanyProject:Monthly R.O. Reject

Sample ID MB-20626	SampType: MBLK	TestCode: SM2540C MOD: Total Dissolved Solids
Client ID: PBW	Batch ID: 20626	RunNo: 28016
Prep Date: 8/5/2015	Analysis Date: 8/6/2015	SeqNo: 843340 Units: mg/L
Analyte	Result PQL SPK va	alue SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Total Dissolved Solids	ND 20.0	
Sample ID LCS-20626	SampType: L CS	TestCode: SM2540C MOD: Total Dissolved Solids
• • • • • • • • • • • • • • • • • • • •	SampType: LCS Batch ID: 20626	TestCode: SM2540C MOD: Total Dissolved Solids RunNo: 28016
Client ID: LCSW		
	Batch ID: 20626 Analysis Date: 8/6/2015	RunNo: 28016

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 26 of 26

_

1508065

WO#:

HALL Environmental Analysis Laboratory	Hall Environmental . Albu TEL: \$05-345-3975 Website: www.hal	4901 Hawkins N querque, NM 8710 FAX: 505-345-410	^{wE} 99 Sam j 97	nple Log-In Check List								
Client Name NAVAJO REFINING CO	Work Order Number:	1508065		RcptNo: 1								
Received by/date: CS C	18/04/15											
Logged By: Ashiey Gallegos	8/4/2015 9:13:00 AM		AJ									
Completed By: Ashley Gallegos	8/4/2015 10:09:41 AM		A									
Reviewed By	156 05 15		v									
Chain of Custody	Ner C. S											
1. Custody seals intact on sample bottles?		Yes	No 🗀	Not Present								
2. Is Chain of Custody complete?		Yes 🗹	No 🗔	Not Present								
3. How was the sample delivered?		Courier										
Log in												
4. Was an attempt made to cool the samples	7	Yes 🗹	No 🗌	NA								
5. Were all samples received at a temperatur	e of >0" C to 6.0"C	Yes 🗹	No									
6. Sample(s) in proper container(s)?		Yes 🖌	No 🗍									
7. Sufficient sample volume for indicated test	(s)?	Yes 🗹	No ()									
8. Are samples (except VOA and ONG) prope	arly preserved?	Yes 🔽	No 🛄									
9. Was preservative added to bottles?		Yes	, No 🗹	NA 🗍								
10.VOA vals have zero headspace?		Ves V	05/15 No 115	No VOA Viais								
11. Were any sample containers received brok	(an?	Yes	No 🗹									
	NG111	1999	tto taini	# of preserved bottles checked	1							
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)		Yes 🗹	No	for pH:	(inless noted)							
13, Are matrices correctly identified on Chain o	If Custody?	Yes 🗹	No 🗌	Adjusted?	NUR							

No 🗍

No

Checked by:

Yes 🗹 Yes

Yes 🗹

12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody)
13. Are matrices correctly idenlified on Chain of Custody?
14. Is it clear what analyses were requested?
15. Were all holding times able to be met?

(If no, notify customer for authorization.)

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?						Yes]	No 🗌	na I	V
	Person N	lotified [unakapanapan na pama ka disi /	Date	[annaite taráiní árdin is ideile			
	By Whor	n [Niazian waisan di kata kata kata kata kata kata kata kat	*******	Via :	[]] eMail	Phone	e 🗍 Fax	In Person	
	Regardin	vg: [***	i to di necessi na la fan i on a gala an skalie di	*****	y e ta fan in de fan de fa		***************************************	e.
	Client in:	structions:	Alexandri al fan de Property de Landers (1995)	(1999))), ((), (), (), (), (), (), (), (), ()	******		aya a sa	and an and a second		-re
17.	Additional rem	narks:								
18.	Cooler Inform	nation								
	Cooler No	Temp *C	Condition	Seal Intact	Seal No	Seal Date	Şigi	ned By	l ·	
	1	5.2	Good	Not Present						
	Maga Lof									
	Page 1 of 1									

HALL ENVIRONMENTAL ANALYSIS LABORATORY www.halienvironmental.com kins NE - Albuquerque, NM 87109 345-3975 Fax 505-345-4107 Analysis Request			((322-		sbile	°S :	۲) (۲ binde ee binde bi	8082 PCB Phenols Phenols Fluonde Fluonde Brenols Fluonde Fluonde	. X X X X X					×	×	×				×		Remarks: Metais As Au Be, B, Cá, Cr, Co, Cu, Fe, Pb, Ma, Ho, Mo, Ni, Se, Ao, U, Zh	rooms territoria en el estato de la constructura en la constructura en la constructura en la constructura en la 1008 - 1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1	nomorements, 1, x-morecrityeme, 1,1Jionoremane, 1,1Jionoremane, 1,2-Unoversione, 1,2- Disomeethane; 1,2-Dicheroethane; Benzane, Carbon Tetrachloride; Chloroform; Dichloromethane; Ethylberzene, To'uene, Tokal Xylenes, Vinyi Chloride SVOCs: benzo(s)pyrene, phenol, 1-methylnaphthaleno, 2-methylnaphthalene, naphthalene			
ليدر أحم أحم		w.hali		3975	Aı			OS	10 [.]		****	2470 Merc										×	×			0 8	6, 1, 1, 2, 2 (c, 1, 1, 2, 2)	oruentyre oethene; E cene; Tolu henol, 1-m
Ĩ			4901 Hawkins NE	505-345-3975					әрі			305.4, Tots 199M 0747			×		×									B Ct C	icroethen	radiacoenterie, 1, 1, 2-112. Inducer Discomoethane: 1,2-Dichloroether Dichloromethane: Ethyliberzene: 7 SVOCs: benzo(a)pyrene, phenol.
			901 H	Tel, 50					-	uniterie-ini	-	OW :80108				×										A Be	1-160h	nare, 1, hane, 1, ethane; 1 xenzo(a);
			Ť	<u> </u>			Ś	onto concentracione		275-778-98 7		8270C: WQ		×							<u>×</u>					Remarks Metals As	No.	chioren chioren chioren
													/												1		ŝ	- <u>a a s</u> uu
	on-risk (rook-sike sike) 's is shown (r is is shown).								Salsberry	ON []	2.0%	HEAL NO.	-001												760-	Date	00/04/15	Date
Time:	🗆 Rush		Reject	, # 167796		ger:		10	Elizabeth Sal	X Yes	Temperature:	Preservative Type	1-unpres 1- H2SO4	HCL	HNO3	HNO3	NaOH	HNO3	Na2S203	unpres	unpres	HCI	unpres	H2SO4	нсг	۱	Sunt	
Turn-Around Time:	X Standard	Project Name	Monthly R.O. Reject	Project #: P.O. # 167796		Project Manager:		Robert Combs	Sampier.		Sample Temp	Container Type and #	2 - 500ml P	3-40ml VOA	1-500ml P	1-125ml P	1-500ml P	2-1L P	3-40ml VOA	2 - 1L Glass unpres	1 - 1L Glass	3-40ml VOA HCI	1-250mlGlas unpres	1 - 1L Glass	VOA	Received by:	12 Elmin	Received by:
Chain-of-Custody Record			Box 159 Artesia					Level 4 (Full Validation)				Sample Request ID	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	Trip Blank	Relinquished by: Elizabeth Salsbury Received	the determinant	
of-Cu	Refinery				18-3311	email or Fax#: 575-746-5451					,	Matrix	liquid	liquid	liquid	iquid	liguid	liquid	liquid	liquid	pinbij	liquid	liquid	liquid	liquid	Reinquanc	ويرم	Relinquished by
hain	Navajo		Adress	11-0159	: 575-74	Fax#∷5	ackage:	ard		(Type)_		Time	0.01						0:10	pinbil or: or	10:10 liquid	0:0	01:01	0:0	Q:q		2	Time
ច	Client: Navajo Refinery		Mailing Address: P.O.	NM 88211-0159	Phone #: 575-748-3311	email or	QA/QC Package:	X Standard		EDD (Type)		Date	8-3-15	8-3-15 1010	8-3-15 1.0.10	8-3-15-	8-3-15 10: 12	8-3-15 10:10	8-3-15 10:10 liquid	8.3.5	8-3-15	8-3-15 10:10 liquid	8-345 10 10 liquid	8-315	8-315 lo:D	Date Date	নি	Date



October 12, 2015

Submitted electronically via email to jim.griswold@state.nm.us and carlj.chavez@state.nm.us

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

RE: WQA-OCD-CO-2015-002 Monthly Report – September 2015 Reporting Period

Dear Sirs:

In accordance with Exhibit A, paragraph 5, to Agreed Compliance Order No. WQA-OCD-CO-2015-002 (the Order), the Navajo Refining Company, L.L.C. (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's October 2015 monthly report, for the period of September 1-30, under the Order.

Specifically, this report covers the September 2015 reporting period and includes the following data and information as required by Exhibit A, Paragraph 2 and Paragraph 5.a - c:

- Daily discharge flow measurements for each reverse osmosis (RO) unit and for all RO units together.
- Calculation of stipulated penalties, if any, required under Section III, Paragraph 2 of the Order.
- Results of the monthly discharge sample results.
- Updates on any new developments related to the treatment and disposal of RO reject fluid at the facility.

A discussion of each topic is provided below and the associated data is provided in Attachments 1 through 3.

Navajo Refining Company, L.L.C. 501 East Main • Artesia, NM 88210 (575) 748-3311 • <u>http://www.hollyfrontier.com</u> OCD October 12, 2015 Page 2 of 3

Daily RO Reject Fluid Discharge Flow Measurements

Flow rate for the RO reject fluid is monitored from the two permanent RO units and the temporary RO unit on a daily basis. Daily discharge volumes are provided in Attachment 1.

