

UICI-8-1

Quarterly Reports

2022



HollyFrontier Navajo Refining LLC
501 East Main, Artesia, New Mexico 88210
Tel: 575-748-3311
hollyfrontier.com

February 1, 2022

Mr. Carl Chavez, CHMM
New Mexico Oil Conservation Division (Albuquerque Office)
Energy, Minerals and Natural Resources Department
5200 Oakland Avenue, NE
Albuquerque, NM 87113

RE: 2022 2nd Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, WDW-4 HollyFrontier Navajo Refining LLC

Dear Mr. Chavez,

Enclosed, please find the second quarter 2022 sampling results for fluids injected into WDW-1, WDW-2, WDW-3 and WDW-4 and a table showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the second quarter, the average injection pressure for each well was 1077 psig for WDW-1, 1005 psig for WDW-2, 879 psig for WDW-3 and 153 psig for WDW-4. The average flows were 218 gpm for WDW-1, 83 gpm for WDW-2, 103 gpm for WDW-3 and 185 gpm for WDW-4. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicate parameters are within permit limits.

This report covers the period from October 1, 2021 to December 31, 2021. Navajo has disposed a total of 2,326,937 barrels of fluid into the four wells during the fourth quarter of 2020. The volume per well is:

- 854,331 barrels into WDW-1; 30-015-27592
- 329,520 barrels into WDW-2; 30-015-20894
- 403,783 barrels into WDW-3; 30-015-26575
- 739,303 barrels into WDW-4; 30-015-44677

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Randy Dade at 575-746-5281.

Respectfully,

A handwritten signature in blue ink, appearing to read 'Kawika Tupou'.

Kawika Tupou
Environmental Manager
HollyFrontier Navajo Refining LLC

2022 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Average INJ. Pressure (psig)	Maximum INJ. Pressure (psig)	Minimum INJ. Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average			Maximum Volume (bpd)	Minimum Volume (bpd)	TOTAL CUMULATIVE Volume (barrels)		
						Annular Pressure Av (psig)	Annular Pressure Mx (psig)	Annular Pressure Mn (psig)					
30-015-27592 WDW-1													
Oct-21	993	719	228	292	116	81	257	5	7,817	10,011	3,977	47,626,294	
Nov-21	1,111	780	208	255	159	37	142	0	7,131	8,743	5,451	47,868,625	
Dec-21	1,126	996	217	265	162	51	118	16	7,440	9,086	5,554	48,168,145	
Monthly Avg	1,077		218								TOTAL	48,480,625	
												854,331	
30-015-20894 WDW-2													
Oct-21	987	0	77	91	53	295	574	96	2,640	3,120	1,817	29,429,340	
Nov-21	1,034	790	82	110	41	177	384	96	2,811	3,771	1,406	29,511,180	
Dec-21	993	891	90	106	73	146	323	104	3,086	3,634	2,503	29,629,260	
Monthly Avg	1,005		83								TOTAL	29,758,860	
												329,520	
30-015-26575 WDW-3													
Oct-21	894	0	113	141	75	309	490	180	3,874	4,834	2,571	21,281,293	
Nov-21	874	772	103	125	82	441	644	225	3,531	4,286	2,811	21,401,396	
Dec-21	868	735	94	113	54	460	626	398	3,223	3,068	1,851	21,549,716	
Monthly Avg	879		103								TOTAL	21,685,076	
												403,783	
30-015-44677 WDW-4													
Oct-21	145	0	155	253	88	84	189	52	5,314	8,674	3,017	6,263,350	
Nov-21	143	119	159	249	77	79	124	53	5,451	8,537	2,640	6,428,093	
Dec-21	171	160	240	284	208	94	125	71	8,229	9,737	7,131	6,657,053	
Monthly Avg	153		185								TOTAL	7,002,653	
												739,303	
Total BBLS													
Beginning Volume											Ending Volume		
WDW1											854,331	47,626,294	48,480,625
WDW2											329,520	29,429,340	29,758,860
WDW3											403,783	21,281,293	21,685,076
WDW4											739,303	6,263,350	7,002,653



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

January 20, 2022

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

RE: Quarterly WDW 1 2 3 4 Inj Well

OrderNo.: 2112C79

Dear Randy Dade:

Hall Environmental Analysis Laboratory received 2 sample(s) on 12/22/2021 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", with a stylized flourish at the end.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109



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

Case Narrative

WO#: 2112C79
Date: 1/20/2022

CLIENT: Navajo Refining Company

Project: Quarterly WDW 1 2 3 4 Inj Well

Analytical Notes Regarding EPA Method 8270:

Pyridine is reported with an "E" flag. The "E" flag is used to represent an estimated value. Pyridine was not detected in the sample, but the calibration curve for this compound did not meet the method requirements.

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 2112C79

Date Reported: 1/20/2022

CLIENT: Navajo Refining Company**Client Sample ID:** WDW-1,2,3 & 4 Effluent**Project:** Quarterly WDW 1 2 3 4 Inj Well**Collection Date:** 12/21/2021 10:15:00 AM**Lab ID:** 2112C79-001**Matrix:** AQUEOUS**Received Date:** 12/22/2021 7:25:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8081: PESTICIDES TCLP								
							Analyst: LSB	
Chlordane	ND	0.0012	0.075		mg/L	1	1/11/2022 7:03:42 PM	64757
Surr: Decachlorobiphenyl	73.2	0	73-119		%Rec	1	1/11/2022 7:03:42 PM	64757
Surr: Tetrachloro-m-xylene	60.2	0	36.6-84.1		%Rec	1	1/11/2022 7:03:42 PM	64757
EPA METHOD 300.0: ANIONS								
							Analyst: MRA	
Fluoride	57	0.80	2.0	*	mg/L	20	12/22/2021 3:16:42 PM	R84756
Chloride	800	25	50	*	mg/L	100	1/8/2022 2:29:50 PM	R85040
Nitrogen, Nitrite (As N)	ND	0.027	0.50		mg/L	5	12/22/2021 3:04:18 PM	R84756
Bromide	0.80	0.25	0.50		mg/L	5	12/22/2021 3:04:18 PM	R84756
Nitrogen, Nitrate (As N)	0.45	0.050	0.50	J	mg/L	5	12/22/2021 3:04:18 PM	R84756
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5		mg/L	5	12/22/2021 3:04:18 PM	R84756
Sulfate	1800	25	50	*	mg/L	100	1/8/2022 2:29:50 PM	R85040
EPA METHOD 7470A: MERCURY								
							Analyst: VP	
Mercury	ND	0.20	0.0010		mg/L	5	12/27/2021 5:00:11 PM	64706
EPA METHOD 6010B: DISSOLVED METALS								
							Analyst: JLF	
Calcium	340	0.29	5.0		mg/L	5	12/22/2021 8:17:59 PM	A84757
Magnesium	110	0.17	5.0		mg/L	5	12/22/2021 8:17:59 PM	A84757
Potassium	140	1.0	5.0		mg/L	5	12/22/2021 8:17:59 PM	A84757
Sodium	850	21	50		mg/L	50	12/22/2021 8:20:16 PM	A84757
EPA 6010B: TOTAL RECOVERABLE METALS								
							Analyst: JLF	
Arsenic	ND	0.22	5.0		mg/L	10	1/4/2022 5:19:46 PM	64703
Barium	0.041	0.011	100	J	mg/L	10	1/4/2022 4:12:19 PM	64703
Cadmium	ND	0.012	1.0		mg/L	10	1/4/2022 7:10:30 PM	64703
Chromium	ND	0.017	5.0		mg/L	10	1/4/2022 4:12:19 PM	64703
Lead	0.19	0.13	5.0	J	mg/L	10	1/18/2022 7:46:25 AM	64703
Selenium	ND	0.25	1.0		mg/L	10	1/4/2022 7:10:30 PM	64703
Silver	0.015	0.013	5.0	J	mg/L	10	1/4/2022 4:12:19 PM	64703
EPA METHOD 8270C TCLP								
							Analyst: JME	
2-Methylphenol	0.016	0.0010	200	JD	mg/L	2	1/5/2022 4:05:58 AM	64755
3+4-Methylphenol	0.026	0.00090	200	JD	mg/L	2	1/5/2022 4:05:58 AM	64755
2,4-Dinitrotoluene	ND	0.0012	0.13	D	mg/L	2	1/5/2022 4:05:58 AM	64755
Hexachlorobenzene	ND	0.0013	0.13	D	mg/L	2	1/5/2022 4:05:58 AM	64755
Hexachlorobutadiene	ND	0.0016	0.50	D	mg/L	2	1/5/2022 4:05:58 AM	64755
Hexachloroethane	ND	0.00090	3.0	D	mg/L	2	1/5/2022 4:05:58 AM	64755
Nitrobenzene	ND	0.0010	2.0	D	mg/L	2	1/5/2022 4:05:58 AM	64755
Pentachlorophenol	ND	0.0012	100	D	mg/L	2	1/5/2022 4:05:58 AM	64755
Pyridine	ND	0.0019	40	ED	mg/L	2	1/5/2022 4:05:58 AM	64755
2,4,5-Trichlorophenol	ND	0.0012	400	D	mg/L	2	1/5/2022 4:05:58 AM	64755

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

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
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix interference

B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 2112C79

Date Reported: 1/20/2022

CLIENT: Navajo Refining Company**Client Sample ID:** WDW-1,2,3 & 4 Effluent**Project:** Quarterly WDW 1 2 3 4 Inj Well**Collection Date:** 12/21/2021 10:15:00 AM**Lab ID:** 2112C79-001**Matrix:** AQUEOUS**Received Date:** 12/22/2021 7:25:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C TCLP								
							Analyst: JME	
2,4,6-Trichlorophenol	ND	0.00087	2.0	D	mg/L	2	1/5/2022 4:05:58 AM	64755
Cresols, Total	0.042	0.0010	200	JD	mg/L	2	1/5/2022 4:05:58 AM	64755
Surr: 2-Fluorophenol	0.497	0	15-118	SD	%Rec	2	1/5/2022 4:05:58 AM	64755
Surr: Phenol-d5	11.8	0	15-92.9	SD	%Rec	2	1/5/2022 4:05:58 AM	64755
Surr: 2,4,6-Tribromophenol	1.36	0	15-150	SD	%Rec	2	1/5/2022 4:05:58 AM	64755
Surr: Nitrobenzene-d5	71.4	0	15-136	D	%Rec	2	1/5/2022 4:05:58 AM	64755
Surr: 2-Fluorobiphenyl	69.9	0	15-134	D	%Rec	2	1/5/2022 4:05:58 AM	64755
Surr: 4-Terphenyl-d14	110	0	15-168	D	%Rec	2	1/5/2022 4:05:58 AM	64755
TCLP VOLATILES BY 8260B								
							Analyst: RAA	
Benzene	0.27	0.00023	0.50	J	mg/L	200	12/27/2021 9:36:53 PM	T84811
1,2-Dichloroethane (EDC)	ND	0.00025	0.50		mg/L	200	12/27/2021 9:36:53 PM	T84811
2-Butanone	ND	0.0020	200		mg/L	200	12/27/2021 9:36:53 PM	T84811
Carbon Tetrachloride	ND	0.00018	0.50		mg/L	200	12/27/2021 9:36:53 PM	T84811
Chloroform	ND	0.00013	6.0		mg/L	200	12/27/2021 9:36:53 PM	T84811
1,4-Dichlorobenzene	ND	0.00021	7.5		mg/L	200	12/27/2021 9:36:53 PM	T84811
1,1-Dichloroethene	ND	0.00020	0.70		mg/L	200	12/27/2021 9:36:53 PM	T84811
Tetrachloroethene (PCE)	ND	0.00036	0.70		mg/L	200	12/27/2021 9:36:53 PM	T84811
Trichloroethene (TCE)	ND	0.00020	0.50		mg/L	200	12/27/2021 9:36:53 PM	T84811
Vinyl chloride	ND	0.00032	0.20		mg/L	200	12/27/2021 9:36:53 PM	T84811
Chlorobenzene	0.069	0.00016	100	J	mg/L	200	12/27/2021 9:36:53 PM	T84811
Surr: 1,2-Dichloroethane-d4	107	0	70-130		%Rec	200	12/27/2021 9:36:53 PM	T84811
Surr: 4-Bromofluorobenzene	98.7	0	70-130		%Rec	200	12/27/2021 9:36:53 PM	T84811
Surr: Dibromofluoromethane	110	0	70-130		%Rec	200	12/27/2021 9:36:53 PM	T84811
Surr: Toluene-d8	91.3	0	70-130		%Rec	200	12/27/2021 9:36:53 PM	T84811
SM2510B: SPECIFIC CONDUCTANCE								
							Analyst: JRR	
Conductivity	7400	10	10		µmhos/c	1	12/27/2021 1:08:18 PM	R84794
SM2320B: ALKALINITY								
							Analyst: JRR	
Bicarbonate (As CaCO3)	826.6	20.00	20.00		mg/L Ca	1	12/27/2021 1:08:18 PM	R84794
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	12/27/2021 1:08:18 PM	R84794
Total Alkalinity (as CaCO3)	826.6	20.00	20.00		mg/L Ca	1	12/27/2021 1:08:18 PM	R84794
SPECIFIC GRAVITY								
							Analyst: JRR	
Specific Gravity	1.002	0	0			1	1/7/2022 12:54:00 PM	R85017
SM2540C MOD: TOTAL DISSOLVED SOLIDS								
							Analyst: CJS	
Total Dissolved Solids	5340	100	100	*D	mg/L	1	12/30/2021 10:03:00 A	64762

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

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
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference

- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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Analytical Report

Lab Order 2112C79

Date Reported: 1/20/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: TRIP BLANK

Project: Quarterly WDW 1 2 3 4 Inj Well

Collection Date:

Lab ID: 2112C79-002

Matrix: TRIP BLANK

Received Date: 12/22/2021 7:25:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
TCLP VOLATILES BY 8260B							Analyst: RAA	
Benzene	ND	0.00023	0.50		mg/L	1	12/27/2021 10:03:52 P	T84811
1,2-Dichloroethane (EDC)	ND	0.00025	0.50		mg/L	1	12/27/2021 10:03:52 P	T84811
2-Butanone	ND	0.0020	200		mg/L	1	12/27/2021 10:03:52 P	T84811
Carbon Tetrachloride	ND	0.00018	0.50		mg/L	1	12/27/2021 10:03:52 P	T84811
Chloroform	ND	0.00013	6.0		mg/L	1	12/27/2021 10:03:52 P	T84811
1,4-Dichlorobenzene	ND	0.00021	7.5		mg/L	1	12/27/2021 10:03:52 P	T84811
1,1-Dichloroethene	ND	0.00020	0.70		mg/L	1	12/27/2021 10:03:52 P	T84811
Tetrachloroethene (PCE)	ND	0.00036	0.70		mg/L	1	12/27/2021 10:03:52 P	T84811
Trichloroethene (TCE)	ND	0.00020	0.50		mg/L	1	12/27/2021 10:03:52 P	T84811
Vinyl chloride	ND	0.00032	0.20		mg/L	1	12/27/2021 10:03:52 P	T84811
Chlorobenzene	ND	0.00016	100		mg/L	1	12/27/2021 10:03:52 P	T84811
Surr: 1,2-Dichloroethane-d4	105	0	70-130	%Rec		1	12/27/2021 10:03:52 P	T84811
Surr: 4-Bromofluorobenzene	93.3	0	70-130	%Rec		1	12/27/2021 10:03:52 P	T84811
Surr: Dibromofluoromethane	105	0	70-130	%Rec		1	12/27/2021 10:03:52 P	T84811
Surr: Toluene-d8	102	0	70-130	%Rec		1	12/27/2021 10:03:52 P	T84811

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Estimated value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix interference		



ANALYTICAL REPORT

January 04, 2022

Hall Environmental Analysis Laboratory

Sample Delivery Group: L1445523

Samples Received: 12/23/2021

Project Number:

Description:

Report To: Andy Freeman
4901 Hawkins NE
Albuquerque, NM 87109

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Entire Report Reviewed By:

John Hawkins
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

ACCOUNT:

Hall Environmental Analysis Laboratory

PROJECT:

SDG:

L1445523

DATE/TIME:

01/04/22 12:21

PAGE:

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SAMPLE SUMMARY

2112C79-001F WDW-1,2,3 & 4 EFFLUENT L1445523-01 GW

Collected by

Collected date/time

Received date/time

12/21/21 10:15

12/23/21 09:50

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2580	WG1794960	1	01/02/22 08:47	01/02/22 08:47	ARD	Mt. Juliet, TN
Wet Chemistry by Method 4500 CN E-2016	WG1794923	10	12/26/21 22:40	12/28/21 14:51	KEG	Mt. Juliet, TN
Wet Chemistry by Method 4500 S2 D-2011	WG1797616	1	01/03/22 21:51	01/03/22 21:51	BMD	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1795243	1	12/27/21 16:31	12/27/21 16:31	SCM	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG1794911	1	12/27/21 00:35	12/27/21 00:35	WOS	Mt. Juliet, TN

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

ACCOUNT:

Hall Environmental Analysis Laboratory

PROJECT:

SDG:

L1445523

DATE/TIME:

01/04/22 12:21

PAGE:

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CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



John Hawkins
Project Manager

Project Narrative

All Reactive Cyanide results reported in the attached report were determined as totals using method 4500 CN E-2016.

All Reactive Sulfide results reported in the attached report were determined as totals using method 4500 S2 D-2011.

¹ Cp

² Tc

³ Ss

Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

2112C79-001F WDW-1,2,3 & 4 EFFLUENT

SAMPLE RESULTS - 01

Collected date/time: 12/21/21 10:15

L1445523

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
ORP	-10.4	<u>T8</u>	1	01/02/2022 08:47	WG1794960

1 Cp

2 Tc

3 Ss

4 Cn

Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 4500 CN E-2016

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Reactive Cyanide	ND		0.0500	10	12/28/2021 14:51	WG1794923

Wet Chemistry by Method 4500 S2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Reactive Sulfide	0.334	<u>T8</u>	0.0500	1	01/03/2022 21:51	WG1797616

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Corrosivity by pH	7.39	<u>T8</u>	1	12/27/2021 16:31	WG1795243

Sample Narrative:

L1445523-01 WG1795243: 7.39 at 20.1C

Wet Chemistry by Method D93/1010A

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Flashpoint	DNF at 170		1	12/27/2021 00:35	WG1794911

WG1794960

Wet Chemistry by Method 2580

QUALITY CONTROL SUMMARY

L1445523-01

L1445523-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1445523-01 01/02/22 08:47 • (DUP) R3746662-3 01/02/22 08:47

Analyte	Original Result mV	DUP Result mV	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	-10.4	-11.2	1	0.000	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3746662-1 01/02/22 08:47 • (LCSD) R3746662-2 01/02/22 08:47

Analyte	Spike Amount mV	LCS Result mV	LCSD Result mV	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	Diff mV	Diff Limits mV
ORP	108	108	110	99.9	102	86.0-105	2.40			20

ACCOUNT:
Hall Environmental Analysis Laboratory

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L1445523DATE/TIME:
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WG1794923

Wet Chemistry by Method 4500 CN E-2016

QUALITY CONTROL SUMMARY

L1445523-01

Method Blank (MB)

(MB) R3745581-1 12/28/21 14:30

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Reactive Cyanide	U		0.00180	0.00500

L1445069-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1445069-02 12/28/21 14:42 • (DUP) R3745581-5 12/28/21 14:43

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Cyanide	ND	ND	1	0.000		20

L1445536-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1445536-01 12/28/21 14:55 • (DUP) R3745581-6 12/28/21 14:56

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Cyanide	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3745581-2 12/28/21 14:31

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Cyanide	0.100	0.0965	96.5	87.1-120	

L1445053-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1445053-03 12/28/21 14:36 • (MS) R3745581-3 12/28/21 14:37 • (MSD) R3745581-4 12/28/21 14:38

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Cyanide	0.100	0.00500	ND	0.103	1	90.0-110	J6	J3	200	20

L1445536-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1445536-02 12/28/21 14:57 • (MS) R3745581-7 12/28/21 14:58 • (MSD) R3745581-8 12/28/21 14:59

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Cyanide	0.100	ND	0.100	0.105	1	90.0-110		4.88		20

ACCOUNT:

Hall Environmental Analysis Laboratory

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WG1797616

Wet Chemistry by Method 4500 S2 D-2011

QUALITY CONTROL SUMMARY

L1445523-01

Method Blank (MB)

(MB) R3747054-1 01/03/22 21:06				
Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Reactive Sulfide	U		0.0250	0.0500

Laboratory Control Sample (LCS)

(LCS) R3747054-2 01/03/22 21:06				
Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %
Reactive Sulfide	0.500	0.545	109	85.0-115



WG1795243

Wet Chemistry by Method 9040C

QUALITY CONTROL SUMMARY

L1445523-01

L1445523-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1445523-01 12/27/21 16:31 • (DUP) R3745144-3 12/27/21 16:31

Analyte	Original Result su	DUP Result su	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Corrosivity by pH	7.39	7.38	1	0.135		1

Sample Narrative:

OS: 7.39 at 20.1C

DUP: 7.38 at 19.9C

Laboratory Control Sample (LCS)

(LCS) R3745144-1 12/27/21 16:31

Analyte	Spike Amount su	LCS Result su	LCS Rec. %	Rec. Limits %	LCS Qualifier
Corrosivity by pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10.01 at 20C



ACCOUNT:

Hall Environmental Analysis Laboratory

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WG1794911

Wet Chemistry by Method D93/1010A

QUALITY CONTROL SUMMARY

L1445523-01

L1444846-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1444846-01 12/27/21 00:35 • (DUP) R3744823-3 12/27/21 00:35

Analyte	Original Result deg F	DUP Result deg F	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Flashpoint	DNF at 170	DNF at 170	1	0.000		10

L1445523-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1445523-01 12/27/21 00:35 • (DUP) R3744823-4 12/27/21 00:35

Analyte	Original Result deg F	DUP Result deg F	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Flashpoint	DNF at 170	DNF at 170	1	0.000		10

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3744823-1 12/27/21 00:35 • (LCSD) R3744823-2 12/27/21 00:35

Analyte	Spike Amount deg F	LCS Result deg F	LCSD Result deg F	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Flashpoint	126	124	130	98.3	103	96.0-104		4.73		10

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GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

Gl

8 Al

9 Sc

ACCREDITATIONS & LOCATIONS

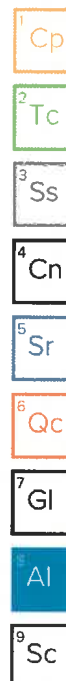
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-05-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



ACCOUNT:

Hall Environmental Analysis Laboratory

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CHAIN OF CUSTODY RECORD

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

B208

SUB CONTRACTOR: PACE TN		COMPANY: PACE TN		PHONE: (800) 767-5859	FAX: (615) 758-5859		
ADDRESS: 12065 Lebanon Rd		ACCOUNT #:		EMAIL:			
CITY, STATE, ZIP: Mt. Juliet, TN 37122							
ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2112C79-001F	WDW-1,2,3 & 4 Effluent	500H2OPE	Aqueous	12/21/2021 10:15:00 AM	1 RCI, ORP	4445523
2	2112C79-001G	WDW-1,2,3 & 4 Effluent	500PL-NAOH ZNAAC	Aqueous	12/21/2021 10:15:00 AM	1 RCI, ORP	01
3	2112C79-001H	WDW-1,2,3 & 4 Effluent	500PL-NAOH	Aqueous	12/21/2021 10:15:00 AM	1 RCI, ORP	02

55285948.0150

DKA7

5370-5.3

Sample Receipt Checklist
 Seal Present/Intact: ☒ Y ☐ N If Applicable
 CAC Signed/Accurate: ☒ Y ☐ N - VOA Zero Headspace: ☒ Y ☐ N
 Bottles Aqueous: ☒ Y ☐ N DES-CORRECT/CHRY: ☒ Y ☐ N
 Correct Bottles: ☒ Y ☐ N
 Sufficient Volume: ☒ Y ☐ N
 RAD Screen <0.5 mB/hr: ☒ Y ☐ N

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Requisitioned By: SAC	Date: 12/27/2021	Time: 9:44 AM	Received By: [Signature]	Date: 12/23/21	Time: 9:50
Requisitioned By:	Date:	Time:	Received By:	Date:	Time:
Requisitioned By:	Date:	Time:	Received By:	Date:	Time:
TAT: Standard ☒	RUSH	Next BD ☐	2nd BD ☐	3rd BD ☐	
REPORT TRANSMITTAL DESIRED: ☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE FOR LAB USE ONLY Temp of samples: _____ °C Attempt to Cool? _____ Comments: _____					

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2112C79

21-Jan-22

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: MB	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch ID: R84756	RunNo: 84756								
Prep Date:	Analysis Date: 12/22/2021	SeqNo: 2980681	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Fluoride
Chloride
Nitrogen, Nitrite (As N)
Bromide
Nitrogen, Nitrate (As N)
Phosphorus, Orthophosphate (As P)
Sulfate

ND 0.10
ND 0.50
ND 0.10
ND 0.10
ND 0.10
ND 0.50
ND 0.50

Sample ID: LCS	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSW	Batch ID: R84756	RunNo: 84756								
Prep Date:	Analysis Date: 12/22/2021	SeqNo: 2980682	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Fluoride
Chloride
Nitrogen, Nitrite (As N)
Bromide
Nitrogen, Nitrate (As N)
Phosphorus, Orthophosphate (As P)
Sulfate

0.49 0.10 0.5000 0 97.8 90 110
4.9 0.50 5.000 0 98.2 90 110
0.99 0.10 1.000 0 99.5 90 110
2.5 0.10 2.500 0 101 90 110
2.6 0.10 2.500 0 104 90 110
4.9 0.50 5.000 0 97.0 90 110
9.7 0.50 10.00 0 96.8 90 110

Sample ID: MB	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch ID: R85040	RunNo: 85040								
Prep Date:	Analysis Date: 1/8/2022	SeqNo: 2991990	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride
Sulfate

ND 0.50
ND 0.50

Sample ID: LCS	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSW	Batch ID: R85040	RunNo: 85040								
Prep Date:	Analysis Date: 1/8/2022	SeqNo: 2991991	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride
Sulfate

4.6 0.50 5.000 0 91.4 90 110
9.1 0.50 10.00 0 90.6 90 110

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Estimated value
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative Limit	RL Reporting Limit
S % Recovery outside of range due to dilution or matrix interference	

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2112C79

21-Jan-22

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: MB-64757	SampType: MBLK	TestCode: EPA Method 8081: Pesticides TCLP								
Client ID: PBW	Batch ID: 64757	RunNo: 85069								
Prep Date: 12/28/2021	Analysis Date: 1/11/2022	SeqNo: 2993207		Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Surr: Decachlorobiphenyl	0.0022		0.002500		87.1	73	119			
Surr: Tetrachloro-m-xylene	0.0014		0.002500		56.3	36.6	84.1			

Sample ID: MB-64757	SampType: MBLK	TestCode: EPA Method 8081: Pesticides TCLP								
Client ID: PBW	Batch ID: 64757	RunNo: 85069								
Prep Date: 12/28/2021	Analysis Date: 1/11/2022	SeqNo: 2993208		Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Surr: Decachlorobiphenyl	0.0022		0.002500		88.2	73	119			
Surr: Tetrachloro-m-xylene	0.0014		0.002500		55.4	36.6	84.1			

Sample ID: LCS-64757	SampType: LCS	TestCode: EPA Method 8081: Pesticides TCLP								
Client ID: LCSW	Batch ID: 64757	RunNo: 85069								
Prep Date: 12/28/2021	Analysis Date: 1/11/2022	SeqNo: 2993315		Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0022		0.002500		90.0	73	119			
Surr: Tetrachloro-m-xylene	0.0015		0.002500		62.0	36.6	84.1			

Sample ID: LCS-64757	SampType: LCS	TestCode: EPA Method 8081: Pesticides TCLP								
Client ID: LCSW	Batch ID: 64757	RunNo: 85069								
Prep Date: 12/28/2021	Analysis Date: 1/11/2022	SeqNo: 2993316		Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0023		0.002500		91.7	73	119			
Surr: Tetrachloro-m-xylene	0.0016		0.002500		62.3	36.6	84.1			

Sample ID: LCSD-64757	SampType: LCSD	TestCode: EPA Method 8081: Pesticides TCLP								
Client ID: LCSS02	Batch ID: 64757	RunNo: 85069								
Prep Date: 12/28/2021	Analysis Date: 1/11/2022	SeqNo: 2993320		Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0023		0.002500		93.3	73	119	0	0	
Surr: Tetrachloro-m-xylene	0.0014		0.002500		56.2	36.6	84.1	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
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix interference

B Analyte detected in the associated Method Blank
E Estimated value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2112C79

21-Jan-22

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: LCSD-64757		SampType: LCSD			TestCode: EPA Method 8081: Pesticides TCLP					
Client ID: LCSS02		Batch ID: 64757			RunNo: 85069					
Prep Date: 12/28/2021		Analysis Date: 1/11/2022			SeqNo: 2993321		Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0024		0.002500		94.7	73	119	0	0	
Surr: Tetrachloro-m-xylene	0.0014		0.002500		56.7	36.6	84.1	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
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix interference

B Analyte detected in the associated Method Blank
E Estimated value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2112C79

21-Jan-22

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: 100ng lcs	SampType: LCS		TestCode: TCLP Volatiles by 8260B							
Client ID: LCSW	Batch ID: T84811		RunNo: 84811							
Prep Date:	Analysis Date: 12/27/2021		SeqNo: 2983267		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.017	0.00023	0.02000	0	86.5	70	130			
1,1-Dichloroethene	0.017	0.00020	0.02000	0	85.8	70	130			
Trichloroethene (TCE)	0.017	0.00020	0.02000	0	82.9	70	130			
Chlorobenzene	0.018	0.00016	0.02000	0	88.3	70	130			
Surr: 1,2-Dichloroethane-d4	0.0094		0.01000		94.4	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		100	70	130			
Surr: Dibromofluoromethane	0.0095		0.01000		95.0	70	130			
Surr: Toluene-d8	0.0093		0.01000		92.7	70	130			

Sample ID: mb	SampType: MBLK		TestCode: TCLP Volatiles by 8260B							
Client ID: PBW	Batch ID: T84811		RunNo: 84811							
Prep Date:	Analysis Date: 12/27/2021		SeqNo: 2983270		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.0090		0.01000		90.0	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		101	70	130			
Surr: Dibromofluoromethane	0.0094		0.01000		94.3	70	130			
Surr: Toluene-d8	0.0094		0.01000		93.6	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
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix interference

