UICI - 8

QUARTERLY REPORT (Qtr. 1)

2022

February 14, 2023

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: FFY 2023 1st Quarter Injection Report for HF Sinclair UIC Wells WDW-1, WDW-2, WDW-3 and WDW-4

Dear Mr. Chavez,

Enclosed, please find the federal fiscal year 2023 (FFY 2023) first quarter (Q1) report for fluids injected into WDW-1, WDW-2, WDW-3 and WDW-4. This report has been prepared in accordance with Class I Non-Hazardous Waste Injection Well Discharge Permit UICI-8 (approved December 2017) and covers data collection efforts from October 1, 2022 through Dec 31, 2022. Condition 2.I of the permit requires reporting of the following four items:

Item #1: Physical, chemical and other relevant characteristics of injected fluids (per Condition 2.A)

Four sampling events occurred during FFY 2023 Q1 (Nov 28, Dec 5, Dec 12, and Dec 19, 2022). Table 1 presents results for each event; corresponding lab reports are given in Attachment A. For parameters identified as toxic contaminants in 40 CFR 261.24(b) (EPA Hazardous waste No. D004 through D043), all results were less than the Toxicity Characteristic Leaching Procedure (TCLP) regulatory level and do not exhibit the characteristic of toxicity. TCLP parameters were analyzed as total and filtered fractions; results for both fractions were less than the reporting level (RL).

Item #2: Monthly average, maximum and minimum values for injection pressure, flow rate, injected volume, and annular pressure (per Condition 3.C)

A summary of monthly injection pressure, flow rate, injected volume, and annular pressure for FFY 2023 Q1 is given in Table 2. Statistics for injection pressure, flow rate and annular pressure for each month were calculated from continuous monitoring recorded on an hourly basis. For example, a month containing 31 days would have a total 744 hourly data results, assuming no issues with signal communication. For injection flowrate, hourly readings reported as 0 gpm were deleted from the database (representative of either a signal communication issue or a well down for maintenance, testing, etc.). Totalized volume is not recorded hourly, therefore the monthly injected volume was calculated as the average monthly flow rate multiplied by the number of days in the corresponding month.

HF Sinclair disposed a total of 1,947,693 barrels of fluid into the four wells during FFY 2023 Q1. The total Q1 volume per well was:

- 324,191 barrels into WDW-1: 30-015-27592
- 229,974 barrels into WDW-2: 30-015-20894
- 383,384 barrels into WDW-3: 30-015-26575

- 1,010,144 barrels into WDW-4: 30-015-44677

In terms of Discharge Permit UICI-8 compliance, the hourly maximum injection pressures (occurring during FFY 2023 Q1) were within limits given in Condition 3.B as follows:

- WDW-1: max = 1,325 psi (limit = 1,585 psig)
- WDW-2: max = 1,372 psi (limit = 1,514 psig)
- WDW-3: max = 1,378 psi (limit = 1,530 psig)
- WDW-4: max = 878 psi (limit = 2,080 psig)

There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS).

Item #3: Groundwater monitoring well Information from Condition 2.B

Discharge Permit UICI-8 Condition 2.B requires the installation of at least one downgradient monitoring well in the proximity of each injection well (WDW-1, 2, 3, and 4). These wells have not been installed at this time so historical characterization data do not exist. HF Sinclair submitted the "Work Plan for Monitor Well Installation and Sampling" to OCD on November 9, 2022 detailing planned well installation and monitoring procedures. OCD and HF Sinclair are currently in discussion to finalize this Work Plan and subsequent well installation and sampling. Future quarterly reports will include monitoring well data for the agreed list of parameters and sampling frequency.

Item #4: Continuous monitoring charts and information from Permit Condition 3.C

Discharge Permit UICI-8 Condition 3.C requires the use of a continuous monitoring device to measure and record hourly values of injection pressure, injection rate, totalized injection volume, and annular pressure. HF Sinclair uses a digital recording device that can log the results of the above parameters at a user defined-frequency (i.e., can be greater or less than a one-hour interval). This recording/logging system is known as the "PI Historian" system and does not use any pen/chart apparatus described in Condition 3.C. Although past quarterly reports have not presented the hourly data, these data have indeed been digitally archived and can be retrieved if requested. For this quarterly report (and going forward), the logged hourly data have been processed graphically and are given for each well in Figures 1 to 3 (Oct 2022), Figures 4 to 6 (Nov 2022), and Figures 7 to 9 (Dec 2022). As mentioned in Item #2 above, "gaps" in charted data reflect periods where signal communication issues occurred or when hourly injection flow was reported as 0 gpm. Archived spreadsheets of the FFY 2023 Q1 data used to generate the graphs are available upon request.

Conclusions and Recommendations

From the observations presented in the Items #1, #2, #3, and #4 above, HF Sinclair concludes that the injection of fluids (i.e., treated wastewater) into UIC Wells WDW-1, WDW-2, WDW-3, and WDW-4 during FFY 2023 Q1 was in compliance with the requirements and limitations given in Discharge Permit UICI-8. Specifically, the injection concentrations did not exhibit toxicity as regulated in Discharge Permit Condition 2.A (per reference of 40 CFR 261.24(b)). Further, injection pressures did not exceed limitations given Discharge Permit Condition 3.B for each well.

In regards, to other UIC activities during FFY 2023 Q1, sampling for the March 11, 2022 "Verification of Non-Hazardous Injection Fluids from RDU Process – Pilot Sampling Plan" (PSP) was completed. The data presented in Table 1 from four sample events were generated for the PSP; typically quarterly UIC reports will only include data from one sample event. The PSP summary report is currently being drafted and will be submitted to OCD by

March 7, 2023. In summary, the addition of Renewable Diesel Unit (RDU) wastewaters to the Refinery WWTP has not changed the concentrations of TCLP parameters in the treated effluent sent to the UIC wells. In other words UIC injection concentration before and after the RDU start up are below the TCLP hazardous waste levels described in UICI-8 Condition 2.A and 40 CFR 261.24.

Recommendations for future quarterly reports include an HF Sinclair request to revert back to the parameters list given in UICI-8 Condition 2.A for the effluent characterization. The PSP program added some additional parameters for characterization that were not historically sampled and analyzed for routine quarterly monitoring. As shown in Table 1, these parameters include other pesticides (endrin, lindane, heptachlor, heptachlor epoxide, methoxychlor, and toxaphene), herbicides (2,4,5-TP and 2,4-D), and total suspended solids. Pending OCD review of the final PSP summary report, HF Sinclair requests removal of these parameters for future routine quarterly monitoring.

Finally, HF Sinclair requests concurrence from OCD that the content and format of this quarterly report is acceptable for future reporting efforts.

This report is signed and certified in accordance with NMAC Section 20.6.2.5101.G. If there are any questions or comments, please contact Jason Roberts at 575-748-6733.

Respectfully,

Kawika Tupou
Environmental Manager
HF Sinclair

cc: Mike Holder – HF Sinclair
Jason Roberts – HF Sinclair Navajo Refining
Dean Vlachos – SLR Consulting

TABLE 1. FFY 2023 Q1 CONCENTRATIONS OF WASTEWATER INJECTED INTO WELLS WDW-1, WDW-2, WDW-3, AND WDW-4
"<" = value less than the laboratory reporting level (RL)

Parameter	Units	UICI-8 Condition 2.A Regulatory Level	11/28/2022	12/5/2022	12/12/2022	12/19/2022
Alkalinity, bicarbonate	mg/L	--	563.6	538.1	511.1	370.5
Alkalinity, carbonate	mg/L	--	<2	<2	<2	<2
Alkalinity, total	mg/L	--	563.6	538.1	511.1	370.5
Conductivity	uS/cm	--	6100	5800	5800	5800
Cyanide (Reactivity)	mg/L	--	0.0120	0.0113	0.0151	0.0140
Flashpoint (Ignitability)	deg F	--	<170	<170	<170	<170
Oxidation Reduction Potential	mV	--	165	283	95.8	338
pH (Corrosivity)	su	--	7.66	7.81	7.77	7.26
Specific Gravity	su	--	1.0070	0.9956	1.0010	0.9954
Sulfide (Reactivity)	mg/L	--	<0.05	<0.05	<0.05	0.075
Total Dissolved Solids	mg/L	--	4420	4210	4170	4350
Total Suspended Solids	mg/L	--	30	25	30	38
Bromide	mg/L	--	<0.5	0.84	0.90	0.72
Chloride	mg/L	--	340	340	340	520
Fluoride	mg/L	--	47	19	34	24
Nitrate	mg/L	--		1.00	0.91	0.78
Nitrate/Nitrite	mg/L	--	<1			
Nitrite	mg/L	--		<0.5	<0.5	<0.5
Phosphorus, total	mg/L	--	<10	<50	<2.5	<2.5
Sulfate	mg/L	--	2300	2000	2100	2000
Calcium	mg/L	--	380	380	400	400
Magnesium	mg/L	--	130	130	120	120
Potassium	mg/L	--	160	100	140	130
Sodium	mg/L	--	690	750	710	710
Arsenic	mg/L	TCLP=5	<5	<5	<5	<5
Barium	mg/L	TCLP=100	<100	<100	<100	<100
Cadmium	mg/L	TCLP=1	<1	<1	<1	<1
Chromium	mg/L	TCLP=5	<5	<5	<5	<5
Lead	mg/L	TCLP=5	<5	<5	<5	<5
Mercury	mg/L	TCLP=0.2	<0.02	<0.02	<0.02	<0.02
Selenium	mg/L	TCLP=1	<1	<1	<1	<1
Silver	mg/L	TCLP=5	<5	<5	<5	<5
Chlordane	mg/L	TCLP=0.03	<0.03	<0.03	<0.03	<0.03
Endrin	mg/L	TCLP=0.02	<0.02	<0.02	<0.02	<0.02
Lindane	mg/L	TCLP=0.4	<0.4	<0.4	<0.4	<0.4
Heptachlor	mg/L	TCLP=0.008	<0.008	<0.008	<0.008	<0.008
Heptachlor Epoxide	mg/L	TCLP=0.008	<0.008	<0.008	<0.008	<0.008
Methoxychlor	mg/L	TCLP=10	<10	<10	<10	<10
Toxaphene	mg/L	TCLP=0.50	<0.50	<0.50	<0.50	<0.50
2,4,5-TP (Silvex)	mg/L	TCLP = 1	<1	<1	<1	<1
2,4-D	mg/L	TCLP = 10	<10	<10	<10	<10
1,1-Dichloroethene	mg/L	TCLP=0.7	<0.7	<0.7	<0.7	<0.7
1,2-Dichloroethane	mg/L	TCLP=0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	mg/L	TCLP=7.5	<7.5	<7.5	<7.5	<7.5
2,4,5-Trichlorophenol	mg/L	TCLP=400	<400	<400	<400	<400
2,4,6-Trichlorophenol	mg/L	TCLP=2	<2	<2	<2	<2
2,4-Dinitrotoluene	mg/L	TCLP=0.13	<0.13	<0.13	<0.13	<0.13
2-Butanone	mg/L	TCLP=200	<200	<200	<200	<200
2-Methylphenol	mg/L	TCLP=200	<200	<200	<200	<200
3+4-Methylphenol	mg/L	TCLP=200	<200	<200	<200	<200
Benzene	mg/L	TCLP=0.5	<0.5	<0.5	<0.5	<0.5
Carbon tetrachloride	mg/L	TCLP=0.5	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	mg/L	TCLP=100	<100	<100	<100	<100
Chloroform	mg/L	TCLP=6	<6	<6	<6	<6
Cresols	mg/L	TCLP=200	<200	<200	<200	<200
Hexachlorobenzene	mg/L	TCLP=0.13	<0.13	<0.13	<0.13	<0.13
Hexachlorobutadiene	mg/L	TCLP=0.5	<0.5	<0.5	<0.5	<0.5
Hexachloroethane	mg/L	TCLP=3	<3	<3	<3	<3
Nitrobenzene	mg/L	TCLP=2	<2	<2	<2	<2
Pentachlorophenol	mg/L	TCLP=100	<100	<100	<100	<100
Pyridine	mg/L	TCLP=5	<5	<5	<5	<5
Tetrachloroethene	mg/L	TCLP=0.7	<0.7	<0.7	<0.7	<0.7
Trichloroethene	mg/L	TCLP=0.5	<0.5	<0.5	<0.5	<0.5
Vinyl chloride	mg/L	TCLP=0.2	<0.2	<0.2	<0.2	<0.2