Stipulated Penalties

In accordance with Exhibit A, Paragraph 1 of the Order, Navajo submitted the GW-028 discharge permit modification request on May 22, 2015, prior to 30 days from April 27, 2015, the date of the Order. Therefore, for the entire September reporting period, Paragraph III.2.b.i.2 of the Order is applicable. Stipulated penalties were calculated for each day following Navajo's submittal of the permit modification request, and prior to OCD action on that request, as follows:

- \$100 per day for each daily RO reject fluid discharge volume between 10,000 and 15,000 barrels from September 1 through September 30.
- \$500 per day for each daily RO reject fluid discharge volume that exceeds 15,000 barrels from September 1 through September 30.

Navajo has calculated a penalty of \$3,000 for September 2015. The daily discharge volume exceeded the 10,000 barrels/day (bbl/day) limit, but was under 15,000 barrels total, on 30 days in September. Calculations conducted in accordance with Paragraph III.2.b.i.2 of the Agreed Compliance Order are provided in Attachment 2.

Payment of the stipulated penalty will be sent to the OCD Director's mailing address within 30 days after the date of this monthly report pursuant to Paragraph III.2.b. of the Order.

Monthly Discharge Sample Results

Navajo collected a sample of the RO reject fluid discharge from both the permanent RO units (combined discharge) and the temporary RO unit on September 3, 2015. The analytical lab report for these samples is provided in Attachment 3.

Updates Regarding Treatment and Disposal of RO Reject Fluid

As described in the Order, Navajo is working to enhance its water management system and reduce the total volume of RO reject fluid that is discharged pursuant to its groundwater discharge permit. Navajo is currently preparing a permit modification request to Discharge Permit GW-028 for installation of a third permanent primary RO unit to replace the temporary RO unit and the installation of a secondary RO unit to improve recovery of water as part of Navajo's water conservation effort.

Navajo is also evaluating options for the underground injection of RO reject fluid.

Navajo Refining Company, L.L.C. 501 East Main • Artesia, NM 88210 (575) 748-3311 • <u>http://www.hollyfrontier.com</u> OCD October 12, 2015 Page 3 of 3

In accordance with Exhibit A, Paragraph 1 of the Order, Navajo submitted a GW-028 discharge permit modification request on May 22, 2015. The requested modifications include operating a temporary RO unit at the Navajo Refinery and increasing the total maximum volume of RO reject fluids that can be applied to the surface of Navajo's discharge fields from approximately 10,000 bbl/day to approximately 20,000 bbl/day calculated on a rolling 12-month average. Navajo submitted an *Evaluation of Groundwater Quality – RO Reject Fields* memo on August 27, 2015, and the *Background Groundwater Investigation Report* on September 2, 2015, in support of this modification request.

OCD notified Navajo that the application for the requested permit modification is administratively complete by letter dated July 1, 2015. Navajo submitted proof of completion of the public notice, including an affidavit of mailing and the list of property owners, proof of publication, and an affidavit of posting, to the OCD on September 3, 2015.

Navajo is committed to proactively meeting the requirements of the Order and working cooperatively with OCD. If you have any questions or comments, please contact me at 575-746-5487.

Sincerely,

Scott M. Denton Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flow Rates Attachment 2: Stipulated Penalty Calculation Attachment 3: Analytical Lab Reports

cc. HFC: D. McWatters, R. O'Brien, M. Holder OCD: A. Marks, B. Brancard Attachment 1 Daily Discharge Flow Rates

		Permanen	t RO Units		Tempo	rary Unit	Daily Discharge Volume
	Metere	ed Data		d RO Reject (Calculated)	Total R Disc (Calcula Log		
	GPM	GPM	GPM	BBL/DAY	GPM	BBL/DAY	BBL
	SOUTH	NORTH					
9/1/2015	128	119	247	8,469	45	1,546	10,015
9/2/2015	200	168	368	12,617	57	1,944	14,561
9/3/2015	109	175	284	9,737	57	1,954	11,691
9/4/2015	110	182	292	10,011	57	1,954	11,965
9/5/2015	112	179	291	9,977	60	2,054	12,031
9/6/2015	112	178	290	9,943	59	2,027	11,970
9/7/2015	115	177	292	10,011	58	1,998	12,009
9/8/2015	114	181	295	10,114	60	2,046	12,160
9/9/2015	106	171	277	9,497	61	2,104	11,601
9/10/2015	115	178	293	10,046	63	2,159	12,205
9/11/2015	113	177	290	9,943	66	2,261	12,204
9/12/2015	114	178	292	10,011	65	2,231	12,242
9/13/2015	115	180	295	10,114	68	2,328	12,442
9/14/2015	116	179	295	10,114	69	2,358	12,472
9/15/2015	115	179	294	10,080	68	2,332	12,412
9/16/2015	120	180	300	10,286	71	2,432	12,718
9/17/2015	117	175	292	10,011	65	2,243	12,254
9/18/2015	115	177	292	10,011	69	2,383	12,394
9/19/2015	111	178	289	9,909	72	2,467	12,376
9/20/2015	115	179	294	10,080	63	2,173	12,253
9/21/2015	116	174	290	9,943	49	1,680	11,623
9/22/2015	115	176	291	9,977	51	1,763	11,740
9/23/2015	120	178	298	10,217	67	2,297	12,514
9/24/2015	116	176	292	10,011	72	2,465	12,476
9/25/2015	116	177	293	10,046	91	3,124	13,170
9/26/2015	121	164	285	9,771	73	2,490	12,261
9/27/2015	125	162	287	9,840	74	2,527	12,367
9/28/2015	126	163	289	9,909	73	2,507	12,416
9/29/2015	125	102	227	7,783	94	3,223	11,006
9/30/2015	123	100	223	7,646	73	2,510	10,156

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

Attachment 2 Stipulated Penalty Calculation

Calculation of Stipulated Penalties - October 2015

Order Section III., Paragraph Number	Penalty	Payment per day	No. of Days (per violation)	Amount
2.b.i	Exceedance of the 10,000 barrel per day RO reject fluid discharge volume limit specified in Discharge Permit GW-028:			
2.b.i.1	- Prior to Navajo submitting a discharge permit modification application	\$1,000		\$0
2.b.i.2	- If the daily volume is between 10,000 and 15,000 barrels after Navajo submits discharge permit modification application	\$100	30	\$3,000
2.b.i.2	- If the daily volume exceeds 15,000 barrels after Navajo submits discharge permit modification application	\$500		\$0
2.b.ii	Failure to conduct sampling as required in Exhibit A of Order	\$2,000		\$0
2.b.iii	Failure to timely submit any report or notifications as required in Exhibit A of Order	\$1,000		\$0
2.b.iv	Failure to record the daily discharge flow from the permanent and the temporary RO units	\$1,000		\$0
		Total A	mount:	\$3,000

Attachment 3 Analytical Lab Report



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

October 06, 2015

Robert Combs Navajo Refining Company P.O. Box 159 Artesia, NM 88211-0159 TEL: (575) 748-3311 FAX

RE: Monthly Temporary R.O. Reject

OrderNo.: 1509214

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 9/4/2015 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 <u>www.hallenvironmental.com</u> or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

andy

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Analytical Report Lab Order 1509214 Date Reported: 10/6/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining CompanyProject:Monthly Temporary R.O. RejectLab ID:1509214-001Matrix: AQUEOUS

Client Sample ID: Temporary R.O. Reject Collection Date: 9/3/2015 8:50:00 AM Received Date: 9/4/2015 10:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst	DBD
Arsenic	ND	0.0050		mg/L	5	9/18/2015 2:59:55 PM	B2898
Lead	ND	0.0025		mg/L	5	9/18/2015 2:59:55 PM	B2898
Selenium	0.0086	0.0050		mg/L	5	9/18/2015 2:59:55 PM	B2898
Uranium	0.0056	0.0025		mg/L	5	9/18/2015 2:59:55 PM	B2898
EPA 903.1: RA 226 AND EPA 904.0: RA	228-SUBBE	D				Analyst	SUB
Radium-226	1.7	0.563		pCi/L	1	9/28/2015	R2927
Radium-226 ±	0.701	0.563		pCi/L	1	9/28/2015	R2927
Radium-228	0.308	0.574		pCi/L	1	9/28/2015	R2927
Radium-228 ±	0.283	0.574		pCi/L	1	9/28/2015	R2927
EPA METHOD 300.0: ANIONS						Analyst	LGT
Fluoride	3.2	2.0		mg/L	20	9/4/2015 11:00:00 PM	R2868
Chloride	300	10		mg/L	20	9/4/2015 11:00:00 PM	R2868
Nitrogen, Nitrate (As N)	2.0	0.10		mg/L	1	9/4/2015 10:47:35 PM	R2868
Sulfate	1800	50		mg/L	100	9/15/2015 12:07:52 AM	R2885
SM2540C MOD: TOTAL DISSOLVED SC	LIDS					Analyst	KS
Total Dissolved Solids	3720	20.0	*	mg/L	1	9/10/2015 5:38:00 PM	21204
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst	SUB
Cyanide	ND	0.0100		mg/L	1	9/15/2015	R2927
SM4500-H+B: PH						Analyst	JRR
pH	7.89	1.68	н	pH units	1	9/8/2015 6:24:49 PM	R2872
EPA METHOD 200.7: DISSOLVED META	LS					Analyst	ELS
Aluminum	ND	0.020		mg/L	1	9/10/2015 2:52:57 PM	B2875
Barium	0.059	0.0020		mg/L	1	9/10/2015 2:52:57 PM	B2875
Boron	0.098	0.040		mg/L	1	9/10/2015 2:52:57 PM	B2875
Cadmium	ND	0.0020		mg/L	1	9/10/2015 2:52:57 PM	B2875
Chromium	0.0067	0.0060		mg/L	1	9/11/2015 1:33:20 PM	A2878
Cobalt	0.0061	0.0060		mg/L	1	9/11/2015 1:33:20 PM	A2878
Copper	ND	0.0060		mg/L	1	9/10/2015 2:52:57 PM	B2875
Iron	0.048	0.020		mg/L	1	9/10/2015 2:52:57 PM	B2875
Manganese	ND	0.0020		mg/L	1	9/10/2015 2:52:57 PM	B2875
Molybdenum	ND	0.0080		mg/L	1	9/11/2015 1:33:20 PM	A2878
Nickel	ND	0.010		mg/L	1	9/10/2015 2:52:57 PM	B2875
Silver	ND	0.0050		mg/L	1	9/11/2015 1:33:20 PM	A2878
Zinc	0.019	0.010		mg/L	1	9/11/2015 1:33:20 PM	A2878
EPA METHOD 245.1: MERCURY						Analyst	JLF
Mercury	ND	0.00020		mg/L	1	9/15/2015 3:50:01 PM	21298
Refer to the QC Summary report ar	d sample log	in checklis	t for fl	agged QC da	ta and p	reservation information	n.