B Analyte detected in the associated Method Blank
E Estimated value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2112C79

21-Jan-22

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: MB-64755	SampType: MBLK	TestCode: EPA Method 8270C TCLP								
Client ID: PBW	Batch ID: 64755	RunNo: 84935								
Prep Date: 12/28/2021	Analysis Date: 1/5/2022	SeqNo: 2989261 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	ND	200								
3+4-Methylphenol	ND	200								
2,4-Dinitrotoluene	ND	0.13								
Hexachlorobenzene	ND	0.13								
Hexachlorobutadiene	ND	0.50								
Hexachloroethane	ND	3.0								
Nitrobenzene	ND	2.0								
Pentachlorophenol	ND	100								
Pyridine	ND	40								E
2,4,5-Trichlorophenol	ND	400								
2,4,6-Trichlorophenol	ND	2.0								
Cresols, Total	ND	200								
Surr: 2-Fluorophenol	0.12		0.2000		60.0	15	118			
Surr: Phenol-d5	0.091		0.2000		45.7	15	92.9			
Surr: 2,4,6-Tribromophenol	0.15		0.2000		76.6	15	150			
Surr: Nitrobenzene-d5	0.063		0.1000		63.4	15	136			
Surr: 2-Fluorobiphenyl	0.060		0.1000		60.3	15	134			
Surr: 4-Terphenyl-d14	0.11		0.1000		110	15	168			

Sample ID: LCS-64755	SampType: LCS	TestCode: EPA Method 8270C TCLP								
Client ID: LCSW	Batch ID: 64755	RunNo: 84935								
Prep Date: 12/28/2021	Analysis Date: 1/5/2022	SeqNo: 2989262 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.075	0.00010	0.1000	0	75.5	19	106			
3+4-Methylphenol	0.16	0.00010	0.2000	0	80.5	16.3	112			
2,4-Dinitrotoluene	0.068	0.00010	0.1000	0	67.8	15	99.6			
Hexachlorobenzene	0.088	0.00010	0.1000	0	88.4	41.8	111			
Hexachlorobutadiene	0.057	0.00010	0.1000	0	57.1	15	91.5			
Hexachloroethane	0.066	0.00010	0.1000	0	65.5	15	87.5			
Nitrobenzene	0.072	0.00010	0.1000	0	71.8	19.3	114			
Pentachlorophenol	0.083	0.00010	0.1000	0	82.5	29	103			
Pyridine	0.023	0.00010	0.1000	0	23.0	15	92.6			E
2,4,5-Trichlorophenol	0.087	0.00010	0.1000	0	87.0	25.2	114			
2,4,6-Trichlorophenol	0.078	0.00010	0.1000	0	78.1	25.7	112			
Cresols, Total	0.24	0.00010	0.3000	0	78.9	15	145			
Surr: 2-Fluorophenol	0.13		0.2000		63.0	15	118			
Surr: Phenol-d5	0.10		0.2000		49.9	15	92.9			
Surr: 2,4,6-Tribromophenol	0.18		0.2000		91.2	15	150			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2112C79

21-Jan-22

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: LCS-64755	SampType: LCS	TestCode: EPA Method 8270C TCLP								
Client ID: LCSW	Batch ID: 64755	RunNo: 84935								
Prep Date: 12/28/2021	Analysis Date: 1/5/2022	SeqNo: 2989262 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.076		0.1000		75.7	15	136			
Surr: 2-Fluorobiphenyl	0.078		0.1000		78.0	15	134			
Surr: 4-Terphenyl-d14	0.12		0.1000		122	15	168			

Sample ID: 2112C79-001BMS	SampType: MS	TestCode: EPA Method 8270C TCLP								
Client ID: WDW-1,2,3 & 4 Efflu	Batch ID: 64755	RunNo: 84935								
Prep Date: 12/28/2021	Analysis Date: 1/5/2022	SeqNo: 2989264 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.10	0.00020	0.1000	0.01601	85.0	15.8	101			D
3+4-Methylphenol	0.18	0.00020	0.2000	0.02632	79.2	16.9	97.9			D
2,4-Dinitrotoluene	0.059	0.00020	0.1000	0	59.5	20.1	90.5			D
Hexachlorobenzene	0.085	0.00020	0.1000	0	84.9	34	108			D
Hexachlorobutadiene	0.061	0.00020	0.1000	0	61.4	15	99.7			D
Hexachloroethane	0.071	0.00020	0.1000	0	70.7	15	86.4			D
Nitrobenzene	0.071	0.00020	0.1000	0	70.9	15	109			D
Pentachlorophenol	ND	0.00020	0.1000	0	0	15	130			SD
Pyridine	0.051	0.00020	0.1000	0	50.7	15	82			ED
2,4,5-Trichlorophenol	0.0052	0.00020	0.1000	0	5.25	28.1	105			SD
2,4,6-Trichlorophenol	0.0048	0.00020	0.1000	0	4.76	21.5	110			SD
Cresols, Total	0.35	0.00020	0.3000	0.04232	102	15	127			D
Surr: 2-Fluorophenol	0.0083		0.2000		4.13	15	118			SD
Surr: Phenol-d5	0.049		0.2000		24.5	15	92.9			D
Surr: 2,4,6-Tribromophenol	0.010		0.2000		5.07	15	150			SD
Surr: Nitrobenzene-d5	0.076		0.1000		76.0	15	136			D
Surr: 2-Fluorobiphenyl	0.079		0.1000		78.8	15	134			D
Surr: 4-Terphenyl-d14	0.11		0.1000		107	15	168			D

Sample ID: 2112C79-001BMSD	SampType: MSD	TestCode: EPA Method 8270C TCLP								
Client ID: WDW-1,2,3 & 4 Efflu	Batch ID: 64755	RunNo: 84935								
Prep Date: 12/28/2021	Analysis Date: 1/5/2022	SeqNo: 2989265 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.086	0.00020	0.1000	0.01601	69.9	15.8	101	16.2	20	D
3+4-Methylphenol	0.14	0.00020	0.2000	0.02632	55.7	16.9	97.9	29.1	20	RD
2,4-Dinitrotoluene	0.063	0.00020	0.1000	0	62.8	20.1	90.5	5.42	20	D
Hexachlorobenzene	0.092	0.00020	0.1000	0	92.3	34	108	8.35	20	D
Hexachlorobutadiene	0.059	0.00020	0.1000	0	59.0	15	99.7	3.86	20	D
Hexachloroethane	0.067	0.00020	0.1000	0	67.2	15	86.4	5.18	20	D
Nitrobenzene	0.072	0.00020	0.1000	0	71.7	15	109	1.12	20	D

Qualifiers:

* Value exceeds Maximum Contaminant Level	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Estimated value
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative Limit	RL Reporting Limit
S % Recovery outside of range due to dilution or matrix interference	

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2112C79

21-Jan-22

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: 2112C79-001BMSD		SampType: MSD		TestCode: EPA Method 8270C TCLP						
Client ID: WDW-1,2,3 & 4 Efflu		Batch ID: 64755		RunNo: 84935						
Prep Date: 12/28/2021		Analysis Date: 1/5/2022		SeqNo: 2989265		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Pentachlorophenol	ND	0.00020	0.1000	0	0	15	130	0	20	SD
Pyridine	0.049	0.00020	0.1000	0	48.6	15	82	4.15	20	ED
2,4,5-Trichlorophenol	0.0021	0.00020	0.1000	0	2.09	28.1	105	86.2	20	RSD
2,4,6-Trichlorophenol	0.0035	0.00020	0.1000	0	3.52	21.5	110	30.0	20	RSD
Cresols, Total	0.26	0.00020	0.3000	0.04232	74.0	15	127	27.0	20	RD
Surr: 2-Fluorophenol	0.0028		0.2000		1.41	15	118	0	0	SD
Surr: Phenol-d5	0.030		0.2000		15.1	15	92.9	0	0	D
Surr: 2,4,6-Tribromophenol	0.0062		0.2000		3.08	15	150	0	0	SD
Surr: Nitrobenzene-d5	0.073		0.1000		72.8	15	136	0	0	D
Surr: 2-Fluorobiphenyl	0.078		0.1000		77.8	15	134	0	0	D
Surr: 4-Terphenyl-d14	0.11		0.1000		109	15	168	0	0	D

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
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix interference

B Analyte detected in the associated Method Blank
E Estimated value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2112C79

21-Jan-22

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: lcs-1 99.3uS eC		SampType: lcs		TestCode: SM2510B: Specific Conductance						
Client ID: LCSW		Batch ID: R84794		RunNo: 84794						
Prep Date:		Analysis Date: 12/27/2021		SeqNo: 2982430		Units: µmhos/cm				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	10	99.30	0	101	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2112C79

21-Jan-22

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: MB-64706	SampType: MBLK	TestCode: EPA Method 7470A: Mercury
Client ID: PBW	Batch ID: 64706	RunNo: 84787
Prep Date: 12/23/2021	Analysis Date: 12/27/2021	SeqNo: 2982004 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Mercury	ND	0.00020

Sample ID: LCSLL-64706	SampType: LCSLL	TestCode: EPA Method 7470A: Mercury
Client ID: BatchQC	Batch ID: 64706	RunNo: 84787
Prep Date: 12/23/2021	Analysis Date: 12/27/2021	SeqNo: 2982005 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Mercury	0.00017	0.00020 0.0001501 0 115 50 150 J

Sample ID: LCS-64706	SampType: LCS	TestCode: EPA Method 7470A: Mercury
Client ID: LCSW	Batch ID: 64706	RunNo: 84787
Prep Date: 12/23/2021	Analysis Date: 12/27/2021	SeqNo: 2982006 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Mercury	0.0049	0.00020 0.005000 0 98.3 85 115

Sample ID: 2112C79-001EMS	SampType: MS	TestCode: EPA Method 7470A: Mercury
Client ID: WDW-1,2,3 & 4 Efflu	Batch ID: 64706	RunNo: 84787
Prep Date: 12/23/2021	Analysis Date: 12/27/2021	SeqNo: 2982150 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Mercury	ND	0.0010 0.005000 0 0 75 125 S

Sample ID: 2112C79-001EMSD	SampType: MSD	TestCode: EPA Method 7470A: Mercury
Client ID: WDW-1,2,3 & 4 Efflu	Batch ID: 64706	RunNo: 84787
Prep Date: 12/23/2021	Analysis Date: 12/27/2021	SeqNo: 2982151 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Mercury	ND	0.0010 0.005000 0 0 75 125 0 20 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
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix interference

B Analyte detected in the associated Method Blank
E Estimated value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2112C79

21-Jan-22

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: MB	SampType: MBLK	TestCode: EPA Method 6010B: Dissolved Metals								
Client ID: PBW	Batch ID: A84757	RunNo: 84757								
Prep Date:	Analysis Date: 12/22/2021	SeqNo: 2980772	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: LCS	SampType: LCS	TestCode: EPA Method 6010B: Dissolved Metals								
Client ID: LCSW	Batch ID: A84757	RunNo: 84757								
Prep Date:	Analysis Date: 12/22/2021	SeqNo: 2980774	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	47	1.0	50.00	0	94.0	80	120			
Magnesium	47	1.0	50.00	0	93.4	80	120			
Potassium	46	1.0	50.00	0	92.8	80	120			
Sodium	46	1.0	50.00	0	92.1	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
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix interference

B Analyte detected in the associated Method Blank
E Estimated value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2112C79

21-Jan-22

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: MB-64703	SampType: MBLK	TestCode: EPA 6010B: Total Recoverable Metals								
Client ID: PBW	Batch ID: 64703	RunNo: 84926								
Prep Date: 12/22/2021	Analysis Date: 1/4/2022	SeqNo: 2989056 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.030								
Barium	ND	0.0020								
Chromium	ND	0.0060								
Silver	ND	0.0050								

Sample ID: LCS-64703	SampType: LCS	TestCode: EPA 6010B: Total Recoverable Metals								
Client ID: LCSW	Batch ID: 64703	RunNo: 84926								
Prep Date: 12/22/2021	Analysis Date: 1/4/2022	SeqNo: 2989063 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.45	0.030	0.5000	0	89.3	80	120			
Barium	0.44	0.0020	0.5000	0	87.2	80	120			
Chromium	0.40	0.0060	0.5000	0	80.0	80	120			
Silver	0.091	0.0050	0.1000	0	90.6	80	120			

Sample ID: LCSD-64703	SampType: LCSD	TestCode: EPA 6010B: Total Recoverable Metals								
Client ID: LCSS02	Batch ID: 64703	RunNo: 84926								
Prep Date: 12/22/2021	Analysis Date: 1/4/2022	SeqNo: 2989064 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.44	0.030	0.5000	0	88.4	80	120	0.960	20	
Barium	0.44	0.0020	0.5000	0	87.1	80	120	0.0742	20	
Chromium	0.41	0.0060	0.5000	0	81.1	80	120	1.36	20	
Silver	0.090	0.0050	0.1000	0	90.3	80	120	0.388	20	

Sample ID: MB-64703	SampType: MBLK	TestCode: EPA 6010B: Total Recoverable Metals								
Client ID: PBW	Batch ID: 64703	RunNo: 84926								
Prep Date: 12/22/2021	Analysis Date: 1/4/2022	SeqNo: 2989221 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	0.0020								
Selenium	ND	0.050								

Sample ID: LCS-64703	SampType: LCS	TestCode: EPA 6010B: Total Recoverable Metals								
Client ID: LCSW	Batch ID: 64703	RunNo: 84926								
Prep Date: 12/22/2021	Analysis Date: 1/4/2022	SeqNo: 2989223 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.48	0.0020	0.5000	0	96.6	80	120			
Selenium	0.49	0.050	0.5000	0	97.9	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix interference

B Analyte detected in the associated Method Blank
E Estimated value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2112C79

21-Jan-22

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: LCSD-64703	SampType: LCSD	TestCode: EPA 6010B: Total Recoverable Metals								
Client ID: LCSS02	Batch ID: 64703	RunNo: 84926								
Prep Date: 12/22/2021	Analysis Date: 1/4/2022	SeqNo: 2989224 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.48	0.0020	0.5000	0	95.9	80	120	0.745	20	
Selenium	0.49	0.050	0.5000	0	97.7	80	120	0.211	20	

Sample ID: MB-64703	SampType: MBLK	TestCode: EPA 6010B: Total Recoverable Metals								
Client ID: PBW	Batch ID: 64703	RunNo: 85207								
Prep Date: 12/22/2021	Analysis Date: 1/12/2022	SeqNo: 2997505 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.020								

Sample ID: LCS-64703	SampType: LCS	TestCode: EPA 6010B: Total Recoverable Metals								
Client ID: LCSW	Batch ID: 64703	RunNo: 85207								
Prep Date: 12/22/2021	Analysis Date: 1/12/2022	SeqNo: 2997517 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.41	0.020	0.5000	0	82.0	80	120			

Sample ID: LCSD-64703	SampType: LCSD	TestCode: EPA 6010B: Total Recoverable Metals								
Client ID: LCSS02	Batch ID: 64703	RunNo: 85207								
Prep Date: 12/22/2021	Analysis Date: 1/12/2022	SeqNo: 2997518 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.42	0.020	0.5000	0	83.9	80	120	2.38	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2112C79

21-Jan-22

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: mb-1 alk	SampType: mblk	TestCode: SM2320B: Alkalinity								
Client ID: PBW	Batch ID: R84794	RunNo: 84794								
Prep Date:	Analysis Date: 12/27/2021	SeqNo: 2982456	Units: mg/L CaCO3							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: lcs-1 alk	SampType: lcs	TestCode: SM2320B: Alkalinity								
Client ID: LCSW	Batch ID: R84794	RunNo: 84794								
Prep Date:	Analysis Date: 12/27/2021	SeqNo: 2982457	Units: mg/L CaCO3							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	74.80	20.00	80.00	0	93.5	90	110			

Sample ID: mb-2 alk	SampType: mblk	TestCode: SM2320B: Alkalinity								
Client ID: PBW	Batch ID: R84794	RunNo: 84794								
Prep Date:	Analysis Date: 12/27/2021	SeqNo: 2982479	Units: mg/L CaCO3							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: lcs-2 alk	SampType: lcs	TestCode: SM2320B: Alkalinity								
Client ID: LCSW	Batch ID: R84794	RunNo: 84794								
Prep Date:	Analysis Date: 12/27/2021	SeqNo: 2982480	Units: mg/L CaCO3							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	75.32	20.00	80.00	0	94.2	90	110			

Sample ID: mb-3 alk	SampType: mblk	TestCode: SM2320B: Alkalinity								
Client ID: PBW	Batch ID: R84794	RunNo: 84794								
Prep Date:	Analysis Date: 12/27/2021	SeqNo: 2982502	Units: mg/L CaCO3							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: lcs-3 alk	SampType: lcs	TestCode: SM2320B: Alkalinity								
Client ID: LCSW	Batch ID: R84794	RunNo: 84794								
Prep Date:	Analysis Date: 12/27/2021	SeqNo: 2982503	Units: mg/L CaCO3							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	74.96	20.00	80.00	0	93.7	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
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix interference

B Analyte detected in the associated Method Blank
E Estimated value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2112C79

21-Jan-22

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: 2112C79-001CDUP		SampType: DUP		TestCode: Specific Gravity						
Client ID: WDW-1,2,3 & 4 Efflu		Batch ID: R85017		RunNo: 85017						
Prep Date:		Analysis Date: 1/7/2022		SeqNo: 2991233		Units:				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.001	0						0.0999	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Page 18 of 19

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2112C79

21-Jan-22

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: MB-64762	SampType: MBLK	TestCode: SM2540C MOD: Total Dissolved Solids								
Client ID: PBW	Batch ID: 64762	RunNo: 84892								
Prep Date: 12/28/2021	Analysis Date: 12/30/2021	SeqNo: 2986299 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: LCS-64762	SampType: LCS	TestCode: SM2540C MOD: Total Dissolved Solids								
Client ID: LCSW	Batch ID: 64762	RunNo: 84892								
Prep Date: 12/28/2021	Analysis Date: 12/30/2021	SeqNo: 2986300 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1000	20.0	1000	0	100	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
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix interference

B Analyte detected in the associated Method Blank
E Estimated value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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

Sample Log-In Check List

Client Name: Navajo Refining

Work Order Number: 2112C79

RcptNo: 1

Received By: Isaiah Ortiz 12/22/2021 7:25:00 AM

Completed By: Sean Livingston 12/22/2021 8:57:18 AM

Reviewed By: *APA* 12/22/21*I-0x**Sn-Lyph*Chain of Custody

1. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
4. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☒ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
8. Was preservative added to bottles? Yes ☒ No ☒ NA ☐ *yes 12/22/21*
9. Received at least 1 vial with headspace $<1/4"$ for AQ VOA? Yes ☒ No ☐ NA ☐
10. Were any sample containers received broken? Yes ☐ No ☒
11. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
13. Is it clear what analyses were requested? Yes ☒ No ☐
14. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH: 32
(2 or 12 unless noted)

Adjusted? yesChecked by: jn 12/22/21Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified: _____

Date: _____

By Whom: _____

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks: 0.5ml of HN03 was added to sample 001E for pH2. jn 12/22/21

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.5	Good				

Chain-of-Custody Record

Client: Navajo Refining Co.

Turn-Around Time:

Standard > Rush

Project Name:

Mailing Address: P.O. Box 159 Artesia,

Quarterly WDW-1, 2, 3 & 4 In Well

Project #: P.O. # 251841

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)☐ Other☐ EDD (Type)

Project Manager:

Randy Dade

Sampler: Brady Hubbard

On Ice: ☒ Yes ☐ No

Sample Temperature: 0.5°C ± 0

HEAL No. 2112679

Container Type and #

Preservative Type

Neat/H2SO4

HNO3

HCL

Neat

Neat

Neat

Neat

Neat

Neat

Neat

Neat

Neat

Neat

Neat

Neat

Neat

Neat

Neat

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Neat

Neat

Neat

Neat

Neat

Neat

Neat

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Specific Gravity, HCO₃, CO₃, Cl, SO₄, TDS, pH, cond., F₁, Cation/anion bal., Br, Eh/40

VOCs/SW-846 Method 8260C

(see attached list "VOCs")

SVOCs/SW-846 Method 8270D

(see attached list "SVOCs")

R.C./40 CFR part 261

Metals/SW-846 Method 6010,

7470 (see attached list "Metals")

Ca, K, Mg, Na/40 CFR 136.3

TCLP Metals, only /40 CFR Part

261/ SW-846 Method 1311

Chlordane 8081 A

Remarks: Send results to Scott Denton, Mike Holder, and Randy Dade.

pH 6.97, 34.8C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.



May 16, 2022

Mr. Carl Chavez, CHMM
New Mexico Oil Conservation Division (Albuquerque Office)
Energy, Minerals and Natural Resources Department
5200 Oakland Avenue, NE
Albuquerque, NM 87113

RE: 2022 3rd Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3 and WDW-4 HF Sinclair.

Dear Mr. Chavez,

Enclosed, please find the third quarter 2022 sampling results for fluids injected into WDW-1, WDW-2, WDW-3 and WDW-4 and a table showing the various volumes and pressures as required under Permit Condition 2.1.1, Quarterly Reports.

Over the third quarter, the average injection pressure for each well is as reported, 978 psig for WDW-1, 910 psig for WDW-2, 809 psig for WDW-3 and 245 psig for WDW-4. The average flows for each well is reported as, WDW-1, 210 gpm, WDW-2, 102 gpm, WDW-3, 79 gpm and WDW-4, 291 gpm. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicate parameters are within permit limits.

This report covers the period from January 1, 2022 to March 31, 2022. HF Sinclair has disposed a total of 2,097,903 barrels of fluid into the four wells during the third quarter 2022. The volume per well is:

- 649,028 barrels into WDW-1: 30-015-27592
- 315,870 barrels into WDW-2: 30-015-20894
- 243,634 barrels into WDW-3: 30-015-26575
- 889,371 barrels into WDW-4: 30-015-44677

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions or comments, please contact Randy Dade at 575-746-5281

Respectfully,

Kawika Tupou
Environmental Manager
HF Sinclair

HollyFrontier Navajo Refining LLC
501 East Main, Artesia, NM 88210
575-748-3311 | HFSinclair.com

2022 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Average INJ. Pressure (psig)	Maximum INJ. Pressure	Minimum INJ. Pressure	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average			Maximum Volume (bpd)	Minimum Volume (bpd)	TOTAL CUMULATIVE Volume (barrels)	
						Annular Pressure Av (psig)	Annular Pressure Mx (psig)	Annular Pressure Mn (psig)				
30-015-27592 WDW-1												
Jan-22	1,128	578	193	263	108	18	46	0	6,617	9,017	48,480,625	
Feb-22	1,136	422	200	266	80	0	3	0	6,857	9,120	48,685,756	
Mar-22	1,335	804	237	282	125	1	7	0	8,126	9,669	48,877,756	
Monthly Avg	978		210							TOTAL	49,129,653	
30-015-20894 WDW-2												
Jan-22	1,077	600	122	172	76	410	1,219	91	4,183	5,897	29,758,860	
Feb-22	1,028	685	81	137	0	818	987	478	2,777	4,697	29,888,559	
Mar-22	1,146	827	102	190	50	786	1,196	427	3,497	6,514	29,966,319	
Monthly Avg	910		102							TOTAL	30,074,730	
30-015-26575 WDW-3												
Jan-22	976	697	69	122	41	459	1,047	62	2,366	4,183	21,685,076	
Feb-22	876	685	70	291	7	585	1,188	292	2,400	9,977	21,758,413	
Mar-22	1,000	779	97	125	70	595	921	319	3,326	4,286	21,825,613	
Monthly Avg	809		79							TOTAL	21,928,710	
30-015-44677 WDW-4												
Jan-22	682	155	308	541	191	118	223	43	10,560	18,549	7,002,653	
Feb-22	1500	150	364	542	164	176	239	110	12,480	18,583	7,330,013	
Mar-22	184	146	200	238	123	160	247	63	6,857	8,160	7,679,453	
Monthly Avg	245		291							TOTAL	7,892,024	
Total BBLS										Beginning Volume	Ending Volume	
										WDW1	48,480,625	49,129,653
										WDW2	29,758,860	30,074,730
										WDW3	21,685,076	21,928,710
										WDW4	7,002,653	7,892,024
										2,097,903		



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

May 13, 2022

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

RE: PSP WDW 1 2 3 4 Inj Well

OrderNo.: 2203E91

Dear Randy Dade:

Hall Environmental Analysis Laboratory received 2 sample(s) on 3/29/2022 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a light blue horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109



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

Case Narrative

WO#: 2203E91

Date: 5/13/2022

CLIENT: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Analytical Notes:

Full list TCLP was requested for the two samples in this report. Per the TCLP Method 1311, "If a total analysis of the waste demonstrates that individual analytes are not present in the waste, or that they are present but at such low concentrations that the appropriate regulatory levels could not possibly be exceeded, the TCLP need not be run". All TCLP compounds are reported as totals in this report, at the TCLP Limits, since the low solids content did not require filtration. The TCLP term is used in the method header; this is used to represent that the compounds listed are the specific TCLP compounds and that these compounds are reported at the TCLP regulatory limits.

The cations were filtered using a 0.45um filter for the C/A balance determination.

Analytical Report

Lab Order 2203E91

Date Reported: 5/13/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: WDW-1,2,3 & 4 Effluent

Project: PSP WDW 1 2 3 4 Inj Well

Collection Date: 3/28/2022 9:35:00 AM

Lab ID: 2203E91-001

Matrix: AQUEOUS

Received Date: 3/29/2022 8:15:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8081: PESTICIDES TCLP								
							Analyst: JME	
Chlordane	ND	0.00050	0.030		mg/L	1	4/8/2022 11:41:10 AM	66537
Endrin	ND	0.000049	0.020		mg/L	1	4/8/2022 11:41:10 AM	66537
gamma-BHC (Lindane)	ND	0.000041	0.40		mg/L	1	4/8/2022 11:41:10 AM	66537
Heptachlor	ND	0.000041	0.0080		mg/L	1	4/8/2022 11:41:10 AM	66537
Heptachlor epoxide	ND	0.000047	0.0080		mg/L	1	4/8/2022 11:41:10 AM	66537
Methoxychlor	ND	0.000046	10		mg/L	1	4/8/2022 11:41:10 AM	66537
Toxaphene	ND	0.00050	0.50		mg/L	1	4/8/2022 11:41:10 AM	66537
Surr: Decachlorobiphenyl	87.1	0	73-119		%Rec	1	4/8/2022 11:41:10 AM	66537
Surr: Tetrachloro-m-xylene	117	0	36.6-84.1	S	%Rec	1	4/8/2022 11:41:10 AM	66537
EPA METHOD 300.0: ANIONS								
							Analyst: CAS	
Fluoride	35	2.0	5.0	*	mg/L	50	4/8/2022 10:49:57 AM	R87132
Chloride	720	12	25	*	mg/L	50	4/8/2022 10:49:57 AM	R87132
Nitrogen, Nitrite (As N)	ND	0.027	0.50		mg/L	5	3/29/2022 4:27:18 PM	R86833
Bromide	0.61	0.25	0.50		mg/L	5	3/29/2022 4:27:18 PM	R86833
Nitrogen, Nitrate (As N)	0.75	0.050	0.50		mg/L	5	3/29/2022 4:27:18 PM	R86833
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5		mg/L	5	3/29/2022 4:27:18 PM	R86833
Sulfate	2300	12	25	*	mg/L	50	4/8/2022 10:49:57 AM	R87132
EPA METHOD 6020A: TCLP METALS								
							Analyst: DBK	
Arsenic	0.0078	0.0050	5.0	J	mg/L	10	3/30/2022 2:59:41 PM	66484
Lead	ND	0.0050	5.0		mg/L	10	3/30/2022 2:59:41 PM	66484
Selenium	0.067	0.0050	1.0	J	mg/L	10	3/30/2022 2:59:41 PM	66484
EPA METHOD 7470A: MERCURY								
							Analyst: VP	
Mercury	0.00034	0.000091	0.020	J	mg/L	1	3/30/2022 2:32:07 PM	66490
EPA METHOD 6010B: DISSOLVED METALS								
							Analyst: JLF	
Calcium	460	0.58	10		mg/L	10	4/5/2022 6:20:12 PM	A87057
Magnesium	140	0.34	10		mg/L	10	4/5/2022 6:20:12 PM	A87057
Potassium	130	2.1	10		mg/L	10	4/5/2022 6:20:12 PM	A87057
Sodium	640	4.2	10		mg/L	10	4/8/2022 12:49:55 PM	A87128
EPA 6010B: TCLP METALS								
							Analyst: JLF	
Barium	0.041	0.0053	100	J	mg/L	5	4/5/2022 3:54:17 PM	66484
Cadmium	ND	0.0058	1.0		mg/L	5	4/5/2022 3:54:17 PM	66484
Chromium	ND	0.0084	5.0		mg/L	5	4/5/2022 3:54:17 PM	66484
Silver	0.0068	0.0063	5.0	J	mg/L	5	4/5/2022 3:54:17 PM	66484
EPA METHOD 8270C TCLP								
							Analyst: DAM	
2-Methylphenol	ND	0.00051	200		mg/L	1	4/13/2022 11:15:48 PM	66542
3+4-Methylphenol	ND	0.00045	200		mg/L	1	4/13/2022 11:15:48 PM	66542

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Estimated value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix interference		