TCLP = Toxicity Characteristic Leaching Procedure with regulatory level given in 40 CFR 261.24(b)

TABLE 2. FFY 2023 FIRST QUARTER MONTHLY INJECTION PRESSURE, FLOW RATE, ANNULAR PRESSURE, AND VOLUME

Based on continuous monitors that record pressure and flow rate data on an hourly basis (per UICI-8 Condition 3.C)

Month	Injection Pressure			Injection Flowrate			Annular Pressure			Totalized Injected Volume	
	Average (psi)	Maximum (psi)	Minimum (psi)	Average (gpm)	Maximum (gpm)	Minimum (gpm)	Average (psi)	Maximum (psi)	Minimum (psi)	Monthly (barrels)	Cumulative (barrels)
30-015-27592 WDW-1											50,297,424
Oct-22	906	1,325	678	104	162	91	389	837	188	110,913	50,408,337
Nov-22	918	1,081	665	103	121	83	328	940	196	106,211	50,514,548
Dec-22	916	1,286	698	101	147	80	442	920	197	107,067	50,621,615
30-015-20894 WDW-2											31,047,724
Oct-22	1,036	1,372	891	77	120	57	397	593	252	81,313	31,129,037
Nov-22	1,071	1,250	756	78	100	41	658	887	296	80,717	31,209,753
Dec-22	1,077	1,288	895	64	101	0.3	690	846	234	67,944	31,277,697
30-015-26575 WDW-3											22,658,927
Oct-22	1,044	1,363	833	115	170	82	298	443	108	122,559	22,781,486
Nov-22	1,119	1,372	936	118	161	88	269	501	68	121,890	22,903,376
Dec-22	1,199	1,378	894	131	653	79	552	698	360	138,935	23,042,310
30-015-44677 WDW-4											9,664,629
Oct-22	289	358	150	323	398	106	156	279	56	342,936	10,007,565
Nov-22	282	339	201	318	383	192	116	249	55	327,638	10,335,203
Dec-22	314	878	34	319	408	5	234	431	80	339,570	10,674,773

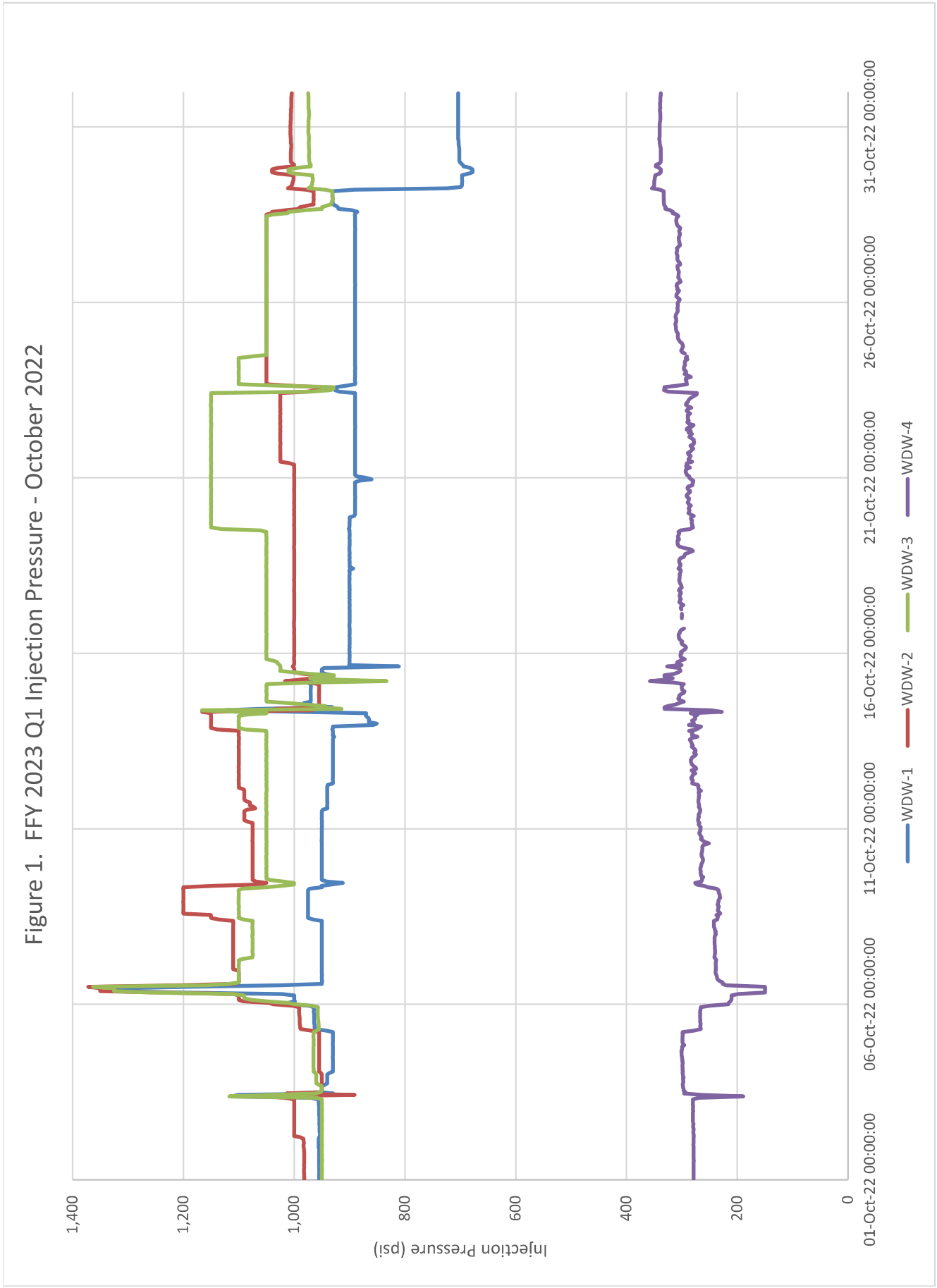
Figure 1. FFY 2023 Q1 Injection Pressure - October 2022
Injection Pressure (psi)
1,400
1,200
1,000
800
600
400
200
0
01-Oct-22 00:00:00
06-Oct-22 00:00:00
11-Oct-22 00:00:00
16-Oct-22 00:00:00
21-Oct-22 00:00:00
26-Oct-22 00:00:00
31-Oct-22 00:00:00
WDW-1
WDW-2
WDW-3
WDW-4