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Qualifiers:

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 23

P Sample pH Not In Range

RL Reporting Detection Limit

Analytical Report Lab Order 1509214 Date Reported: 10/6/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company **Project:** Monthly Temporary R.O. Reject Lab ID: 1509214-001 Matrix: AQUEOUS Client Sample ID: Temporary R.O. Reject Collection Date: 9/3/2015 8:50:00 AM

Analyses	Result	RL (Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB					Analys	t: JME
1,2-Dibromoethane	ND	0.010	µg/L	1	9/9/2015 2:48:42 PM	21198
EPA METHOD 8082: PCB'S					Analys	t: SCC
Aroclor 1016	ND	1.0	µg/L	1	9/11/2015 10:58:41 AM	1 21192
Aroclor 1221	ND	1.0	µg/L	1	9/11/2015 10:58:41 AM	
Aroclor 1232	ND	1.0	µg/L	1	9/11/2015 10:58:41 AM	
Aroclor 1242	ND	1.0	μg/L	1	9/11/2015 10:58:41 AM	1 21192
Aroclor 1248	ND	1.0	µg/L	1	9/11/2015 10:58:41 AM	1 21192
Aroclor 1254	ND	1.0	µg/L	1	9/11/2015 10:58:41 AM	1 21192
Aroclor 1260	ND	1.0	µg/L	1	9/11/2015 10:58:41 AM	1 21192
Surr: Decachlorobiphenyl	74.0	17.7-151	%REC	1	9/11/2015 10:58:41 AM	1 21192
Surr: Tetrachloro-m-xylene	67.6	20.6-151	%REC	1	9/11/2015 10:58:41 AN	1 21192
EPA METHOD 8015M/D: DIESEL RAN	IGE				Analys	t: KJH
Diesel Range Organics (DRO)	ND	1.0	mg/L	1	9/9/2015 4:47:41 PM	21183
Motor Oil Range Organics (MRO)	ND	5.0	mg/L	1	9/9/2015 4:47:41 PM	21183
Surr: DNOP	108	72-136	%REC	1	9/9/2015 4:47:41 PM	21183
EPA METHOD 8015D: GASOLINE RA	NGE				Analys	t: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	9/10/2015 1:16:54 PM	R2876
Surr: BFB	94.5	57.8-137	%REC	1	9/10/2015 1:16:54 PM	R2876
EPA METHOD 8310: PAHS					Analys	t: SCC
Naphthalene	ND	2.0	µg/L	1	9/11/2015 8:09:56 AM	21193
1-Methylnaphthalene	ND	2.0	μg/L	1	9/11/2015 8:09:56 AM	21193
2-Methylnaphthalene	ND	2.0	µg/L	1	9/11/2015 8:09:56 AM	21193
Benzo(a)pyrene	ND	0.070	µg/L	1	9/11/2015 8:09:56 AM	21193
Surr: Benzo(e)pyrene	41.3	37.2-136	%REC	1	9/11/2015 8:09:56 AM	21193
EPA METHOD 8260B: VOLATILES					Analys	t: AG
Benzene	ND	1.0	µg/L	1	9/8/2015 2:48:27 PM	R28707
Toluene	ND	1.0	µg/L	1	9/8/2015 2:48:27 PM	R28707
Ethylbenzene	ND	1.0	µg/L	1	9/8/2015 2:48:27 PM	R28707
1,2-Dichloroethane (EDC)	ND	1.0	µg/L	1	9/8/2015 2:48:27 PM	R28707
1,2-Dibromoethane (EDB)	ND	1.0	µg/L	1	9/8/2015 2:48:27 PM	R28707
Carbon Tetrachloride	ND	1.0	µg/L	1	9/8/2015 2:48:27 PM	R28707
Chloroform	ND	1.0	µg/L	1	9/8/2015 2:48:27 PM	R28707
1,1-Dichloroethane	ND	1.0	µg/L	1	9/8/2015 2:48:27 PM	R28707
1,1-Dichloroethene	ND	1.0	µg/L	1	9/8/2015 2:48:27 PM	R28707
Methylene Chloride	ND	3.0	µg/L	1	9/8/2015 2:48:27 PM	R28707
1,1,2,2-Tetrachloroethane	ND	2.0	µg/L	1	9/8/2015 2:48:27 PM	R28707
Tetrachloroethene (PCE)	ND	1.0	µg/L	1	9/8/2015 2:48:27 PM	R28707

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

Qualifiers:

- Н 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
- В Analyte detected in the associated Method Blank
- E Value above quantitation range
- Analyte detected below quantitation limits Page 2 of 23 J
- Р Sample pH Not In Range
- RL Reporting Detection Limit

Received Date: 9/4/2015 10:20:00 AM

Analytical Report Lab Order 1509214 Date Reported: 10/6/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Client Sample ID: Temporary R.O. Reject Collection Date: 9/3/2015 8:50:00 AM

Lab ID: 1509214-001	Matrix:	AQUEOUS	Received 1	Date: 9/4	4/2015 10:20:00 AM	
Analyses	Result	RL Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analyst	AG
1,1,1-Trichloroethane	ND	1.0	µg/L	1	9/8/2015 2:48:27 PM	R28707
1,1,2-Trichloroethane	ND	1.0	µg/L	1	9/8/2015 2:48:27 PM	R28707
Trichloroethene (TCE)	ND	1.0	µg/L	1	9/8/2015 2:48:27 PM	R28707
Vinyl chloride	ND	1.0	µg/L	1	9/8/2015 2:48:27 PM	R28707
Xylenes, Total	ND	1.5	µg/L	1	9/8/2015 2:48:27 PM	R28707
Surr: 1,2-Dichloroethane-d4	99.6	70-130	%REC	1	9/8/2015 2:48:27 PM	R28707
Surr: 4-Bromofluorobenzene	99.5	70-130	%REC	1	9/8/2015 2:48:27 PM	R28707
Surr: Dibromofluoromethane	97.9	70-130	%REC	1	9/8/2015 2:48:27 PM	R28707
Surr: Toluene-d8	99.1	70-130	%REC	1	9/8/2015 2:48:27 PM	R28707
TOTAL PHENOLICS BY SW-846 9067					Analyst	SCC
Phenolics, Total Recoverable	ND	2.5	µg/L	1	9/30/2015	21585

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	в	Analyte detected in the a
	D	Sample Diluted Due to Matrix	E	Value above quantitation
	н	Holding times for preparation or analysis exceeded	J	Analyte detected below
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Rang
	R	RPD outside accepted recovery limits	RL	Reporting Detection Lin
	S	% Recovery outside of range due to dilution or matrix		

- associated Method Blank
- on range
- quantitation limits Page 3 of 23
- ge
- imit

Analytical Report Lab Order 1509214

Date Reported: 10/6/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company **Project:** Monthly Temporary R.O. Reject Lab ID: 1509214-002

Collection Date:

Client Sample ID: Trip Blank

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RAM	NGE				Analyst	NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	9/10/2015 1:42:19 PM	R28761
Surr: BFB	93.2	57.8-137	%REC	1	9/10/2015 1:42:19 PM	R28761
EPA METHOD 8260B: VOLATILES					Analyst	AG
Benzene	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
Toluene	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
Ethylbenzene	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
Methyl tert-butyl ether (MTBE)	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
1,2,4-Trimethylbenzene	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
1,3,5-Trimethylbenzene	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
1,2-Dichloroethane (EDC)	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	9/8/2015 3:17:15 PM	R28707
Naphthalene	ND	2.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
1-Methylnaphthalene	ND	4.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
2-Methylnaphthalene	ND	4.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
Acetone	ND	10	µg/L	1	9/8/2015 3:17:15 PM	R28707
Bromobenzene	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
Bromodichloromethane	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
Bromoform	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
Bromomethane	ND	3.0	μg/L	1	9/8/2015 3:17:15 PM	R28707
2-Butanone	ND	10	µg/L	1	9/8/2015 3:17:15 PM	R28707
Carbon disulfide	ND	10	µg/L	1	9/8/2015 3:17:15 PM	R28707
Carbon Tetrachloride	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
Chlorobenzene	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
Chloroethane	ND	2.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
Chloroform	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
Chloromethane	ND	3.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
2-Chlorotoluene	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
4-Chlorotoluene	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
cis-1,2-DCE	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
cis-1,3-Dichloropropene	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
1,2-Dibromo-3-chloropropane	ND	2.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
Dibromochloromethane	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
Dibromomethane	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
1,2-Dichlorobenzene	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
1,3-Dichlorobenzene	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
1,4-Dichlorobenzene	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
Dichlorodifluoromethane	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
1,1-Dichloroethane	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R28707
1,1-Dichloroethene	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R28707