Page 2 of 22

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2203E91

Date Reported: 5/13/2022

CLIENT: Navajo Refining Company

Client Sample ID: WDW-1,2,3 & 4 Effluent

Project: PSP WDW 1 2 3 4 Inj Well

Collection Date: 3/28/2022 9:35:00 AM

Lab ID: 2203E91-001

Matrix: AQUEOUS

Received Date: 3/29/2022 8:15:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C TCLP								Analyst: DAM
2,4-Dinitrotoluene	ND	0.00062	0.13		mg/L	1	4/13/2022 11:15:48 PM	66542
Hexachlorobenzene	ND	0.00066	0.13		mg/L	1	4/13/2022 11:15:48 PM	66542
Hexachlorobutadiene	ND	0.00082	0.50		mg/L	1	4/13/2022 11:15:48 PM	66542
Hexachloroethane	ND	0.00045	3.0		mg/L	1	4/13/2022 11:15:48 PM	66542
Nitrobenzene	ND	0.00051	2.0		mg/L	1	4/13/2022 11:15:48 PM	66542
Pentachlorophenol	ND	0.00059	100		mg/L	1	4/13/2022 11:15:48 PM	66542
Pyridine	ND	0.00093	5.0		mg/L	1	4/13/2022 11:15:48 PM	66542
2,4,5-Trichlorophenol	ND	0.00062	400		mg/L	1	4/13/2022 11:15:48 PM	66542
2,4,6-Trichlorophenol	ND	0.00043	2.0		mg/L	1	4/13/2022 11:15:48 PM	66542
Cresols, Total	ND	0.00051	200		mg/L	1	4/13/2022 11:15:48 PM	66542
Surr: 2-Fluorophenol	46.8	0	15-118		%Rec	1	4/13/2022 11:15:48 PM	66542
Surr: Phenol-d5	36.0	0	15-92.9		%Rec	1	4/13/2022 11:15:48 PM	66542
Surr: 2,4,6-Tribromophenol	60.4	0	15-150		%Rec	1	4/13/2022 11:15:48 PM	66542
Surr: Nitrobenzene-d5	63.3	0	15-136		%Rec	1	4/13/2022 11:15:48 PM	66542
Surr: 2-Fluorobiphenyl	51.4	0	15-134		%Rec	1	4/13/2022 11:15:48 PM	66542
Surr: 4-Terphenyl-d14	74.5	0	15-168		%Rec	1	4/13/2022 11:15:48 PM	66542
TCLP VOLATILES BY 8260B								Analyst: CCM
Benzene	ND	0.00023	0.50		mg/L	200	4/6/2022 9:14:00 PM	T87039
1,2-Dichloroethane (EDC)	ND	0.00025	0.50		mg/L	200	4/6/2022 9:14:00 PM	T87039
2-Butanone	ND	0.0020	200		mg/L	200	4/6/2022 9:14:00 PM	T87039
Carbon Tetrachloride	ND	0.00018	0.50		mg/L	200	4/6/2022 9:14:00 PM	T87039
Chloroform	ND	0.00013	6.0		mg/L	200	4/6/2022 9:14:00 PM	T87039
1,4-Dichlorobenzene	ND	0.00021	7.5		mg/L	200	4/6/2022 9:14:00 PM	T87039
1,1-Dichloroethene	ND	0.00020	0.70		mg/L	200	4/6/2022 9:14:00 PM	T87039
Tetrachloroethene (PCE)	ND	0.00036	0.70		mg/L	200	4/6/2022 9:14:00 PM	T87039
Trichloroethene (TCE)	ND	0.00020	0.50		mg/L	200	4/6/2022 9:14:00 PM	T87039
Vinyl chloride	ND	0.00032	0.20		mg/L	200	4/6/2022 9:14:00 PM	T87039
Chlorobenzene	ND	0.00016	100		mg/L	200	4/6/2022 9:14:00 PM	T87039
Surr: 1,2-Dichloroethane-d4	104	0	70-130		%Rec	200	4/6/2022 9:14:00 PM	T87039
Surr: 4-Bromofluorobenzene	99.3	0	70-130		%Rec	200	4/6/2022 9:14:00 PM	T87039
Surr: Dibromofluoromethane	105	0	70-130		%Rec	200	4/6/2022 9:14:00 PM	T87039
Surr: Toluene-d8	95.6	0	70-130		%Rec	200	4/6/2022 9:14:00 PM	T87039

SM2510B: SPECIFIC CONDUCTANCE

Analyst: LRN

Conductivity	6300	10	10		µmhos/c	1	4/5/2022 1:59:25 PM	R87026
--------------	------	----	----	--	---------	---	---------------------	--------

SM4500-H+B / 9040C: PH

Analyst: LRN

pH	7.72			H	pH units	1	4/5/2022 1:59:25 PM	R87026
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SM2320B: ALKALINITY

Analyst: LRN

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Estimated value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix interference		

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Analytical Report

Lab Order 2203E91

Date Reported: 5/13/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: WDW-1,2,3 & 4 Effluent

Project: PSP WDW 1 2 3 4 Inj Well

Collection Date: 3/28/2022 9:35:00 AM

Lab ID: 2203E91-001

Matrix: AQUEOUS

Received Date: 3/29/2022 8:15:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM2320B: ALKALINITY							Analyst: LRN	
Bicarbonate (As CaCO ₃)	477.1	20.00	20.00		mg/L Ca	1	4/5/2022 1:59:25 PM	R87028
Carbonate (As CaCO ₃)	ND	2.000	2.000		mg/L Ca	1	4/5/2022 1:59:25 PM	R87028
Total Alkalinity (as CaCO ₃)	477.1	20.00	20.00		mg/L Ca	1	4/5/2022 1:59:25 PM	R87028
SPECIFIC GRAVITY							Analyst: CAS	
Specific Gravity	0.9968	0	0			1	4/11/2022 4:41:00 PM	R87156
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS	
Total Dissolved Solids	4660	100	100	*D	mg/L	1	4/7/2022 11:00:00 AM	66599
SM 2540D: TSS							Analyst: KS	
Suspended Solids	14	4.0	4.0		mg/L	1	4/5/2022 10:33:00 AM	66600

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Estimated value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix interference		

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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2203E91

Date Reported: 5/13/2022

CLIENT: Navajo Refining Company

Client Sample ID: CTB to City of POTW

Project: PSP WDW 1 2 3 4 Inj Well

Collection Date: 3/28/2022 10:05:00 AM

Lab ID: 2203E91-002

Matrix: AQUEOUS

Received Date: 3/29/2022 8:15:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8081: PESTICIDES TCLP								
Analyst: JME								
Chlordane	ND	0.00050	0.030		mg/L	1	4/8/2022 12:07:30 PM	66537
Endrin	ND	0.000049	0.020		mg/L	1	4/8/2022 12:07:30 PM	66537
gamma-BHC (Lindane)	ND	0.000041	0.40		mg/L	1	4/8/2022 12:07:30 PM	66537
Heptachlor	ND	0.000041	0.0080		mg/L	1	4/8/2022 12:07:30 PM	66537
Heptachlor epoxide	ND	0.000047	0.0080		mg/L	1	4/8/2022 12:07:30 PM	66537
Methoxychlor	ND	0.000046	10		mg/L	1	4/8/2022 12:07:30 PM	66537
Toxaphene	ND	0.00050	0.50		mg/L	1	4/8/2022 12:07:30 PM	66537
Surr: Decachlorobiphenyl	97.6	0	73-119		%Rec	1	4/8/2022 12:07:30 PM	66537
Surr: Tetrachloro-m-xylene	73.1	0	36.6-84.1		%Rec	1	4/8/2022 12:07:30 PM	66537
EPA METHOD 300.0: ANIONS								
Analyst: CAS								
Fluoride	1.1	0.040	0.10		mg/L	1	4/8/2022 11:02:18 AM	R87132
Chloride	100	5.0	10		mg/L	20	3/29/2022 5:29:21 PM	R86833
Nitrogen, Nitrite (As N)	0.049	0.0053	0.10	J	mg/L	1	3/29/2022 4:52:07 PM	R86833
Bromide	ND	0.050	0.10		mg/L	1	3/29/2022 4:52:07 PM	R86833
Nitrogen, Nitrate (As N)	4.9	0.010	0.10		mg/L	1	3/29/2022 4:52:07 PM	R86833
Phosphorus, Orthophosphate (As P)	2.0	0.25	0.50		mg/L	1	3/29/2022 4:52:07 PM	R86833
Sulfate	740	5.0	10	*	mg/L	20	3/29/2022 5:29:21 PM	R86833
EPA METHOD 6020A: TCLP METALS								
Analyst: DBK								
Arsenic	ND	0.0050	5.0		mg/L	10	3/30/2022 3:04:15 PM	66484
Lead	ND	0.0050	5.0		mg/L	10	3/30/2022 3:04:15 PM	66484
Selenium	ND	0.0050	1.0		mg/L	10	3/30/2022 3:04:15 PM	66484
EPA METHOD 7470A: MERCURY								
Analyst: VP								
Mercury	ND	0.000091	0.020		mg/L	1	3/30/2022 2:34:11 PM	66490
EPA METHOD 6010B: DISSOLVED METALS								
Analyst: JLF								
Calcium	220	0.58	10		mg/L	10	4/5/2022 6:23:18 PM	A87057
Magnesium	64	0.034	1.0		mg/L	1	4/5/2022 6:46:41 PM	A87057
Potassium	1.9	0.21	1.0		mg/L	1	4/5/2022 6:46:41 PM	A87057
Sodium	81	2.1	5.0		mg/L	5	4/8/2022 12:52:47 PM	A87128
EPA 6010B: TCLP METALS								
Analyst: JLF								
Barium	0.022	0.0011	100	J	mg/L	1	4/5/2022 7:11:20 PM	66484
Cadmium	ND	0.0012	1.0		mg/L	1	4/5/2022 7:11:20 PM	66484
Chromium	0.0024	0.0017	5.0	J	mg/L	1	4/5/2022 7:11:20 PM	66484
Silver	0.0032	0.0013	5.0	J	mg/L	1	4/5/2022 7:11:20 PM	66484
EPA METHOD 8270C TCLP								
Analyst: DAM								
2-Methylphenol	ND	0.00051	200		mg/L	1	4/13/2022 11:56:36 PM	66542
3+4-Methylphenol	ND	0.00045	200		mg/L	1	4/13/2022 11:56:36 PM	66542

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

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
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix interference

B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2203E91

Date Reported: 5/13/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: CTB to City of POTW

Project: PSP WDW 1 2 3 4 Inj Well

Collection Date: 3/28/2022 10:05:00 AM

Lab ID: 2203E91-002

Matrix: AQUEOUS

Received Date: 3/29/2022 8:15:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
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EPA METHOD 8270C TCLP

Analyst: DAM

2,4-Dinitrotoluene	ND	0.00062	0.13		mg/L	1	4/13/2022 11:56:36 PM	66542
Hexachlorobenzene	ND	0.00066	0.13		mg/L	1	4/13/2022 11:56:36 PM	66542
Hexachlorobutadiene	ND	0.00082	0.50		mg/L	1	4/13/2022 11:56:36 PM	66542
Hexachloroethane	ND	0.00045	3.0		mg/L	1	4/13/2022 11:56:36 PM	66542
Nitrobenzene	ND	0.00051	2.0		mg/L	1	4/13/2022 11:56:36 PM	66542
Pentachlorophenol	ND	0.00059	100		mg/L	1	4/13/2022 11:56:36 PM	66542
Pyridine	ND	0.00093	5.0		mg/L	1	4/13/2022 11:56:36 PM	66542
2,4,5-Trichlorophenol	ND	0.00062	400		mg/L	1	4/13/2022 11:56:36 PM	66542
2,4,6-Trichlorophenol	ND	0.00043	2.0		mg/L	1	4/13/2022 11:56:36 PM	66542
Cresols, Total	ND	0.00051	200		mg/L	1	4/13/2022 11:56:36 PM	66542
Surr: 2-Fluorophenol	56.8	0	15-118		%Rec	1	4/13/2022 11:56:36 PM	66542
Surr: Phenol-d5	43.1	0	15-92.9		%Rec	1	4/13/2022 11:56:36 PM	66542
Surr: 2,4,6-Tribromophenol	61.6	0	15-150		%Rec	1	4/13/2022 11:56:36 PM	66542
Surr: Nitrobenzene-d5	70.6	0	15-136		%Rec	1	4/13/2022 11:56:36 PM	66542
Surr: 2-Fluorobiphenyl	59.1	0	15-134		%Rec	1	4/13/2022 11:56:36 PM	66542
Surr: 4-Terphenyl-d14	86.0	0	15-168		%Rec	1	4/13/2022 11:56:36 PM	66542

TCLP VOLATILES BY 8260B

Analyst: CCM

Benzene	ND	0.00023	0.50		mg/L	200	4/6/2022 9:37:00 PM	T87039
1,2-Dichloroethane (EDC)	ND	0.00025	0.50		mg/L	200	4/6/2022 9:37:00 PM	T87039
2-Butanone	ND	0.0020	200		mg/L	200	4/6/2022 9:37:00 PM	T87039
Carbon Tetrachloride	ND	0.00018	0.50		mg/L	200	4/6/2022 9:37:00 PM	T87039
Chloroform	ND	0.00013	6.0		mg/L	200	4/6/2022 9:37:00 PM	T87039
1,4-Dichlorobenzene	ND	0.00021	7.5		mg/L	200	4/6/2022 9:37:00 PM	T87039
1,1-Dichloroethene	ND	0.00020	0.70		mg/L	200	4/6/2022 9:37:00 PM	T87039
Tetrachloroethene (PCE)	ND	0.00036	0.70		mg/L	200	4/6/2022 9:37:00 PM	T87039
Trichloroethene (TCE)	ND	0.00020	0.50		mg/L	200	4/6/2022 9:37:00 PM	T87039
Vinyl chloride	ND	0.00032	0.20		mg/L	200	4/6/2022 9:37:00 PM	T87039
Chlorobenzene	ND	0.00016	100		mg/L	200	4/6/2022 9:37:00 PM	T87039
Surr: 1,2-Dichloroethane-d4	106	0	70-130		%Rec	200	4/6/2022 9:37:00 PM	T87039
Surr: 4-Bromofluorobenzene	97.5	0	70-130		%Rec	200	4/6/2022 9:37:00 PM	T87039
Surr: Dibromofluoromethane	107	0	70-130		%Rec	200	4/6/2022 9:37:00 PM	T87039
Surr: Toluene-d8	96.7	0	70-130		%Rec	200	4/6/2022 9:37:00 PM	T87039

SM2510B: SPECIFIC CONDUCTANCE

Analyst: LRN

Conductivity	1700	10	10		µmhos/c	1	4/5/2022 2:19:18 PM	R8702E
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SM4500-H+B / 9040C: PH

Analyst: LRN

pH	7.29			H	pH units	1	4/5/2022 2:19:18 PM	R8702E
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SM2320B: ALKALINITY

Analyst: LRN

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

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

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix interference

B Analyte detected in the associated Method Blank

E Estimated value

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

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Analytical Report

Lab Order 2203E91

Date Reported: 5/13/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: CTB to City of POTW

Project: PSP WDW 1 2 3 4 Inj Well

Collection Date: 3/28/2022 10:05:00 AM

Lab ID: 2203E91-002

Matrix: AQUEOUS

Received Date: 3/29/2022 8:15:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM2320B: ALKALINITY							Analyst: LRN	
Bicarbonate (As CaCO ₃)	35.00	20.00	20.00		mg/L Ca	1	4/5/2022 2:19:18 PM	R8702E
Carbonate (As CaCO ₃)	ND	2.000	2.000		mg/L Ca	1	4/5/2022 2:19:18 PM	R8702E
Total Alkalinity (as CaCO ₃)	35.00	20.00	20.00		mg/L Ca	1	4/5/2022 2:19:18 PM	R8702E
SPECIFIC GRAVITY							Analyst: CAS	
Specific Gravity	0.9900	0	0			1	4/11/2022 4:41:00 PM	R8715E
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS	
Total Dissolved Solids	1380	40.0	40.0	*D	mg/L	1	4/7/2022 11:00:00 AM	66599
SM 2540D: TSS							Analyst: KS	
Suspended Solids	9.0	4.0	4.0		mg/L	1	4/5/2022 10:33:00 AM	66600

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Estimated value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix interference		

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HALL ENVIRONMENTAL ANALYSIS LABORATORY

CATION/ANION BALANCE SHEET FOR WATER ANALYSES

HEAL LAB NUMBER	WDW-1,2,3 & 4 Effluent 2203E91-001		CTB to City of POTW 2203E91-002							
	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L
CATIONS										
Sodium	640	27.84	81	3.52						
Potassium	130	3.32	1.9	0.05						
Calcium	460	22.95	220	10.98						
Magnesium	140	11.52	64	5.27						
Total Cations		66.64		19.82						
ANIONS										
Sulfate	2300	47.89	740	15.41						
Chloride	720	20.31	100	2.82						
Bicarbonate (CaCO ₃)	477.1	9.53	35.00	0.70						
Carbonate (CaCO ₃)										
Phosphate (P)			2.0	0.19						
Nitrite (N)										
Nitrate (N)	0.75	0.05	4.9	0.35						
Fluoride	35	1.84	1.1	0.06						
Bromide	0.61	0.01								
Total Anions		79.63		19.53						
Elect. Cond. (µMhos/cm)	6300		1700							
CATION/ANION RATIO		0.82		1.01						
% Difference		10		1						
TOTAL DISSOLVED SOLIDS RATIOS										
TDS (measured)	4660		1380							
TDS (calculated)	4715		1257							
Ratio meas TDS:calc TDS		1.0		1.1						
Ratio Meas. TDS:EC		0.74		0.81						
Ratio Calc. TDS:EC		0.75		0.74						
Ratio of anion sum:EC		1.3		1.1						
Ratio of cation sum:EC		1.0		1.2						

* Analyte not detected (below method detection limit).

** Values below 0.55 can be obtained in waters containing appreciable concentrations of free acid or alkalinity, or not within pH 6 to 9. Values much higher than 0.7 are possible in highly saline waters.

GENERALLY ACCEPTED RANGES

Cation/Anion balance: 0-3 meq/L-0.2 meq/L, 3-10 meq/L- 2%, >10 meq/L - 5%

Ratio measured TDS:calculated TDS -- 1.0-1.2. Ratio Calculated TDS:EC -- 0.55-0.7. Ratio of anion sum:EC -- 0.9-1.1.

Ratio of cation sum:EC -- 0.9-1.1



ANALYTICAL REPORT

April 07, 2022

Hall Environmental Analysis Laboratory

Sample Delivery Group: L1476728

Samples Received: 03/30/2022

Project Number:

Description:

Report To: Andy Freeman
4901 Hawkins NE
Albuquerque, NM 87109

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Entire Report Reviewed By:

John Hawkins
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

ACCOUNT:

PROJECT:

SDG:

DATE/TIME:

PAGE:

Hall Environmental Analysis Laboratory

L1476728

04/07/22 08:03

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SAMPLE SUMMARY

2203E91-001F WDW-1,2,3 & 4 EFFLUENT L1476728-01 Waste

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1311	WG1841054	1	03/31/22 12:11	03/31/22 12:11	JWS	Mt. Juliet, TN
Chlorinated Acid Herbicides (GC) by Method 8151A	WG1842932	1	04/05/22 04:17	04/06/22 13:13	HLA	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

2203E91-001G WDW-1,2,3 & 4 EFFLUENT L1476728-02 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2580	WG1840372	1	03/31/22 01:58	03/31/22 01:58	ARD	Mt. Juliet, TN

2203E91-001H WDW-1,2,3 & 4 EFFLUENT L1476728-03 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 4500 CN E-2016	WG1841262	1	03/31/22 17:11	04/01/22 10:12	LDT	Mt. Juliet, TN
Wet Chemistry by Method 4500 S2 D-2011	WG1840723	1	03/30/22 20:33	03/30/22 20:33	TWF	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1842212	1	04/05/22 12:00	04/05/22 12:00	GI	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG1840943	1	03/31/22 01:00	03/31/22 01:00	WOS	Mt. Juliet, TN

2203E91-002F CTB TO CITY OF POTW L1476728-04 Waste

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1311	WG1841054	1	03/31/22 12:11	03/31/22 12:11	JWS	Mt. Juliet, TN
Chlorinated Acid Herbicides (GC) by Method 8151A	WG1842932	1	04/05/22 04:17	04/06/22 14:11	AO	Mt. Juliet, TN

2203E91-002G CTB TO CITY OF POTW L1476728-05 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2580	WG1840372	1	03/31/22 01:58	03/31/22 01:58	ARD	Mt. Juliet, TN

2203E91-002H CTB TO CITY OF POTW L1476728-06 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 4500 CN E-2016	WG1841262	1	03/31/22 17:11	04/01/22 10:13	LDT	Mt. Juliet, TN
Wet Chemistry by Method 4500 S2 D-2011	WG1840723	1	03/30/22 20:34	03/30/22 20:34	TWF	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1843431	1	04/06/22 11:38	04/06/22 11:38	SCM	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG1840943	1	03/31/22 01:00	03/31/22 01:00	WOS	Mt. Juliet, TN

ACCOUNT:

PROJECT:

SDG:

DATE/TIME:

PAGE:

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



John Hawkins
Project Manager

Project Narrative

All Reactive Cyanide results reported in the attached report were determined as totals using method 4500 CN E-2016.
All Reactive Sulfide results reported in the attached report were determined as totals using method 4500 S2 D-2011.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

2203E91-001F WDW-1,2,3 & 4 EFFLUENT

SAMPLE RESULTS - 01

Collected date/time: 03/28/22 09:35

L1476728

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		3/31/2022 12:11:40 PM	WG1841054
Fluid	1		3/31/2022 12:11:40 PM	WG1841054
Initial pH	N/A		3/31/2022 12:11:40 PM	WG1841054
Final pH	N/A		3/31/2022 12:11:40 PM	WG1841054

Chlorinated Acid Herbicides (GC) by Method 8151A

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
2,4,5-TP (Silvex)	ND		0.00200	1	1	04/06/2022 13:13	WG1842932
2,4-D	ND		0.00200	10	1	04/06/2022 13:13	WG1842932
(S) 2,4-Dichlorophenyl Acetic Acid	41.0		14.0-158			04/06/2022 13:13	WG1842932

1 Cp

2 Tc

3 Ss

4 Cn

5 Si

6 Qc

7 GI

8 AI

9 Sc

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Hall Environmental Analysis Laboratory

2203E91-001G WDW-1,2,3 & 4 EFFLUENT

SAMPLE RESULTS - 02

Collected date/time: 03/28/22 09:35

L1476728

Wet Chemistry by Method 2580

Analyte	Result mV	Qualifier	Dilution	Analysis date / time	Batch
ORP	34.9	<u>T8</u>	1	03/31/2022 01:58	<u>WG1840372</u>

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

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2203E91-001H WDW-1,2,3 & 4 EFFLUENT

SAMPLE RESULTS - 03

Collected date/time: 03/28/22 09:35

L1476728

Wet Chemistry by Method 4500 CN E-2016

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Reactive Cyanide	0.0103		0.00500	1	04/01/2022 10:12	WG1841262

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 4500 S2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Reactive Sulfide	ND		0.0500	1	03/30/2022 20:33	WG1840723

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Corrosivity by pH	7.47	T8	1	04/05/2022 12:00	WG1842212

Sample Narrative:

L1476728-03 WG1842212: 7.47 at 18.5C

Wet Chemistry by Method D93/1010A

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Flashpoint	DNF at 170		1	03/31/2022 01:00	WG1840943

2203E91-002F CTB TO CITY OF POTW

SAMPLE RESULTS - 04

Collected date/time: 03/28/22 10:05

L1476728

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		3/31/2022 12:11:40 PM	WG1841054
Fluid	1		3/31/2022 12:11:40 PM	WG1841054
Initial pH	N/A		3/31/2022 12:11:40 PM	WG1841054
Final pH	N/A		3/31/2022 12:11:40 PM	WG1841054

Chlorinated Acid Herbicides (GC) by Method 8151A

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
2,4,5-TP (Silvex)	ND		0.00200	1	1	04/06/2022 14:11	WG1842932
2,4-D	ND		0.00200	10	1	04/06/2022 14:11	WG1842932
(S) 2,4-Dichlorophenyl Acetic Acid	40.6		14.0-158			04/06/2022 14:11	WG1842932

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

PROJECT:

SDG:

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2203E91-002G CTB TO CITY OF POTW

SAMPLE RESULTS - 05

Collected date/time: 03/28/22 10:05

L1476728

Wet Chemistry by Method 2580

Analyte	Result mV	Qualifier	Dilution	Analysis date / time	Batch
ORP	65.8	T8	1	03/31/2022 01:58	WG1840372

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

2203E91-002H CTB TO CITY OF POTW

SAMPLE RESULTS - 06

Collected date/time: 03/28/22 10:05

L1476728

Wet Chemistry by Method 4500 CN E-2016

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Cyanide	ND		0.00500	1	04/01/2022 10:13	WG1841262

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 4500 S2 D-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Sulfide	ND		0.0500	1	03/30/2022 20:34	WG1840723

Wet Chemistry by Method 9040C

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
Corrosivity by pH	7.20	T8	1	04/06/2022 11:38	WG1843431

Sample Narrative:

L1476728-06 WG1843431: 7.20 @ 20.55C

Wet Chemistry by Method D93/1010A

Analyte	Result deg F	Qualifier	Dilution	Analysis date / time	Batch
Flashpoint	DNF at 170		1	03/31/2022 01:00	WG1840943

WG1840372

Wet Chemistry by Method 2580

QUALITY CONTROL SUMMARY

[L1476728-02.05](#)

L1476010-17 Original Sample (OS) • Duplicate (DUP)

(OS) L1476010-17 03/31/22 01:58 • (DUP) R3775877-3 03/31/22 01:58

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	190	192	1	2.00		20

L1476010-18 Original Sample (OS) • Duplicate (DUP)

(OS) L1476010-18 03/31/22 01:58 • (DUP) R3775877-4 03/31/22 01:58

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	240	240	1	0.600		20

L1476010-19 Original Sample (OS) • Duplicate (DUP)

(OS) L1476010-19 03/31/22 01:58 • (DUP) R3775877-5 03/31/22 01:58

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	295	294	1	0.900		20

L1476010-20 Original Sample (OS) • Duplicate (DUP)

(OS) L1476010-20 03/31/22 01:58 • (DUP) R3775877-6 03/31/22 01:58

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	286	279	1	6.50		20

L1476010-21 Original Sample (OS) • Duplicate (DUP)

(OS) L1476010-21 03/31/22 01:58 • (DUP) R3775877-7 03/31/22 01:58

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	292	289	1	3.10		20

L1476010-22 Original Sample (OS) • Duplicate (DUP)

(OS) L1476010-22 03/31/22 01:58 • (DUP) R3775877-8 03/31/22 01:58

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	291	281	1	9.60		20



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Wet Chemistry by Method 2580

QUALITY CONTROL SUMMARY

[L1476728-02_05](#)

L1476010-23 Original Sample (OS) • Duplicate (DUP)

(OS) L1476010-23 03/31/22 01:58 • (DUP) R3775877-9 03/31/22 01:58

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	296	291	1	4.20		20

L1476010-24 Original Sample (OS) • Duplicate (DUP)

(OS) L1476010-24 03/31/22 01:58 • (DUP) R3775877-10 03/31/22 01:58

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	-36.3	-40.8	1	0.000		20

L1476728-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1476728-02 03/31/22 01:58 • (DUP) R3775877-11 03/31/22 01:58

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	34.9	42.7	1	7.80		20

L1476728-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1476728-05 03/31/22 01:58 • (DUP) R3775877-12 03/31/22 01:58

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	65.8	68.0	1	2.20		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3775877-1 03/31/22 01:58 • (LCSD) R3775877-2 03/31/22 01:58

Analyte	Spike Amount mV	LCS Result mV	LCSD Result mV	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	Diff mV	Diff Limits mV
ORP	108	110	110	102	102	86.0-105			0.300	20

Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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Wet Chemistry by Method 4500 CN E-2016

QUALITY CONTROL SUMMARY

L1476728-03.06

Method Blank (MB)

(MB) R3776480-1 04/01/22 09:57				
	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Reactive Cyanide	U		0.00180	0.00500

L1476719-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1476719-01 04/01/22 10:04 • (DUP) R3776480-3 04/01/22 10:05						
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Reactive Cyanide	ND	ND	1	0.000		20

L1476734-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1476734-01 04/01/22 10:14 • (DUP) R3776480-6 04/01/22 10:15						
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Reactive Cyanide	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3776480-2 04/01/22 09:58					
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Reactive Cyanide	0.100	0.0952	95.2	87.1-120	

L1476720-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1476720-02 04/01/22 10:06 • (MS) R3776480-4 04/01/22 10:09 • (MSD) R3776480-5 04/01/22 10:10											
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%
Reactive Cyanide	0.100	0.0394	0.136	0.136	96.6	96.6	1	90.0-110			0.000

L1476734-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1476734-02 04/01/22 10:16 • (MS) R3776480-7 04/01/22 10:17 • (MSD) R3776480-8 04/01/22 10:18											
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%
Reactive Cyanide	0.100	ND	0.0897	0.0833	89.7	83.3	1	90.0-110	Je		7.40

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Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

WG1840723

Wet Chemistry by Method 4500 S2 D-2011

QUALITY CONTROL SUMMARY

[L1476728-03,06](#)

Method Blank (MB)

(MB) R3775845-1 03/30/22 20:27

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Reactive Sulfide	U		0.0250	0.0500

Laboratory Control Sample (LCS)

(LCS) R3775845-2 03/30/22 20:27

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Sulfide	0.500	0.503	101	85.0-115	

L1476728-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1476728-06 03/30/22 20:34 • (MS) R3775845-4 03/30/22 20:38 • (MSD) R3775845-5 03/30/22 20:38

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Sulfide	1.00	ND	0.472	0.484	47.2	48.4	1	80.0-120			2.51	20

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

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WG1842212

Wet Chemistry by Method 9040C

QUALITY CONTROL SUMMARY

[L1476728-03](#)

Laboratory Control Sample (LCS)

(LCS) R3777702-1 04/05/22 12:00

Analyte	Spike Amount su	LCS Result su	LCS Rec. %	Rec. Limits %	LCS Qualifier
Corrosivity by pH	10.0	9.92	99.2	99.0-101	

Sample Narrative:

LCS: 9.92 at 19.4C

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

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WG1843431

Wet Chemistry by Method 9040C

QUALITY CONTROL SUMMARY

[L1476728-06](#)

L1476010-17 Original Sample (OS) • Duplicate (DUP)

(OS) L1476010-17 04/06/22 10:26 • (DUP) R3778150-2 04/06/22 10:33

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
Corrosivity by pH	7.47	7.49	1	0.267		1

Sample Narrative:

OS: 7.47 @ 19.87C

DUP: 7.49 @ 19.85C

L1476677-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1476677-01 04/06/22 11:25 • (DUP) R3778150-3 04/06/22 11:32

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
Corrosivity by pH	7.43	7.51	1	1.07	J3	1

Sample Narrative:

OS: 7.43 @ 20.46C

DUP: 7.51 @ 20.50C

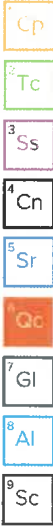
Laboratory Control Sample (LCS)

(LCS) R3778150-1 04/06/22 10:21

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
Corrosivity by pH	10.0	9.91	99.1	99.0-101	

Sample Narrative:

LCS: 9.91 @ 19.91C



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Wet Chemistry by Method D93/1010A