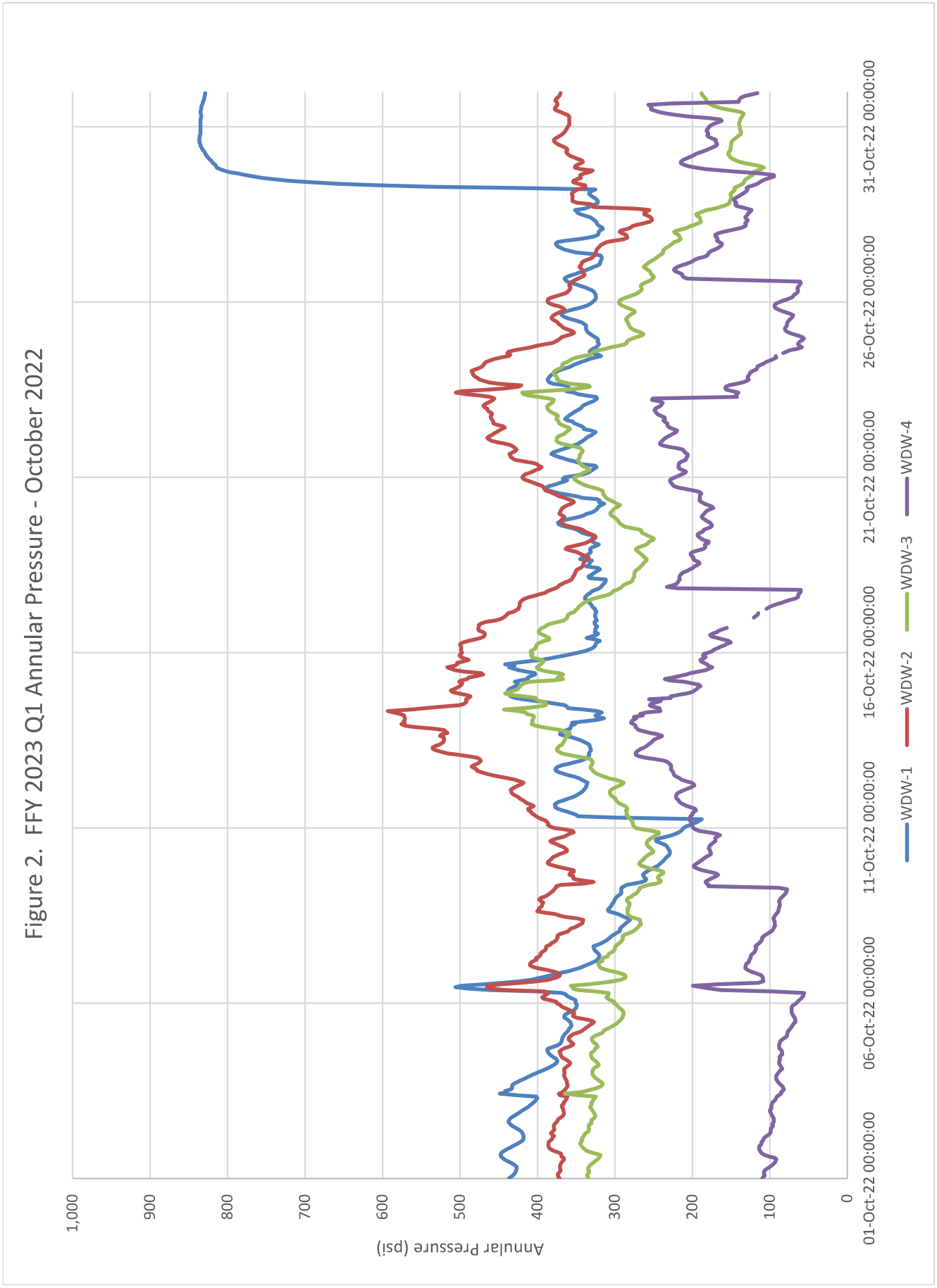
Figure 2. FFY 2023 Q1 Annular Pressure - October 2022
Annular Pressure (psi)
1,000
900
800
700
600
500
400
300
200
100
0
01-Oct-22 00:00:00
06-Oct-22 00:00:00
11-Oct-22 00:00:00
16-Oct-22 00:00:00
21-Oct-22 00:00:00
26-Oct-22 00:00:00
31-Oct-22 00:00:00
WDW-1
WDW-2
WDW-3
WDW-4

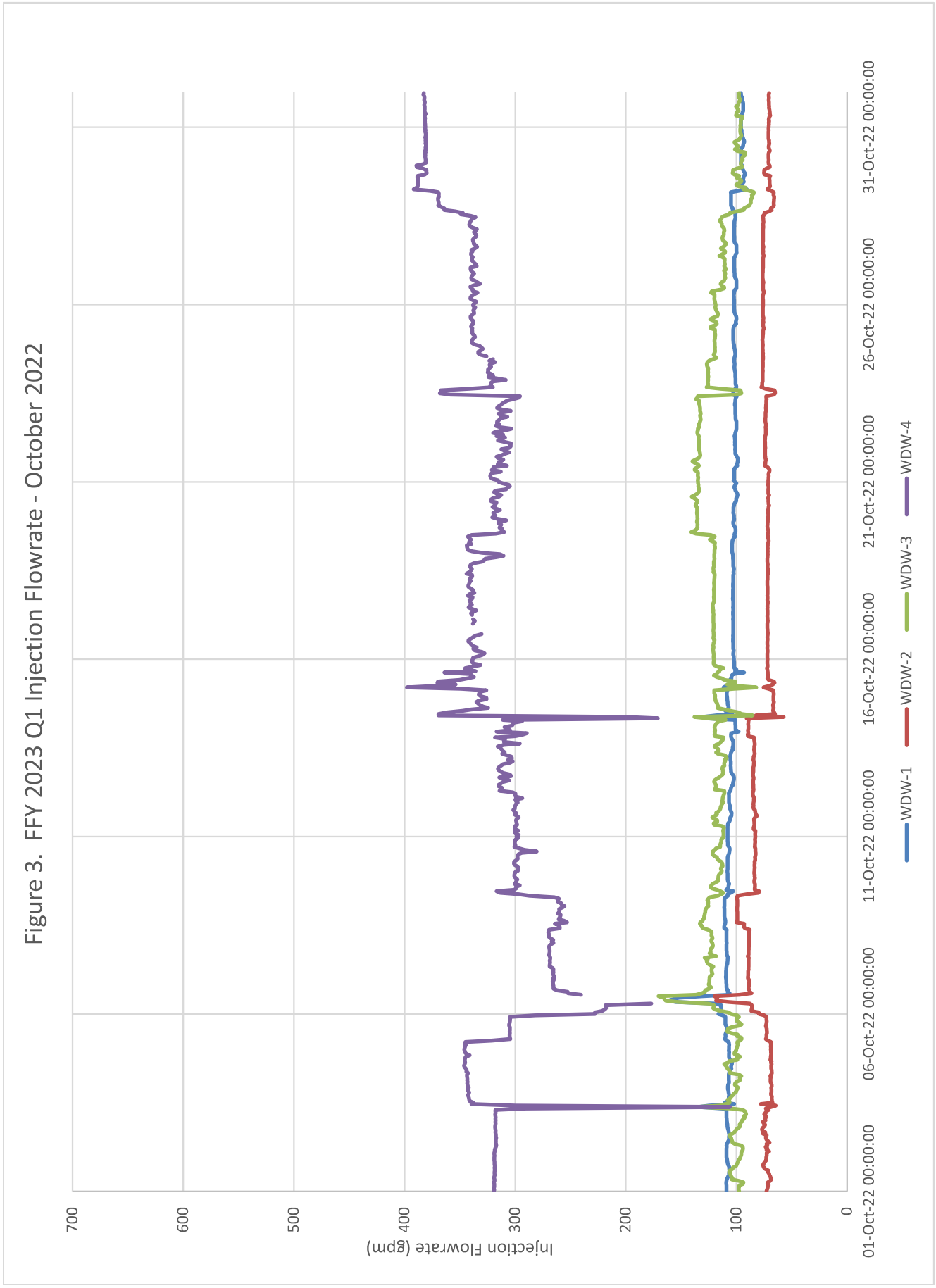
Figure 3. FFY 2023 Q1 Injection Flowrate - October 2022
Injection Flowrate (gpm)
0
100
200
300
400
500
600
700
01-Oct-22 00:00:00
06-Oct-22 00:00:00
11-Oct-22 00:00:00
16-Oct-22 00:00:00
21-Oct-22 00:00:00
26-Oct-22 00:00:00
31-Oct-22 00:00:00
WDW-1
WDW-2
WDW-3
WDW-4

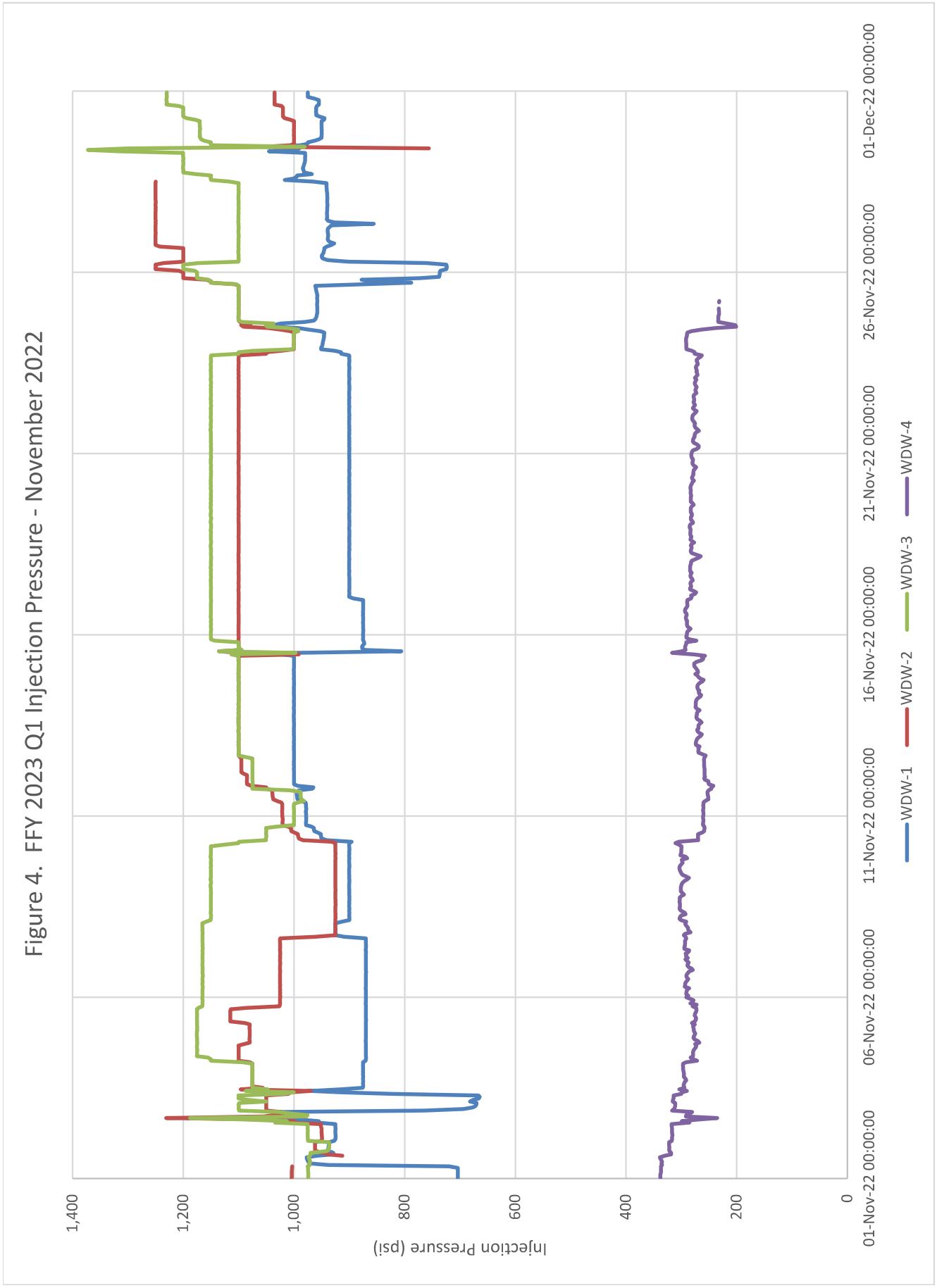
Figure 4. FFY 2023 Q1 Injection Pressure - November 2022
Injection Pressure (psi)
1,400
1,200
1,000
800
600
400
200
0
01-Nov-22 00:00:00
06-Nov-22 00:00:00
11-Nov-22 00:00:00
16-Nov-22 00:00:00
21-Nov-22 00:00:00
26-Nov-22 00:00:00
01-Dec-22 00:00:00
WDW-1
WDW-2
WDW-3
WDW-4