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

Qualifiers:

- Н 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
- В Analyte detected in the associated Method Blank
- E Value above quantitation range
- Analyte detected below quantitation limits Page 4 of 23 J
- Р Sample pH Not In Range
- RL Reporting Detection Limit

Matrix: TRIP BLANK Received Date: 9/4/2015 10:20:00 AM

Analytical Report Lab Order 1509214

Date Reported: 10/6/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining CompanyProject: Monthly Temporary R.O. RejectLab ID: 1509214-002

Collection Date:

Client Sample ID: Trip Blank

Matrix: TRIP BLANK Received Date: 9/4/2015 10:20:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	t: AG
1,2-Dichloropropane	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R2870
1,3-Dichloropropane	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R2870
2,2-Dichloropropane	ND	2.0	µg/L	1	9/8/2015 3:17:15 PM	R2870
1,1-Dichloropropene	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R2870
Hexachlorobutadiene	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R2870
2-Hexanone	ND	10	µg/L	1	9/8/2015 3:17:15 PM	R2870
Isopropylbenzene	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R2870
4-Isopropyltoluene	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R2870
4-Methyl-2-pentanone	ND	10	μg/L	1	9/8/2015 3:17:15 PM	R2870
Methylene Chloride	ND	3.0	µg/L	1	9/8/2015 3:17:15 PM	R2870
n-Butylbenzene	ND	3.0	µg/L	1	9/8/2015 3:17:15 PM	R2870
n-Propylbenzene	ND	1.0	μg/L	1	9/8/2015 3:17:15 PM	R2870
sec-Butylbenzene	ND	1.0	μg/L	1	9/8/2015 3:17:15 PM	R2870
Styrene	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R2870
tert-Butylbenzene	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R2870
1,1,1,2-Tetrachloroethane	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R2870
1,1,2,2-Tetrachloroethane	ND	2.0	µg/L	1	9/8/2015 3:17:15 PM	R2870
Tetrachloroethene (PCE)	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R2870
trans-1,2-DCE	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R287
trans-1,3-Dichloropropene	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R2870
1,2,3-Trichlorobenzene	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R2870
1,2,4-Trichlorobenzene	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R2870
1,1,1-Trichloroethane	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R287
1,1,2-Trichloroethane	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R2870
Trichloroethene (TCE)	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R2870
Trichlorofluoromethane	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R2870
1,2,3-Trichloropropane	ND	2.0	µg/L	1	9/8/2015 3:17:15 PM	R2870
Vinyl chloride	ND	1.0	µg/L	1	9/8/2015 3:17:15 PM	R2870
Xylenes, Total	ND	1.5	µg/L	1	9/8/2015 3:17:15 PM	R2870
Surr: 1,2-Dichloroethane-d4	93.0	70-130	%REC	1	9/8/2015 3:17:15 PM	R2870
Surr: 4-Bromofluorobenzene	98.0	70-130	%REC	1	9/8/2015 3:17:15 PM	R2870
Surr: Dibromofluoromethane	97.2	70-130	%REC	1	9/8/2015 3:17:15 PM	R2870
Surr: Toluene-d8	100	70-130	%REC	1	9/8/2015 3:17:15 PM	R2870

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 5 of 23
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix		

Maria D.C.

WO#: 1509214 06-Oct-15

Client:	1	Navajo Refining C	ompany	5								
Project:	Ν	Monthly Tempora	ry R.O. 1	Reject								
Sample ID	LCS	Samp	Type: LC	s	TestCode: EPA Method 200.7: Dissolved Metals							
Client ID:	LCSW	Bate	h ID: B	28759	F	RunNo: 28759						
Prep Date:		Analysis	Date: 9	/10/2015	S	SeqNo: 8	71972	Units: mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aluminum		0.50	0.020	0.5000	0	99.8	85	115				
Barium		0.49	0.0020	0.5000	0	98.9	85	115				
Boron		0.53	0.040	0.5000	0	105	85	115				
Cadmium		0.51	0.0020	0.5000	0	102	85	115				
Copper		0.47	0.0060	0.5000	0	94.2	85	115				
ron		0.53	0.020	0.5000	0	107	85	115				
Manganese		0.49	0.0020	0.5000	0	97.9	85	115				
Nickel		0.48	0.010	0.5000	0	95.4	85	115				
Sample ID	LLLCS	Samp	SampType: LCSLL			TestCode: EPA Method 200.7: Dissolved Metals						
Client ID:	BatchQC	Bate	h ID: B2	28759	F	RunNo: 2	8759					
Prep Date:		Analysis	Date: 9	/10/2015	S	SeqNo: 8	71973	Units: mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aluminum		ND	0.020	0.01000	0	104	50	150				
Barium		ND	0.0020	0.002000	0	90.0	50	150				
Boron		ND	0.040	0.04000	0	95.7	50	150				
Cadmium		ND	0.0020	0.002000	0	93.5	50	150				
Copper		ND	0.0060	0.006000	0	98.2	50	150				
ron		0.021	0.020	0.02000	0	105	50	150				
Manganese		0.0022	0.0020	0.002000	0	108	50	150				
Nickel		ND	0.010	0.005000	0	119	50	150				
Sample ID	MB	Samp	Type: M	BLK	TestCode: EPA Method 200.7: Dissolved Metals							
Client ID:	PBW	Bate	h ID: B2	28759	F	RunNo: 2	8759					
Prep Date:		Analysis	Date: 9	/10/2015	5	SeqNo: 8	71977	Units: mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aluminum		ND	0.020									
Barium		ND	0.0020									
Boron		ND	0.040									
		ND	0.0020									
Cadmium												
		ND	0.0060									
Copper		ND ND	0.0060									
Cadmium Copper Iron Manganese												

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 6 of 23

WO#: 1509214 06-Oct-15

Page 7 of 23

Client:	Navajo Refining Company
D	

Project: Monthly Temporary R.O. Reject

Sample ID	1509214-001IMS	Type: MS	;	Tes	TestCode: EPA Method 200.7: Dissolved Metals						
Client ID:	Temporary R.O. Rej Batch ID: B28759				F	RunNo: 28759					
Prep Date:	1	Analysis	Date: 9/	10/2015	5	SeqNo: 872105 Units: mg/L					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
luminum		0.53	0.020	0.5000	0.004060	106	70	130			
Barium		0.50	0.0020	0.5000	0.05899	88.1	70	130			
Boron		0.64	0.040	0.5000	0.09823	108	70	130			
Cadmium		0.47	0.0020	0.5000	0	93.9	70	130			
Copper		0.47	0.0060	0.5000	0	94.4	70	130			
ron		0.50	0.020	0.5000	0.04757	90.7	70	130			
Manganese		0.46	0.0020	0.5000	0.001650	91.3	70	130			
lickel		0.41	0.010	0.5000	0	82.0	70	130			
Sample ID	1509214-001IMSD	Tes	tCode: El	PA Method	200.7: Dissol	ved Meta	s				
Client ID:	Temporary R.O. Re	F	RunNo: 2	8759							
Prep Date:	Analysis Date: 9/10/2015				S	SeqNo: 872106 Units: mg/L					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
luminum		0.53	0.020	0.5000	0.004060	106	70	130	0.150	20	
larium		0.50	0.0020	0.5000	0.05899	88.6	70	130	0.493	20	
Boron		0.65	0.040	0.5000	0.09823	110	70	130	1.05	20	
Cadmium		0.47	0.0020	0.5000	0	94.6	70	130	0.694	20	
Copper		0.47	0.0060	0.5000	0	94.4	70	130	0.0890	20	
ron		0.51	0.020	0.5000	0.04757	92.7	70	130	1.99	20	
Manganese		0.46	0.0020	0.5000	0.001650	<mark>91.8</mark>	70	130	0.605	20	
Nickel		0.41	0.010	0.5000	0	82.1	70	130	0.178	20	
Sample ID	LCS	Samp	Type: LC	S	Tes	tCode: El	PA Method	200.7: Disso	ved Metal	s	
Client ID:	LCSW	Bate	ch ID: A2	8781	RunNo: 28781						
Prep Date:	1	Analysis	Date: 9/	11/2015	5	SeqNo: 8	72822	Units: mg/L			
Analyte		Result	PQL		SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium		0.49	0.0060	0.5000	0	98.4	85	115			
		0 47	0.0060	0.5000	0	94.7	85	115			
		0.47									
Molybdenum		0.50	0.0080	0.5000	0	99.3	85	115			
Cobalt Molybdenum Silver		0.50 0.089	0.0080 0.0050	0.5000 0.1000	0 0	89.1	85 85	115 115			
Molybdenum Silver		0.50	0.0080	0.5000	0						
Molybdenum	LLLCS	0.50 0.089 0.49	0.0080 0.0050	0.5000 0.1000 0.5000	0 0 0	89.1 97.9	85 85	115	ved Meta	ls	
Molybdenum Silver Zinc Sample ID	LLLCS BatchQC	0.50 0.089 0.49 Samp	0.0080 0.0050 0.010	0.5000 0.1000 0.5000 SLL	0 0 0 Tes	89.1 97.9	85 85 PA Method	115 115	ved Meta	s	
Aolybdenum Silver Zinc Sample ID Client ID:	BatchQC	0.50 0.089 0.49 Samp Bate	0.0080 0.0050 0.010 Type: LC	0.5000 0.1000 0.5000 SLL 8781	0 0 0 Tes F	89.1 97.9 tCode: El	85 85 PA Method 8781	115 115		s	
Molybdenum Silver Zinc Sample ID	BatchQC	0.50 0.089 0.49 Samp Bate	0.0080 0.0050 0.010 Type: LC ch ID: A2	0.5000 0.1000 0.5000 SLL 8781 11/2015	0 0 0 Tes F	89.1 97.9 tCode: El RunNo: 28	85 85 PA Method 8781	115 115 200.7: Disso		l s RPDLimit	Qual