QUALITY CONTROL SUMMARY

L1476517-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1476517-02 03/31/22 01:00 • (DUP) R3776327-3 03/31/22 01:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	deg F	deg F		%		%
Flashpoint	DNF at 170	DNF at 170	1	0.000		10

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3776327-1 03/31/22 01:00 • (LCSD) R3776327-2 03/31/22 01:00

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	deg F	deg F	deg F	%	%	%			%	%
Flashpoint	126	125	129	98.8	102	96.0-104			3.16	10

Cp

Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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WG1842932

Chlorinated Acid Herbicides (GC) by Method 8151A

QUALITY CONTROL SUMMARY

L1476728-01.04

Method Blank (MB)

(MB) R3778206-1 04/06/22 10:01

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
2,4,5-TP (Silvex)	U		0.000667	0.00200
2,4-D	U		0.000667	0.00200
(S) 2,4-Dichlorophenyl Acetic Acid	50.8			14.0-158

Laboratory Control Sample (LCS)

(LCS) R3778206-2 04/06/22 10:16

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
2,4,5-TP (Silvex)	0.0500	0.0287	57.4	50.0-125	
2,4-D	0.0500	0.0257	51.4	50.0-120	
(S) 2,4-Dichlorophenyl Acetic Acid			47.0	14.0-158	

L1473617-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1473617-01 04/06/22 10:31 • (MS) R3778206-3 04/06/22 10:46 • (MSD) R3778206-4 04/06/22 11:00

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
2,4,5-TP (Silvex)	0.0500	ND	0.0240	0.0227	48.0	45.4	1	50.0-125	UG	UG	5.57	20
2,4-D	0.0500	ND	0.0230	0.0216	46.0	43.2	1	50.0-120	UG	UG	6.28	20
(S) 2,4-Dichlorophenyl Acetic Acid					42.0	39.8		14.0-158				



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GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-05-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

ACCOUNT:

PROJECT:

SDG:

DATE/TIME:

PAGE:

Half Environmental Analysis Laboratory

L147628

04/07/22 08:03

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**HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY**
CHAIN OF CUSTODY RECORD

PAGE: 1 OF 1

 Hall Environmental Analysis Laboratory
 4901 Hawkins NE
 Albuquerque, NM 87109
 TEL: 505-345-5975
 FAX: 505-345-4107
 Website: clients.hallenvironmental.com

H009

SUB CONTRACTOR		COMPANY		PHONE		FAX	
Pace TN		PACE TN		(800) 767-5859		(615) 758-5859	
ADDRESS				ACCOUNT #			
12065 Lebanon Rd							
CITY STATE ZIP				EMAIL			
Mt. Juliet, TN 37122							

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	ANALYTICAL COMMENTS
1	2203E91-001F	WDW-1,2,3 & 4 Effluent	1LAMGU	Aqueous	3/28/2022 9:35:00 AM	1 8151TCLP *RUSH 7 DAY TAT* 01
2	2203E91-001G	WDW-1,2,3 & 4 Effluent	125HDP	Aqueous	3/28/2022 9:35:00 AM	1 ORP *RUSH 7 DAY TAT* 02
3	2203E91-001H	WDW-1,2,3 & 4 Effluent	500HDPE	Aqueous	3/28/2022 9:35:00 AM	3 RCI *RUSH 7 DAY TAT* 03
4	2203E91-002F	CTB to City of POTW	1LAMGU	Aqueous	3/28/2022 10:05:00 AM	1 8151TCLP *RUSH 7 DAY TAT* 04
5	2203E91-002G	CTB to City of POTW	125HDP	Aqueous	3/28/2022 10:05:00 AM	1 ORP *RUSH 7 DAY TAT* 05
6	2203E91-002H	CTB to City of POTW	500HDPE	Aqueous	3/28/2022 10:05:00 AM	3 RCI *RUSH 7 DAY TAT* 06

L176728

ANALYTICAL COMMENTS

Sample Receipt Checklist

COC Seal Present/Intact: ☒ N ☐ Y If Applicable

COC Signed Accurate: ☒ N ☐ Y

Bottles arrive intact: ☒ N ☐ Y

Correct bottles used: ☒ N ☐ Y

Sufficient volume sent: ☒ N ☐ Y

RAD screen <0.5 gR/hr: ☒ N ☐ Y

Pres. Correct/Check: ☒ N ☐ Y

 1.0 to 1.0 DR 17
 8528 5047 9547

SPECIAL INSTRUCTIONS/COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By: <i>ELC</i>	Date: 3/29/2022	Time: 9:42 AM	Received By: <i>M. S. 3307-0900</i>	REPORT TRANSMITTAL DESIRED	
Relinquished by:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
TAT: Standard ☐ RUSH ☒ Next BD ☐ 2nd BD ☐ 3rd BD ☐				☐ HARD COPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE	
FOR LAB USE ONLY					
Temp of sample: _____ °C				Attempt to Cool: _____	
Comments: _____				_____	

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2203E91

13-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: MB	SampType: Mbik	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch ID: R86833	RunNo: 86833								
Prep Date:	Analysis Date: 3/29/2022	SeqNo: 3066895 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P)	ND	0.50								
Sulfate	ND	0.50								

Sample ID: LCS	SampType: LCS	TestCode: EPA Method 300.0: Anions								
Client ID: LCSW	Batch ID: R86833	RunNo: 86833								
Prep Date:	Analysis Date: 3/29/2022	SeqNo: 3066896 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.2	90	110			
Nitrogen, Nitrite (As N)	0.97	0.10	1.000	0	96.7	90	110			
Bromide	2.4	0.10	2.500	0	97.5	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	100	90	110			
Phosphorus, Orthophosphate (As P)	4.6	0.50	5.000	0	91.9	90	110			
Sulfate	9.4	0.50	10.00	0	93.6	90	110			

Sample ID: 2203E91-002CMS	SampType: MS	TestCode: EPA Method 300.0: Anions								
Client ID: CTB to City of POT	Batch ID: R86833	RunNo: 86833								
Prep Date:	Analysis Date: 3/29/2022	SeqNo: 3066925 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	0.97	0.10	1.000	0.04900	92.5	83.4	105			
Bromide	2.4	0.10	2.500	0	97.1	91.2	106			
Phosphorus, Orthophosphate (As P)	6.1	0.50	5.000	2.040	80.5	80.1	109			

Sample ID: 2203E91-002CMSD	SampType: MSD	TestCode: EPA Method 300.0: Anions								
Client ID: CTB to City of POT	Batch ID: R86833	RunNo: 86833								
Prep Date:	Analysis Date: 3/29/2022	SeqNo: 3066926 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	0.98	0.10	1.000	0.04900	93.1	83.4	105	0.655	20	
Bromide	2.4	0.10	2.500	0	97.9	91.2	106	0.911	20	
Phosphorus, Orthophosphate (As P)	6.2	0.50	5.000	2.040	82.3	80.1	109	1.52	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
 PQL Practical Quantitative Limit
 S % Recovery outside of range due to dilution or matrix interference

B Analyte detected in the associated Method Blank
 E Estimated value
 J Analyte detected below quantitation limits
 P Sample pH Not In Range
 RL Reporting Limit

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2203E91

13-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: MB	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch ID: R87132	RunNo: 87132								
Prep Date:	Analysis Date: 4/8/2022	SeqNo: 3080691 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: LCS	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSW	Batch ID: R87132	RunNo: 87132								
Prep Date:	Analysis Date: 4/8/2022	SeqNo: 3080692 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	104	90	110			
Chloride	4.8	0.50	5.000	0	95.5	90	110			
Sulfate	9.6	0.50	10.00	0	95.7	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2203E91

13-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: MB-66484	SampType: MBLK	TestCode: EPA Method 6020A: TCLP Metals								
Client ID: PBW	Batch ID: 66484	RunNo: 86849								
Prep Date: 3/29/2022	Analysis Date: 3/30/2022	SeqNo: 3067909 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.0010								
Selenium	ND	0.0010								

Sample ID: MSLLCS-66484	SampType: LCSLL	TestCode: EPA Method 6020A: TCLP Metals								
Client ID: BatchQC	Batch ID: 66484	RunNo: 86849								
Prep Date: 3/29/2022	Analysis Date: 3/30/2022	SeqNo: 3067910 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00087	0.0010	0.001000	0	87.0	70	130			J
Lead	0.0011	0.0010	0.001000	0	107	70	130			
Selenium	0.00091	0.0010	0.001000	0	90.9	70	130			J

Sample ID: MSLCS-66484	SampType: LCS	TestCode: EPA Method 6020A: TCLP Metals								
Client ID: LCSW	Batch ID: 66484	RunNo: 86849								
Prep Date: 3/29/2022	Analysis Date: 3/30/2022	SeqNo: 3067911 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.049	0.0010	0.05000	0	98.6	80	120			
Lead	0.051	0.0010	0.05000	0	102	80	120			
Selenium	0.048	0.0010	0.05000	0	96.2	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
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix interference

B Analyte detected in the associated Method Blank
E Estimated value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2203E91

13-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: MB-66537	SampType: MBLK	TestCode: EPA Method 8081: Pesticides TCLP								
Client ID: PBW	Batch ID: 66537	RunNo: 87097								
Prep Date: 3/31/2022	Analysis Date: 4/8/2022	SeqNo: 3080552 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Endrin	ND	0.020								
gamma-BHC (Lindane)	ND	0.40								
Heptachlor	ND	0.0080								
Heptachlor epoxide	ND	0.0080								
Methoxychlor	ND	10								
Toxaphene	ND	0.50								
Surr: Decachlorobiphenyl	0.0028		0.002500		113	73	119			
Surr: Tetrachloro-m-xylene	0.0019		0.002500		75.6	36.6	84.1			

Sample ID: MB-66537	SampType: MBLK	TestCode: EPA Method 8081: Pesticides TCLP								
Client ID: PBW	Batch ID: 66537	RunNo: 87097								
Prep Date: 3/31/2022	Analysis Date: 4/8/2022	SeqNo: 3080553 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Endrin	ND	0.020								
gamma-BHC (Lindane)	ND	0.40								
Heptachlor	ND	0.0080								
Heptachlor epoxide	ND	0.0080								
Methoxychlor	ND	10								
Toxaphene	ND	0.50								
Surr: Decachlorobiphenyl	0.0029		0.002500		118	73	119			
Surr: Tetrachloro-m-xylene	0.0019		0.002500		76.7	36.6	84.1			

Sample ID: LCS-66537	SampType: LCS	TestCode: EPA Method 8081: Pesticides TCLP								
Client ID: LCSW	Batch ID: 66537	RunNo: 87097								
Prep Date: 3/31/2022	Analysis Date: 4/8/2022	SeqNo: 3080554 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Endrin	0.00048	0.00010	0.0005000	0	96.9	56.3	126			
gamma-BHC (Lindane)	0.00038	0.00010	0.0005000	0	76.3	45.8	103			
Heptachlor	0.00037	0.00010	0.0005000	0	74.3	33.7	104			
Heptachlor epoxide	0.00047	0.00010	0.0005000	0	93.6	50.1	116			
Methoxychlor	0.00051	0.00010	0.0005000	0	101	15	203			
Surr: Decachlorobiphenyl	0.0029		0.002500		115	73	119			
Surr: Tetrachloro-m-xylene	0.0015		0.002500		60.8	36.6	84.1			

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
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix interference

B Analyte detected in the associated Method Blank
E Estimated value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2203E91

13-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: LCS-66537		SampType: LCS		TestCode: EPA Method 8081: Pesticides TCLP						
Client ID: LCSW		Batch ID: 66537		RunNo: 87097						
Prep Date: 3/31/2022		Analysis Date: 4/8/2022		SeqNo: 3080555		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Endrin	0.00050	0.00010	0.0005000	0	101	56.3	126			
gamma-BHC (Lindane)	0.00041	0.00010	0.0005000	0	82.5	45.8	103			
Heptachlor	0.00038	0.00010	0.0005000	0	76.4	33.7	104			
Heptachlor epoxide	0.00047	0.00010	0.0005000	0	93.7	50.1	116			
Methoxychlor	0.00052	0.00010	0.0005000	0	104	15	203			
Surr: Decachlorobiphenyl	0.0030		0.002500		119	73	119			
Surr: Tetrachloro-m-xylene	0.0016		0.002500		63.5	36.6	84.1			

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
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix interference

B Analyte detected in the associated Method Blank
E Estimated value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2203E91

13-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: 100ng 624 lcs		SampType: LCS		TestCode: TCLP Volatiles by 8260B						
Client ID: LCSW		Batch ID: T87039		RunNo: 87039						
Prep Date:		Analysis Date: 4/6/2022		SeqNo: 3077978		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.021	0.50	0.02000	0	105	70	130			J
1,1-Dichloroethene	0.020	0.70	0.02000	0	101	70	130			J
Trichloroethene (TCE)	0.020	0.50	0.02000	0	101	70	130			J
Chlorobenzene	0.021	100	0.02000	0	105	70	130			J
Surr: 1,2-Dichloroethane-d4	0.010		0.01000		101	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		104	70	130			
Surr: Dibromofluoromethane	0.010		0.01000		101	70	130			
Surr: Toluene-d8	0.0099		0.01000		98.9	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2203E91

13-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: mb-66542		SampType: MBLK		TestCode: EPA Method 8270C TCLP						
Client ID: PBW		Batch ID: 66542		RunNo: 87231						
Prep Date: 4/1/2022		Analysis Date: 4/13/2022		SeqNo: 3084458		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	ND	200								
3+4-Methylphenol	ND	200								
2,4-Dinitrotoluene	ND	0.13								
Hexachlorobenzene	ND	0.13								
Hexachlorobutadiene	ND	0.50								
Hexachloroethane	ND	3.0								
Nitrobenzene	ND	2.0								
Pentachlorophenol	ND	100								
Pyridine	ND	5.0								
2,4,5-Trichlorophenol	ND	400								
2,4,6-Trichlorophenol	ND	2.0								
Cresols, Total	ND	200								
Surr: 2-Fluorophenol	0.11		0.2000		55.0	15	118			
Surr: Phenol-d5	0.082		0.2000		41.0	15	92.9			
Surr: 2,4,6-Tribromophenol	0.13		0.2000		62.7	15	150			
Surr: Nitrobenzene-d5	0.065		0.1000		65.3	15	136			
Surr: 2-Fluorobiphenyl	0.052		0.1000		51.8	15	134			
Surr: 4-Terphenyl-d14	0.075		0.1000		74.5	15	168			

Sample ID: lcs-66542		SampType: LCS		TestCode: EPA Method 8270C TCLP						
Client ID: LCSW		Batch ID: 66542		RunNo: 87231						
Prep Date: 4/1/2022		Analysis Date: 4/13/2022		SeqNo: 3084459		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.056	0.00010	0.1000	0	55.8	19	106			
3+4-Methylphenol	0.11	0.00010	0.2000	0	53.3	16.3	112			
2,4-Dinitrotoluene	0.034	0.00010	0.1000	0	34.3	15	99.6			
Hexachlorobenzene	0.052	0.00010	0.1000	0	52.4	41.8	111			
Hexachlorobutadiene	0.042	0.00010	0.1000	0	41.6	15	91.5			
Hexachloroethane	0.046	0.00010	0.1000	0	46.3	15	87.5			
Nitrobenzene	0.059	0.00010	0.1000	0	59.3	19.3	114			
Pentachlorophenol	0.057	0.00010	0.1000	0	56.7	29	103			
Pyridine	0.039	0.00010	0.1000	0	39.3	15	92.6			
2,4,5-Trichlorophenol	0.052	0.00010	0.1000	0	51.7	25.2	114			
2,4,6-Trichlorophenol	0.053	0.00010	0.1000	0	52.9	25.7	112			
Cresols, Total	0.16	0.00010	0.3000	0	54.1	15	145			
Surr: 2-Fluorophenol	0.092		0.2000		45.9	15	118			
Surr: Phenol-d5	0.071		0.2000		35.3	15	92.9			
Surr: 2,4,6-Tribromophenol	0.12		0.2000		61.6	15	150			

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
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix interference

B Analyte detected in the associated Method Blank
E Estimated value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**WO#: **2203E91****13-May-22**

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: lcs-66542		SampType: LCS		TestCode: EPA Method 8270C TCLP						
Client ID: LCSW		Batch ID: 66542		RunNo: 87231						
Prep Date: 4/1/2022		Analysis Date: 4/13/2022		SeqNo: 3084459			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.058		0.1000		58.5	15	136			
Surr: 2-Fluorobiphenyl	0.051		0.1000		50.8	15	134			
Surr: 4-Terphenyl-d14	0.077		0.1000		77.0	15	168			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Estimated value
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative Limit	RL Reporting Limit
S % Recovery outside of range due to dilution or matrix interference	

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2203E91

13-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: Ics-1 100.2uS eC		SampType: Ics		TestCode: SM2510B: Specific Conductance							
Client ID: LCSW		Batch ID: R87028		RunNo: 87028							
Prep Date:		Analysis Date: 4/5/2022		SeqNo: 3075403		Units: µmhos/cm					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Conductivity	100	10	100.2	0	100	85	115				

Sample ID: Ics-2 100.2uS eC		SampType: Ics		TestCode: SM2510B: Specific Conductance							
Client ID: LCSW		Batch ID: R87028		RunNo: 87028							
Prep Date:		Analysis Date: 4/5/2022		SeqNo: 3075427		Units: µmhos/cm					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Conductivity	100	10	100.2	0	104	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
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix interference

B Analyte detected in the associated Method Blank
E Estimated value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2203E91

13-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: MB-66490	SampType: MBLK	TestCode: EPA Method 7470A: Mercury								
Client ID: PBW	Batch ID: 66490	RunNo: 86867								
Prep Date: 3/30/2022	Analysis Date: 3/30/2022	SeqNo: 3068731 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: LCSLL-66490	SampType: LCSLL	TestCode: EPA Method 7470A: Mercury								
Client ID: BatchQC	Batch ID: 66490	RunNo: 86867								
Prep Date: 3/30/2022	Analysis Date: 3/30/2022	SeqNo: 3068732 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00019	0.00020	0.0001500	0	129	50	150			J

Sample ID: LCS-66490	SampType: LCS	TestCode: EPA Method 7470A: Mercury								
Client ID: LCSW	Batch ID: 66490	RunNo: 86867								
Prep Date: 3/30/2022	Analysis Date: 3/30/2022	SeqNo: 3068733 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0046	0.00020	0.005000	0	92.4	85	115			

Sample ID: LCSD-66490	SampType: LCSD	TestCode: EPA Method 7470A: Mercury								
Client ID: LCSS02	Batch ID: 66490	RunNo: 86867								
Prep Date: 3/30/2022	Analysis Date: 3/30/2022	SeqNo: 3068734 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0046	0.00020	0.005000	0	91.1	85	115	1.45	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Estimated value
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative Limit	RL Reporting Limit
S % Recovery outside of range due to dilution or matrix interference	

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2203E91

13-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: MB-A	SampType: MBLK	TestCode: EPA Method 6010B: Dissolved Metals								
Client ID: PBW	Batch ID: A87057	RunNo: 87057								
Prep Date:	Analysis Date: 4/5/2022	SeqNo: 3077196 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								

Sample ID: LCS-A	SampType: LCS	TestCode: EPA Method 6010B: Dissolved Metals								
Client ID: LCSW	Batch ID: A87057	RunNo: 87057								
Prep Date:	Analysis Date: 4/5/2022	SeqNo: 3077198 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	55	1.0	50.00	0	111	80	120			
Magnesium	53	1.0	50.00	0	107	80	120			
Potassium	53	1.0	50.00	0	106	80	120			

Sample ID: LCSD-A	SampType: LCSD	TestCode: EPA Method 6010B: Dissolved Metals								
Client ID: LCSS02	Batch ID: A87057	RunNo: 87057								
Prep Date:	Analysis Date: 4/5/2022	SeqNo: 3077199 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	56	1.0	50.00	0	112	80	120	0.933	20	
Magnesium	54	1.0	50.00	0	108	80	120	0.834	20	
Potassium	53	1.0	50.00	0	107	80	120	0.832	20	

Sample ID: MB	SampType: MBLK	TestCode: EPA Method 6010B: Dissolved Metals								
Client ID: PBW	Batch ID: A87128	RunNo: 87128								
Prep Date:	Analysis Date: 4/8/2022	SeqNo: 3080438 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	ND	1.0								

Sample ID: LCS	SampType: LCS	TestCode: EPA Method 6010B: Dissolved Metals								
Client ID: LCSW	Batch ID: A87128	RunNo: 87128								
Prep Date:	Analysis Date: 4/8/2022	SeqNo: 3080440 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	48	1.0	50.00	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
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix interference

B Analyte detected in the associated Method Blank
E Estimated value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2203E91

13-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: MB-66484	SampType: MBLK	TestCode: EPA 6010B: TCLP Metals								
Client ID: PBW	Batch ID: 66484	RunNo: 86886								
Prep Date: 3/29/2022	Analysis Date: 3/31/2022	SeqNo: 3069689 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Silver	ND	0.0050								

Sample ID: LCS-66484	SampType: LCS	TestCode: EPA 6010B: TCLP Metals								
Client ID: LCSW	Batch ID: 66484	RunNo: 86886								
Prep Date: 3/29/2022	Analysis Date: 3/31/2022	SeqNo: 3069691 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.50	0.0020	0.5000	0	99.8	80	120			
Cadmium	0.50	0.0020	0.5000	0	100	80	120			
Chromium	0.50	0.0060	0.5000	0	101	80	120			
Silver	0.10	0.0050	0.1000	0	103	80	120			

Sample ID: 2203E91-001EMS	SampType: MS	TestCode: EPA 6010B: TCLP Metals								
Client ID: WDW-1,2,3 & 4 Efflu	Batch ID: 66484	RunNo: 87057								
Prep Date: 3/29/2022	Analysis Date: 4/5/2022	SeqNo: 3077186 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.49	0.010	0.5000	0.04065	89.8	75	125			
Cadmium	0.45	0.010	0.5000	0	90.8	75	125			
Chromium	0.44	0.030	0.5000	0	88.0	75	125			
Silver	0.096	0.025	0.1000	0.006833	89.5	75	125			

Sample ID: 2203E91-001EMSD	SampType: MSD	TestCode: EPA 6010B: TCLP Metals								
Client ID: WDW-1,2,3 & 4 Efflu	Batch ID: 66484	RunNo: 87057								
Prep Date: 3/29/2022	Analysis Date: 4/5/2022	SeqNo: 3077187 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.50	0.010	0.5000	0.04065	91.3	75	125	1.47	20	
Cadmium	0.47	0.010	0.5000	0	93.0	75	125	2.43	20	
Chromium	0.45	0.030	0.5000	0	89.5	75	125	1.69	20	
Silver	0.094	0.025	0.1000	0.006833	86.9	75	125	2.72	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Estimated value
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative Limit	RL Reporting Limit
S % Recovery outside of range due to dilution or matrix interference	

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2203E91

13-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: mb-1 alk	SampType: mblk			TestCode: SM2320B: Alkalinity						
Client ID: PBW	Batch ID: R87028			RunNo: 87028						
Prep Date:	Analysis Date: 4/5/2022			SeqNo: 3075482			Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: lcs-1 alk	SampType: lcs			TestCode: SM2320B: Alkalinity						
Client ID: LCSW	Batch ID: R87028			RunNo: 87028						
Prep Date:	Analysis Date: 4/5/2022			SeqNo: 3075483			Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	73.64	20.00	80.00	0	92.0	90	110			

Sample ID: mb-2 alk	SampType: mblk	TestCode: SM2320B: Alkalinity								
Client ID: PBW	Batch ID: R87028	RunNo: 87028								
Prep Date:	Analysis Date: 4/5/2022	SeqNo: 3075505 Units: mg/L CaCO3								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: lcs-2 alk	SampType: lcs			TestCode: SM2320B: Alkalinity						
Client ID: LCSW	Batch ID: R87028			RunNo: 87028						
Prep Date:	Analysis Date: 4/5/2022			SeqNo: 3075506			Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	73.84	20.00	80.00	0	92.3	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
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix interference

B Analyte detected in the associated Method Blank
E Estimated value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**WO#: **2203E91****13-May-22**

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: MB-66599		SampType: MBLK		TestCode: SM2540C MOD: Total Dissolved Solids						
Client ID: PBW		Batch ID: 66599		RunNo: 87062						
Prep Date: 4/4/2022		Analysis Date: 4/7/2022		SeqNo: 3077421		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: LCS-66599		SampType: LCS		TestCode: SM2540C MOD: Total Dissolved Solids						
Client ID: LCSW		Batch ID: 66599		RunNo: 87062						
Prep Date: 4/4/2022		Analysis Date: 4/7/2022		SeqNo: 3077422		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2203E91

13-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: MB-66600	SampType: MBLK	TestCode: SM 2540D: TSS								
Client ID: PBW	Batch ID: 66600	RunNo: 87001								
Prep Date: 4/4/2022	Analysis Date: 4/5/2022	SeqNo: 3074139	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Suspended Solids	ND	4.0								

Sample ID: LCS-66600	SampType: LCS	TestCode: SM 2540D: TSS								
Client ID: LCSW	Batch ID: 66600	RunNo: 87001								
Prep Date: 4/4/2022	Analysis Date: 4/5/2022	SeqNo: 3074140	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Suspended Solids	92	4.0	92.40	0	99.6	83.44	119.05			

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
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix interference

B Analyte detected in the associated Method Blank
E Estimated value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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

Sample Log-In Check List

Client Name: Navajo Refining

Work Order Number: 2203E91

RcptNo: 1

Received By: Sean Livingston

3/29/2022 8:15:00 AM

Completed By: Sean Livingston

3/29/2022 9:09:25 AM

Reviewed By: JN 3/21/22

San Livingston
San Livingston

Chain of Custody

1. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
4. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☒ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
8. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
9. Received at least 1 vial with headspace $<1/4"$ for AQ VOA? Yes ☒ No ☐ NA ☐
10. Were any sample containers received broken? Yes ☐ No ☒
11. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
13. Is it clear what analyses were requested? Yes ☒ No ☐
14. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH:

6 4
0 >12 unless noted)

Adjusted? NO

Checked by: KPA 3/29/22

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:

Date:

By Whom:

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks: Poured off from unpreserved 002C 2 of 2 for ORP 125ml

17. Cooler Information 0026 - KPA 3/29/22

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.5	Good				

Poured off from unpres 001C 1 of 2 for ORP 125ml
001G - KPA 3/29/22

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159

Artesia, NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)☐ Other☐ EDD (Type) _____

Turn-Around Time:

Standard > Rush ☒

Project Name:

PSP WDW-1, 2, 3 & 4 Inj Well

Project #: P.O. # 251841

Project Manager:

Randy Dade

Sampler: Brady Hubbard

On Ice: ☒ Yes ☐ No

Sample Temperature: 0.6-0.1 = 0.5°C

Container

Type and #

Preservative

Type

HEAL No.

2253E91

001

Date

3/28/22

9:35

Liquid

WDW-1, 2, 3 & 4 Effluent

3-40ml VOA HCL

none

1-1L Amber

1-250ml P HNO3

none

1-1L Amber

1-1L Amber

none

1-250ml P HNO4

none

1-1L Amber

1-1L Amber

none

1-250ml P HNO4

none

1-1L Amber

1-1L Amber

none

1-250ml P HNO4

none

Received by:

Date

Time

3/28/22

10:30

Brady Hubbard

Relinquished by:

Date

Time

3/28/22

1900

Brady Hubbard

Remarks: Dissolved Cations by EPA Method 200.7. ***1-500ml

unpreserved plastic, 1-125ml H2SO4 plastic, 1-125ml HNO3 plastic. ***

1-500ml unpreserved plastic, 1-500ml NaOH plastic, 1-500ml

NaOH/ZnAcetate plastic.

Will suffice for Quarterly WDW-1, 2, 3 & 4 Inj Well

Date

Time

3/28/22

8:15

Brady Hubbard

Relinquished by:

Date

Analysis Request

Specific Gravity, C/A Balance, ORP, pH, TSS

8260 TCLP Compounds

8270 TCLP Compounds

RCI

RCRA 8 Metals

8081 TCLP Compounds

8151 TCLP Compounds

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.



August 15, 2022

Mr. Carl Chavez, CHMM
New Mexico Oil Conservation Division (Albuquerque Office)
Energy, Minerals and Natural Resources Department
5200 Oakland Avenue, NE
Albuquerque, NM 87113

RE: 2022 3rd Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3 and WDW-4 HF Sinclair.

Dear Mr. Chavez,

Enclosed, please find the third quarter 2022 sampling results for fluids injected into WDW-1, WDW-2, WDW-3 and WDW-4 and a table showing the various volumes and pressures as required under Permit Condition 2.1.1, Quarterly Reports.

Over the third quarter, the average injection pressure for each well is as reported, 1,065 psig for WDW-1, 1,043 psig for WDW-2, 939 psig for WDW-3 and 210 psig for WDW-4. The average flows for each well is reported as, WDW-1, 259 gpm, WDW-2, 221 gpm, WDW-3, 105 gpm and WDW-4, 247 gpm. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicate parameters are within permit limits.