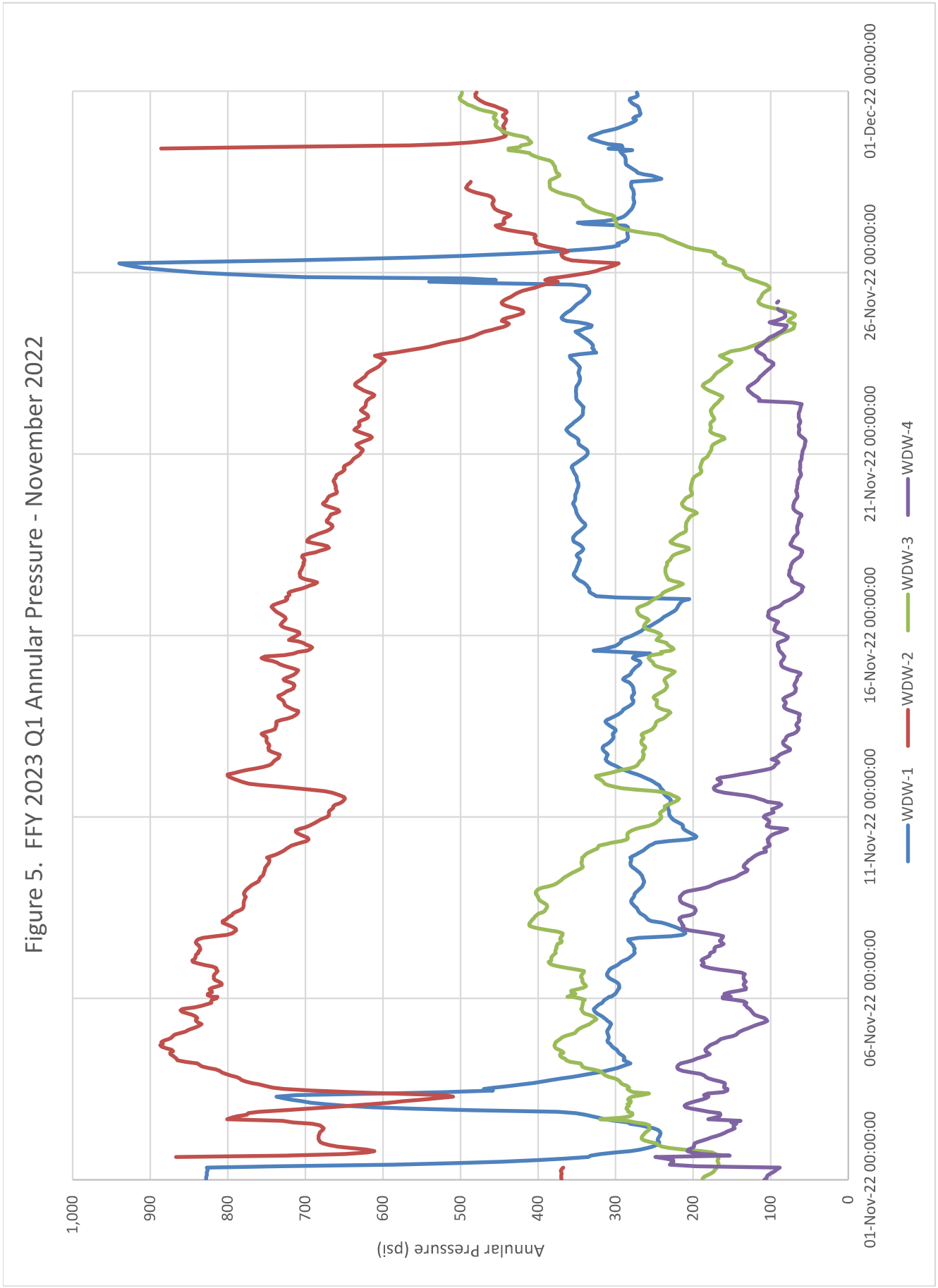
Figure 5. FFY 2023 Q1 Annular Pressure - November 2022
Annular Pressure (psi)
1,000
900
800
700
600
500
400
300
200
100
0
01-Nov-22 00:00:00
06-Nov-22 00:00:00
11-Nov-22 00:00:00
16-Nov-22 00:00:00
21-Nov-22 00:00:00
26-Nov-22 00:00:00
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WDW-1
WDW-2
WDW-3
WDW-4

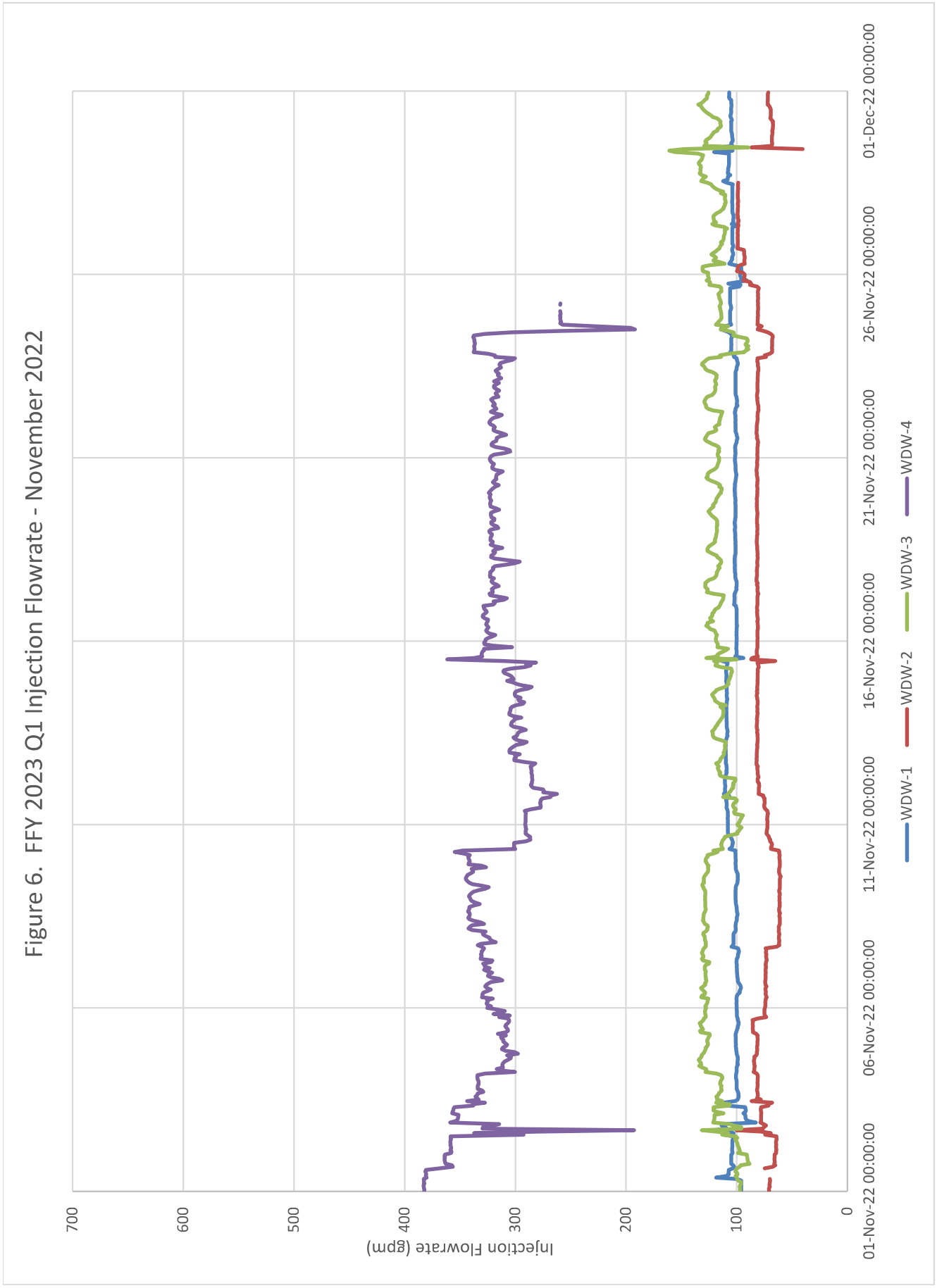
Figure 6. FFY 2023 Q1 Injection Flowrate - November 2022
Injection Flowrate (gpm)
700
600
500
400
300
200
100
0
01-Nov-22 00:00:00
06-Nov-22 00:00:00
11-Nov-22 00:00:00
16-Nov-22 00:00:00
21-Nov-22 00:00:00
26-Nov-22 00:00:00
01-Dec-22 00:00:00
WDW-1
WDW-2
WDW-3
WDW-4