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

WO#: 1509214

06-Oct-15

Client: Project:	Navajo R Monthly	2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 -										
Sample ID	LLLCS	Samp	Type: LC	SLL	Test	TestCode: EPA Method 200.7: Dissolved Metals						
Client ID:	BatchQC	Bate	ch ID: A2	8781	R	RunNo: 28781						
Prep Date:		Analysis	Date: 9/	11/2015	SeqNo: 872823			Units: mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Cobalt		ND	0.0060	0.006000	0	86.0	50	150				
Molybdenum		ND	0.0080	0.008000	0	53.8	50	150				
Silver		ND	0.0050	0.005000	0	86.8	50	150				
Zinc		ND	0.010	0.005000	0	103	50	150				
Sample ID	МВ	Samp	Type: ME	BLK	Test	Code: EF	PA Method	200.7: Dissol	ved Meta	S		
Client ID:	PBW Batch ID: A28781				R	unNo: 28	3781					
Prep Date:		Analysis	Date: 9/	11/2015	S	eqNo: 8	72843	Units: mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Chromium		ND	0.0060									
Cobalt		ND	0.0060									
	ND 0.0080											
Molybdenum		ND	0.0000									
Molybdenum Silver		ND	0.0050									
Silver Zinc	1509214-001IMS	ND ND	0.0050	5	Test	tCode: El	PA Method	200.7: Dissol	ved Meta	s		
Silver Zinc	1509214-001IMS Temporary R.O. R	ND ND Samp	0.0050 0.010			tCode: Ef		200.7: Dissol	ved Meta	s		
Silver Zinc Sample ID		ND ND Samp Rej Bato	0.0050 0.010 Type: MS	8781	R		8781	200.7: Dissol Units: mg/L	ved Meta	s		
Silver Zinc Sample ID Client ID:		ND ND Samp Rej Bato	0.0050 0.010 Type: MS	8781 11/2015	R	unNo: 2	8781		ved Meta	s RPDLimit	Qual	
Silver Zinc Sample ID Client ID: Prep Date:		ND ND Samp Rej Bato Analysis	0.0050 0.010 Type: MS ch ID: A2 Date: 9/	8781 11/2015	R	tunNo: 28 SeqNo: 8	3781 73630	Units: mg/L			Qual	
Silver Zinc Sample ID Client ID: Prep Date: Analyte Chromium		ND ND Samp Rej Bato Analysis Result	0.0050 0.010 Type: MS ch ID: A2 Date: 9/ PQL	8781 11/2015 SPK value	R S SPK Ref Val	RunNo: 28 SeqNo: 8 %REC	3781 73630 LowLimit	Units: mg/L HighLimit			Qual	
Silver Zinc Sample ID Client ID: Prep Date: Analyte Chromium Cobalt		ND ND Samp Rej Bato Analysis Result 0.49	0.0050 0.010 Type: MS ch ID: A2 Date: 9/ PQL 0.0060	8781 11/2015 SPK value 0.5000	R SPK Ref Val 0.006680	28 SeqNo: 8 %REC 96.5	8781 73630 LowLimit 70	Units: mg/L HighLimit 130			Qual	
Silver Zinc Sample ID Client ID: Prep Date: Analyte Chromium		ND ND Samp Rej Bato Analysis Result 0.49 0.46	0.0050 0.010 Type: MS ch ID: A2 Date: 9/ PQL 0.0060 0.0060	8781 11/2015 SPK value 0.5000 0.5000	R S SPK Ref Val 0.006680 0.006090	tunNo: 28 SeqNo: 87 %REC 96.5 91.2	3781 73630 LowLimit 70 70	Units: mg/L HighLimit 130 130 130 130			Qual	
Silver Zinc Sample ID Client ID: Prep Date: Analyte Chromium Cobalt Molybdenum		ND ND Samp Rej Bato Analysis Result 0.49 0.46 0.47	0.0050 0.010 Type: MS ch ID: A2 Date: 9/ PQL 0.0060 0.0060 0.0080	8781 11/2015 SPK value 0.5000 0.5000 0.5000	R SPK Ref Val 0.006680 0.006090 0	2000 2000 2000 2000 2000 2000 2000 200	3781 73630 LowLimit 70 70 70	Units: mg/L HighLimit 130 130 130			Qual	
Silver Zinc Sample ID Client ID: Prep Date: Analyte Chromium Cobalt Molybdenum Silver Zinc		ND ND Samp Rej Bato Analysis Result 0.49 0.46 0.47 0.47 0.072 0.50	0.0050 0.010 Type: MS ch ID: A2 Date: 9/ PQL 0.0060 0.0060 0.0080 0.0050	8781 11/2015 SPK value 0.5000 0.5000 0.1000 0.5000	R SPK Ref Val 0.006680 0.006090 0 0 0 0.01942	2000 2020 2020 br>2020 2	8781 73630 LowLimit 70 70 70 70 70 70 70	Units: mg/L HighLimit 130 130 130 130	%RPD	RPDLimit	Qual	
Silver Zinc Sample ID Client ID: Prep Date: Analyte Chromium Cobalt Molybdenum Silver Zinc	Temporary R.O. R	ND ND Samp Rej Bato Analysis Result 0.49 0.46 0.47 0.072 0.50	0.0050 0.010 Type: MS ch ID: A2 Date: 9/ PQL 0.0060 0.0060 0.0080 0.0050 0.010	8781 11/2015 SPK value 0.5000 0.5000 0.5000 0.1000 0.5000	R SPK Ref Val 0.006680 0.006090 0 0 0.01942 Test	2000 2020 2020 br>2020 2	8781 73630 LowLimit 70 70 70 70 70 70 70 70	Units: mg/L HighLimit 130 130 130 130 130 130	%RPD	RPDLimit	Qual	
Silver Zinc Sample ID Client ID: Prep Date: Analyte Chromium Cobalt Molybdenum Silver Zinc Sample ID	Temporary R.O. R 1509214-001IMSD	ND ND Samp Rej Bato Analysis Result 0.49 0.46 0.47 0.072 0.50 Samp Rej Bato	0.0050 0.010 Type: MS ch ID: A2 Date: 9/ PQL 0.0060 0.0060 0.0080 0.0050 0.010	8781 11/2015 SPK value 0.5000 0.5000 0.1000 0.5000 0.5000 8781	R SPK Ref Val 0.006680 0.006090 0 0 0.01942 Test R	2400 No: 24 360 No: 8 360 No: 8 96.5 91.2 93.9 71.5 97.0 27.0 260 No: 24 27.0 2	8781 73630 200 70 70 70 70 70 70 70 70 70 8781	Units: mg/L HighLimit 130 130 130 130 130 130	%RPD	RPDLimit	Qual	
Silver Zinc Sample ID Client ID: Prep Date: Analyte Chromium Cobalt Molybdenum Silver Zinc Sample ID Client ID:	Temporary R.O. R 1509214-001IMSD	ND ND Samp Rej Bato Analysis Result 0.49 0.46 0.47 0.072 0.50 Samp Rej Bato	0.0050 0.010 Type: MS ch ID: A2 Date: 9/ PQL 0.0060 0.0060 0.0080 0.0050 0.010 Type: MS ch ID: A2	8781 11/2015 SPK value 0.5000 0.5000 0.1000 0.5000 0.5000 8781 11/2015	R SPK Ref Val 0.006680 0.006090 0 0 0.01942 Test R	2400 No: 24 360 No: 87 96.5 91.2 93.9 71.5 97.0 2000: EF 2000: 24	8781 73630 200 70 70 70 70 70 70 70 70 70 8781	Units: mg/L HighLimit 130 130 130 130 130 200.7: Dissol	%RPD	RPDLimit	Qual	
Silver Zinc Sample ID Client ID: Prep Date: Analyte Chromium Cobalt Molybdenum Silver Zinc Sample ID Client ID: Prep Date: Analyte	Temporary R.O. R 1509214-001IMSD	ND ND Samp Rej Bato Analysis Result 0.49 0.46 0.47 0.072 0.50 Samp Rej Bato Analysis	0.0050 0.010 Type: MS ch ID: A2 Date: 9/ PQL 0.0060 0.0060 0.0080 0.0050 0.010 Type: MS ch ID: A2 Date: 9/	8781 11/2015 SPK value 0.5000 0.5000 0.1000 0.5000 0.5000 8781 11/2015	R SPK Ref Val 0.006680 0 0.006090 0 0 0.01942 Test R S	2400 No: 24 360 No: 8 360 No: 8 96.5 91.2 93.9 71.5 97.0 2000 EF 2000 EF 2000 State St	8781 73630 70 70 70 70 70 70 70 70 70 70 70 70 70	Units: mg/L HighLimit 130 130 130 130 200.7: Dissol Units: mg/L	%RPD	RPDLimit		
Silver Zinc Sample ID Client ID: Prep Date: Analyte Chromium Cobalt Molybdenum Silver Zinc Sample ID Client ID: Prep Date: Analyte Chromium	Temporary R.O. R 1509214-001IMSD	ND ND Samp Rej Bato Analysis Result 0.49 0.49 0.49 0.49 0.49 0.47 0.072 0.50 Samp Rej Bato Analysis Result	0.0050 0.010 Type: MS ch ID: A2 Date: 9/ PQL 0.0060 0.0060 0.0080 0.0050 0.010 Type: MS ch ID: A2 Date: 9/ PQL	8781 11/2015 SPK value 0.5000 0.5000 0.5000 0.1000 0.5000 8781 11/2015 SPK value	R SPK Ref Val 0.006680 0.006090 0 0.01942 Test R SPK Ref Val	2400 No: 24 360 No: 87 96.5 91.2 93.9 71.5 97.0 100 Code: EF 200 Code: EF 200 Code: 87 210	8781 73630 200 70 70 70 70 70 70 70 70 70 70 70 70 7	Units: mg/L HighLimit 130 130 130 130 200.7: Dissol Units: mg/L HighLimit	%RPD	RPDLimit		
Silver Zinc Sample ID Client ID: Prep Date: Analyte Chromium Cobalt Molybdenum Silver Zinc Sample ID Client ID: Prep Date:	Temporary R.O. R 1509214-001IMSD	ND ND Samp Rej Bato Analysis Result 0.49 0.46 0.47 0.072 0.50 Samp Rej Bato Analysis Result 0.50	0.0050 0.010 Type: MS ch ID: A2 Date: 9/ PQL 0.0060 0.0060 0.0080 0.0050 0.010 Type: MS ch ID: A2 Date: 9/ PQL 0.0060	8781 11/2015 SPK value 0.5000 0.5000 0.5000 0.1000 0.5000 8781 11/2015 SPK value 0.5000	R SPK Ref Val 0.006680 0.006090 0 0.01942 Test R SPK Ref Val 0.006680	2400 No: 24 3600 No: 87 96.5 91.2 93.9 71.5 97.0 1000 EF 24 3000 State Stat	8781 73630 200 70 70 70 70 70 70 70 70 70 70 70 70 7	Units: mg/L HighLimit 130 130 130 130 200.7: Dissol Units: mg/L HighLimit 130	%RPD ved Meta %RPD 1.84	RPDLimit Is RPDLimit 20		
Silver Zinc Sample ID Client ID: Prep Date: Analyte Chromium Cobalt Molybdenum Silver Zinc Sample ID Client ID: Prep Date: Analyte Chromium Cobalt	Temporary R.O. R 1509214-001IMSD	ND ND Samp Rej Bato Analysis Result 0.49 0.46 0.47 0.072 0.50 Samp Rej Bato Analysis Result 0.50 0.47	0.0050 0.010 Type: MS ch ID: A2 Date: 9/ PQL 0.0060 0.0080 0.0050 0.010 Type: MS ch ID: A2 Date: 9/ PQL 0.0060 0.0060	8781 11/2015 SPK value 0.5000 0.5000 0.5000 0.5000 0.5000 8781 11/2015 SPK value 0.5000 0.5000	SPK Ref Val 0.006680 0.006090 0 0.01942 Test SPK Ref Val 0.006680 0.006680	2400 No: 24 3eqNo: 87 96.5 91.2 93.9 71.5 97.0 24 3code: Eff 3code: Eff 3code: 87 3code:	3781 73630 LowLimit 70 70 70 70 70 70 70 70 70 70	Units: mg/L HighLimit 130 130 130 130 130 200.7: Dissol Units: mg/L HighLimit 130 130	%RPD ved Meta %RPD 1.84 2.27	RPDLimit RPDLimit 20 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 8 of 23