This report covers the period from April 1, 2022 to June 30, 2022. HF Sinclair has disposed a total of 2,566,284 barrels of fluid into the four wells during the fourth quarter 2022. The volume per well is:

- 798,171 barrels into WDW-1: 30-015-27592
- 682,971 barrels into WDW-2: 30-015-20894
- 322,971 barrels into WDW-3: 30-015-26575
- 762,171 barrels into WDW-4: 30-015-44677

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions or comments, please contact Randy Dade at 575-746-5281

Respectfully,

Kawika Tupou
Environmental Manager
HF Sinclair

HollyFrontier Navajo Refining LLC
501 East Main, Artesia, NM 88210
575-748-3311 | HFSinclair.com

2022 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average INJ Pressure (psig)	Maximum INJ Pressure (psig)	Minimum INJ Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average			Maximum Volume (bpd)	Minimum Volume (bpd)	TOTAL CUMULATIVE Volume (barrels)
							Annular Pressure Av (psig)	Annular Pressure Mx (psig)	Annular Pressure Mn (psig)			
30-015-27592 WDW-1												
Apr-22	1,114	1,333	883	249	313	171	113	911	0	8,537	10,731	49,129,653
May-22	1,020	1,187	504	275	340	221	587	1,004	296	9,428	11,657	49,385,767
Jun-22	1,062	1,163	849	252	332	105	598	865	255	8,640	11,382	49,668,624
Monthly Avg	1,065			259							TOTAL	49,927,824
												798,171
30-015-20894 WDW-2												
Apr-22	1,000	1,092	837	223	302	157	965	1,243	709	7,646	10,354	30,074,730
May-22	1,102	1,250	921	225	320	163	864	1,197	626	7,714	10,921	30,304,101
Jun-22	1,026	1,143	851	216	303	74	708	880	534	7,406	10,389	30,535,530
Monthly Avg	1,043			221							TOTAL	30,757,701
												682,971
30-015-26575 WDW-3												
Apr-22	881	983	735	95	118	58	444	746	128	3,257	4,046	21,928,710
May-22	979	1,150	764	112	131	69	258	491	32	3,840	4,491	22,026,424
Jun-22	958	1,066	602	107	125	60	449	676	189	3,669	4,286	22,141,624
Monthly Avg	939			105							TOTAL	22,251,681
												322,971
30-015-44677 WDW-4												
Apr-22	170	204	136	195	298	100	178	261	97	6,686	10,217	7,892,024
May-22	209	237	178	249	285	198	213	265	166	8,537	9,771	8,092,595
Jun-22	251	304	215	297	352	248	197	249	137	10,183	12,069	8,348,709
Monthly Avg	210			247							TOTAL	8,654,195
												762,171
Total BBLS												Beginning Volume
											WDW1	798,171
											WDW2	49,129,653
											WDW3	30,074,730
											WDW4	21,928,710
												7,892,024
												8,654,195
												49,927,824
												30,757,701
												22,251,681
												8,654,195



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

May 25, 2022

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

RE: PSP WDW 1 2 3 4 Inj Well

OrderNo.: 2204B57

Dear Randy Dade:

Hall Environmental Analysis Laboratory received 2 sample(s) on 4/27/2022 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109



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

Case Narrative

WO#: 2204B57
Date: 5/25/2022

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Analytical Notes:

Full list TCLP was requested for the two samples in this report. Per the TCLP Method 1311, "If a total analysis of the waste demonstrates that individual analytes are not present in the waste, or that they are present but at such low concentrations that the appropriate regulatory levels could not possibly be exceeded, the TCLP need not be run". All TCLP compounds are reported as totals in this report, at the TCLP Limits, since the low solids content did not require filtration. The TCLP term is used in the method header; this is used to represent that the compounds listed are the specific TCLP compounds and that these compounds are reported at the TCLP regulatory limits.

The cations were filtered using a 0.45um filter for the C/A balance determination.

Analytical Report

Lab Order: 2204B57

Date Reported: 5/25/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2204B57-001A

Client Sample ID: WDW-1,2,3 & 4 Effluent
Collection Date: 4/26/2022 9:25:00 AM
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
TCLP VOLATILES BY 8260B							Analyst: CCM	
Benzene	ND	0.00023	0.50		mg/L	200	4/27/2022 10:15:00 PM	T87552
1,2-Dichloroethane (EDC)	ND	0.00025	0.50		mg/L	200	4/27/2022 10:15:00 PM	T87552
2-Butanone	ND	0.0020	200		mg/L	200	4/27/2022 10:15:00 PM	T87552
Carbon Tetrachloride	ND	0.00018	0.50		mg/L	200	4/27/2022 10:15:00 PM	T87552
Chloroform	ND	0.00013	6.0		mg/L	200	4/27/2022 10:15:00 PM	T87552
1,4-Dichlorobenzene	ND	0.00021	7.5		mg/L	200	4/27/2022 10:15:00 PM	T87552
1,1-Dichloroethene	ND	0.00020	0.70		mg/L	200	4/27/2022 10:15:00 PM	T87552
Tetrachloroethene (PCE)	ND	0.00036	0.70		mg/L	200	4/27/2022 10:15:00 PM	T87552
Trichloroethene (TCE)	ND	0.00020	0.50		mg/L	200	4/27/2022 10:15:00 PM	T87552
Vinyl chloride	ND	0.00032	0.20		mg/L	200	4/27/2022 10:15:00 PM	T87552
Chlorobenzene	ND	0.00016	100		mg/L	200	4/27/2022 10:15:00 PM	T87552
Surr: 1,2-Dichloroethane-d4	99.6	0	70-130		%Rec	200	4/27/2022 10:15:00 PM	T87552
Surr: 4-Bromofluorobenzene	97.7	0	70-130		%Rec	200	4/27/2022 10:15:00 PM	T87552
Surr: Dibromofluoromethane	102	0	70-130		%Rec	200	4/27/2022 10:15:00 PM	T87552
Surr: Toluene-d8	90.8	0	70-130		%Rec	200	4/27/2022 10:15:00 PM	T87552

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Estimated value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report

Lab Order: 2204B57

Date Reported: 5/25/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2204B57-001B

Client Sample ID: WDW-1,2,3 & 4 Effluent
Collection Date: 4/26/2022 9:25:00 AM
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8081: PESTICIDES TCLP							Analyst: JME	
Chlordane	ND	0.0050	0.030	D	mg/L	10	5/18/2022 10:41:44 AM	67182
Endrin	ND	0.00049	0.020	D	mg/L	10	5/18/2022 10:41:44 AM	67182
gamma-BHC (Lindane)	ND	0.00041	0.40	D	mg/L	10	5/18/2022 10:41:44 AM	67182
Heptachlor	ND	0.00041	0.0080	D	mg/L	10	5/18/2022 10:41:44 AM	67182
Heptachlor epoxide	ND	0.00047	0.0080	D	mg/L	10	5/18/2022 10:41:44 AM	67182
Methoxychlor	ND	0.00046	10	D	mg/L	10	5/18/2022 10:41:44 AM	67182
Toxaphene	ND	0.0050	0.50	D	mg/L	10	5/18/2022 10:41:44 AM	67182
Surr: Decachlorobiphenyl	0	0	73-119	SD	%Rec	10	5/18/2022 10:41:44 AM	67182
Surr: Tetrachloro-m-xylene	0	0	36.6-84.1	SD	%Rec	10	5/18/2022 10:41:44 AM	67182
EPA METHOD 8270C TCLP							Analyst: DAM	
2-Methylphenol	ND	0.00051	200		mg/L	1	5/3/2022 5:44:26 PM	67188
3+4-Methylphenol	ND	0.00045	200		mg/L	1	5/3/2022 5:44:26 PM	67188
2,4-Dinitrotoluene	ND	0.00062	0.13		mg/L	1	5/3/2022 5:44:26 PM	67188
Hexachlorobenzene	ND	0.00066	0.13		mg/L	1	5/3/2022 5:44:26 PM	67188
Hexachlorobutadiene	ND	0.00082	0.50		mg/L	1	5/3/2022 5:44:26 PM	67188
Hexachloroethane	ND	0.00045	3.0		mg/L	1	5/3/2022 5:44:26 PM	67188
Nitrobenzene	ND	0.00051	2.0		mg/L	1	5/3/2022 5:44:26 PM	67188
Pentachlorophenol	ND	0.00059	100		mg/L	1	5/3/2022 5:44:26 PM	67188
Pyridine	0.0059	0.00093	5.0	J	mg/L	1	5/3/2022 5:44:26 PM	67188
2,4,5-Trichlorophenol	ND	0.00062	400		mg/L	1	5/3/2022 5:44:26 PM	67188
2,4,6-Trichlorophenol	ND	0.00043	2.0		mg/L	1	5/3/2022 5:44:26 PM	67188
Cresols, Total	ND	0.00051	200		mg/L	1	5/3/2022 5:44:26 PM	67188
Surr: 2-Fluorophenol	42.8	0	15-118		%Rec	1	5/3/2022 5:44:26 PM	67188
Surr: Phenol-d5	34.5	0	15-92.9		%Rec	1	5/3/2022 5:44:26 PM	67188
Surr: 2,4,6-Tribromophenol	46.4	0	15-150		%Rec	1	5/3/2022 5:44:26 PM	67188
Surr: Nitrobenzene-d5	68.1	0	15-136		%Rec	1	5/3/2022 5:44:26 PM	67188
Surr: 2-Fluorobiphenyl	60.5	0	15-134		%Rec	1	5/3/2022 5:44:26 PM	67188
Surr: 4-Terphenyl-d14	83.9	0	15-168		%Rec	1	5/3/2022 5:44:26 PM	67188

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Estimated value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report

Lab Order: 2204B57

Date Reported: 5/25/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2204B57-001C

Client Sample ID: WDW-1,2,3 & 4 Effluent
Collection Date: 4/26/2022 9:25:00 AM
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: MRA	
Fluoride	24	0.80	2.0	*	mg/L	20	4/27/2022 9:16:29 PM	R87581
Chloride	600	25	50	*	mg/L	100	5/5/2022 7:33:05 PM	R87788
Nitrogen, Nitrite (As N)	0.17	0.027	0.50	J	mg/L	5	4/27/2022 9:03:38 PM	R87581
Bromide	0.62	0.25	0.50		mg/L	5	4/27/2022 9:03:38 PM	R87581
Nitrogen, Nitrate (As N)	0.88	0.050	0.50		mg/L	5	4/27/2022 9:03:38 PM	R87581
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5		mg/L	5	4/27/2022 9:03:38 PM	R87581
Sulfate	2400	25	50	*	mg/L	100	5/5/2022 7:33:05 PM	R87788
SM2510B: SPECIFIC CONDUCTANCE							Analyst: LRN	
Conductivity	6500	10	10		µmhos/c	1	4/28/2022 4:12:20 PM	R87620
SM4500-H+B / 9040C: PH							Analyst: LRN	
pH	7.33			H	pH units	1	4/28/2022 4:12:20 PM	R87620
SM2320B: ALKALINITY							Analyst: LRN	
Bicarbonate (As CaCO ₃)	626.9	20.00	20.00		mg/L Ca	1	4/28/2022 4:12:20 PM	R87620
Carbonate (As CaCO ₃)	ND	2.000	2.000		mg/L Ca	1	4/28/2022 4:12:20 PM	R87620
Total Alkalinity (as CaCO ₃)	626.9	20.00	20.00		mg/L Ca	1	4/28/2022 4:12:20 PM	R87620
SPECIFIC GRAVITY							Analyst: CAS	
Specific Gravity	0.9981	0	0			1	5/10/2022 4:15:00 PM	R87962
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS	
Total Dissolved Solids	4640	100	100	*D	mg/L	1	5/5/2022 1:25:00 PM	67191
SM 2540D: TSS							Analyst: KS	
Suspended Solids	21	4.0	4.0		mg/L	1	5/4/2022 12:57:00 PM	67224

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Estimated value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report

Lab Order: 2204B57

Date Reported: 5/25/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2204B57-001D

Client Sample ID: WDW-1,2,3 & 4 Effluent
Collection Date: 4/26/2022 9:25:00 AM
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 6010B: DISSOLVED METALS							Analyst: JRR	
Calcium	490	2.9	50		mg/L	50	5/16/2022 8:36:22 AM	A88011
Magnesium	160	1.7	50		mg/L	50	5/16/2022 8:36:22 AM	A88011
Potassium	100	10	50		mg/L	50	5/16/2022 8:36:22 AM	A88011
Sodium	580	21	50		mg/L	50	5/16/2022 8:36:22 AM	A88011

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Estimated value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report

Lab Order: 2204B57

Date Reported: 5/25/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2204B57-001E

Client Sample ID: WDW-1,2,3 & 4 Effluent
Collection Date: 4/26/2022 9:25:00 AM
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 6020A: TCLP METALS							Analyst: DBK	
Arsenic	0.012	0.0025	5.0	J	mg/L	5	5/4/2022 12:10:37 PM	67111
Lead	ND	0.0025	5.0		mg/L	5	5/2/2022 4:17:19 PM	67111
Selenium	0.29	0.0025	1.0	J	mg/L	5	5/2/2022 4:17:19 PM	67111
EPA METHOD 7470A: MERCURY							Analyst: VP	
Mercury	ND	0.000091	0.020		mg/L	1	5/2/2022 1:09:17 PM	67181
EPA 6010B: TCLP METALS							Analyst: JLF	
Barium	0.051	0.0011	100	J	mg/L	1	4/28/2022 3:31:14 PM	67111
Cadmium	ND	0.0012	1.0		mg/L	1	4/28/2022 3:31:14 PM	67111
Chromium	ND	0.0017	5.0		mg/L	1	4/28/2022 3:31:14 PM	67111
Silver	0.0066	0.0013	5.0	J	mg/L	1	4/28/2022 3:31:14 PM	67111

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Estimated value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report

Lab Order: 2204B57

Date Reported: 5/25/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2204B57-002A

Client Sample ID: CTB to City of POTW
Collection Date: 4/26/2022 9:50:00 AM
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
TCLP VOLATILES BY 8260B							Analyst: CCM	
Benzene	ND	0.00023	0.50		mg/L	200	4/27/2022 10:38:00 PM	T87552
1,2-Dichloroethane (EDC)	ND	0.00025	0.50		mg/L	200	4/27/2022 10:38:00 PM	T87552
2-Butanone	ND	0.0020	200		mg/L	200	4/27/2022 10:38:00 PM	T87552
Carbon Tetrachloride	ND	0.00018	0.50		mg/L	200	4/27/2022 10:38:00 PM	T87552
Chloroform	ND	0.00013	6.0		mg/L	200	4/27/2022 10:38:00 PM	T87552
1,4-Dichlorobenzene	ND	0.00021	7.5		mg/L	200	4/27/2022 10:38:00 PM	T87552
1,1-Dichloroethene	ND	0.00020	0.70		mg/L	200	4/27/2022 10:38:00 PM	T87552
Tetrachloroethene (PCE)	ND	0.00036	0.70		mg/L	200	4/27/2022 10:38:00 PM	T87552
Trichloroethene (TCE)	ND	0.00020	0.50		mg/L	200	4/27/2022 10:38:00 PM	T87552
Vinyl chloride	ND	0.00032	0.20		mg/L	200	4/27/2022 10:38:00 PM	T87552
Chlorobenzene	ND	0.00016	100		mg/L	200	4/27/2022 10:38:00 PM	T87552
Surr: 1,2-Dichloroethane-d4	96.2	0	70-130		%Rec	200	4/27/2022 10:38:00 PM	T87552
Surr: 4-Bromofluorobenzene	96.1	0	70-130		%Rec	200	4/27/2022 10:38:00 PM	T87552
Surr: Dibromofluoromethane	103	0	70-130		%Rec	200	4/27/2022 10:38:00 PM	T87552
Surr: Toluene-d8	91.1	0	70-130		%Rec	200	4/27/2022 10:38:00 PM	T87552

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Estimated value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report

Lab Order: 2204B57

Date Reported: 5/25/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2204B57-002B

Client Sample ID: CTB to City of POTW
Collection Date: 4/26/2022 9:50:00 AM
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8081: PESTICIDES TCLP					Analyst: JME			
Chlordane	ND	0.00050	0.030		mg/L	1	5/18/2022 11:08:06 AM	67182
Endrin	ND	0.000049	0.020		mg/L	1	5/18/2022 11:08:06 AM	67182
gamma-BHC (Lindane)	ND	0.000041	0.40		mg/L	1	5/18/2022 11:08:06 AM	67182
Heptachlor	ND	0.000041	0.0080		mg/L	1	5/18/2022 11:08:06 AM	67182
Heptachlor epoxide	ND	0.000047	0.0080		mg/L	1	5/18/2022 11:08:06 AM	67182
Methoxychlor	ND	0.000046	10		mg/L	1	5/18/2022 11:08:06 AM	67182
Toxaphene	ND	0.00050	0.50		mg/L	1	5/18/2022 11:08:06 AM	67182
Surr: Decachlorobiphenyl	80.7	0	73-119		%Rec	1	5/18/2022 11:08:06 AM	67182
Surr: Tetrachloro-m-xylene	59.8	0	36.6-84.1		%Rec	1	5/18/2022 11:08:06 AM	67182
EPA METHOD 8270C TCLP					Analyst: DAM			
2-Methylphenol	ND	0.00051	200		mg/L	1	5/3/2022 7:54:16 PM	67188
3+4-Methylphenol	ND	0.00045	200		mg/L	1	5/3/2022 7:54:16 PM	67188
2,4-Dinitrotoluene	ND	0.00062	0.13		mg/L	1	5/3/2022 7:54:16 PM	67188
Hexachlorobenzene	ND	0.00066	0.13		mg/L	1	5/3/2022 7:54:16 PM	67188
Hexachlorobutadiene	ND	0.00082	0.50		mg/L	1	5/3/2022 7:54:16 PM	67188
Hexachloroethane	ND	0.00045	3.0		mg/L	1	5/3/2022 7:54:16 PM	67188
Nitrobenzene	ND	0.00051	2.0		mg/L	1	5/3/2022 7:54:16 PM	67188
Pentachlorophenol	ND	0.00059	100		mg/L	1	5/3/2022 7:54:16 PM	67188
Pyridine	ND	0.00093	5.0		mg/L	1	5/3/2022 7:54:16 PM	67188
2,4,5-Trichlorophenol	ND	0.00062	400		mg/L	1	5/3/2022 7:54:16 PM	67188
2,4,6-Trichlorophenol	ND	0.00043	2.0		mg/L	1	5/3/2022 7:54:16 PM	67188
Cresols, Total	ND	0.00051	200		mg/L	1	5/3/2022 7:54:16 PM	67188
Surr: 2-Fluorophenol	65.0	0	15-118		%Rec	1	5/3/2022 7:54:16 PM	67188
Surr: Phenol-d5	45.0	0	15-92.9		%Rec	1	5/3/2022 7:54:16 PM	67188
Surr: 2,4,6-Tribromophenol	79.1	0	15-150		%Rec	1	5/3/2022 7:54:16 PM	67188
Surr: Nitrobenzene-d5	75.4	0	15-136		%Rec	1	5/3/2022 7:54:16 PM	67188
Surr: 2-Fluorobiphenyl	71.3	0	15-134		%Rec	1	5/3/2022 7:54:16 PM	67188
Surr: 4-Terphenyl-d14	82.1	0	15-168		%Rec	1	5/3/2022 7:54:16 PM	67188

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Estimated value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report

Lab Order: 2204B57

Date Reported: 5/25/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2204B57-002C

Client Sample ID: CTB to City of POTW
Collection Date: 4/26/2022 9:50:00 AM
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: MRA	
Fluoride	1.3	0.040	0.10		mg/L	1	4/27/2022 9:29:20 PM	R87581
Chloride	58	5.0	10		mg/L	20	4/27/2022 9:42:12 PM	R87581
Nitrogen, Nitrite (As N)	ND	0.0053	0.10		mg/L	1	4/27/2022 9:29:20 PM	R87581
Bromide	ND	0.050	0.10		mg/L	1	4/27/2022 9:29:20 PM	R87581
Nitrogen, Nitrate (As N)	1.5	0.010	0.10		mg/L	1	4/27/2022 9:29:20 PM	R87581
Phosphorus, Orthophosphate (As P)	1.8	0.25	0.50		mg/L	1	4/27/2022 9:29:20 PM	R87581
Sulfate	960	5.0	10	*	mg/L	20	4/27/2022 9:42:12 PM	R87581
SM2510B: SPECIFIC CONDUCTANCE							Analyst: LRN	
Conductivity	1700	10	10		µmhos/c	1	4/28/2022 4:36:53 PM	R87620
SM4500-H+B / 9040C: PH							Analyst: LRN	
pH	7.36			H	pH units	1	4/28/2022 4:36:53 PM	R87620
SM2320B: ALKALINITY							Analyst: LRN	
Bicarbonate (As CaCO ₃)	49.16	20.00	20.00		mg/L Ca	1	4/28/2022 4:36:53 PM	R87620
Carbonate (As CaCO ₃)	ND	2.000	2.000		mg/L Ca	1	4/28/2022 4:36:53 PM	R87620
Total Alkalinity (as CaCO ₃)	49.16	20.00	20.00		mg/L Ca	1	4/28/2022 4:36:53 PM	R87620
SPECIFIC GRAVITY							Analyst: CAS	
Specific Gravity	0.9986	0	0			1	5/10/2022 4:15:00 PM	R87962
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS	
Total Dissolved Solids	1500	20.0	20.0	*	mg/L	1	5/5/2022 1:25:00 PM	67191
SM 2540D: TSS							Analyst: KS	
Suspended Solids	9.0	4.0	4.0		mg/L	1	5/4/2022 12:57:00 PM	67224

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Estimated value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report

Lab Order: 2204B57

Date Reported: 5/25/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2204B57-002D

Client Sample ID: CTB to City of POTW
Collection Date: 4/26/2022 9:50:00 AM
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 6010B: DISSOLVED METALS							Analyst: JRR	
Calcium	250	0.29	5.0		mg/L	5	5/16/2022 8:40:17 AM	A88011
Magnesium	75	0.034	1.0		mg/L	1	5/16/2022 8:38:16 AM	A88011
Potassium	2.1	0.21	1.0		mg/L	1	5/16/2022 8:38:16 AM	A88011
Sodium	60	0.42	1.0		mg/L	1	5/16/2022 8:38:16 AM	A88011

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Estimated value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report

Lab Order: 2204B57

Date Reported: 5/25/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2204B57-002E

Client Sample ID: CTB to City of POTW
Collection Date: 4/26/2022 9:50:00 AM
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 6020A: TCLP METALS							Analyst: DBK	
Arsenic	0.0011	0.00050	5.0	J	mg/L	1	5/4/2022 12:12:01 PM	67111
Lead	0.00091	0.00050	5.0	J	mg/L	1	5/2/2022 4:12:09 PM	67111
Selenium	0.0034	0.00050	1.0	J	mg/L	1	5/2/2022 4:12:09 PM	67111
EPA METHOD 7470A: MERCURY							Analyst: VP	
Mercury	ND	0.000091	0.020		mg/L	1	5/2/2022 1:11:25 PM	67181
EPA 6010B: TCLP METALS							Analyst: JLF	
Barium	0.027	0.0011	100	J	mg/L	1	4/28/2022 3:37:46 PM	67111
Cadmium	ND	0.0012	1.0		mg/L	1	4/28/2022 3:37:46 PM	67111
Chromium	0.0050	0.0017	5.0	J	mg/L	1	4/28/2022 3:37:46 PM	67111
Silver	0.0035	0.0013	5.0	J	mg/L	1	4/28/2022 3:37:46 PM	67111

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Estimated value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix interference		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CATION/ANION BALANCE SHEET FOR WATER ANALYSES

HEAL LAB NUMBER	WDW-1,2,3 & 4 Effluent 2204B57-001		CTB to City of POTW 2204B57-002							
	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L
Sodium	580	25.23	60	2.61						
Potassium	100	2.56	2.1	0.05						
Calcium	490	24.45	250	12.48						
Magnesium	160	13.17	75	6.17						
Total Cations		65.41		21.31						
ANIONS	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L
Sulfate	2400	49.97	960	19.99						
Chloride	600	16.93	58	1.64						
Bicarbonate (CaCO3)	626.9	12.53	49.16	0.98						
Carbonate (CaCO3)										
Phosphate (P)			1.8	0.17						
Nitrite (N)	0.17	0.01								
Nitrate (N)	0.9	0.06	1.5	0.11						
Fluoride	24	1.26	1.3	0.07						
Bromide	0.62	0.01								
Total Anions		80.77		22.96						
Elect. Cond. (µMhos/cm)	6500		1700							
CATION/ANION RATIO		0.81		0.93						
% Difference		11		4						
TOTAL DISSOLVED SOLIDS RATIOS										
TDS (measured)	4640		1500							
TDS (calculated)	4735		1448							
Ratio meas TDS:calc TDS		1.0		1.0						
Ratio Meas. TDS:EC		0.71		0.88						
Ratio Calc. TDS:EC		0.73		0.85						
Ratio of anion sum:EC		1.2		1.4						
Ratio of cation sum:EC		1.0		1.3						

* Analyte not detected (below method detection limit).

** Values below 0.55 can be obtained in waters containing appreciable concentrations of free acid or alkalinity, or not within pH 6 to 9. Values much higher than 0.7 are possible in highly saline waters.

GENERALLY ACCEPTED RANGES

Cation/Anion balance: 0-3 meq/L- 0.2 meq/L, 3-10 meq/L- 2%, >10 meq/L - 5%

Ratio measured TDS:calculated TDS -- 1.0-1.2. Ratio Calculated TDS:EC -- 0.55-0.7. Ratio Measured TDS:EC--0.55-0.7. Ratio of anion sum:EC -- 0.9-1.1.

Ratio of cation sum:EC -- 0.9-1.1



ANALYTICAL REPORT

May 16, 2022

Hall Environmental Analysis Laboratory

Sample Delivery Group: L1487566

Samples Received: 04/28/2022

Project Number:

Description:

Report To: Andy Freeman
4901 Hawkins NE
Albuquerque, NM 87109

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

Entire Report Reviewed By:

A handwritten signature in blue ink that reads "John V. Hawkins".

John Hawkins
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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2204B57-001F WDW-1,2,3 & 4 EFFLUENT L1487566-01 Waste

Collected by
Collected date/time
Received date/time

04/26/22 09:25
04/28/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1311	WG1859202	1	05/05/22 14:00	05/05/22 14:00	JDG	Mt. Juliet, TN
Chlorinated Acid Herbicides (GC) by Method 8151A	WG1860542	1	05/09/22 02:53	05/10/22 02:08	HMH	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

2204B57-001G WDW-1,2,3 & 4 EFFLUENT L1487566-02 GW

Collected by
Collected date/time
Received date/time

04/26/22 09:25
04/28/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2580	WG1859241	1	05/06/22 11:27	05/06/22 11:27	ARD	Mt. Juliet, TN

2204B57-001H WDW-1,2,3 & 4 EFFLUENT L1487566-03 GW

Collected by
Collected date/time
Received date/time

04/26/22 09:25
04/28/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 4500 CN E-2016	WG1859852	1	05/07/22 18:20	05/09/22 17:49	CAT	Mt. Juliet, TN
Wet Chemistry by Method 4500 S2 D-2011	WG1862545	1	05/13/22 17:59	05/13/22 17:59	SMW	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1859881	1	05/09/22 13:45	05/09/22 13:45	EPW	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG1858842	1	05/05/22 19:00	05/05/22 19:00	WOS	Mt. Juliet, TN

2204B57-002F CTB TO CITY OF POTW L1487566-04 Waste

Collected by
Collected date/time
Received date/time

04/26/22 09:50
04/28/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1311	WG1859202	1	05/05/22 14:00	05/05/22 14:00	JDG	Mt. Juliet, TN
Chlorinated Acid Herbicides (GC) by Method 8151A	WG1860542	1	05/09/22 02:53	05/10/22 02:23	HMH	Mt. Juliet, TN

2204B57-002G CTB TO CITY OF POTW L1487566-05 GW

Collected by
Collected date/time
Received date/time

04/26/22 09:50
04/28/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2580	WG1859241	1	05/06/22 11:27	05/06/22 11:27	ARD	Mt. Juliet, TN

2204B57-002H CTB TO CITY OF POTW L1487566-06 GW

Collected by
Collected date/time
Received date/time

04/26/22 09:50
04/28/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 4500 CN E-2016	WG1859852	1	05/07/22 18:20	05/09/22 17:53	CAT	Mt. Juliet, TN
Wet Chemistry by Method 4500 S2 D-2011	WG1862546	1	05/12/22 18:30	05/12/22 18:30	AW	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1859881	1	05/09/22 13:45	05/09/22 13:45	EPW	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG1858842	1	05/05/22 19:00	05/05/22 19:00	WOS	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



John Hawkins
Project Manager

Project Narrative

All Reactive Cyanide results reported in the attached report were determined as totals using method 4500 CN E-2016.
All Reactive Sulfide results reported in the attached report were determined as totals using method 4500 S2 D-2011.

Sample Delivery Group (SDG) Narrative

Analysis was performed from an improper container for the following samples.

<u>Lab Sample ID</u>	<u>Project Sample ID</u>	<u>Method</u>
<u>L1487566-06</u>	<u>2204B57-002H CTB TO CITY OF POTW</u>	4500 S2 D-2011

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

Collected date/time: 04/26/22 09:25

L1487566

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		5/5/2022 2:00:42 PM	WG1859202
Fluid	1		5/5/2022 2:00:42 PM	WG1859202
Initial pH	N/A		5/5/2022 2:00:42 PM	WG1859202
Final pH	N/A		5/5/2022 2:00:42 PM	WG1859202

Chlorinated Acid Herbicides (GC) by Method 8151A

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
2,4,5-TP (Silvex)	ND	J4	0.00200	1	1	05/10/2022 02:08	WG1860542
2,4-D	ND	J4	0.00200	10	1	05/10/2022 02:08	WG1860542
(S) 2,4-Dichlorophenyl Acetic Acid	89.6		14.0-158			05/10/2022 02:08	WG1860542

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 04/26/22 09:25

L1487566

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
ORP	157	T8	1	05/06/2022 11:27	WG1859241

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Collected date/time: 04/26/22 09:25

L1487566

Wet Chemistry by Method 4500 CN E-2016

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Reactive Cyanide	0.0133		0.00500	1	05/09/2022 17:49	WG1859852

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 4500 S2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Reactive Sulfide	0.108	Q	0.0500	1	05/13/2022 17:59	WG1862545

Sample Narrative:

L1487566-03 WG1862545: Ran out of hold due to supply chain issues.

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Corrosivity by pH	7.25	T8	1	05/09/2022 13:45	WG1859881

Sample Narrative:

L1487566-03 WG1859881: 7.25 at 20.5C

Wet Chemistry by Method D93/1010A

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Flashpoint	DNF at 170		1	05/05/2022 19:00	WG1858842

Collected date/time: 04/26/22 09:50

L1487566

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		5/5/2022 2:00:42 PM	WG1859202
Fluid	1		5/5/2022 2:00:42 PM	WG1859202
Initial pH	N/A		5/5/2022 2:00:42 PM	WG1859202
Final pH	N/A		5/5/2022 2:00:42 PM	WG1859202

Chlorinated Acid Herbicides (GC) by Method 8151A

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
2,4,5-TP (Silvex)	ND	J4	0.00200	1	1	05/10/2022 02:23	WG1860542
2,4-D	ND	J4	0.00200	10	1	05/10/2022 02:23	WG1860542
(S) 2,4-Dichlorophenyl Acetic Acid	81.2		14.0-158			05/10/2022 02:23	WG1860542

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

Collected date/time: 04/26/22 09:50

L1487566

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
ORP	149	T8	1	05/06/2022 11:27	WG1859241

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Collected date/time: 04/26/22 09:50

L1487566

Wet Chemistry by Method 4500 CN E-2016

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Reactive Cyanide	ND		0.00500	1	05/09/2022 17:53	WG1859852

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 4500 S2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Reactive Sulfide	ND	Q	0.0500	1	05/12/2022 18:30	WG1862546

Sample Narrative:

L1487566-06 WG1862546: Ran out of hold due to supply chain issues.