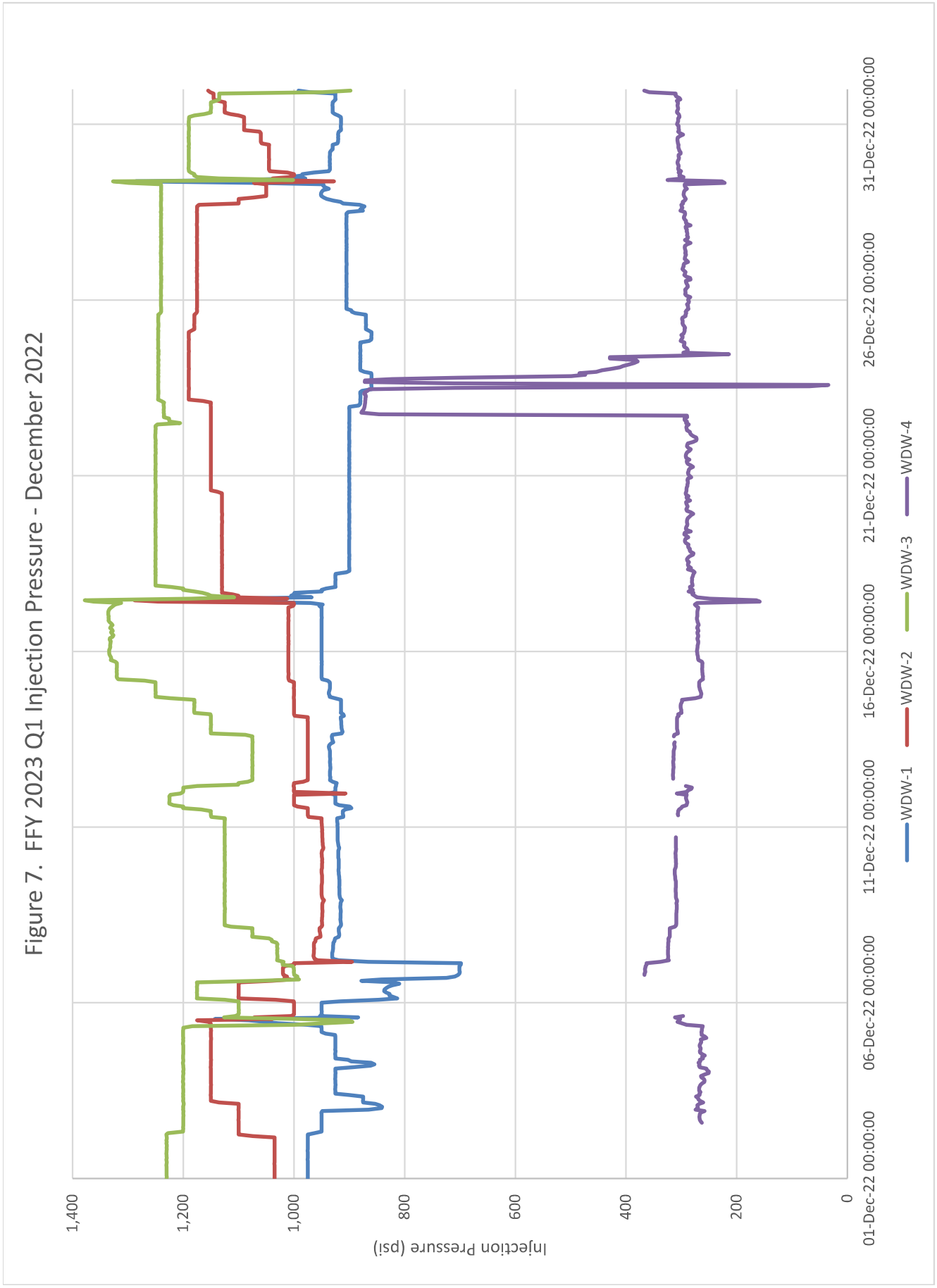
Figure 7. FFY 2023 Q1 Injection Pressure - December 2022
Injection Pressure (psi)
1,400
1,200
1,000
800
600
400
200
0
01-Dec-22 00:00:00
06-Dec-22 00:00:00
11-Dec-22 00:00:00
16-Dec-22 00:00:00
21-Dec-22 00:00:00
26-Dec-22 00:00:00
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WDW-1
WDW-2
WDW-3
WDW-4

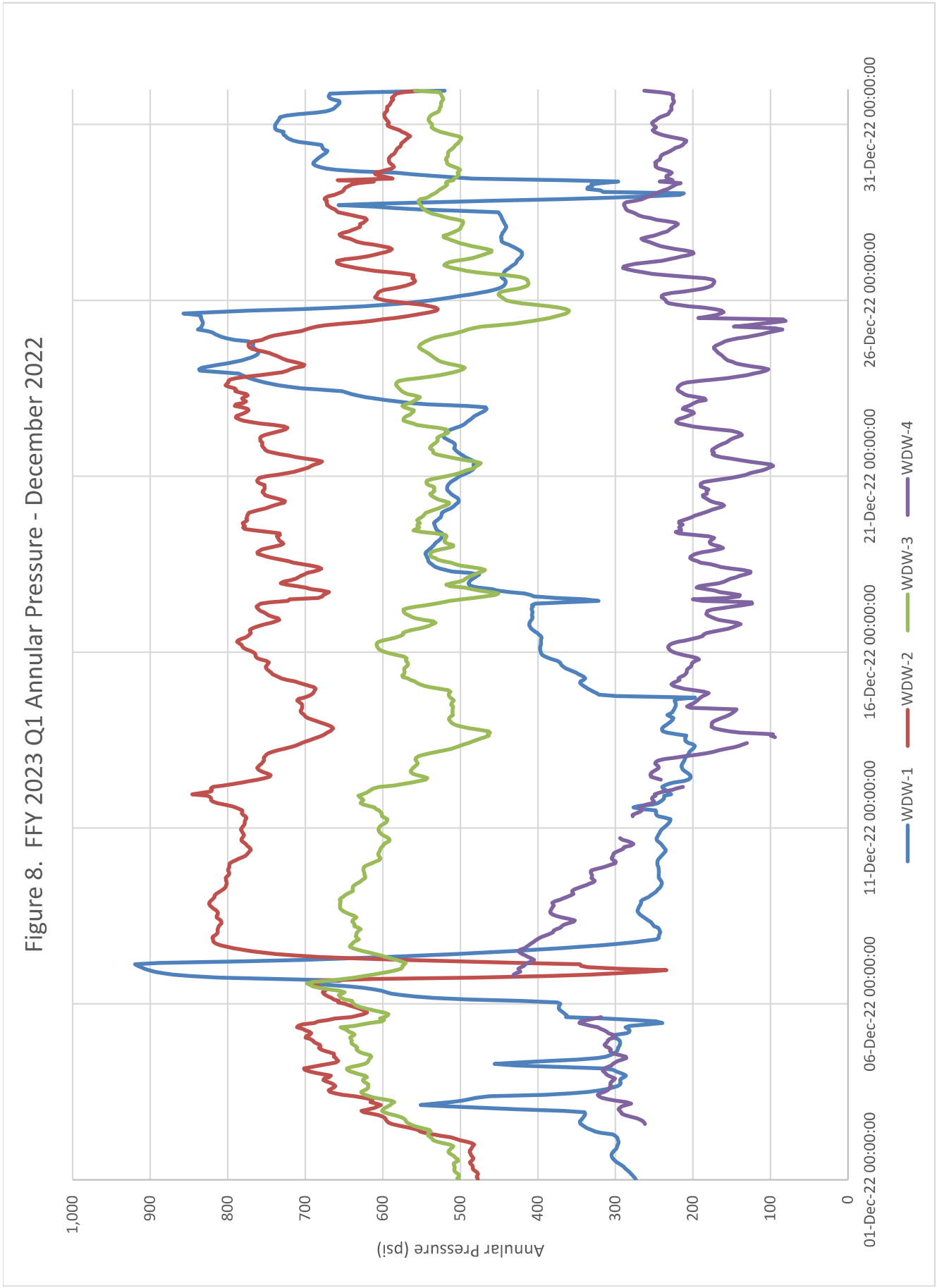
Figure 8. FFY 2023 Q1 Annular Pressure - December 2022
Annular Pressure (psi)
1,000
900
800
700
600
500
400
300
200
100
0
01-Dec-22 00:00:00
06-Dec-22 00:00:00
11-Dec-22 00:00:00
16-Dec-22 00:00:00
21-Dec-22 00:00:00
26-Dec-22 00:00:00
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WDW-1
WDW-2
WDW-3
WDW-4