WO#: 1509214

06-Oct-15

Client:	Navajo R	efining (Company	r.							
Project:	Monthly 7	Fempora	ry R.O. I	Reject							
Sample ID	1509214-001IMS	Sam	Type: M	s	TestCode: EPA 200.8: Dissolved Metals						
Client ID:	Temporary R.O. R	ej Bat	ch ID: B2	28981	F	RunNo: 2					
Prep Date:		1.77.	Date: 9	/18/2015	SeqNo: 879521			Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.13	0.0050	0.1250	0.001661	99.8	70	130			
.ead		0.061	0.0025	0.06250	0	97.7	70	130			
Selenium		0.12	0.0050	0.1250	0.008634	92.3	70	130			
Jranium		0.072	0.0025	0.06250	0.005627	106	70	130			
Sample ID	LCS	SampType: LCS			Tes	tCode: El	PA 200.8: [Dissolved Met	als		
Client ID:	LCSW Batch ID: B28981				F	RunNo: 28981					
Prep Date:	Analysis Date: 9/18/2015			5	SeqNo: 879546						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.024	0.0010	0.02500	0	95.3	85	115			
_ead		0.012	0.00050	0.01250	0	99.4	85	115			
Selenium		0.023	0.0010	0.02500	0	91.2	85	115			
Uranium		0.013	0.00050	0.01250	0	100	85	115			
Sample ID	LLLCS	Sam	Type: LC	CSLL	TestCode: EPA 200.8: Dissolved Metals						
Client ID:	BatchQC	Bat	ch ID: B2	28981	RunNo: 28981						
Prep Date:		Analysis	Date: 9	/18/2015	5	SeqNo: 8	79550	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		ND	0.0010	0.001000	0	93.3	50	150			
Lead		0.00054	0.00050	0.0005000	0	109	50	150			
Selenium		ND	0.0010	0.001000	0	89.0	50	150			
Jranium		0.00052	0.00050	0.0005000	0	104	50	150			
Sample ID	MB	Sam	Type: M	BLK	Tes	TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Bat	ch ID: B2	28981	F	RunNo: 2	8981				
Prep Date:		Analysis	Date: 9	/18/2015	5	SeqNo: 8	79554	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
		ND	0.0010								
Arsenic											
Arsenic Lead		ND	0.00050								
		ND ND	0.00050 0.0010								

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 9 of 23

Maria D.C.

~

WO#: 1509214 06-Oct-15

Client: Project:	5	o Refining Company hly Temporary R.O. Reject							
Sample ID Client ID:	MB-21298 PBW	SampType: MBLK Batch ID: 21298							
Prep Date:	9/15/2015	Analysis Date: 9/15/2015	SeqNo: 875782	Units: mg/L					
Analyte		Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual				
Mercury		ND 0.00020							
Sample ID	LCS-21298	SampType: LCS	TestCode: EPA Method	245.1: Mercury					
Client ID:	LCSW	Batch ID: 21298	RunNo: 28872						
Prep Date:	9/15/2015	Analysis Date: 9/15/2015	SeqNo: 875785	Units: mg/L					
Analyte		Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual				
Mercury		0.0048 0.00020 0.005000	0 95.4 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
- P Sample pH Not In Range
- RL Reporting Detection Limit

Page 10 of 23

WO#:	1509214

06-Oct-15

Client:		Navajo Refi	1.000									
Project:		Monthly Ter	mporary	R.O. I	Reject							
Sample ID	МВ		SampTy	pe: ME	BLK	TestCode: EPA Method 300.0: Anions						
Client ID:	PBW		Batch	D: R2	8686	F	RunNo: 2	8686				
Prep Date:		A	nalysis Da	te: 9/	4/2015	SeqNo: 869229			Units: mg/L			
Analyte		F	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride			ND	0.10								
Chloride			ND	0.50								
Nitrogen, Nitrate	e (As N)		ND	0.10								
Sample ID	LCS		SampTy	pe: LC	s	TestCode: EPA Method 300.0: Anions						
Client ID:	LCSW		Batch	D: R2	8686	RunNo: 28686						
Prep Date:		A	Analysis Date: 9/4/2015			SeqNo: 869230			Units: mg/L			
Analyte		F	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride			0.49	0.10	0.5000	0	97.5	90	110			
Chloride			4.9	0.50	5.000	0	98.5	90	110			
Nitrogen, Nitrate	e (As N)		2.6	0.10	2.500	0	104	90	110			
Sample ID	мв		SampTy	pe: ME	BLK	Tes	tCode: El	PA Method	300.0: Anions			
Client ID:	PBW		Batch	D: R2	8852	F	RunNo: 2	8852				
Prep Date:		A	nalysis Da	te: 9/	14/2015	S	SeqNo: 8	75093	Units: mg/L			
Analyte		F	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate			ND	0.50								
Sample ID	LCS		SampTy	pe: LC	s	Tes	tCode: El	PA Method	300.0: Anions			
Client ID:	LCSW		Batch	D: R2	8852	F	RunNo: 2	8852				
Prep Date:		A	nalysis Da	te: 9/	14/2015	5	SeqNo: 8	75094	Units: mg/L			
Analyte		F	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate			9.8	0.50	10.00	0	98.4	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
- P Sample pH Not In Range
- RL Reporting Detection Limit

Page 11 of 23

Maria D.C.