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Corrosivity by pH	7.54	T8	1	05/09/2022 13:45	WG1859881

Sample Narrative:

L1487566-06 WG1859881: 7.54 at 19.9C

Wet Chemistry by Method D93/1010A

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Flashpoint	DNF at 170		1	05/05/2022 19:00	WG1858842

Wet Chemistry by Method 2580

L1487566-02.05

L1487566-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1487566-02 05/06/22 11:27 • (DUP) R3788898-3 05/06/22 11:27						
Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	<u>DUP Qualifier</u> mV	DUP Diff Limits mV
ORP	157	149	1	7.80		20

L1487566-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1487566-05 05/06/22 11:27 • (DUP) R3788898-4 05/06/22 11:27						
Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	<u>DUP Qualifier</u> mV	DUP Diff Limits mV
ORP	149	156	1	7.20		20

L1487958-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1487958-01 05/06/22 11:27 • (DUP) R3788898-5 05/06/22 11:27						
Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	<u>DUP Qualifier</u> mV	DUP Diff Limits mV
ORP	359	359	1	0.200		20

L1487958-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1487958-02 05/06/22 11:27 • (DUP) R3788898-6 05/06/22 11:27						
Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	<u>DUP Qualifier</u> mV	DUP Diff Limits mV
ORP	87.0	87.1	1	0.100		20

L1487958-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1487958-03 05/06/22 11:27 • (DUP) R3788898-7 05/06/22 11:27						
Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	<u>DUP Qualifier</u> mV	DUP Diff Limits mV
ORP	314	313	1	0.600		20

L1487958-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1487958-04 05/06/22 11:27 • (DUP) R3788898-8 05/06/22 11:27						
Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	<u>DUP Qualifier</u> mV	DUP Diff Limits mV
ORP	302	301	1	0.400		20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Wet Chemistry by Method 2580

L1487566-02.05

L1487958-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1487958-05 05/06/22 11:27 • (DUP) R3788898-9 05/06/22 11:27						
Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	<u>DUP Qualifier</u>	DUP Diff Limits mV
ORP	316	316	1	0.100		20

L1487958-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1487958-06 05/06/22 11:27 • (DUP) R3788898-10 05/06/22 11:27						
Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	<u>DUP Qualifier</u>	DUP Diff Limits mV
ORP	73.9	76.5	1	2.60		20

L1487958-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1487958-07 05/06/22 11:27 • (DUP) R3788898-11 05/06/22 11:27						
Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	<u>DUP Qualifier</u>	DUP Diff Limits mV
ORP	197	197	1	0.800		20

L1487958-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1487958-08 05/06/22 11:27 • (DUP) R3788898-12 05/06/22 11:27						
Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	<u>DUP Qualifier</u>	DUP Diff Limits mV
ORP	251	255	1	3.70		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3788898-1 05/06/22 11:27 • (LCSD) R3788898-2 05/06/22 11:27									
Analyte	Spike Amount mV	LCS Result mV	LCSD Result mV	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCSD Qualifier</u>	<u>Diff</u> mV	Diff Limits mV
ORP	108	108	115	99.5	106	90.0-110		7.40	20

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 4500 CN E-2016

L1487566-03.06

Method Blank (MB)

(MB) R3789863-1 05/09/22 17:29

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Reactive Cyanide	U		0.00180	0.00500

L1487559-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1487559-02 05/09/22 17:37 • (DUP) R3789863-3 05/09/22 17:38

Analyte	Original Result		DUP Result		DUP RPD		DUP RPD Limits	
	mg/l		mg/l		%		%	
Reactive Cyanide	ND		ND		1		0.000	20

L1487566-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1487566-03 05/09/22 17:49 • (DUP) R3789863-8 05/09/22 17:50

Analyte	Original Result		DUP Result		DUP RPD		DUP RPD Limits	
	mg/l		mg/l		%		%	
Reactive Cyanide	0.0133		0.0142		1		6.55	20

Laboratory Control Sample (LCS)

(LCS) R3789863-2 05/09/22 17:30

Analyte	Spike Amount		LCS Result		Rec. Limits		LCS Qualifier	
	mg/l		mg/l		%			
Reactive Cyanide	0.100		0.108		108		87.1-120	

L1487559-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1487559-03 05/09/22 17:41 • (MS) R3789863-4 05/09/22 17:42 • (MSD) R3789863-5 05/09/22 17:43

Analyte	Spike Amount		Original Result		MS Result		MSD Result		MS Rec.		MSD Rec.		Dilution		Rec. Limits		MS Qualifier		MSD Qualifier		RPD		RPD Limits	
	mg/l		mg/l		mg/l		mg/l		%		%				%		%			%		%		%
Reactive Cyanide	0.100		ND		0.0996		0.105		99.6		105		1		90.0-110		5.28				5.28		20	

L1487562-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1487562-01 05/09/22 17:44 • (MS) R3789863-6 05/09/22 17:45 • (MSD) R3789863-7 05/09/22 17:46

Analyte	Spike Amount		Original Result		MS Result		MSD Result		MS Rec.		MSD Rec.		Dilution		Rec. Limits		MS Qualifier		MSD Qualifier		RPD		RPD Limits	
	mg/l		mg/l		mg/l		mg/l		%		%				%		%			%		%		%
Reactive Cyanide	0.100		ND		0.0869		0.0920		86.9		92.0		1		90.0-110		J6				5.70		20	

Wet Chemistry by Method 4500 S2 D-2011

L1487566-03

Method Blank (MB)

(MB) R3791750-1 05/13/22 17:58

Analyte	MB Result mg/l	<u>MB Qualifier</u>	MB MDL mg/l	MB RDL mg/l
Reactive Sulfide	U		0.0250	0.0500

Laboratory Control Sample (LCS)

(LCS) R3791750-2 05/13/22 17:58

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Reactive Sulfide	0.500	0.555	111	85.0-115	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Wet Chemistry by Method 4500 S2 D-2011

L1487566-06

Method Blank (MB)

(MB) R3791378-1 05/12/22 18:29

Analyte	MB Result mg/l	<u>MB Qualifier</u> mg/l	MB MDL mg/l	MB RDL mg/l
Reactive Sulfide	U	0.0250	0.0250	0.0500

Laboratory Control Sample (LCS)

(LCS) R3791378-2 05/12/22 18:29

Analyte	Spike Amount mg/l	LCS Result mg/l	<u>LCS Qualifier</u> %	Rec. Limits %
Reactive Sulfide	0.500	0.528	106	85.0-115

L1487566-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1487566-06 05/12/22 18:30 • (MS) R3791378-3 05/12/22 18:30 • (MSD) R3791378-4 05/12/22 18:30

Analyte	Spike Amount mg/l	Original Result mg/l	<u>MS Result</u> mg/l	<u>MS Rec.</u> %	<u>MSD Result</u> mg/l	<u>MSD Rec.</u> %	Dilution	Rec. Limits %	<u>MS Qualifier</u> %	<u>MSD Qualifier</u> %	RPD %	RPD Limits %
Reactive Sulfide	0.500	ND	0.536	107	0.529	106	1	80.0-120	1.31		20	

Sample Narrative:

OS: Ran out of hold due to supply chain issues.

Wet Chemistry by Method 9040C

[L1487566-03.06](#)

Laboratory Control Sample (LCS)

(LCS) R3789960-1 05/09/22 13:45

Analyte	Spike Amount SU	LCS Result SU	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Corrosivity by pH	10.0	9.92	99.2	99.0-101	

Sample Narrative:

LCS: 9.92 at 21.1C

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Wet Chemistry by Method D93/1010A

L1487566-03.06

L1487566-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1487566-06 05/05/22 19:00 • (DUP) R3788643-3 05/05/22 19:00

Analyte	Original Result deg F	DUP Result deg F	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Flashpoint	DNF at 170	DNF at 170	1	0.000		10

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3788643-1 05/05/22 19:00 • (LCSD) R3788643-2 05/05/22 19:00

Analyte	Spike Amount deg F	LCS Result deg F	LCSD Result deg F	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Flashpoint	126	130	130	103	103	96.0-104			0.000	10

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Chlorinated Acid Herbicides (GC) by Method 8151A

L1487566-01.04

Method Blank (MB)

(MB) R3790044-1 05/09/22 21:28

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
2,4,5-TP (Silvex)	U	0.000667	0.000667	0.00200
2,4-D	U	0.000667	0.000667	0.00200
(S) 2,4-Dichlorophenyl Acetic Acid	76.4			14.0-158

Laboratory Control Sample (LCS)

(LCS) R3790044-2 05/09/22 21:43

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
2,4,5-TP (Silvex)	0.0500	0.0641	128	50.0-125	E J4
2,4-D	0.0500	0.0873	175	50.0-120	E J4
(S) 2,4-Dichlorophenyl Acetic Acid		144		14.0-158	

L1487556-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1487556-01 05/10/22 01:24 • (MS) R3790044-3 05/10/22 01:38 • (MSD) R3790044-4 05/10/22 01:53

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
2,4,5-TP (Silvex)	0.0500	ND	0.0355	0.0374	71.0	74.8	1	50.0-125			5.21	20
2,4-D	0.0500	ND	0.0546	0.0497	109	99.4	1	50.0-120	E		9.40	20
(S) 2,4-Dichlorophenyl Acetic Acid					75.8	68.4		14.0-158				

Guide to Reading and Understanding Your Laboratory Report

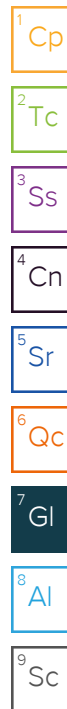
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J4	The associated batch QC was outside the established quality control range for accuracy.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
Q	Sample was prepared and/or analyzed past holding time as defined in the method. Concentrations should be considered minimum values.
T8	Sample(s) received past/too close to holding time expiration.



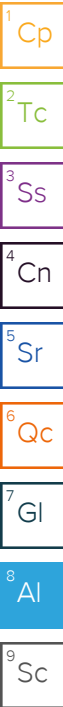
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1



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

A199

SUB CONTRACTOR: Pace TN		COMPANY: PACE TN		PHONE: (800) 767-5859	FAX: (615) 758-5859
ADDRESS: 12065 Lebanon Rd		ACCOUNT #:		EMAIL:	
CITY, STATE, ZIP: Mt. Juliet, TN 37122					

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2204B57-001F	WDW-1,2,3 & 4 Effluent	1LAMGU	Aqueous	4/26/2022 9:25:00 AM	1	18151TCLP *RUSH 7 DAY TAT* -01
2	2204B57-001G	WDW-1,2,3 & 4 Effluent	125HDP	Aqueous	4/26/2022 9:25:00 AM	1	ORP *RUSH 7 DAY TAT* -02
3	2204B57-001H	WDW-1,2,3 & 4 Effluent	500HDPE	Aqueous	4/26/2022 9:25:00 AM	3	RCI *RUSH 7 DAY TAT* -03
4	2204B57-002F	CTB to City of POTW	1LAMGU	Aqueous	4/26/2022 9:50:00 AM	1	18151TCLP *RUSH 7 DAY TAT* -04
5	2204B57-002G	CTB to City of POTW	125HDP	Aqueous	4/26/2022 9:50:00 AM	1	ORP *RUSH 7 DAY TAT* -05
6	2204B57-002H	CTB to City of POTW	500HDPE	Aqueous	4/26/2022 9:50:00 AM	3	RCI *RUSH 7 DAY TAT* -06

7767 0976 9790
Sample Receipt Checklist
DOC Seal Present/Intact: Y N VOA Zero Headspace: Y N
COC Signed/Accurate: Y N Pres. Correct/Check: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
RAD Screen <0.5 mR/hr: Y N
DRAT 3.8 to = 3.8

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By: JSC	Date: 4/27/2022	Time: 10:38 AM	Received By: [Signature]	Date: 4/28/22	Time: 09:00
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
TAT:	Standard ☐	☒ RUSH	Next BD ☐	2nd BD ☐	3rd BD ☐

REPORT TRANSMITTAL DESIRED:	
☐ HARDCOPY (extra cost)	☐ FAX ☐ EMAIL ☐ ONLINE
FOR LAB USE ONLY	
Temp of samples _____ °C	Attempt to Cool ? _____
Comments: _____	

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2204B57

25-May-22

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: MB	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch ID: R87581	RunNo: 87581								
Prep Date:	Analysis Date: 4/27/2022	SeqNo: 3099704 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P)	ND	0.50								
Sulfate	ND	0.50								

Sample ID: LCS	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSW	Batch ID: R87581	RunNo: 87581								
Prep Date:	Analysis Date: 4/27/2022	SeqNo: 3099705 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	99.5	90	110			
Chloride	4.6	0.50	5.000	0	92.5	90	110			
Nitrogen, Nitrite (As N)	0.98	0.10	1.000	0	98.0	90	110			
Bromide	2.4	0.10	2.500	0	97.5	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	100	90	110			
Phosphorus, Orthophosphate (As P)	4.6	0.50	5.000	0	92.6	90	110			
Sulfate	10	0.50	10.00	0	100	90	110			

Sample ID: MB	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch ID: R87788	RunNo: 87788								
Prep Date:	Analysis Date: 5/5/2022	SeqNo: 3109682 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: LCS	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSW	Batch ID: R87788	RunNo: 87788								
Prep Date:	Analysis Date: 5/5/2022	SeqNo: 3109683 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.8	90	110			
Sulfate	10	0.50	10.00	0	101	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2204B57

25-May-22

Client: Navajo Refining Company**Project:** PSP WDW 1 2 3 4 Inj Well

Sample ID: MB-67111	SampType: MBLK	TestCode: EPA Method 6020A: TCLP Metals								
Client ID: PBW	Batch ID: 67111	RunNo: 87655								
Prep Date: 4/27/2022	Analysis Date: 5/2/2022	SeqNo: 3103419 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.0010								
Selenium	ND	0.0010								

Sample ID: MSLLCS-67111	SampType: LCSLL	TestCode: EPA Method 6020A: TCLP Metals								
Client ID: BatchQC	Batch ID: 67111	RunNo: 87655								
Prep Date: 4/27/2022	Analysis Date: 5/2/2022	SeqNo: 3103420 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0012	0.0010	0.001000	0	124	70	130			
Selenium	0.00099	0.0010	0.001000	0	98.7	70	130			J

Sample ID: MSLCS-67111	SampType: LCS	TestCode: EPA Method 6020A: TCLP Metals								
Client ID: LCSW	Batch ID: 67111	RunNo: 87655								
Prep Date: 4/27/2022	Analysis Date: 5/2/2022	SeqNo: 3103421 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.052	0.0010	0.05000	0	103	80	120			
Selenium	0.048	0.0010	0.05000	0	96.0	80	120			

Sample ID: MB-67111	SampType: MBLK	TestCode: EPA Method 6020A: TCLP Metals								
Client ID: PBW	Batch ID: 67111	RunNo: 87716								
Prep Date: 4/27/2022	Analysis Date: 5/4/2022	SeqNo: 3107038 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								

Sample ID: MSLLCS-67111	SampType: LCSLL	TestCode: EPA Method 6020A: TCLP Metals								
Client ID: BatchQC	Batch ID: 67111	RunNo: 87716								
Prep Date: 4/27/2022	Analysis Date: 5/4/2022	SeqNo: 3107039 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00096	0.0010	0.001000	0	96.1	70	130			J

Sample ID: MSLCS-67111	SampType: LCS	TestCode: EPA Method 6020A: TCLP Metals								
Client ID: LCSW	Batch ID: 67111	RunNo: 87716								
Prep Date: 4/27/2022	Analysis Date: 5/4/2022	SeqNo: 3107040 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.050	0.0010	0.05000	0	99.7	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2204B57

25-May-22

Client: Navajo Refining Company**Project:** PSP WDW 1 2 3 4 Inj Well

Sample ID: MB-67182	SampType: MBLK	TestCode: EPA Method 8081: Pesticides TCLP								
Client ID: PBW	Batch ID: 67182	RunNo: 88093								
Prep Date: 5/2/2022	Analysis Date: 5/18/2022	SeqNo: 3123051 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Endrin	ND	0.020								
gamma-BHC (Lindane)	ND	0.40								
Heptachlor	ND	0.0080								
Heptachlor epoxide	ND	0.0080								
Methoxychlor	ND	10								
Toxaphene	ND	0.50								
Surr: Decachlorobiphenyl	0.0024		0.002500		94.2	73	119			
Surr: Tetrachloro-m-xylene	0.0018		0.002500		72.6	36.6	84.1			

Sample ID: MB-67182	SampType: MBLK	TestCode: EPA Method 8081: Pesticides TCLP								
Client ID: PBW	Batch ID: 67182	RunNo: 88093								
Prep Date: 5/2/2022	Analysis Date: 5/18/2022	SeqNo: 3123052 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Endrin	ND	0.020								
gamma-BHC (Lindane)	ND	0.40								
Heptachlor	ND	0.0080								
Heptachlor epoxide	ND	0.0080								
Methoxychlor	ND	10								
Toxaphene	ND	0.50								
Surr: Decachlorobiphenyl	0.0023		0.002500		92.2	73	119			
Surr: Tetrachloro-m-xylene	0.0018		0.002500		72.8	36.6	84.1			

Sample ID: LCS-67182	SampType: LCS	TestCode: EPA Method 8081: Pesticides TCLP								
Client ID: LCSW	Batch ID: 67182	RunNo: 88093								
Prep Date: 5/2/2022	Analysis Date: 5/18/2022	SeqNo: 3123054 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Endrin	0.00047	0.00010	0.0005000	0	93.5	56.3	126			
gamma-BHC (Lindane)	0.00040	0.00010	0.0005000	0	81.0	45.8	103			
Heptachlor	0.00027	0.00010	0.0005000	0	53.2	33.7	104			
Heptachlor epoxide	0.00043	0.00010	0.0005000	0	85.9	50.1	116			
Methoxychlor	0.00055	0.00010	0.0005000	0	111	15	203			
Surr: Decachlorobiphenyl	0.0022		0.002500		87.0	73	119			
Surr: Tetrachloro-m-xylene	0.0016		0.002500		64.1	36.6	84.1			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2204B57

25-May-22

Client: Navajo Refining Company**Project:** PSP WDW 1 2 3 4 Inj Well

Sample ID: LCS-67182	SampType: LCS			TestCode: EPA Method 8081: Pesticides TCLP						
Client ID: LCSW	Batch ID: 67182			RunNo: 88093						
Prep Date: 5/2/2022	Analysis Date: 5/18/2022			SeqNo: 3123055		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Endrin	0.00047	0.00010	0.0005000	0	94.4	56.3	126			
gamma-BHC (Lindane)	0.00041	0.00010	0.0005000	0	82.4	45.8	103			
Heptachlor	0.00027	0.00010	0.0005000	0	53.4	33.7	104			
Heptachlor epoxide	0.00043	0.00010	0.0005000	0	86.3	50.1	116			
Methoxychlor	0.00052	0.00010	0.0005000	0	103	15	203			
Surr: Decachlorobiphenyl	0.0021		0.002500		85.3	73	119			
Surr: Tetrachloro-m-xylene	0.0016		0.002500		64.2	36.6	84.1			

Sample ID: LCSD-67182	SampType: LCSD			TestCode: EPA Method 8081: Pesticides TCLP						
Client ID: LCSS02	Batch ID: 67182			RunNo: 88093						
Prep Date: 5/2/2022	Analysis Date: 5/18/2022			SeqNo: 3123056		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Endrin	0.00048	0.00010	0.0005000	0	95.9	56.3	126	2.57	20	
gamma-BHC (Lindane)	0.00042	0.00010	0.0005000	0	83.6	45.8	103	3.16	20	
Heptachlor	0.00034	0.00010	0.0005000	0	67.7	33.7	104	24.0	20	R
Heptachlor epoxide	0.00045	0.00010	0.0005000	0	89.7	50.1	116	4.30	20	
Methoxychlor	0.00054	0.00010	0.0005000	0	108	15	203	2.80	20	
Surr: Decachlorobiphenyl	0.0022		0.002500		88.7	73	119	0	0	
Surr: Tetrachloro-m-xylene	0.0015		0.002500		61.0	36.6	84.1	0	0	

Sample ID: LCSD-67182	SampType: LCSD			TestCode: EPA Method 8081: Pesticides TCLP						
Client ID: LCSS02	Batch ID: 67182			RunNo: 88093						
Prep Date: 5/2/2022	Analysis Date: 5/18/2022			SeqNo: 3123057		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Endrin	0.00048	0.00010	0.0005000	0	96.0	56.3	126	1.73	20	
gamma-BHC (Lindane)	0.00043	0.00010	0.0005000	0	85.1	45.8	103	3.12	20	
Heptachlor	0.00034	0.00010	0.0005000	0	67.6	33.7	104	23.5	20	R
Heptachlor epoxide	0.00045	0.00010	0.0005000	0	89.5	50.1	116	3.56	20	
Methoxychlor	0.00052	0.00010	0.0005000	0	103	15	203	0.199	20	
Surr: Decachlorobiphenyl	0.0022		0.002500		87.5	73	119	0	0	
Surr: Tetrachloro-m-xylene	0.0017		0.002500		68.7	36.6	84.1	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2204B57

25-May-22

Client: Navajo Refining Company**Project:** PSP WDW 1 2 3 4 Inj Well

Sample ID: 100ng lcs	SampType: LCS	TestCode: TCLP Volatiles by 8260B								
Client ID: LCSW	Batch ID: T87552	RunNo: 87552								
Prep Date:	Analysis Date: 4/27/2022	SeqNo: 3099812	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.022	0.50	0.02000	0	108	70	130			J
1,1-Dichloroethene	0.020	0.70	0.02000	0	102	70	130			J
Trichloroethene (TCE)	0.021	0.50	0.02000	0	104	70	130			J
Chlorobenzene	0.020	100	0.02000	0	99.4	70	130			J
Surr: 1,2-Dichloroethane-d4	0.0097		0.01000		96.6	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		99.8	70	130			
Surr: Dibromofluoromethane	0.010		0.01000		101	70	130			
Surr: Toluene-d8	0.0091		0.01000		91.2	70	130			

Sample ID: mb	SampType: MBLK	TestCode: TCLP Volatiles by 8260B								
Client ID: PBW	Batch ID: T87552	RunNo: 87552								
Prep Date:	Analysis Date: 4/27/2022	SeqNo: 3099813	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.0099		0.01000		99.0	70	130			
Surr: 4-Bromofluorobenzene	0.0099		0.01000		99.4	70	130			
Surr: Dibromofluoromethane	0.010		0.01000		101	70	130			
Surr: Toluene-d8	0.0092		0.01000		92.5	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Page 16 of 26

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2204B57

25-May-22

Client: Navajo Refining Company**Project:** PSP WDW 1 2 3 4 Inj Well

Sample ID: mb-67188	SampType: MBLK	TestCode: EPA Method 8270C TCLP								
Client ID: PBW	Batch ID: 67188	RunNo: 87709								
Prep Date: 5/2/2022	Analysis Date: 5/3/2022	SeqNo: 3105691 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	ND	200								
3+4-Methylphenol	ND	200								
2,4-Dinitrotoluene	ND	0.13								
Hexachlorobenzene	ND	0.13								
Hexachlorobutadiene	ND	0.50								
Hexachloroethane	ND	3.0								
Nitrobenzene	ND	2.0								
Pentachlorophenol	ND	100								
Pyridine	ND	5.0								
2,4,5-Trichlorophenol	ND	400								
2,4,6-Trichlorophenol	ND	2.0								
Cresols, Total	ND	200								
Surr: 2-Fluorophenol	0.14		0.2000		69.3	15	118			
Surr: Phenol-d5	0.094		0.2000		46.9	15	92.9			
Surr: 2,4,6-Tribromophenol	0.14		0.2000		69.0	15	150			
Surr: Nitrobenzene-d5	0.082		0.1000		82.0	15	136			
Surr: 2-Fluorobiphenyl	0.072		0.1000		71.5	15	134			
Surr: 4-Terphenyl-d14	0.076		0.1000		75.8	15	168			

Sample ID: lcs-67188	SampType: LCS	TestCode: EPA Method 8270C TCLP								
Client ID: LCSW	Batch ID: 67188	RunNo: 87709								
Prep Date: 5/2/2022	Analysis Date: 5/3/2022	SeqNo: 3105692 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.077	0.00010	0.1000	0	77.0	19	106			
3+4-Methylphenol	0.16	0.00010	0.2000	0	82.4	16.3	112			
2,4-Dinitrotoluene	0.056	0.00010	0.1000	0	55.7	15	99.6			
Hexachlorobenzene	0.070	0.00010	0.1000	0	70.2	41.8	111			
Hexachlorobutadiene	0.057	0.00010	0.1000	0	56.6	15	91.5			
Hexachloroethane	0.064	0.00010	0.1000	0	64.5	15	87.5			
Nitrobenzene	0.072	0.00010	0.1000	0	71.6	19.3	114			
Pentachlorophenol	0.063	0.00010	0.1000	0	63.0	29	103			
Pyridine	0.018	0.00010	0.1000	0	18.3	15	92.6			
2,4,5-Trichlorophenol	0.078	0.00010	0.1000	0	77.7	25.2	114			
2,4,6-Trichlorophenol	0.076	0.00010	0.1000	0	75.7	25.7	112			
Cresols, Total	0.24	0.00010	0.3000	0	80.6	15	145			
Surr: 2-Fluorophenol	0.13		0.2000		62.8	15	118			
Surr: Phenol-d5	0.086		0.2000		43.0	15	92.9			
Surr: 2,4,6-Tribromophenol	0.15		0.2000		73.6	15	150			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2204B57

25-May-22

Client: Navajo Refining Company**Project:** PSP WDW 1 2 3 4 Inj Well

Sample ID: Ics-67188	SampType: LCS	TestCode: EPA Method 8270C TCLP								
Client ID: LCSW	Batch ID: 67188	RunNo: 87709								
Prep Date: 5/2/2022	Analysis Date: 5/3/2022	SeqNo: 3105692		Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.078		0.1000		77.9	15	136			
Surr: 2-Fluorobiphenyl	0.069		0.1000		69.4	15	134			
Surr: 4-Terphenyl-d14	0.085		0.1000		84.9	15	168			

Sample ID: 2204b57-001bms	SampType: MS	TestCode: EPA Method 8270C TCLP								
Client ID: WDW-1,2,3 & 4 Efflu	Batch ID: 67188	RunNo: 87709								
Prep Date: 5/2/2022	Analysis Date: 5/3/2022	SeqNo: 3105694		Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.075	0.00010	0.1000	0	74.9	15.8	101			
3+4-Methylphenol	0.16	0.00010	0.2000	0	79.1	16.9	97.9			
2,4-Dinitrotoluene	0.058	0.00010	0.1000	0	57.5	20.1	90.5			
Hexachlorobenzene	0.072	0.00010	0.1000	0	71.6	34	108			
Hexachlorobutadiene	0.063	0.00010	0.1000	0	63.0	15	99.7			
Hexachloroethane	0.068	0.00010	0.1000	0	67.9	15	86.4			
Nitrobenzene	0.073	0.00010	0.1000	0	72.6	15	109			
Pentachlorophenol	0.024	0.00010	0.1000	0	24.1	15	130			
Pyridine	0.049	0.00010	0.1000	0.005858	42.9	15	82			
2,4,5-Trichlorophenol	0.073	0.00010	0.1000	0	73.0	28.1	105			
2,4,6-Trichlorophenol	0.064	0.00010	0.1000	0	64.3	21.5	110			
Cresols, Total	0.23	0.00010	0.3000	0	77.7	15	127			
Surr: 2-Fluorophenol	0.12		0.2000		60.6	15	118			
Surr: Phenol-d5	0.086		0.2000		43.2	15	92.9			
Surr: 2,4,6-Tribromophenol	0.15		0.2000		73.1	15	150			
Surr: Nitrobenzene-d5	0.079		0.1000		78.9	15	136			
Surr: 2-Fluorobiphenyl	0.070		0.1000		70.4	15	134			
Surr: 4-Terphenyl-d14	0.082		0.1000		81.6	15	168			

Sample ID: 2204b57-001bmsd	SampType: MSD	TestCode: EPA Method 8270C TCLP								
Client ID: WDW-1,2,3 & 4 Efflu	Batch ID: 67188	RunNo: 87709								
Prep Date: 5/2/2022	Analysis Date: 5/3/2022	SeqNo: 3105695		Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.080	0.00010	0.1000	0	80.2	15.8	101	6.81	20	
3+4-Methylphenol	0.17	0.00010	0.2000	0	84.2	16.9	97.9	6.20	20	
2,4-Dinitrotoluene	0.059	0.00010	0.1000	0	59.2	20.1	90.5	2.89	20	
Hexachlorobenzene	0.077	0.00010	0.1000	0	76.6	34	108	6.76	20	
Hexachlorobutadiene	0.066	0.00010	0.1000	0	66.0	15	99.7	4.73	20	
Hexachloroethane	0.069	0.00010	0.1000	0	68.9	15	86.4	1.50	20	
Nitrobenzene	0.076	0.00010	0.1000	0	75.9	15	109	4.40	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2204B57

25-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: 2204b57-001bmsd		SampType: MSD		TestCode: EPA Method 8270C TCLP						
Client ID: WDW-1,2,3 & 4 Efflu		Batch ID: 67188		RunNo: 87709						
Prep Date: 5/2/2022		Analysis Date: 5/3/2022		SeqNo: 3105695		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Pentachlorophenol	0.040	0.00010	0.1000	0	39.5	15	130	48.7	20	R
Pyridine	0.056	0.00010	0.1000	0.005858	49.7	15	82	13.1	20	
2,4,5-Trichlorophenol	0.077	0.00010	0.1000	0	77.3	28.1	105	5.68	20	
2,4,6-Trichlorophenol	0.076	0.00010	0.1000	0	75.8	21.5	110	16.4	20	
Cresols, Total	0.25	0.00010	0.3000	0	82.9	15	127	6.40	20	
Surr: 2-Fluorophenol	0.13		0.2000		66.1	15	118	0	0	
Surr: Phenol-d5	0.096		0.2000		47.8	15	92.9	0	0	
Surr: 2,4,6-Tribromophenol	0.16		0.2000		81.0	15	150	0	0	
Surr: Nitrobenzene-d5	0.081		0.1000		81.2	15	136	0	0	
Surr: 2-Fluorobiphenyl	0.073		0.1000		73.3	15	134	0	0	
Surr: 4-Terphenyl-d14	0.078		0.1000		78.3	15	168	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: 2204B57
25-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: Ics-1 98.6uS eC		SampType: Ics		TestCode: SM2510B: Specific Conductance						
Client ID: LCSW		Batch ID: R87620		RunNo: 87620						
Prep Date:		Analysis Date: 4/28/2022		SeqNo: 3101479		Units: µmhos/cm				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	10	98.60	0	102	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
- PQL