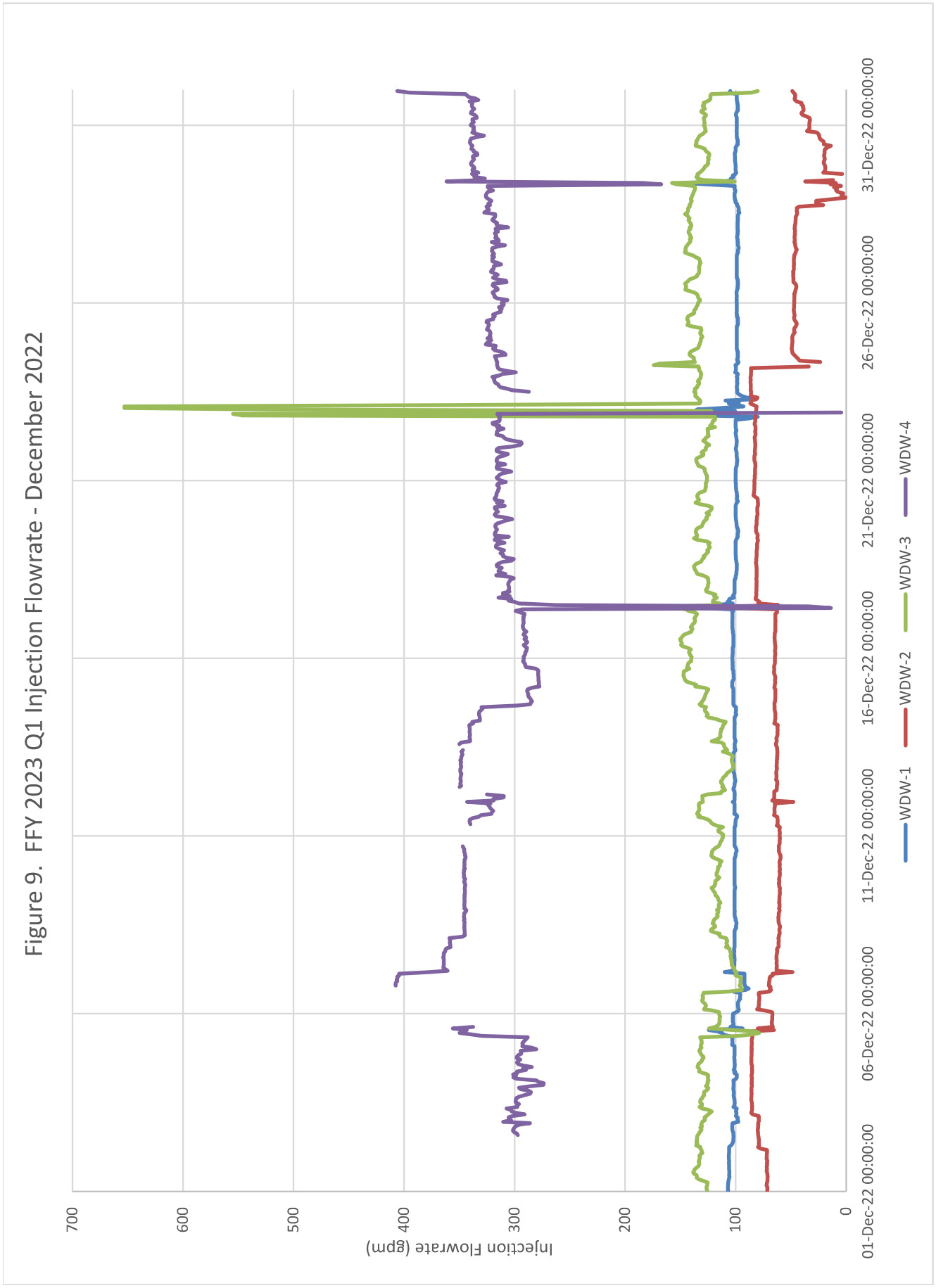
Figure 9. FFY 2023 Q1 Injection Flowrate - December 2022
Injection Flowrate (gpm)
700
600
500
400
300
200
100
0
01-Dec-22 00:00:00
06-Dec-22 00:00:00
11-Dec-22 00:00:00
16-Dec-22 00:00:00
21-Dec-22 00:00:00
26-Dec-22 00:00:00
31-Dec-22 00:00:00
WDW-1
WDW-2
WDW-3
WDW-4

ATTACHMENT A

Analytical Lab Report(s)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

January 20, 2023

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.: 2211E05

Dear Randy Dade:

Hall Environmental Analysis Laboratory received 4 sample(s) on 11/29/2022 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued January 06, 2023.

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. 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. All samples are reported as received unless otherwise indicated.

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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Case Narrative

WO#: **2211E05**
Date: **1/20/2023**

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". Even though the low solids content did not require filtration, all TCLP compounds are reported as both total and filtered, at the TCLP limits. 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 **2211E05**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2211E05-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent
Collection Date: 11/28/2022 10:10:00 AM
Received Date: 11/29/2022 7:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8081: PESTICIDES TCLP							Analyst: **mb**	
Chlordane	ND	0.0025	0.030		mg/L	1	12/8/2022 9:07:42 AM	71840
Endrin	ND	0.00031	0.020		mg/L	1	12/8/2022 9:07:42 AM	71840
gamma-BHC (Lindane)	ND	0.00027	0.40		mg/L	1	12/8/2022 9:07:42 AM	71840
Heptachlor	ND	0.00021	0.0080		mg/L	1	12/8/2022 9:07:42 AM	71840
Heptachlor epoxide	ND	0.00026	0.0080		mg/L	1	12/8/2022 9:07:42 AM	71840
Methoxychlor	ND	0.00038	10		mg/L	1	12/8/2022 9:07:42 AM	71840
Toxaphene	ND	0.0025	0.50		mg/L	1	12/8/2022 9:07:42 AM	71840
Surr: Decachlorobiphenyl	77.5	0	40.9-111		%Rec	1	12/8/2022 9:07:42 AM	71840
Surr: Tetrachloro-m-xylene	90.6	0	15-107		%Rec	1	12/8/2022 9:07:42 AM	71840
EPA METHOD 300.0: ANIONS							Analyst: **NAI**	
Fluoride	47	0.92	2.0	*	mg/L	20	12/1/2022 11:57:21 PM	R92979
Chloride	340	5.0	10	*	mg/L	20	12/1/2022 11:57:21 PM	R92979
Bromide	ND	0.25	0.50		mg/L	5	12/1/2022 11:44:56 PM	R92979
Phosphorus, Orthophosphate (As P)	ND	5.0	10	H	mg/L	20	12/1/2022 11:57:21 PM	R92979
Sulfate	2300	25	50	*	mg/L	100	12/9/2022 11:33:48 AM	R93187
Nitrate+Nitrite as N	0.93	0.11	1.0	J	mg/L	5	12/2/2022 12:59:25 AM	R92979
EPA METHOD 6020A: TCLP METALS							Analyst: **ELS**	
Arsenic	0.012	0.0025	5.0	J	mg/L	5	12/6/2022 1:25:14 PM	71785
Lead	ND	0.0025	5.0		mg/L	5	12/6/2022 1:25:14 PM	71785
Selenium	0.024	0.0025	1.0	J	mg/L	5	12/6/2022 1:25:14 PM	71785
EPA METHOD 7470A: MERCURY							Analyst: **VP**	
Mercury	0.00011	0.000091	0.020	J	mg/L	1	12/9/2022 5:28:34 PM	71977
EPA METHOD 6010B: DISSOLVED METALS							Analyst: **JRR**	
Calcium	380	0.29	5.0		mg/L	5	12/6/2022 5:07:46 PM	A93075
Magnesium	130	0.17	5.0		mg/L	5	12/6/2022 5:07:46 PM	A93075
Potassium	160	1.0	5.0		mg/L	5	12/6/2022 5:07:46 PM	A93075
Sodium	690	4.2	10		mg/L	10	12/7/2022 5:34:01 PM	A93168
EPA 6010B: TCLP METALS							Analyst: **JRR**	
Barium	0.037	0.0011	100	J	mg/L	1	12/6/2022 3:55:34 PM	71785
Cadmium	ND	0.0012	1.0		mg/L	1	12/6/2022 3:55:34 PM	71785
Chromium	0.011	0.0017	5.0	J	mg/L	1	12/6/2022 3:55:34 PM	71785
Silver	0.0082	0.0013	5.0	J	mg/L	1	12/6/2022 3:55:34 PM	71785
EPA METHOD 8270C TCLP							Analyst: **JME**	
2-Methylphenol	ND	0.0050	200		mg/L	1	12/8/2022 4:19:50 PM	71838
3+4-Methylphenol	ND	0.0051	200		mg/L	1	12/8/2022 4:19:50 PM	71838
2,4-Dinitrotoluene	ND	0.0049	0.13		mg/L	1	12/8/2022 4:19:50 PM	71838

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 Quanitative 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