~

WO#: 1509214

	ly Temporary R.O. Reject	
Sample ID MB-21198 Client ID: PBW	SampType: MBLK Batch ID: 21198	TestCode: EPA Method 8011/504.1: EDB RunNo: 28723
Prep Date: 9/9/2015	Analysis Date: 9/9/2015	SeqNo: 870483 Units: µg/L
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
,2-Dibromoethane	ND 0.010	
Sample ID LCS-21198	SampType: LCS	TestCode: EPA Method 8011/504.1: EDB
Client ID: LCSW	Batch ID: 21198	RunNo: 28723
Prep Date: 9/9/2015	Analysis Date: 9/9/2015	SeqNo: 870484 Units: µg/L
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
,2-Dibromoethane	0.078 0.010 0.1000	0 78.0 70 130

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 R
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- **Reporting Detection Limit** RL

Page 12 of 23

WO#:	1509214
	06 Oct 15

Client: Project:		Refining Co y Temporary		Reject								
Sample ID	MB-21183	SampT	ype: ME	3LK	TestCode: EPA Method 8015M/D: Diesel Range							
Client ID:	PBW	Batch	ID: 21	183	F	RunNo: 28717						
Prep Date:	9/8/2015	Analysis D	ate: 9/	9/2015	S	eqNo: 8	70900	Units: mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range (Organics (DRO)	ND	1.0									
Motor Oil Rang	e Organics (MRO)	ND	5.0									
Surr: DNOP		1.0		1.000		102	72	136				
Sample ID	LCS-21183	SampT	ype: LC	S	Tes	tCode: El	PA Method	8015M/D: Die	sel Range	e		
Client ID:	LCSW Batch ID: 21183				F	unNo: 2	8717					
Prep Date:	. 9/8/2015 Analysis Date: 9/9/2015			SeqNo: 870912			Units: mg/L					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range (Organics (DRO)	5.1	1.0	5.000	0	102	52.4	154				
Surr: DNOP		0.52		0.5000		104	72	136				
Sample ID	1509214-001BM	S SampT	ype: MS	3	Tes	tCode: El	PA Method	8015M/D: Die	sel Range	e		
Client ID:	Temporary R.O.	Rej Batch	D: 21	183	F	unNo: 2	8717					
Prep Date:	9/8/2015	Analysis D	ate: 9/	9/2015	S	eqNo: 8	70914	Units: mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range (Organics (DRO)	6.1	1.0	5.000	0	123	41.3	177				
Surr: DNOP		0.61	1000	0.5000	801-4	122	72	136				
Sample ID	1509214-001BM	SD SampT	ype: MS	5D	Tes	Code: El	PA Method	8015M/D: Die	sel Range	e		
Client ID:	Temporary R.O.	Rej Batch	ID: 21	183	F	unNo: 2	8717					
Prep Date:	9/8/2015	Analysis D	ate: 9/	9/2015	S	eqNo: 8	70915	Units: mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
iesel Range (Organics (DRO)	5.1	1.0	5.000	0	102	-94.6	317	18.0	22.1		
Surr: DNOP		0.54		0.5000		108	72	136	0	0		

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 R
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Detection Limit

Page 13 of 23

WO#:	1509214
	06-Oct-15

Client:	Navajo R	efining Co	mpany									
Project:	And the second sec	Temporary		Reject								
,		1 2		,								
Sample ID	5ML RB	SampTy	pe: ME	BLK	TestCode: EPA Method 8015D: Gasoline Range							
Client ID:	PBW	Batch	ID: R2	8761	R	RunNo: 28761						
Prep Date:		Analysis Da	ate: 9/	10/2015	S	eqNo: 8	72128	Units: mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
	e Organics (GRO)	ND	0.050	01111100		101120	Longin	- ignetitie	/or a D		auai	
Surr: BFB	, , , ,	18		20.00		90.2	57.8	137				
Sample ID	2.5UG GRO LCS	S	Test	Code: El	PA Method	8015D: Gasol	ine Rang	e				
Client ID:	LCSW Batch ID: R28761				R	unNo: 2	8761					
Prep Date:		Analysis Da	ate: 9/	10/2015	S	eqNo: 8	72129	Units: mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Rang	e Organics (GRO)	0.49	0.050	0.5000	0	98.9	80	120				
Surr: BFB		19		20.00		94.5	57.8	137				
Sample ID	1509214-001AMS	SampTy	pe: MS	6	Test	Code: El	PA Method	8015D: Gasol	ine Rang	e		
Client ID:	Temporary R.O. F	Rej Batch	ID: R2	8761	RunNo: 28761							
Prep Date:		Analysis Da	ate: 9/	10/2015	S	eqNo: 8	72139	Units: mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Ranc	e Organics (GRO)	0.43	0.050	0.5000	0		70	130				
case into rading		0.10	0.000	0.5000	0	85.6	10	130				
Surr: BFB		20	0.000	20.00	0	85.6 99.4	57.8	130				
Surr: BFB	1509214-001AMS	20		20.00		99.4	57.8		ine Rang	e		
Surr: BFB Sample ID		20 D SampTy		20.00	Test	99.4	57.8 PA Method	137	ine Rang	e		
Surr: BFB Sample ID	1509214-001AMS	20 D SampTy	/pe: M \$ ID: R2	20.00 SD 8761	Tesi	99.4 Code: El	57.8 PA Method 8761	137	ine Rang	e		
Surr: BFB Sample ID Client ID:	1509214-001AMS	20 D SampTy Rej Batch	/pe: M \$ ID: R2	20.00 BD 8761 10/2015	Tesi	99.4 Code: El	57.8 PA Method 8761	137 8015D: Gasol	ine Rang %RPD	e RPDLimit	Qual	
Surr: BFB Sample ID Client ID: Prep Date: Analyte	1509214-001AMS	20 D SampTy Rej Batch Analysis Da	ype: M\$ ID: R2 ate: 9/	20.00 BD 8761 10/2015	Test R S	99.4 Code: El JunNo: 2 SeqNo: 8	57.8 PA Method 8761 72140	137 8015D: Gasol Units: mg/L			Qual	

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 14 of 23

QC SU	MMARY REPORT	
Hall En	vironmental Analysis Laboratory, Inc.	

Client:Navajo Refining CompanyProject:Monthly Temporary R.O. Reject

Sample ID MB-21192	SampType	MBLK	lethod	8082: PCB's					
Client ID: PBW	Batch ID:	21192	F	RunNo: 28758	3				
Prep Date: 9/9/2015	Analysis Date:	9/11/2015	S	eqNo: 87259	97	Units: µg/L			
Analyte	Result P	QL SPK value	SPK Ref Val	%REC Low	wLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0							
Aroclor 1221	ND	1.0							
Aroclor 1232	ND	1.0							
Aroclor 1242	ND	1.0							
Aroclor 1248	ND	1.0							
Aroclor 1254	ND	1.0							
Aroclor 1260	ND	1.0							
Surr: Decachlorobiphenyl	1.6	2.500		62.8	17.7	151			
Surr: Tetrachloro-m-xylene	1.3	2.500		50.4	20.6	151			
Sample ID LCS-21192	SampType	LCS	Tes	tCode: EPA N	Aethod a	8082: PCB's			
Client ID: LCSW	Batch ID:	21192	F	RunNo: 28758	3				
Prep Date: 9/9/2015	Analysis Date:	9/11/2015	SeqNo: 873603 Units: µg/L						
Analyte	Result P	QL SPK value	SPK Ref Val	%REC Low	wLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.2	1.0 5.000	0	44.8	9.01	142			
Aroclor 1260	3.3	1.0 5.000	0	65.3	25.6	164			
Surr: Decachlorobiphenyl	1.4	2.500		58.0	17.7	151			
Surr: Tetrachloro-m-xylene	1.3	2.500		52.0	20.6	151			
Sample ID LCSD-21192	SampType	LCSD	Tes	tCode: EPA N	Aethod a	8082: PCB's			
Client ID: LCSS02	Batch ID:	21192	F	RunNo: 28758	3				
Prep Date: 9/9/2015	Analysis Date:	9/11/2015	S	SeqNo: 87360)4	Units: µg/L			
Analyte	Result P	QL SPK value	SPK Ref Val	%REC Lo	wLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.0	1.0 5.000	0	39.0	9.01	142	13.7	26.9	
Aroclor 1260	3.0	1.0 5.000	0	59.2	25.6	164	9.84	29.1	
Surr: Decachlorobiphenyl	1.3	2.500		53.2	17.7	151	0	0	
Surr: Tetrachloro-m-xylene	1.1	2.500		42.8	20.6	151	0	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
- P Sample pH Not In Range
- RL Reporting Detection Limit

Page 15 of 23

WO#: 1509214 06-Oct-15

Client:	Navajo Refining Company
247 W U	2014년 - ¹ 한동안 2011 - ¹¹¹¹ - 전한 전망하는 184

Project: Monthly Temporary R.O. Reject

Sample ID 100ng Ics	SampType: LCS TestCode: EPA Method 8260B: VOLATILES									
Client ID: LCSW	Batch	ID: R2	8707	R	unNo: 20	B707				
Prep Date:	Analysis D	ate: 9/	8/2015	S	eqNo: 8	70059	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	105	70	130			
Toluene	20	1.0	20.00	0	100	70	130			
Chlorobenzene	21	1.0	20.00	0	104	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	117	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	94.0	70	130			
Surr: 1,2-Dichloroethane-d4	9.8		10.00		97.5	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			
Sample ID rb	SampT	ype: ME	BLK	Test	Code: EF	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch ID: R28707			R	unNo: 28	B707				
Prep Date:	Analysis D	ate: 9/	8/2015	S	eqNo: 8	70063	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane										
Bromoform	ND	1.0								
Deserves	ND	1.0 1.0								
Bromomethane										
Bromomethane 2-Butanone	ND	1.0								
2-Butanone	ND ND	1.0 3.0								
	ND ND ND	1.0 3.0 10								
2-Butanone Carbon disulfide	ND ND ND ND	1.0 3.0 10 10								
2-Butanone Carbon disulfide Carbon Tetrachloride Chlorobenzene	ND ND ND ND	1.0 3.0 10 10 1.0								
2-Butanone Carbon disulfide Carbon Tetrachloride Chlorobenzene Chloroethane	ND ND ND ND ND ND	1.0 3.0 10 1.0 1.0 2.0								
2-Butanone Carbon disulfide Carbon Tetrachloride	ND ND ND ND ND	1.0 3.0 10 10 1.0 1.0								