Practical Quantitative Limit
- S

% Recovery outside of range due to dilution or matrix interference
- B

Analyte detected in the associated Method Blank
- E

Estimated value
- J

Analyte detected below quantitation limits
- P

Sample pH Not In Range
- RL

Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: 2204B57
25-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: MB-67181	SampType: MBLK	TestCode: EPA Method 7470A: Mercury
Client ID: PBW	Batch ID: 67181	RunNo: 87656
Prep Date: 5/2/2022	Analysis Date: 5/2/2022	SeqNo: 3103457 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Mercury	ND 0.00020	

Sample ID: LCSLL-67181	SampType: LCSLL	TestCode: EPA Method 7470A: Mercury
Client ID: BatchQC	Batch ID: 67181	RunNo: 87656
Prep Date: 5/2/2022	Analysis Date: 5/2/2022	SeqNo: 3103458 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Mercury	0.00014 0.00020 0.0001500	0 95.6 50 150 J

Sample ID: LCS-67181	SampType: LCS	TestCode: EPA Method 7470A: Mercury
Client ID: LCSW	Batch ID: 67181	RunNo: 87656
Prep Date: 5/2/2022	Analysis Date: 5/2/2022	SeqNo: 3103459 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Mercury	0.0051 0.00020 0.005000	0 102 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
- PQL

Practical Quantitative Limit
- S

% Recovery outside of range due to dilution or matrix interference
- B

Analyte detected in the associated Method Blank
- E

Estimated value
- J

Analyte detected below quantitation limits
- P

Sample pH Not In Range
- RL

Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: 2204B57
25-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: MB		SampType: MBLK				TestCode: EPA Method 6010B: Dissolved Metals				
Client ID: PBW		Batch ID: A88011				RunNo: 88011				
Prep Date:		Analysis Date: 5/16/2022				SeqNo: 3119568		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: LCS		SampType: LCS				TestCode: EPA Method 6010B: Dissolved Metals				
Client ID: LCSW		Batch ID: A88011				RunNo: 88011				
Prep Date:		Analysis Date: 5/16/2022				SeqNo: 3119570		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	51	1.0	50.00	0	102	80	120			
Magnesium	51	1.0	50.00	0	103	80	120			
Potassium	51	1.0	50.00	0	102	80	120			
Sodium	50	1.0	50.00	0	100	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
- PQL

Practical Quantitative Limit
- S

% Recovery outside of range due to dilution or matrix interference
- B

Analyte detected in the associated Method Blank
- E

Estimated value
- J

Analyte detected below quantitation limits
- P

Sample pH Not In Range
- RL

Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2204B57
25-May-22

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: MB-67111		SampType: MBLK			TestCode: EPA 6010B: TCLP Metals					
Client ID: PBW		Batch ID: 67111			RunNo: 87611					
Prep Date: 4/27/2022		Analysis Date: 4/28/2022			SeqNo: 3100575		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	0.0028	0.0020								
Chromium	ND	0.0060								
Silver	ND	0.0050								

Sample ID: LCS-67111		SampType: LCS			TestCode: EPA 6010B: TCLP Metals					
Client ID: LCSW		Batch ID: 67111			RunNo: 87611					
Prep Date: 4/27/2022		Analysis Date: 4/28/2022			SeqNo: 3100577		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.47	0.0020	0.5000	0	93.9	80	120			
Cadmium	0.48	0.0020	0.5000	0	95.5	80	120			B
Chromium	0.47	0.0060	0.5000	0	93.9	80	120			
Silver	0.096	0.0050	0.1000	0	96.0	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

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix interference

B Analyte detected in the associated Method Blank

E Estimated value

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 23 of 26

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2204B57

25-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: mb-1 alk	SampType: mblk	TestCode: SM2320B: Alkalinity								
Client ID: PBW	Batch ID: R87620	RunNo: 87620								
Prep Date:	Analysis Date: 4/28/2022	SeqNo: 3101381 Units: mg/L CaCO3								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: lcs-1 alk	SampType: lcs	TestCode: SM2320B: Alkalinity								
Client ID: LCSW	Batch ID: R87620	RunNo: 87620								
Prep Date:	Analysis Date: 4/28/2022	SeqNo: 3101382 Units: mg/L CaCO3								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	76.12	20.00	80.00	0	95.2	90	110			

Sample ID: mb-2 alk	SampType: mblk	TestCode: SM2320B: Alkalinity								
Client ID: PBW	Batch ID: R87620	RunNo: 87620								
Prep Date:	Analysis Date: 4/28/2022	SeqNo: 3101404 Units: mg/L CaCO3								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: lcs-2 alk	SampType: lcs	TestCode: SM2320B: Alkalinity								
Client ID: LCSW	Batch ID: R87620	RunNo: 87620								
Prep Date:	Analysis Date: 4/28/2022	SeqNo: 3101405 Units: mg/L CaCO3								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	75.60	20.00	80.00	0	94.5	90	110			

Sample ID: mb-3 alk	SampType: mblk	TestCode: SM2320B: Alkalinity								
Client ID: PBW	Batch ID: R87620	RunNo: 87620								
Prep Date:	Analysis Date: 4/28/2022	SeqNo: 3101427 Units: mg/L CaCO3								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: lcs-3 alk	SampType: lcs	TestCode: SM2320B: Alkalinity								
Client ID: LCSW	Batch ID: R87620	RunNo: 87620								
Prep Date:	Analysis Date: 4/28/2022	SeqNo: 3101428 Units: mg/L CaCO3								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	76.32	20.00	80.00	0	95.4	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Estimated value
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative Limit	RL Reporting Limit
S % Recovery outside of range due to dilution or matrix interference	

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2204B57

25-May-22

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: MB-67191	SampType: MBLK	TestCode: SM2540C MOD: Total Dissolved Solids								
Client ID: PBW	Batch ID: 67191	RunNo: 87767								
Prep Date: 5/3/2022	Analysis Date: 5/5/2022	SeqNo: 3108756		Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: LCS-67191	SampType: LCS	TestCode: SM2540C MOD: Total Dissolved Solids								
Client ID: LCSW	Batch ID: 67191	RunNo: 87767								
Prep Date: 5/3/2022	Analysis Date: 5/5/2022	SeqNo: 3108757		Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

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

E Estimated value

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2204B57

25-May-22

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: MB-67224	SampType: MBLK	TestCode: SM 2540D: TSS								
Client ID: PBW	Batch ID: 67224	RunNo: 87726								
Prep Date: 5/3/2022	Analysis Date: 5/4/2022	SeqNo: 3106971	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Suspended Solids	ND	4.0								

Sample ID: LCS-67224	SampType: LCS	TestCode: SM 2540D: TSS								
Client ID: LCSW	Batch ID: 67224	RunNo: 87726								
Prep Date: 5/3/2022	Analysis Date: 5/4/2022	SeqNo: 3106972	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Suspended Solids	90	4.0	92.40	0	97.4	83.44	119.05			

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

PQL Practical Quantitative Limit

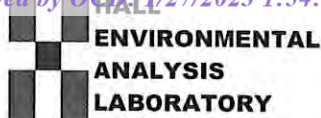
S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank

E Estimated value

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit



Sample Log-In Check List

Client Name: Navajo Refining

Work Order Number: 2204B57

RcptNo: 1

Received By: Juan Rojas

4/27/2022 7:10:00 AM

Juan Rojas

Completed By: Sean Livingston

4/27/2022 10:32:16 AM

Sean Livingston

Reviewed By:

KPG 4-27-22

Chain of Custody

1. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
4. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☒ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
8. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
9. Received at least 1 vial with headspace $<1/4"$ for AQ VOA? Yes ☒ No ☐ NA ☐
10. Were any sample containers received broken? Yes ☐ No ☒
11. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
13. Is it clear what analyses were requested? Yes ☒ No ☐
14. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved bottles checked for pH: 64
(<2 or ≥ 12 unless noted)

Adjusted? NOChecked by: JN 4/27/22Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified: _____

Date: _____

By Whom: _____

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks: Removed off 125ml from samples 001B 2 of 2, 002B 2 of 2.
17. Cooler Information For org analysis. JN 4/27/22.

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.6	Good				

HALL ENVIRONMENTAL ANALYSIS LABORATORY

4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107
www.hallenvironmental.com

Chain-of-Custody Record						
Client: Navajo Refining Co.						
Mailing Address: P.O. Box 159						
Artesia, NM 88211-0159						
Phone #: 575-748-3311						
email or Fax#: 575-746-5451						
QA/QC Package:						
☐ Standard ☐ Level 4 (Full Validation) ☐ Other _____ ☐ EDD (Type) _____						
Turn-Around Time:		Standard ☒ Rush ☒				
Project Name:		PSP WDW-1, 2, 3 & 4 Inj Well				
Project #:		P.O. # 251841				
Project Manager:		Randy Dade				
Sampler:		Brady Hubbard				
On Ice:		☒ Yes ☐ No				
Sample Temperature:		63.3 ± 0.3 = 0.6				
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
4/26/22	9:25	Liquid	WDW-1, 2, 3 & 4 Effluent	**	**	2204057
4/26/22	9:25	Liquid	WDW-1, 2, 3 & 4 Effluent	3-40ml VOA HCL		
4/26/22	9:25	Liquid	WDW-1, 2, 3 & 4 Effluent	1-1L Amber none		
4/26/22	9:25	Liquid	WDW-1, 2, 3 & 4 Effluent	***	***	
4/26/22	9:25	Liquid	WDW-1, 2, 3 & 4 Effluent	1-250ml P	HNO3	
4/26/22	9:25	Liquid	WDW-1, 2, 3 & 4 Effluent	1-1L Amber none		
4/26/22	9:25	Liquid	WDW-1, 2, 3 & 4 Effluent	1-1L Amber none		
4/26/22	9:50	Liquid	CTB to City POTW	**	**	602
4/26/22	9:50	Liquid	CTB to City POTW	3-40ml VOA HCL		
4/26/22	9:50	Liquid	CTB to City POTW	1-1L Amber none		
4/26/22	9:50	Liquid	CTB to City POTW	***	***	
4/26/22	9:50	Liquid	CTB to City POTW	1-250ml P	HNO4	
4/26/22	9:50	Liquid	CTB to City POTW	1-1L Amber none		
4/26/22	9:50	Liquid	CTB to City POTW	1-1L Amber none		
4/26/22	9:50	Liquid	CTB to City POTW	1-1L Amber none		
Date:	Time:	Relinquished by: Brady Hubbard		Received by: <i>Alumina</i>		
4-26-22	11:15			Date: 4/26/22 Time: 11:15		
Date:	Time:	Relinquished by: <i>Alumina</i>		Received by: <i>Alumina</i>		
4/26/22	1900			Date: 4/26/22 Time: 1900		

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.



November 7, 2022

Mr. Carl Chavez, CHMM
New Mexico Oil Conservation Division (Albuquerque Office)
Energy, Minerals and Natural Resources Department
5200 Oakland Avenue, NE
Albuquerque, NM 87113

RE: 2022 4th Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3 and WDW-4 HF Sinclair.

Dear Mr. Chavez,

Enclosed, please find the Fourth Quarter 2022 sampling results for fluids injected into WDW-1, WDW-2, WDW-3 and WDW-4 and a table showing the various volumes and pressures as required under Permit Condition 2.1.1, Quarterly Reports.

Over the Fourth Quarter, the average injection pressure for each well is as reported, 872 psig for WDW-1, 1,026 psig for WDW-2, 995 psig for WDW-3 and 259 psig for WDW-4. The average flows for each well is reported as, WDW-1, 104 gpm, WDW-2, 82 gpm, WDW-3, 115 gpm and WDW-4, 289 gpm. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicate parameters are within permit limits.

This report covers the period from July 1, 2022 to September 30, 2022. HF Sinclair has disposed a total of 2,077,303 barrels of fluid into the four wells during the fourth quarter 2022. The volume per well is:

- 369,600 barrels into WDW-1: 30-015-27592
- 290,023 barrels into WDW-2: 30-015-20894
- 407,246 barrels into WDW-3: 30-015-26575
- 1,010,434 barrels into WDW-4: 30-015-44677

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions or comments, please contact Randy Dade at 575-746-5281

Respectfully,

Kawika Tupou
Environmental Manager
HF Sinclair

HF Sinclair Navajo Refining LLC
501 East Main, Artesia, NM 88210
575-748-3311 | HFSinclair.com

2022 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Average INJ Pressure (psig)	Maximum INJ Pressure	Minimum INJ Pressure	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average			Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
						Av (psig)	Mx (psig)	Mn (psig)							
30-015-27592 WDW-1															
Jul-22	955	687	112	135	84	332	490	229	3,840	2,880		4,629	2,880	161,280	49,927,824
Aug-22	896	751	106	122	97	394	640	236	3,634	4,183		3,326	3,326	112,663	50,089,104
Sep-22	765	0	93	112	0	433	654	0	3,189	3,840		0	0	95,657	50,201,767
Monthly Avg	872		104										TOTAL	369,600	50,297,424
30-015-20894 WDW-2															
Jul-22	1,069	968	86	102	75	803	974	715	2,949	3,497		3,497	2,571	123,840	30,757,701
Aug-22	972	754	77	100	56	525	938	305	2,640	3,429		3,429	1,920	81,840	30,881,541
Sep-22	1,037	978	82	89	73	303	528	0	2,811	3,051		3,051	2,503	84,343	30,963,381
Monthly Avg	1,026		82										TOTAL	290,023	31,047,724
30-015-26575 WDW-3															
Jul-22	1,000	930	118	135	107	676	777	593	4,046	4,629		4,629	3,669	169,920	22,251,681
Aug-22	976	767	112	130	68	540	746	366	3,840	4,457		4,457	2,331	119,040	22,421,601
Sep-22	1,010	950	115	127	99	423	538	323	3,943	4,354		4,354	3,394	118,286	22,540,641
Monthly Avg	995		115										TOTAL	407,246	22,658,927
30-015-44677 WDW-4															
Jul-22	258	191	266	318	5.49	176	258	113	9,120	10,903		10,903	189	383,040	8,654,195
Aug-22	258	164	299	369	63	150	247	93	10,251	12,651		12,651	2,160	317,794	9,037,235
Sep-22	260	210	301	329	235	92	146	62	10,320	11,280		11,280	8,057	309,600	9,355,029
Monthly Avg	259		289										TOTAL	1,010,434	9,664,629
Total BBLS															
Beginning Volume															
Ending Volume															
WDW1															
WDW2															
WDW3															
WDW4															



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

November 09, 2022

Randy Dade

Navajo Refining Company

P.O. Box 159

Artesia, NM 88211-0159

TEL: (575) 748-3311

FAX:

RE: Quarterly WDW 1 2 3 4 Inj Well

OrderNo.: 2209H25

Dear Randy Dade:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/30/2022 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman".

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



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

Case Narrative

WO#: 2209H25
Date: 11/9/2022

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Analytical Notes:

Full list TCLP was requested for the two samples in this report. Per the TCLP Method 1311, "If a total analysis of the waste demonstrates that individual analytes are not present in the waste, or that they are present but at such low concentrations that the appropriate regulatory levels could not possibly be exceeded, the TCLP need not be run". All TCLP compounds are reported as totals in this report, at the TCLP Limits, since the low solids content did not require filtration. The TCLP term is used in the method header; this is used to represent that the compounds listed are the specific TCLP compounds and that these compounds are reported at the TCLP regulatory limits.

The cations were filtered using a 0.45um filter for the C/A balance determination.

Analytical Report

Lab Order 2209H25

Date Reported: 11/9/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: WDW-1,2,3 & 4 Effluent

Project: Quarterly WDW 1 2 3 4 Inj Well

Collection Date: 9/28/2022 11:18:00 PM

Lab ID: 2209H25-001

Matrix: AQUEOUS

Received Date: 9/30/2022 7:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8081: PESTICIDES TCLP								
						Analyst: JME		
Chlordane	ND	0.00050	0.030		mg/L	1	10/20/2022 10:53:00 AM	70615
Endrin	ND	0.00062	0.020		mg/L	1	10/20/2022 10:53:00 AM	70615
gamma-BHC (Lindane)	ND	0.00054	0.40		mg/L	1	10/20/2022 10:53:00 AM	70615
Heptachlor	ND	0.00041	0.0080		mg/L	1	10/20/2022 10:53:00 AM	70615
Heptachlor epoxide	ND	0.00051	0.0080		mg/L	1	10/20/2022 10:53:00 AM	70615
Methoxychlor	ND	0.00075	10		mg/L	1	10/20/2022 10:53:00 AM	70615
Toxaphene	ND	0.00050	0.50		mg/L	1	10/20/2022 10:53:00 AM	70615
Surr: Decachlorobiphenyl	55.0	0	40.9-111		%Rec	1	10/20/2022 10:53:00 AM	70615
Surr: Tetrachloro-m-xylene	77.3	0	15-107		%Rec	1	10/20/2022 10:53:00 AM	70615
EPA METHOD 300.0: ANIONS								
						Analyst: JMT		
Fluoride	65	0.92	2.0	*	mg/L	20	9/30/2022 1:53:36 PM	R91467
Chloride	490	25	50	*	mg/L	100	10/3/2022 1:19:11 PM	R91508
Nitrogen, Nitrite (As N)	0.31	0.057	0.50	J	mg/L	5	9/30/2022 1:15:01 PM	R91467
Bromide	0.45	0.25	0.50	J	mg/L	5	9/30/2022 1:15:01 PM	R91467
Nitrogen, Nitrate (As N)	2.5	0.10	0.50		mg/L	5	9/30/2022 1:15:01 PM	R91467
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5		mg/L	5	9/30/2022 1:15:01 PM	R91467
Sulfate	2300	25	50	*	mg/L	100	10/3/2022 1:19:11 PM	R91508
EPA METHOD 6020A: TCLP METALS								
						Analyst: ELS		
Arsenic	0.027	0.0025	5.0	J	mg/L	5	10/19/2022 2:08:07 PM	70719
Lead	ND	0.0025	5.0		mg/L	5	10/19/2022 2:08:07 PM	70719
Selenium	0.040	0.0025	1.0	J	mg/L	5	10/19/2022 2:08:07 PM	70719
EPA METHOD 7470A: MERCURY								
						Analyst: VP		
Mercury	ND	0.000091	0.020		mg/L	1	10/10/2022 3:50:37 PM	70693
EPA METHOD 6010B: DISSOLVED METALS								
						Analyst: JRR		
Calcium	400	0.29	5.0		mg/L	5	10/12/2022 12:52:32 PM	A91762
Magnesium	130	0.17	5.0		mg/L	5	10/12/2022 12:52:32 PM	A91762
Potassium	230	1.0	5.0		mg/L	5	10/12/2022 12:52:32 PM	A91762
Sodium	880	4.2	10		mg/L	10	10/12/2022 1:28:12 PM	A91762
EPA 6010B: TCLP								
						Analyst: JRR		
Barium	0.049	0.0011	100	J	mg/L	1	10/12/2022 1:36:42 PM	70719
Cadmium	ND	0.0012	1.0		mg/L	1	10/12/2022 1:36:42 PM	70719
Chromium	ND	0.0017	5.0		mg/L	1	10/12/2022 1:36:42 PM	70719
Silver	0.0058	0.0013	5.0	J	mg/L	1	10/12/2022 1:36:42 PM	70719
EPA METHOD 8270C TCLP								
						Analyst: JME		
2-Methylphenol	ND	0.0050	200		mg/L	1	10/14/2022 12:10:38 AM	70605
3+4-Methylphenol	ND	0.0051	200		mg/L	1	10/14/2022 12:10:38 AM	70605

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 2 of 20

Analytical Report

Lab Order 2209H25

Date Reported: 11/9/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: WDW-1,2,3 & 4 Effluent

Project: Quarterly WDW 1 2 3 4 Inj Well

Collection Date: 9/28/2022 11:18:00 PM

Lab ID: 2209H25-001

Matrix: AQUEOUS

Received Date: 9/30/2022 7:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
----------	--------	-----	----	------	-------	----	---------------	----------

EPA METHOD 8270C TCLP

Analyst: JME

2,4-Dinitrotoluene	ND	0.0049	0.13		mg/L	1	10/14/2022 12:10:38 AM	70605
Hexachlorobenzene	ND	0.019	0.13		mg/L	1	10/14/2022 12:10:38 AM	70605
Hexachlorobutadiene	ND	0.017	0.50		mg/L	1	10/14/2022 12:10:38 AM	70605
Hexachloroethane	ND	0.014	3.0		mg/L	1	10/14/2022 12:10:38 AM	70605
Nitrobenzene	ND	0.0049	2.0		mg/L	1	10/14/2022 12:10:38 AM	70605
Pentachlorophenol	ND	0.027	100		mg/L	1	10/14/2022 12:10:38 AM	70605
Pyridine	ND	0.014	5.0		mg/L	1	10/14/2022 12:10:38 AM	70605
2,4,5-Trichlorophenol	ND	0.0063	400		mg/L	1	10/14/2022 12:10:38 AM	70605
2,4,6-Trichlorophenol	ND	0.0059	2.0		mg/L	1	10/14/2022 12:10:38 AM	70605
Cresols, Total	ND	0.027	200		mg/L	1	10/14/2022 12:10:38 AM	70605
Surr: 2-Fluorophenol	61.6	0	18.1-88.9		%Rec	1	10/14/2022 12:10:38 AM	70605
Surr: Phenol-d5	45.3	0	17-61.5		%Rec	1	10/14/2022 12:10:38 AM	70605
Surr: 2,4,6-Tribromophenol	87.2	0	29.8-104		%Rec	1	10/14/2022 12:10:38 AM	70605
Surr: Nitrobenzene-d5	71.4	0	22.2-111		%Rec	1	10/14/2022 12:10:38 AM	70605
Surr: 2-Fluorobiphenyl	61.8	0	24.6-96.3		%Rec	1	10/14/2022 12:10:38 AM	70605
Surr: 4-Terphenyl-d14	90.8	0	53.4-124		%Rec	1	10/14/2022 12:10:38 AM	70605

TCLP VOLATILES BY 8260B

Analyst: BRM

Benzene	ND	0.00023	0.50		mg/L	200	10/11/2022 9:34:52 PM	A91711
1,2-Dichloroethane (EDC)	ND	0.00025	0.50		mg/L	200	10/11/2022 9:34:52 PM	A91711
2-Butanone	ND	0.0020	200		mg/L	200	10/11/2022 9:34:52 PM	A91711
Carbon Tetrachloride	ND	0.00018	0.50		mg/L	200	10/11/2022 9:34:52 PM	A91711
Chloroform	ND	0.00013	6.0		mg/L	200	10/11/2022 9:34:52 PM	A91711
1,4-Dichlorobenzene	ND	0.00021	7.5		mg/L	200	10/11/2022 9:34:52 PM	A91711
1,1-Dichloroethene	ND	0.00020	0.70		mg/L	200	10/11/2022 9:34:52 PM	A91711
Tetrachloroethene (PCE)	ND	0.00036	0.70		mg/L	200	10/11/2022 9:34:52 PM	A91711
Trichloroethene (TCE)	0.036	0.00020	0.50	J	mg/L	200	10/11/2022 9:34:52 PM	A91711
Vinyl chloride	ND	0.00032	0.20		mg/L	200	10/11/2022 9:34:52 PM	A91711
Chlorobenzene	ND	0.00016	100		mg/L	200	10/11/2022 9:34:52 PM	A91711
Surr: 1,2-Dichloroethane-d4	122	0	70-130		%Rec	200	10/11/2022 9:34:52 PM	A91711
Surr: 4-Bromofluorobenzene	105	0	70-130		%Rec	200	10/11/2022 9:34:52 PM	A91711
Surr: Dibromofluoromethane	103	0	70-130		%Rec	200	10/11/2022 9:34:52 PM	A91711
Surr: Toluene-d8	106	0	70-130		%Rec	200	10/11/2022 9:34:52 PM	A91711

SM2510B: SPECIFIC CONDUCTANCE

Analyst: JTT

Conductivity	6900	10	10		µmhos/c	1	10/4/2022 3:32:18 PM	R91537
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SM4500-H+B / 9040C: PH

Analyst: JTT

pH	8.04			H	pH units	1	10/4/2022 3:32:18 PM	R91537
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SM2320B: ALKALINITY

Analyst: JTT

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 3 of 20

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order 2209H25
Date Reported: 11/9/2022

CLIENT: Navajo Refining Company Client Sample ID: WDW-1,2,3 & 4 Effluent
Project: Quarterly WDW 1 2 3 4 Inj Well Collection Date: 9/28/2022 11:18:00 PM
Lab ID: 2209H25-001 Matrix: AQUEOUS Received Date: 9/30/2022 7:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM2320B: ALKALINITY								Analyst: JTT
Bicarbonate (As CaCO3)	582.9	20.00	20.00		mg/L Ca	1	10/4/2022 3:32:18 PM	R91537
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	10/4/2022 3:32:18 PM	R91537
Total Alkalinity (as CaCO3)	582.9	20.00	20.00		mg/L Ca	1	10/4/2022 3:32:18 PM	R91537
SPECIFIC GRAVITY								Analyst: CAS
Specific Gravity	0.9989	0	0			1	10/3/2022 2:34:00 PM	R91481
SM2540C MOD: TOTAL DISSOLVED SOLIDS								Analyst: SNS
Total Dissolved Solids	5120	200	200	*D	mg/L	1	10/5/2022 8:58:00 AM	70542
SM 2540D: TSS								Analyst: KS
Suspended Solids	28	4.0	4.0		mg/L	1	10/4/2022 11:09:00 AM	70560

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		



ANALYTICAL REPORT

October 21, 2022

Hall Environmental Analysis Laboratory

Sample Delivery Group: L1542745

Samples Received: 10/04/2022

Project Number:

Description:

Report To: Andy Freeman
4901 Hawkins NE
Albuquerque, NM 87109

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

Entire Report Reviewed By:

A handwritten signature in blue ink that reads "John V. Hawkins".

John Hawkins
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

Cp: Cover Page	1	¹ Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	² Tc
Cn: Case Narrative	4	
Sr: Sample Results	5	³ Ss
2209H25-001FG WDW-1,2,3 & 4 EFFLUENT L1542745-01	5	⁴ Cn
Qc: Quality Control Summary	6	
Wet Chemistry by Method 2580	6	⁵ Sr
Wet Chemistry by Method 4500 CN E-2016	7	
Wet Chemistry by Method 4500 S2 D-2011	9	⁶ Qc
Wet Chemistry by Method 9040C	10	
Wet Chemistry by Method D93/1010A	11	⁷ Gl
Semi-Volatile Organic Compounds (LCMS) by Method SW-846 8321	12	⁸ Al
Gl: Glossary of Terms	13	
Al: Accreditations & Locations	14	⁹ Sc
Sc: Sample Chain of Custody	15	

2209H25-001FG WDW-1,2,3 & 4 EFFLUENT L1542745-01 GW

Collected by

Collected date/time

Received date/time

09/28/22 23:18

10/04/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1311	WG1937384	1	10/06/22 11:56	10/06/22 11:56	JTM	Mt. Juliet, TN
Wet Chemistry by Method 2580	WG1946070	1	10/21/22 07:45	10/21/22 07:45	ARD	Mt. Juliet, TN
Wet Chemistry by Method 4500 CN E-2016	WG1937600	1	10/06/22 17:42	10/07/22 12:41	CAT	Mt. Juliet, TN
Wet Chemistry by Method 4500 S2 D-2011	WG1937427	1	10/05/22 12:02	10/05/22 12:02	JAR	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1941732	1	10/12/22 17:00	10/12/22 17:00	NTG	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG1937917	1	10/06/22 03:00	10/06/22 03:00	AAS	Mt. Juliet, TN
Semi-Volatile Organic Compounds (LCMS) by Method SW-846 8321	WG1938291	2	10/09/22 14:25	10/13/22 17:54	MSB	Mt. Juliet, TN

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



John Hawkins
Project Manager

Project Narrative

All Reactive Cyanide results reported in the attached report were determined as totals using method 4500 CN E-2016.
All Reactive Sulfide results reported in the attached report were determined as totals using method 4500 S2 D-2011.

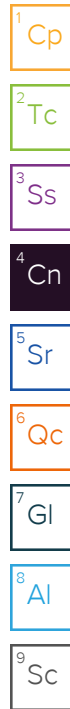
Sample Delivery Group (SDG) Narrative

Analysis was performed from an improper container for the following samples.

<u>Lab Sample ID</u>	<u>Project Sample ID</u>	<u>Method</u>
L1542745-01	2209H25-001FG WDW-1,2,3 & 4 EFFLUENT	4500 CN E-2016

The following analysis were performed from an unpreserved, insufficiently or inadequately preserved sample.