Analytical Report
Lab Order **2211E05**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2211E05-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent
Collection Date: 11/28/2022 10:10:00 AM
Received Date: 11/29/2022 7:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C TCLP							Analyst: **JME**	
Hexachlorobenzene	ND	0.019	0.13		mg/L	1	12/8/2022 4:19:50 PM	71838
Hexachlorobutadiene	ND	0.017	0.50		mg/L	1	12/8/2022 4:19:50 PM	71838
Hexachloroethane	ND	0.014	3.0		mg/L	1	12/8/2022 4:19:50 PM	71838
Nitrobenzene	ND	0.0049	2.0		mg/L	1	12/8/2022 4:19:50 PM	71838
Pentachlorophenol	ND	0.027	100		mg/L	1	12/8/2022 4:19:50 PM	71838
Pyridine	ND	0.014	5.0		mg/L	1	12/8/2022 4:19:50 PM	71838
2,4,5-Trichlorophenol	ND	0.0063	400		mg/L	1	12/8/2022 4:19:50 PM	71838
2,4,6-Trichlorophenol	ND	0.0059	2.0		mg/L	1	12/8/2022 4:19:50 PM	71838
Cresols, Total	ND	0.027	200		mg/L	1	12/8/2022 4:19:50 PM	71838
Surr: 2-Fluorophenol	52.9	0	18.1-88.9		%Rec	1	12/8/2022 4:19:50 PM	71838
Surr: Phenol-d5	40.8	0	17-61.5		%Rec	1	12/8/2022 4:19:50 PM	71838
Surr: 2,4,6-Tribromophenol	93.8	0	29.8-104		%Rec	1	12/8/2022 4:19:50 PM	71838
Surr: Nitrobenzene-d5	65.3	0	22.2-111		%Rec	1	12/8/2022 4:19:50 PM	71838
Surr: 2-Fluorobiphenyl	59.5	0	24.6-96.3		%Rec	1	12/8/2022 4:19:50 PM	71838
Surr: 4-Terphenyl-d14	104	0	53.4-124		%Rec	1	12/8/2022 4:19:50 PM	71838
TCLP VOLATILES BY 8260B							Analyst: **CCM**	
Benzene	ND	0.00023	0.50		mg/L	200	12/1/2022 2:30:00 PM	T92985
1,2-Dichloroethane (EDC)	ND	0.00025	0.50		mg/L	200	12/1/2022 2:30:00 PM	T92985
2-Butanone	ND	0.0020	200		mg/L	200	12/1/2022 2:30:00 PM	T92985
Carbon Tetrachloride	ND	0.00018	0.50		mg/L	200	12/1/2022 2:30:00 PM	T92985
Chloroform	ND	0.00013	6.0		mg/L	200	12/1/2022 2:30:00 PM	T92985
1,4-Dichlorobenzene	ND	0.00021	7.5		mg/L	200	12/1/2022 2:30:00 PM	T92985
1,1-Dichloroethene	ND	0.00020	0.70		mg/L	200	12/1/2022 2:30:00 PM	T92985
Tetrachloroethene (PCE)	ND	0.00036	0.70		mg/L	200	12/1/2022 2:30:00 PM	T92985
Trichloroethene (TCE)	ND	0.00020	0.50		mg/L	200	12/1/2022 2:30:00 PM	T92985
Vinyl chloride	ND	0.00032	0.20		mg/L	200	12/1/2022 2:30:00 PM	T92985
Chlorobenzene	ND	0.00016	100		mg/L	200	12/1/2022 2:30:00 PM	T92985
Surr: 1,2-Dichloroethane-d4	93.9	0	70-130		%Rec	200	12/1/2022 2:30:00 PM	T92985
Surr: 4-Bromofluorobenzene	93.8	0	70-130		%Rec	200	12/1/2022 2:30:00 PM	T92985
Surr: Dibromofluoromethane	94.0	0	70-130		%Rec	200	12/1/2022 2:30:00 PM	T92985
Surr: Toluene-d8	92.5	0	70-130		%Rec	200	12/1/2022 2:30:00 PM	T92985
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JTT**	
Conductivity	6100	10	10		µmhos/c	1	12/1/2022 3:06:53 PM	R92959
SM4500-H+B / 9040C: PH							Analyst: **JTT**	
pH	7.86			H	pH units	1	12/1/2022 3:06:53 PM	R92959
SM2320B: ALKALINITY							Analyst: **JTT**	
Bicarbonate (As CaCO3)	563.6	20.00	20.00		mg/L Ca	1	12/1/2022 3:06:53 PM	R92959

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 Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2211E05**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2211E05-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent
Collection Date: 11/28/2022 10:10:00 AM
Received Date: 11/29/2022 7:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM2320B: ALKALINITY							Analyst: **JTT**	
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	12/1/2022 3:06:53 PM	R92959
Total Alkalinity (as CaCO3)	563.6	20.00	20.00		mg/L Ca	1	12/1/2022 3:06:53 PM	R92959
SPECIFIC GRAVITY							Analyst: **CAS**	
Specific Gravity	1.007	0	0			1	11/30/2022 12:38:00 P	R92908
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **SNS**	
Total Dissolved Solids	4420	200	200	*D	mg/L	1	12/2/2022 4:15:00 PM	71767
SM 2540D: TSS							Analyst: **KS**	
Suspended Solids	30	8.0	8.0	D	mg/L	1	12/2/2022 10:57:00 AM	71794

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

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative 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

Analytical Report
Lab Order **2211E05**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2211E05-002 **Matrix:** AQUEOUS

Client Sample ID: CTB to City POTW
Collection Date: 11/28/2022 9:50:00 AM
Received Date: 11/29/2022 7:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8081: PESTICIDES TCLP							Analyst: **mb**	
Chlordane	ND	0.00050	0.030		mg/L	1	12/8/2022 9:20:50 AM	71840
Endrin	ND	0.000062	0.020		mg/L	1	12/8/2022 9:20:50 AM	71840
gamma-BHC (Lindane)	ND	0.000054	0.40		mg/L	1	12/8/2022 9:20:50 AM	71840
Heptachlor	ND	0.000041	0.0080		mg/L	1	12/8/2022 9:20:50 AM	71840
Heptachlor epoxide	ND	0.000051	0.0080		mg/L	1	12/8/2022 9:20:50 AM	71840
Methoxychlor	ND	0.000075	10		mg/L	1	12/8/2022 9:20:50 AM	71840
Toxaphene	ND	0.00050	0.50		mg/L	1	12/8/2022 9:20:50 AM	71840
Surr: Decachlorobiphenyl	85.9	0	40.9-111		%Rec	1	12/8/2022 9:20:50 AM	71840
Surr: Tetrachloro-m-xylene	66.8	0	15-107		%Rec	1	12/8/2022 9:20:50 AM	71840
EPA METHOD 300.0: ANIONS							Analyst: **NAI**	
Fluoride	1.2	0.23	0.50		mg/L	5	12/2/2022 12:09:46 AM	R92979
Chloride	59	1.2	2.5		mg/L	5	12/2/2022 12:09:46 AM	R92979
Bromide	ND	0.25	0.50		mg/L	5	12/2/2022 12:09:46 AM	R92979
Phosphorus, Orthophosphate (As P)	1.6	1.2	2.5	JH	mg/L	5	12/2/2022 12:09:46 AM	R92979
Sulfate	600	5.0	10	*	mg/L	20	12/2/2022 12:22:11 AM	R92979
Nitrate+Nitrite as N	0.87	0.11	1.0	J	mg/L	5	12/2/2022 1:11:49 AM	R92979
EPA METHOD 6020A: TCLP METALS							Analyst: **ELS**	
Arsenic	0.0010	0.00050	5.0	J	mg/L	1	12/5/2022 1:41:39 PM	71785
Lead	ND	0.00050	5.0		mg/L	1	12/6/2022 1:29:22 PM	71785
Selenium	0.0027	0.00050	1.0	J	mg/L	1	12/5/2022 1:41:39 PM	71785
EPA METHOD 7470A: MERCURY							Analyst: **VP**	
Mercury	0.00010	0.000091	0.020	J	mg/L	1	12/9/2022 5:30:43 PM	71977
EPA METHOD 6010B: DISSOLVED METALS							Analyst: **JRR**	
Calcium	180	0.29	5.0		mg/L	5	12/6/2022 5:13:49 PM	A93075
Magnesium	61	0.034	1.0		mg/L	1	12/6/2022 5:10:44 PM	A93075
Potassium	1.5	0.21	1.0		mg/L	1	12/6/2022 5:10:44 PM	A93075
Sodium	50	0.42	1.0		mg/L	1	12/6/2022 5:10:44 PM	A93075
EPA 6010B: TCLP METALS							Analyst: **JRR**	
Barium	0.017	0.0011	100	J	mg/L	1	12/6/2022 4:23:10 PM	71785
Cadmium	ND	0.0012	1.0		mg/L	1	12/6/2022 4:23:10 PM	71785
Chromium	ND	0.0017	5.0		mg/L	1	12/15/2022 12:59:19 P	71785
Silver	0.0048	0.0013	5.0	J	mg/L	1	12/6/2022 4:23:10 PM	71785
EPA METHOD 8270C TCLP							Analyst: **JME**	
2-Methylphenol	ND	0.0050	200		mg/L	1	12/8/2022 5:01:13 PM	71838
3+4-Methylphenol	ND	0.0051	200		mg/L	1	12/8/2022 5:01:13 PM	71838
2,4-Dinitrotoluene	ND	0.0049	0.13		mg/L	1	12/8/2022 5:01:13 PM	71838

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 Quanitative 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

Analytical Report
Lab Order **2211E05**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2211E05-002 **Matrix:** AQUEOUS

Client Sample ID: CTB to City POTW
Collection Date: 11/28/2022 9:50:00 AM
Received Date: 11/29/2022 7:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C TCLP							Analyst: **JME**	
Hexachlorobenzene	ND	0.019	0.13		mg/L	1	12/8/2022 5:01:13 PM	71838
Hexachlorobutadiene	ND	0.017	0.50		mg/L	1	12/8/2022 5:01:13 PM	71838
Hexachloroethane	ND	0.014	3.0		mg/L	1	12/8/2022 5:01:13 PM	71838
Nitrobenzene	ND	0.0049	2.0		mg/L	1	12/8/2022 5:01:13 PM	71838
Pentachlorophenol	ND	0.027	100		mg/L	1	12/8/2022 5:01:13 PM	71838
Pyridine	ND	0.014	5.0		mg/L	1	12/8/2022 5:01:13 PM	71838
2,4,5-Trichlorophenol	ND	0.0063	400		mg/L	1	12/8/2022 5:01:13 PM	71838
2,4,6-Trichlorophenol	ND	0.0059	2.0		mg/L	1	12/8/2022 5:01:13 PM	71838
Cresols, Total	ND	0.027	200		mg/L	1	12/8/2022 5:01:13 PM	71838
Surr: 2-Fluorophenol	48.7	0	18.1-88.9		%Rec	1	12/8/2022 5:01:13 PM	71838
Surr: Phenol-d5	37.0	0	17-61.5		%Rec	1	12/8/2022 5:01:13 PM	71838
Surr: 2,4,6-Tribromophenol	68.3	0	29.8-104		%Rec	1	12/8/2022 5:01:13 PM	71838
Surr: Nitrobenzene-d5	57.7	0	22.2-111		%Rec	1	12/8/2022 5:01:13 PM	71838
Surr: 2-Fluorobiphenyl	49.9	0	24.6-96.3		%Rec	1	12/8/2022 5:01:13 PM	71838
Surr: 4-Terphenyl-d14	96.5	0	53.4-124		%Rec	1	12/8/2022 5:01:13 PM	71838
TCLP VOLATILES BY 8260B							Analyst: **CCM**	
Benzene	ND	0.00023	0.50		mg/L	200	12/1/2022 2:53:00 PM	T92985
1,2-Dichloroethane (EDC)	ND	0.00025	0.50		mg/L	200	12/1/2022 2:53:00 PM	T92985
2-Butanone	ND	0.0020	200		mg/L	200	12/1/2022 2:53:00 PM	T92985
Carbon Tetrachloride	ND	0.00018	0.50		mg/L	200	12/1/2022 2:53:00 PM	T92985
Chloroform	ND	0.00013	6.0		mg/L	200	12/1/2022 2:53:00 PM	T92985
1,4-Dichlorobenzene	ND	0.00021	7.5		mg/L	200	12/1/2022 2:53:00 PM	T92985
1,1-Dichloroethene	ND	0.00020	0.70		mg/L	200	12/1/2022 2:53:00 PM	T92985
Tetrachloroethene (PCE)	ND	0.00036	0.70		mg/L	200	12/1/2022 2:53:00 PM	T92985
Trichloroethene (TCE)	ND	0.00020	0.50		mg/L	200	12/1/2022 2:53:00 PM	T92985
Vinyl chloride	ND	0.00032	0.20		mg/L	200	12/1/2022 2:53:00 PM	T92985
Chlorobenzene	ND	0.00016	100		mg/L	200	12/1/2022 2:53:00 PM	T92985
Surr: 1,2-Dichloroethane-d4	93.2	0	70-130		%Rec	200	12/1/2022 2:53:00 PM	T92985
Surr: 4-Bromofluorobenzene	94.8	0	70-130		%Rec	200	12/1/2022 2:53:00 PM	T92985
Surr: Dibromofluoromethane	97.4	0	70-130		%Rec	200	12/1/2022 2:53:00 PM	T92985
Surr: Toluene-d8	92.8	0	70-130		%Rec	200	12/1/2022 2:53:00 PM	T92985
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JTT**	
Conductivity	1500	10	10		µmhos/c	1	12/1/2022 3:29:22 PM	R92959
SM4500-H+B / 9040C: PH							Analyst: **JTT**	
pH	8.26			H	pH units	1	12/1/2022 3:29:22 PM	R92959
SM2320B: ALKALINITY							Analyst: **JTT**	
Bicarbonate (As CaCO3)	155.4	20.00	20.00		mg/L Ca	1	12/1/2022 3:29:22 PM	R92959