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

Page 16 of 23

WO#: 1509214 06-Oct-15

	o Refining Co	107 C										
Project: Month	ly Temporary	R.O. Reject										
Sample ID rb	SampT	ype: MBLK	Tes	TestCode: EPA Method 8260B: VOLATILES								
Client ID: PBW	Batch	ID: R28707	ſ	RunNo: 2	8707							
Prep Date:	Analysis Date: 9/8/2015		;	SeqNo: 8	70063	Units: µg/L						
Analyte	Result	PQL SPK value	e SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual			
1-Chlorotoluene	ND	1.0										
dis-1,2-DCE	ND	1.0										
cis-1,3-Dichloropropene	ND	1.0										
1,2-Dibromo-3-chloropropane	ND	2.0										
Dibromochloromethane	ND	1.0										
Dibromomethane	ND	1.0										
1,2-Dichlorobenzene	ND	1.0										
1,3-Dichlorobenzene	ND	1.0										
1,4-Dichlorobenzene	ND	1.0										
Dichlorodifluoromethane	ND	1.0										
1.1 Dichloroethane	ND	1.0										
I,1-Dichloroethene	ND	1.0										
,2-Dichloropropane	ND	1.0										
1,3-Dichloropropane	ND	1.0										
2,2-Dichloropropane	ND	2.0										
I,1-Dichloropropene	ND	1.0										
Hexachlorobutadiene	ND	1.0										
2-Hexanone	ND	10										
sopropylbenzene	ND	1.0										
1-Isopropyltoluene	ND	1.0										
4-Methyl-2-pentanone	ND	10										
Methylene Chloride	ND	3.0										
n-Butylbenzene	ND	3.0										
n-Propylbenzene	ND	1.0										
sec-Butylbenzene	ND	1.0										
Styrene	ND	1.0										
ert-Butylbenzene	ND	1.0										
1,1,1,2-Tetrachloroethane	ND	1.0										
1,1,2,2-Tetrachloroethane	ND	2.0										
Tetrachloroethene (PCE)	ND	1.0										
rans-1,2-DCE	ND	1.0										
rans-1,3-Dichloropropene	ND	1.0										
1,2,3-Trichlorobenzene	ND	1.0										
,2,4-Trichlorobenzene	ND	1.0										
1,1,1-Trichloroethane	ND	1.0										
1,1,2-Trichloroethane	ND	1.0										
Trichloroethene (TCE)	ND	1.0										
Frichlorofluoromethane	ND											
		1.0										
1,2,3-Trichloropropane	ND	2.0										

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

Page 17 of 23

WO#: 1509214 06-Oct-15

Client:Navajo Refining CompanyProject:Monthly Temporary R.O. Reject

_

Sample ID rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R28707			F	RunNo: 2	8707				
Prep Date:	Analysis Da	ate: 9/	8/2015	5	SeqNo: 8	70063	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.3	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		95.5	70	130			
Surr: Dibromofluoromethane	10		10.00		105	70	130			
Surr: Toluene-d8	9.0		10.00		90.4	70	130			

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 18 of 23

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214 06-Oct-15

and the second	Refining Co y Temporary		Reject							
Sample ID MB-21193	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: PBW	Batch	D: 21	193	F	RunNo: 2	8760				
Prep Date: 9/9/2015	Analysis D)ate: 9/	11/2015	s	SeqNo: 8	72124	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								1
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Benzo(a)pyrene	ND	0.070								
Surr: Benzo(e)pyrene	7.7		20.00		38.7	37.2	136			
Sample ID LCS-21193	SampT	ype: LC	S	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: LCSW	Batch	Batch ID: 21193			RunNo: 2	8760				
Prep Date: 9/9/2015	Analysis Date: 9/11/2015			5	SeqNo: 872224 Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	60	2.0	80.00	0	74.8	57.8	83.9			
1-Methylnaphthalene	60	2.0	80.20	0	75.2	43.5	88.5			
2-Methylnaphthalene	60	2.0	80.00	0	74.6	34.2	94.5			
Benzo(a)pyrene	0.38	0.070	0.5020	0	75.7	56.3	98.6			
Surr: Benzo(e)pyrene	9.9		20.00		49.3	37.2	136			
Sample ID LCSD-21193	SampT	ype: LC	SD	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: LCSS02	Batch	n ID: 21	193	F	RunNo: 2	8760				
Prep Date: 9/9/2015	Analysis D	ate: 9/	11/2015	S	SeqNo: 8	72225	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	59	2.0	80.00	0	73.6	57.8	83.9	1.55	20	
1-Methylnaphthalene	59	2.0	80.20	0	73.8	43.5	88.5	1.94	20	
2-Methylnaphthalene	58	2.0	80.00	0	72.8	34.2	94.5	2.46	20	
Benzo(a)pyrene	0.37	0.070	0.5020	0	73.7	56.3	98.6	2.67	20	
Surr: Benzo(e)pyrene	9.3		20.00		46. <mark>4</mark>	37.2	136	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
- P Sample pH Not In Range
- RL Reporting Detection Limit

Page 19 of 23

WO#:	1509214
	06-Oct-15

	o Refining Companies Refining Companies Refining R.O								
Sample ID MB-21585	SampType:	MBLK	Tes	tCode: To	otal Phenol	ics by SW-84	6 9067		
Client ID: PBW	Batch ID:	21585	F	RunNo: 2	9183				
Prep Date: 9/30/2015	Analysis Date:	9/30/2015	S	eqNo: 8	86370	Units: µg/L			
Analyte	Result PQ	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND 2	5							
Sample ID LCS-21585	SampType:	CS	Tes	tCode: To	tal Phenol	ics by SW-84	6 9067		
Client ID: LCSW	Batch ID:	21585	F	RunNo: 2	9183				
Prep Date: 9/30/2015	Analysis Date:	9/30/2015	S	eqNo: 8	86371	Units: µg/L			
Analyte	Result PQ	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	17 2	5 20.00	0	83.6	64.4	135			

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 20 of 23

10-001-15

WO#:	1509214
	06-Oct-15

Qual

Qual

Client: Project:		Refining Con ly Temporary									
Sample ID	MB-R29270	SampTy	pe: M	BLK	Tes	tCode: El	PA 335.4: T	otal Cyanide	Subbed		
Client ID:	PBW	Batch	ID: R	29270	F	RunNo: 2	9270				
Prep Date:		Analysis Da	ate: 9	/15/2015	S	SeqNo: 8	89324	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	
Cyanide		ND	0.0100								
Sample ID	LCS-R29270	SampTy	pe: LO	cs	Tes	tCode: El	PA 335.4: T	otal Cyanide	Subbed		
Client ID:	LCSW	Batch	ID: R	29270	F	RunNo: 2	9270				
Prep Date:		Analysis Da	ate: 9	/15/2015	S	SeqNo: 8	89325	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	
Cyanide		0.478		0.5000	0	95.6	90	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 R
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- **Reporting Detection Limit** RL

- Page 21 of 23

WO#: 1509214 06-Oct-15

Client:	Navajo Refining Company
Project:	Monthly Temporary R.O. Reject

Sample ID MB-R29270	SampType: MBLK			TestCode: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed							
Client ID: PBW	Batc	Batch ID: R29270			unNo: 2	9270					
Prep Date:	Analysis D)ate: 9/	28/2015	S	eqNo: 8	89327	Units: pCi/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Radium-226	0.461	0.612									
Radium-226 ±	0.431	0.612									
Radium-228	0.202	0.549									
Radium-228 ±	0.259	0.549									

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 22 of 23

...

DC

WO#:	1509214
	06-Oct-15

	 Refining Company ly Temporary R.O. Reject 			
Sample ID MB-21204 Client ID: PBW Prep Date: 9/9/2015	SampType: MBLK Batch ID: 21204 Analysis Date: 9/10/2015	TestCode: SM2540C MC RunNo: 28757 SeqNo: 871932	DD: Total Dissolved Solids Units: mg/L	
Analyte Total Dissolved Solids	Result PQL SPK value ND 20.0	SPK Ref Val %REC LowLimit	HighLimit %RPD RPDLimit	Qual
Sample ID LCS-21204 Client ID: LCSW	SampType: LCS Batch ID: 21204	TestCode: SM2540C MC RunNo: 28757	DD: Total Dissolved Solids	
Prep Date: 9/9/2015 Analyte Total Dissolved Solids	Analysis Date: 9/10/2015 Result PQL SPK value 1020 20.0 1000	SeqNo: 871933 SPK Ref Val %REC LowLimit 0 102 80	Units: mg/L HighLimit %RPD RPDLimit 120	Qual

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 23 of 23

1