<u>Lab Sample ID</u>	<u>Project Sample ID</u>	<u>Method</u>
L1542745-01	2209H25-001FG WDW-1,2,3 & 4 EFFLUENT	4500 CN E-2016



Collected date/time: 09/28/22 23:18

L1542745

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		10/6/2022 11:56:16 AM	WG1937384
Fluid	1		10/6/2022 11:56:16 AM	WG1937384
Initial pH	N/A		10/6/2022 11:56:16 AM	WG1937384
Final pH	N/A		10/6/2022 11:56:16 AM	WG1937384

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

Wet Chemistry by Method 2580

Analyte	Result mV	Qualifier	Dilution	Analysis date / time	Batch
ORP	129	T8	1	10/21/2022 07:45	WG1946070

Wet Chemistry by Method 4500 CN E-2016

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Cyanide	0.0207		0.00500	1	10/07/2022 12:41	WG1937600

Wet Chemistry by Method 4500 S2 D-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Sulfide	ND	J6	0.0500	1	10/05/2022 12:02	WG1937427

Wet Chemistry by Method 9040C

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.83	T8	1	10/12/2022 17:00	WG1941732

Sample Narrative:

L1542745-01 WG1941732: 7.83 at 19.1C

Wet Chemistry by Method D93/1010A

Analyte	Result deg F	Qualifier	Dilution	Analysis date / time	Batch
Flashpoint	DNF at 170		1	10/06/2022 03:00	WG1937917

Semi-Volatile Organic Compounds (LCMS) by Method SW-846 8321

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
2,4-D	ND		0.0400	10	2	10/13/2022 17:54	WG1938291
2,4,5-TP (Silvex)	ND		0.0400	1	2	10/13/2022 17:54	WG1938291
(S) 2,4-DB-D3	129		70.0-130			10/13/2022 17:54	WG1938291

Wet Chemistry by Method 2580

L1542745-01

L1542745-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1542745-01 10/21/22 07:45 • (DUP) R3851271-3 10/21/22 07:45

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	<u>DUP Qualifier</u>	DUP Diff Limits mV
ORP	129	130	1	1.00		20

L1547426-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1547426-06 10/21/22 07:45 • (DUP) R3851271-4 10/21/22 07:45

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	<u>DUP Qualifier</u>	DUP Diff Limits mV
ORP	286	289	1	3.70		20

L1547868-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1547868-01 10/21/22 07:45 • (DUP) R3851271-5 10/21/22 07:45

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	<u>DUP Qualifier</u>	DUP Diff Limits mV
ORP	336	336	1	0.100		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3851271-1 10/21/22 07:45 • (LCSD) R3851271-2 10/21/22 07:45

Analyte	Spike Amount mV	LCS Result mV	LCSD Result mV	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCSD Qualifier</u>	<u>Diff</u> mV	Diff Limits mV
ORP	109	111	110	102	101	90.0-110		0.500	20

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 4500 CN E-2016

L1542745-01

Method Blank (MB)

(MB) R3845870-1 10/07/22 12:16

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Reactive Cyanide	U		0.00180	0.00500

L1542733-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1542733-01 10/07/22 12:22 • (DUP) R3845870-3 10/07/22 12:23

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Cyanide	ND	ND	1	0.000		20

L1542734-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1542734-02 10/07/22 12:30 • (DUP) R3845870-6 10/07/22 12:31

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Cyanide	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3845870-2 10/07/22 12:17

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Cyanide	0.100	0.0985	98.5	87.1-120	

L1542733-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1542733-02 10/07/22 12:24 • (MS) R3845870-4 10/07/22 12:25 • (MSD) R3845870-5 10/07/22 12:26

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Cyanide	0.100	ND	0.0880	0.0881	88.0	88.1	1	90.0-110	J6	J6	0.114	20

Sample Narrative:

MS: Matrix spike failure due to matrix interference.
MSD: Matrix spike failure due to matrix interference.

Wet Chemistry by Method 4500 CN E-2016

L1542745-01

L1542742-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1542742-01 10/07/22 12:32 • (MS) R3845870-7 10/07/22 12:33 • (MSD) R3845870-8 10/07/22 12:34

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Cyanide	0.100	ND	0.0957	0.0953	93.7	93.3	1	90.0-110		0.419	0.419	20

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Wet Chemistry by Method 4500 S2 D-2011

L1542745-01

Method Blank (MB)

(MB) R3844889-1 10/05/22 11:56

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Reactive Sulfide	U		0.0250	0.0500

L1542751-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1542751-01 10/05/22 12:04 • (DUP) R3844889-5 10/05/22 12:04

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Sulfide	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3844889-2 10/05/22 11:56

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Sulfide	0.500	0.526	105	85.0-115	

L1542745-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1542745-01 10/05/22 12:02 • (MS) R3844889-3 10/05/22 12:03 • (MSD) R3844889-4 10/05/22 12:03

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Sulfide	0.500	ND	0.414	0.397	82.8	79.4	1	80.0-120		J6	4.19	20

Wet Chemistry by Method 9040C

L1542745-01

L1542782-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1542782-01 10/12/22 17:00 • (DUP) R3847780-2 10/12/22 17:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.54	7.53	1	0.133		1

Sample Narrative:

OS: 7.54 at 19C

DUP: 7.53 at 19.1C

Laboratory Control Sample (LCS)

(LCS) R3847780-1 10/12/22 17:00

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	9.90	99.0	99.0-101	

Sample Narrative:

LCS: 9.9 at 20.4C

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method D93/1010A

L1542745-01

L1534417-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1534417-01 10/06/22 03:00 • (DUP) R3845562-3 10/06/22 03:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Flashpoint	DNF at 170	DNF at 170	1	0.000	%	10

L1542757-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1542757-01 10/06/22 03:00 • (DUP) R3845562-4 10/06/22 03:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Flashpoint	DNF at 170	DNF at 170	1	0.000	%	10

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3845562-1 10/06/22 03:00 • (LCSD) R3845562-2 10/06/22 03:00

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Flashpoint	deg F 126	deg F 128	deg F 124	% 101	% 98.1	% 96.0-104	% 3.18	% 3.18	% 10	% 10

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Semi-Volatile Organic Compounds (LCMS) by Method SW-846 8321

L1542745-01

Method Blank (MB)

(MB) R3848141-2 10/13/22 11:45

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
2,4-D	U	0.0133	0.0133	0.0400
2,4,5-TP (Silvex)	U	0.0133	0.0133	0.0400
(S) 2,4-DB-D3	259	J1		70.0-130

Laboratory Control Sample (LCS)

(LCS) R3848141-1 10/13/22 11:13

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
2,4-D	0.200	0.194	97.0	70.0-130	
2,4,5-TP (Silvex)	0.200	0.260	130	70.0-130	
(S) 2,4-DB-D3			270	70.0-130	J1

L1539727-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1539727-01 10/13/22 12:07 • (MS) R3848141-3 10/13/22 12:28 • (MSD) R3848141-4 10/13/22 12:50

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
2,4-D	0.200	ND	0.188	0.210	94.0	105	2	70.0-130	J5	J5	11.1	30
2,4,5-TP (Silvex)	0.200	ND	0.281	0.298	141	149	2	70.0-130	J5	J5	5.87	30
(S) 2,4-DB-D3					135	134		70.0-130	J1	J1		

Guide to Reading and Understanding Your Laboratory Report

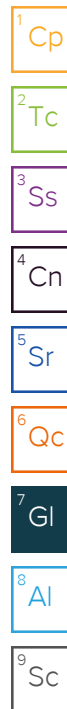
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.



Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1



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

1046

SUB CONTRACTOR: Pace TN		COMPANY: PACE TN		PHONE: (800) 767-5859	FAX: (615) 758-5859
ADDRESS: 12065 Lebanon Rd		ACCOUNT #:			
CITY, STATE, ZIP: Mt. Juliet, TN 37122					
ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE
1	2209H25-001F	WDW-1,2,3 & 4 Effluent	1LAMGU	Aqueous	9/28/2022 11:18:00 PM
2	2209H25-001G	WDW-1,2,3 & 4 Effluent	500HDPE	Aqueous	9/28/2022 11:18:00 PM
			# CONTAINERS		
			1 8151TCLP		
			3 RCI, ORP		
ANALYTICAL COMMENTS					
11542745					
Jal					

Sample Receipt Checklist

COC Seal Present/Intact: ☒ Y ☐ N If Applicable

COC Signed/Accurate: ☒ Y ☐ N VOA Zero Headspace: ☒ Y ☐ N

Bottles arrive intact: ☒ Y ☐ N Pres. Correct/Check: ☒ Y ☐ N

Correct bottles used: ☒ Y ☐ N

Sufficient volume sent: ☒ Y ☐ N

RAD Screen <0.5 mR/hr: ☒ Y ☐ N

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By: SA	Date: 9/30/2022	Time: 10:29 AM	Received By: [Signature]	Date: 10/4/22	Time: 0900
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
TAT:	Standard ☒	RUSH	Next BD ☐	2nd BD ☐	3rd BD ☐
REPORT TRANSMITTAL DESIRED:					
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE					
FOR LAB USE ONLY					
Temp of samples 4.7 °C Attempt to Cool? _____					
Comments: _____					

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2209H25

09-Nov-22

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: MB	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch ID: R91467	RunNo: 91467								
Prep Date:	Analysis Date: 9/30/2022	SeqNo: 3275657 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P)	ND	0.50								

Sample ID: LCS	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSW	Batch ID: R91467	RunNo: 91467								
Prep Date:	Analysis Date: 9/30/2022	SeqNo: 3275665 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	109	90	110			
Nitrogen, Nitrite (As N)	0.99	0.10	1.000	0	99.3	90	110			
Bromide	2.5	0.10	2.500	0	99.8	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	104	90	110			
Phosphorus, Orthophosphate (As P)	4.6	0.50	5.000	0	92.8	90	110			

Sample ID: 2209H25-001CMS	SampType: ms	TestCode: EPA Method 300.0: Anions								
Client ID: WDW-1,2,3 & 4 Efflu	Batch ID: R91467	RunNo: 91467								
Prep Date:	Analysis Date: 9/30/2022	SeqNo: 3275681 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	4.7	0.50	5.000	0.3110	87.0	83.4	110			
Bromide	12	0.50	12.50	0.4460	94.6	89.4	110			
Nitrogen, Nitrate (As N)	15	0.50	12.50	2.517	100	89.5	113			
Phosphorus, Orthophosphate (As P)	21	2.5	25.00	0	85.6	80.1	109			

Sample ID: 2209H25-001CMSD	SampType: msd	TestCode: EPA Method 300.0: Anions								
Client ID: WDW-1,2,3 & 4 Efflu	Batch ID: R91467	RunNo: 91467								
Prep Date:	Analysis Date: 9/30/2022	SeqNo: 3275682 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	4.7	0.50	5.000	0.3110	87.5	83.4	110	0.535	20	
Bromide	12	0.50	12.50	0.4460	94.9	89.4	110	0.236	20	
Nitrogen, Nitrate (As N)	15	0.50	12.50	2.517	101	89.5	113	0.322	20	
Phosphorus, Orthophosphate (As P)	22	2.5	25.00	0	86.4	80.1	109	0.902	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
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: 2209H25
09-Nov-22

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: MB	SampType: MBLK	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch ID: R91508	RunNo: 91508								
Prep Date:	Analysis Date: 10/3/2022	SeqNo: 3277697 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: LCS	SampType: LCS	TestCode: EPA Method 300.0: Anions								
Client ID: LCSW	Batch ID: R91508	RunNo: 91508								
Prep Date:	Analysis Date: 10/3/2022	SeqNo: 3277698 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.8	90	110			
Sulfate	9.6	0.50	10.00	0	96.1	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quantitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2209H25

09-Nov-22

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: MB-70719	SampType: MBLK	TestCode: EPA Method 6020A: TCLP Metals								
Client ID: PBW	Batch ID: 70719	RunNo: 91792								
Prep Date: 10/10/2022	Analysis Date: 10/13/2022	SeqNo: 3290983 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								

Sample ID: MSLLCS-70719	SampType: LCSLL	TestCode: EPA Method 6020A: TCLP Metals								
Client ID: BatchQC	Batch ID: 70719	RunNo: 91792								
Prep Date: 10/10/2022	Analysis Date: 10/13/2022	SeqNo: 3290984 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00089	0.0010	0.001000	0	89.3	70	130			J

Sample ID: MSLCS-70719	SampType: LCS	TestCode: EPA Method 6020A: TCLP Metals								
Client ID: LCSW	Batch ID: 70719	RunNo: 91792								
Prep Date: 10/10/2022	Analysis Date: 10/13/2022	SeqNo: 3290985 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.050	0.0010	0.05000	0	99.5	80	120			

Sample ID: MB-70719	SampType: MBLK	TestCode: EPA Method 6020A: TCLP Metals								
Client ID: PBW	Batch ID: 70719	RunNo: 91927								
Prep Date: 10/10/2022	Analysis Date: 10/19/2022	SeqNo: 3297606 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.0010								
Selenium	ND	0.0010								

Sample ID: MSLLCS-70719	SampType: LCSLL	TestCode: EPA Method 6020A: TCLP Metals								
Client ID: BatchQC	Batch ID: 70719	RunNo: 91927								
Prep Date: 10/10/2022	Analysis Date: 10/19/2022	SeqNo: 3297607 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00095	0.0010	0.001000	0	94.9	70	130			J
Selenium	0.00085	0.0010	0.001000	0	85.1	70	130			J

Sample ID: MSLCS-70719	SampType: LCS	TestCode: EPA Method 6020A: TCLP Metals								
Client ID: LCSW	Batch ID: 70719	RunNo: 91927								
Prep Date: 10/10/2022	Analysis Date: 10/19/2022	SeqNo: 3297610 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.048	0.0010	0.05000	0	96.9	80	120			
Selenium	0.048	0.0010	0.05000	0	96.4	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Above Quantitation Range/Estimated Value
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative Limit	RL Reporting Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.	

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2209H25

09-Nov-22

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: MB-70615	SampType: MBLK	TestCode: EPA Method 8081: Pesticides TCLP								
Client ID: PBW	Batch ID: 70615	RunNo: 91950								
Prep Date: 10/5/2022	Analysis Date: 10/20/2022	SeqNo: 3299347 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Endrin	ND	0.020								
gamma-BHC (Lindane)	ND	0.40								
Heptachlor	ND	0.0080								
Heptachlor epoxide	ND	0.0080								
Methoxychlor	ND	10								
Toxaphene	ND	0.50								
Surr: Decachlorobiphenyl	0.0026		0.002500		102	40.9	111			
Surr: Tetrachloro-m-xylene	0.0024		0.002500		95.4	15	107			

Sample ID: MB-70615	SampType: MBLK	TestCode: EPA Method 8081: Pesticides TCLP								
Client ID: PBW	Batch ID: 70615	RunNo: 91950								
Prep Date: 10/5/2022	Analysis Date: 10/20/2022	SeqNo: 3299348 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Endrin	ND	0.020								
gamma-BHC (Lindane)	ND	0.40								
Heptachlor	ND	0.0080								
Heptachlor epoxide	ND	0.0080								
Methoxychlor	ND	10								
Toxaphene	ND	0.50								
Surr: Decachlorobiphenyl	0.0026		0.002500		103	40.9	111			
Surr: Tetrachloro-m-xylene	0.0023		0.002500		93.2	15	107			

Sample ID: LCS-70615	SampType: LCS	TestCode: EPA Method 8081: Pesticides TCLP								
Client ID: LCSW	Batch ID: 70615	RunNo: 91950								
Prep Date: 10/5/2022	Analysis Date: 10/20/2022	SeqNo: 3299349 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Endrin	0.00050	0.00010	0.0005000	0	99.6	56.3	126			
gamma-BHC (Lindane)	0.00045	0.00010	0.0005000	0	89.9	45.8	103			
Heptachlor	0.00035	0.00010	0.0005000	0	69.3	33.7	104			
Heptachlor epoxide	0.00047	0.00010	0.0005000	0	93.9	50.1	116			
Methoxychlor	0.00050	0.00010	0.0005000	0	99.9	15	203			
Surr: Decachlorobiphenyl	0.0024		0.002500		95.8	40.9	111			
Surr: Tetrachloro-m-xylene	0.0021		0.002500		83.6	15	107			

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
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2209H25

09-Nov-22

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: LCS-70615	SampType: LCS		TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: LCSW	Batch ID: 70615		RunNo: 91950							
Prep Date: 10/5/2022	Analysis Date: 10/20/2022		SeqNo: 3299350		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Endrin	0.00048	0.00010	0.0005000	0	95.5	56.3	126			
gamma-BHC (Lindane)	0.00046	0.00010	0.0005000	0	91.2	45.8	103			
Heptachlor	0.00034	0.00010	0.0005000	0	68.8	33.7	104			
Heptachlor epoxide	0.00046	0.00010	0.0005000	0	91.7	50.1	116			
Methoxychlor	0.00048	0.00010	0.0005000	0	96.2	15	203			
Surr: Decachlorobiphenyl	0.0024		0.002500		96.5	40.9	111			
Surr: Tetrachloro-m-xylene	0.0020		0.002500		81.4	15	107			

Sample ID: LCSD-70615	SampType: LCSD		TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: LCSS02	Batch ID: 70615		RunNo: 91950							
Prep Date: 10/5/2022	Analysis Date: 10/20/2022		SeqNo: 3299351		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Endrin	0.00048	0.00010	0.0005000	0	95.7	56.3	126	3.96	20	
gamma-BHC (Lindane)	0.00044	0.00010	0.0005000	0	87.8	45.8	103	2.36	20	
Heptachlor	0.00032	0.00010	0.0005000	0	64.0	33.7	104	7.92	20	
Heptachlor epoxide	0.00045	0.00010	0.0005000	0	90.4	50.1	116	3.77	20	
Methoxychlor	0.00053	0.00010	0.0005000	0	105	15	203	5.02	20	
Surr: Decachlorobiphenyl	0.0022		0.002500		88.0	40.9	111	0	0	
Surr: Tetrachloro-m-xylene	0.0018		0.002500		72.2	15	107	0	0	

Sample ID: LCSD-70615	SampType: LCSD		TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: LCSS02	Batch ID: 70615		RunNo: 91950							
Prep Date: 10/5/2022	Analysis Date: 10/20/2022		SeqNo: 3299352		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Endrin	0.00046	0.00010	0.0005000	0	91.0	56.3	126	9.03	20	
gamma-BHC (Lindane)	0.00044	0.00010	0.0005000	0	88.2	45.8	103	1.87	20	
Heptachlor	0.00032	0.00010	0.0005000	0	64.1	33.7	104	7.79	20	
Heptachlor epoxide	0.00045	0.00010	0.0005000	0	89.1	50.1	116	5.24	20	
Methoxychlor	0.00046	0.00010	0.0005000	0	92.8	15	203	7.42	20	
Surr: Decachlorobiphenyl	0.0022		0.002500		88.1	40.9	111	0	0	
Surr: Tetrachloro-m-xylene	0.0018		0.002500		70.7	15	107	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
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2209H25

09-Nov-22

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: 100ng lcs	SampType: LCS			TestCode: TCLP Volatiles by 8260B						
Client ID: LCSW	Batch ID: A91711			RunNo: 91711						
Prep Date:	Analysis Date: 10/11/2022			SeqNo: 3286772		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.018	0.010	0.02000	0	89.0	70	130			
1,1-Dichloroethene	0.018	0.010	0.02000	0	90.6	70	130			
Trichloroethene (TCE)	0.018	0.010	0.02000	0	91.8	70	130			
Chlorobenzene	0.018	0.010	0.02000	0	90.0	70	130			
Surr: 1,2-Dichloroethane-d4	0.014		0.01000		138	70	130			S
Surr: 4-Bromofluorobenzene	0.010		0.01000		102	70	130			
Surr: Dibromofluoromethane	0.012		0.01000		118	70	130			
Surr: Toluene-d8	0.010		0.01000		102	70	130			

Sample ID: mb	SampType: MBLK			TestCode: TCLP Volatiles by 8260B						
Client ID: PBW	Batch ID: A91711			RunNo: 91711						
Prep Date:	Analysis Date: 10/11/2022			SeqNo: 3286774		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	0.00025	0.50								J
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.012		0.01000		122	70	130			
Surr: 4-Bromofluorobenzene	0.011		0.01000		113	70	130			
Surr: Dibromofluoromethane	0.010		0.01000		103	70	130			
Surr: Toluene-d8	0.011		0.01000		108	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
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2209H25

09-Nov-22

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: MB-70605	SampType: MBLK			TestCode: EPA Method 8270C TCLP						
Client ID: PBW	Batch ID: 70605			RunNo: 91785						
Prep Date: 10/5/2022	Analysis Date: 10/13/2022			SeqNo: 3291329			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	ND	200								
3+4-Methylphenol	ND	200								
2,4-Dinitrotoluene	ND	0.13								
Hexachlorobenzene	ND	0.13								
Hexachlorobutadiene	ND	0.50								
Hexachloroethane	ND	3.0								
Nitrobenzene	ND	2.0								
Pentachlorophenol	ND	100								
Pyridine	ND	5.0								
2,4,5-Trichlorophenol	ND	400								
2,4,6-Trichlorophenol	ND	2.0								
Cresols, Total	ND	200								
Surr: 2-Fluorophenol	0.12		0.2000		58.3	18.1	88.9			
Surr: Phenol-d5	0.088		0.2000		43.8	17	61.5			
Surr: 2,4,6-Tribromophenol	0.13		0.2000		66.2	29.8	104			
Surr: Nitrobenzene-d5	0.066		0.1000		65.7	22.2	111			
Surr: 2-Fluorobiphenyl	0.059		0.1000		59.1	24.6	96.3			
Surr: 4-Terphenyl-d14	0.082		0.1000		81.9	53.4	124			

Sample ID: LCS-70605	SampType: LCS			TestCode: EPA Method 8270C TCLP						
Client ID: LCSW	Batch ID: 70605			RunNo: 91785						
Prep Date: 10/5/2022	Analysis Date: 10/13/2022			SeqNo: 3291330			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.069	0.00010	0.1000	0	69.5	19	106			
3+4-Methylphenol	0.15	0.00010	0.2000	0	74.6	16.3	112			
2,4-Dinitrotoluene	0.048	0.00010	0.1000	0	48.3	15	99.6			
Hexachlorobenzene	0.063	0.00010	0.1000	0	62.7	41.8	111			
Hexachlorobutadiene	0.027	0.00010	0.1000	0	27.3	15	91.5			
Hexachloroethane	0.029	0.00010	0.1000	0	29.0	15	87.5			
Nitrobenzene	0.063	0.00010	0.1000	0	62.8	19.3	114			
Pentachlorophenol	0.060	0.00010	0.1000	0	60.0	29	103			
Pyridine	0.046	0.00010	0.1000	0	45.6	15	92.6			
2,4,5-Trichlorophenol	0.071	0.00010	0.1000	0	70.7	25.2	114			
2,4,6-Trichlorophenol	0.066	0.00010	0.1000	0	65.8	25.7	112			
Cresols, Total	0.22	0.00010	0.3000	0	72.9	15	145			
Surr: 2-Fluorophenol	0.11		0.2000		55.5	18.1	88.9			
Surr: Phenol-d5	0.083		0.2000		41.7	17	61.5			
Surr: 2,4,6-Tribromophenol	0.14		0.2000		69.2	29.8	104			

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
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2209H25

09-Nov-22

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: LCS-70605		SampType: LCS			TestCode: EPA Method 8270C TCLP					
Client ID: LCSW		Batch ID: 70605			RunNo: 91785					
Prep Date: 10/5/2022		Analysis Date: 10/13/2022			SeqNo: 3291330		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.068		0.1000		67.7	22.2	111			
Surr: 2-Fluorobiphenyl	0.064		0.1000		64.2	24.6	96.3			
Surr: 4-Terphenyl-d14	0.087		0.1000		87.0	53.4	124			

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

PQL Practical Quantitative Limit

S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 12 of 20

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2209H25

09-Nov-22

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: Ics-1 99.4uS eC	SampType: LCS	TestCode: SM2510B: Specific Conductance
Client ID: LCSW	Batch ID: R91537	RunNo: 91537
Prep Date:	Analysis Date: 10/4/2022	SeqNo: 3279123 Units: µmhos/cm
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Conductivity	99	10 99.40 0 99.8 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

PQL Practical Quantitative Limit

S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2209H25

09-Nov-22

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: MB-70693	SampType: MBLK	TestCode: EPA Method 7470A: Mercury								
Client ID: PBW	Batch ID: 70693	RunNo: 91673								
Prep Date: 10/10/2022	Analysis Date: 10/10/2022	SeqNo: 3284866		Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: LCSLL-70693	SampType: LCSLL	TestCode: EPA Method 7470A: Mercury								
Client ID: BatchQC	Batch ID: 70693	RunNo: 91673								
Prep Date: 10/10/2022	Analysis Date: 10/10/2022	SeqNo: 3284867		Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00020	0.00020	0.0001500	0	135	50	150			

Sample ID: LCS-70693	SampType: LCS	TestCode: EPA Method 7470A: Mercury								
Client ID: LCSW	Batch ID: 70693	RunNo: 91673								
Prep Date: 10/10/2022	Analysis Date: 10/10/2022	SeqNo: 3284868		Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	102	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
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2209H25

09-Nov-22

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: MB-A	SampType: MBLK	TestCode: EPA Method 6010B: Dissolved Metals								
Client ID: PBW	Batch ID: A91762	RunNo: 91762								
Prep Date:	Analysis Date: 10/12/2022	SeqNo: 3289919 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: LCS-A	SampType: LCS	TestCode: EPA Method 6010B: Dissolved Metals								
Client ID: LCSW	Batch ID: A91762	RunNo: 91762								
Prep Date:	Analysis Date: 10/12/2022	SeqNo: 3289921 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	52	1.0	50.00	0	103	80	120			
Magnesium	52	1.0	50.00	0	105	80	120			
Potassium	52	1.0	50.00	0	104	80	120			
Sodium	51	1.0	50.00	0	103	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
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2209H25

09-Nov-22

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: MB-70719		SampType: MBLK			TestCode: EPA 6010B: TCLP					
Client ID:	PBW	Batch ID: 70719			RunNo: 91762					
Prep Date:	10/10/2022	Analysis Date: 10/12/2022			SeqNo: 3293715		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Silver	ND	0.0050								

Sample ID: LCS-70719		SampType: LCS			TestCode: EPA 6010B: TCLP					
Client ID:	LCSW	Batch ID: 70719			RunNo: 91762					
Prep Date:	10/10/2022	Analysis Date: 10/12/2022			SeqNo: 3293717		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.48	0.0020	0.5000	0	96.5	80	120			
Cadmium	0.48	0.0020	0.5000	0	96.2	80	120			
Chromium	0.48	0.0060	0.5000	0	96.7	80	120			
Silver	0.099	0.0050	0.1000	0	99.1	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

PQL Practical Quantitative Limit

S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 16 of 20

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2209H25

09-Nov-22

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: mb-1 alk	SampType: MBLK		TestCode: SM2320B: Alkalinity							
Client ID: PBW	Batch ID: R91537		RunNo: 91537							
Prep Date:	Analysis Date: 10/4/2022		SeqNo: 3279059		Units: mg/L CaCO3					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: lcs-1 alk	SampType: LCS		TestCode: SM2320B: Alkalinity							
Client ID: LCSW	Batch ID: R91537		RunNo: 91537							
Prep Date:	Analysis Date: 10/4/2022		SeqNo: 3279060		Units: mg/L CaCO3					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.64	20.00	80.00	0	97.0	90	110			

Sample ID: mb-2 alk	SampType: MBLK		TestCode: SM2320B: Alkalinity							
Client ID: PBW	Batch ID: R91537		RunNo: 91537							
Prep Date:	Analysis Date: 10/4/2022		SeqNo: 3279082		Units: mg/L CaCO3					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: lcs-2 alk	SampType: LCS		TestCode: SM2320B: Alkalinity							
Client ID: LCSW	Batch ID: R91537		RunNo: 91537							
Prep Date:	Analysis Date: 10/4/2022		SeqNo: 3279083		Units: mg/L CaCO3					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.52	20.00	80.00	0	96.9	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
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2209H25
09-Nov-22

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: 2209H25-001CDUP		SampType: DUP		TestCode: Specific Gravity						
Client ID: WDW-1,2,3 & 4 Efflu		Batch ID: R91481			RunNo: 91481					
Prep Date:		Analysis Date: 10/3/2022			SeqNo: 3276457		Units:			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	0.9998	0						0.0901	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
PQL	Practical Quantitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: 2209H25
09-Nov-22

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: MB-70542	SampType: MBLK	TestCode: SM2540C MOD: Total Dissolved Solids								
Client ID: PBW	Batch ID: 70542	RunNo: 91532								
Prep Date: 10/3/2022	Analysis Date: 10/5/2022	SeqNo: 3278878		Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: LCS-70542	SampType: LCS	TestCode: SM2540C MOD: Total Dissolved Solids								
Client ID: LCSW	Batch ID: 70542	RunNo: 91532								
Prep Date: 10/3/2022	Analysis Date: 10/5/2022	SeqNo: 3278879		Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1030	20.0	1000	0	103	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
PQL	Practical Quantitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: 2209H25
09-Nov-22

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: MB-70560	SampType: MBLK	TestCode: SM 2540D: TSS
Client ID: PBW	Batch ID: 70560	RunNo: 91514
Prep Date: 10/3/2022	Analysis Date: 10/4/2022	SeqNo: 3277855 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Suspended Solids	ND	4.0

Sample ID: LCS-70560	SampType: LCS	TestCode: SM 2540D: TSS
Client ID: LCSW	Batch ID: 70560	RunNo: 91514
Prep Date: 10/3/2022	Analysis Date: 10/4/2022	SeqNo: 3277856 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Suspended Solids	98	4.0 91.90 0 107 83.89 119.7

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
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit



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

Sample Log-In Check List

Client Name: Navajo Refining

Work Order Number: 2209H25

RcptNo: 1

Received By: Juan Rojas

9/30/2022 7:30:00 AM

Completed By: Sean Livingston

9/30/2022 10:19:20 AM

Reviewed By:

SN 9/30/22

Juan Rojas

Sean Livingston

Chain of Custody

1. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
4. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☒ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
8. Was preservative added to bottles? Yes ☒ No ☐ NA ☐
9. Received at least 1 vial with headspace $<1/4"$ for AQ VOA? Yes ☒ No ☐ HNO₃ NA ☐
10. Were any sample containers received broken? Yes ☐ No ☒
11. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
13. Is it clear what analyses were requested? Yes ☒ No ☐
14. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH: 3 or 12 (unless noted)

Adjusted? yesChecked by: KPA 9-30-22

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified: _____

Date: _____

By Whom: _____

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

Added 0.5mL of HNO₃ to sample 004E.Filtered for 001D, adding ~0.4mL HNO₃ for dissolved metals analysis, checked for proper pH < 2 - KPA 9-30-22

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.5	Good				

FillerLot # FJ4820x5

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

COMMENTS

Action 180382

COMMENTS

Operator: NAVAJO REFINING COMPANY LLC 100 Crescent Court, Suite 1600 Dallas , TX 752016927	OGRID: 255554
	Action Number: 180382
	Action Type: [UF-DP] Discharge Permit (DISCHARGE PERMIT)

COMMENTS

Created By	Comment	Comment Date
cchavez	Quarterly Reports Federal Fiscal Year (FY) 2022 provided by Permittee to update the Administrative Record. QRs are generally filed in the WDW-1 Admin. Record for all QRs.	1/27/2023

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 180382

CONDITIONS

Operator: NAVAJO REFINING COMPANY LLC 100 Crescent Court, Suite 1600 Dallas , TX 752016927	OGRID: 255554
	Action Number: 180382
	Action Type: [UF-DP] Discharge Permit (DISCHARGE PERMIT)

CONDITIONS

Created By	Condition	Condition Date
cchavez	None	1/27/2023