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 Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2211E05**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2211E05-002 **Matrix:** AQUEOUS

Client Sample ID: CTB to City POTW
Collection Date: 11/28/2022 9:50:00 AM
Received Date: 11/29/2022 7:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM2320B: ALKALINITY							Analyst: **JTT**	
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	12/1/2022 3:29:22 PM	R92959
Total Alkalinity (as CaCO3)	155.4	20.00	20.00		mg/L Ca	1	12/1/2022 3:29:22 PM	R92959
SPECIFIC GRAVITY							Analyst: **CAS**	
Specific Gravity	0.9995	0	0			1	11/30/2022 12:38:00 P	R92908
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **SNS**	
Total Dissolved Solids	1160	20.0	20.0	*	mg/L	1	12/2/2022 4:15:00 PM	71767
SM 2540D: TSS							Analyst: **KS**	
Suspended Solids	ND	4.0	4.0		mg/L	1	12/2/2022 10:57:00 AM	71794

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 Quanitative 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

Analytical Report
Lab Order **2211E05**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2211E05-003 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent- Filtere
Collection Date: 11/28/2022 10:10:00 AM
Received Date: 11/29/2022 7:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8081: PESTICIDES TCLP							Analyst: **mb**	
Chlordane	ND	0.00050	0.030		mg/L	1	12/8/2022 9:34:00 AM	71840
Endrin	ND	0.000062	0.020		mg/L	1	12/8/2022 9:34:00 AM	71840
gamma-BHC (Lindane)	ND	0.000054	0.40		mg/L	1	12/8/2022 9:34:00 AM	71840
Heptachlor	ND	0.000041	0.0080		mg/L	1	12/8/2022 9:34:00 AM	71840
Heptachlor epoxide	ND	0.000051	0.0080		mg/L	1	12/8/2022 9:34:00 AM	71840
Methoxychlor	ND	0.000075	10		mg/L	1	12/8/2022 9:34:00 AM	71840
Toxaphene	ND	0.00050	0.50		mg/L	1	12/8/2022 9:34:00 AM	71840
Surr: Decachlorobiphenyl	55.3	0	40.9-111		%Rec	1	12/8/2022 9:34:00 AM	71840
Surr: Tetrachloro-m-xylene	27.8	0	15-107		%Rec	1	12/8/2022 9:34:00 AM	71840
EPA METHOD 8151: HERBICIDES TCLP							Analyst: **SB**	
2,4,5-TP (Silvex)	ND	0.010	1.0		mg/L	1	12/9/2022 6:56:55 AM	71824
2,4-D	ND	0.10	10		mg/L	1	12/9/2022 6:56:55 AM	71824
Surr: 2,4-Dichlorophenylacetic acid	146	0	70-130	S	%Rec	1	12/9/2022 6:56:55 AM	71824
EPA METHOD 7470A: TCLP MERCURY							Analyst: **VP**	
Mercury	ND	0.000092	0.020		mg/L	1	12/2/2022 1:28:12 PM	71802
EPA METHOD 6010B: TCLP METALS							Analyst: **JRR**	
Arsenic	ND	0.028	5.0		mg/L	1	12/9/2022 9:31:31 AM	71973
Barium	0.046	0.0045	100	J	mg/L	1	12/9/2022 9:31:31 AM	71973
Cadmium	ND	0.0067	1.0		mg/L	1	12/9/2022 9:31:31 AM	71973
Chromium	ND	0.0031	5.0		mg/L	1	12/9/2022 9:31:31 AM	71973
Lead	ND	0.0099	5.0		mg/L	1	12/9/2022 9:31:31 AM	71973
Selenium	ND	0.061	1.0		mg/L	1	12/9/2022 9:31:31 AM	71973
Silver	0.0076	0.0023	5.0	J	mg/L	1	12/9/2022 9:31:31 AM	71973
EPA METHOD 8270C TCLP							Analyst: **JME**	
2-Methylphenol	ND	0.0050	200		mg/L	1	12/8/2022 5:42:32 PM	71838
3+4-Methylphenol	ND	0.0051	200		mg/L	1	12/8/2022 5:42:32 PM	71838
2,4-Dinitrotoluene	ND	0.0049	0.13		mg/L	1	12/8/2022 5:42:32 PM	71838
Hexachlorobenzene	ND	0.019	0.13		mg/L	1	12/8/2022 5:42:32 PM	71838
Hexachlorobutadiene	ND	0.017	0.50		mg/L	1	12/8/2022 5:42:32 PM	71838
Hexachloroethane	ND	0.014	3.0		mg/L	1	12/8/2022 5:42:32 PM	71838
Nitrobenzene	ND	0.0049	2.0		mg/L	1	12/8/2022 5:42:32 PM	71838
Pentachlorophenol	ND	0.027	100		mg/L	1	12/8/2022 5:42:32 PM	71838
Pyridine	ND	0.014	5.0		mg/L	1	12/8/2022 5:42:32 PM	71838
2,4,5-Trichlorophenol	ND	0.0063	400		mg/L	1	12/8/2022 5:42:32 PM	71838
2,4,6-Trichlorophenol	ND	0.0059	2.0		mg/L	1	12/8/2022 5:42:32 PM	71838
Cresols, Total	ND	0.027	200		mg/L	1	12/8/2022 5:42:32 PM	71838
Surr: 2-Fluorophenol	56.3	0	18.1-88.9		%Rec	1	12/8/2022 5:42:32 PM	71838

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2211E05**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2211E05-003 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent- Filtere
Collection Date: 11/28/2022 10:10:00 AM
Received Date: 11/29/2022 7:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C TCLP							Analyst: **JME**	
Surr: Phenol-d5	44.0	0	17-61.5		%Rec	1	12/8/2022 5:42:32 PM	71838
Surr: 2,4,6-Tribromophenol	80.0	0	29.8-104		%Rec	1	12/8/2022 5:42:32 PM	71838
Surr: Nitrobenzene-d5	64.7	0	22.2-111		%Rec	1	12/8/2022 5:42:32 PM	71838
Surr: 2-Fluorobiphenyl	54.8	0	24.6-96.3		%Rec	1	12/8/2022 5:42:32 PM	71838
Surr: 4-Terphenyl-d14	92.5	0	53.4-124		%Rec	1	12/8/2022 5:42:32 PM	71838
TCLP VOLATILES BY 8260B							Analyst: **CCM**	
Benzene	ND	0.00023	0.50		mg/L	200	12/1/2022 1:44:00 PM	T92985
1,2-Dichloroethane (EDC)	ND	0.00025	0.50		mg/L	200	12/1/2022 1:44:00 PM	T92985
2-Butanone	ND	0.0020	200		mg/L	200	12/1/2022 1:44:00 PM	T92985
Carbon Tetrachloride	ND	0.00018	0.50		mg/L	200	12/1/2022 1:44:00 PM	T92985
Chloroform	ND	0.00013	6.0		mg/L	200	12/1/2022 1:44:00 PM	T92985
1,4-Dichlorobenzene	ND	0.00021	7.5		mg/L	200	12/1/2022 1:44:00 PM	T92985
1,1-Dichloroethene	ND	0.00020	0.70		mg/L	200	12/1/2022 1:44:00 PM	T92985
Tetrachloroethene (PCE)	ND	0.00036	0.70		mg/L	200	12/1/2022 1:44:00 PM	T92985
Trichloroethene (TCE)	ND	0.00020	0.50		mg/L	200	12/1/2022 1:44:00 PM	T92985
Vinyl chloride	ND	0.00032	0.20		mg/L	200	12/1/2022 1:44:00 PM	T92985
Chlorobenzene	ND	0.00016	100		mg/L	200	12/1/2022 1:44:00 PM	T92985
Surr: 1,2-Dichloroethane-d4	92.3	0	70-130		%Rec	200	12/1/2022 1:44:00 PM	T92985
Surr: 4-Bromofluorobenzene	95.8	0	70-130		%Rec	200	12/1/2022 1:44:00 PM	T92985
Surr: Dibromofluoromethane	93.3	0	70-130		%Rec	200	12/1/2022 1:44:00 PM	T92985
Surr: Toluene-d8	94.0	0	70-130		%Rec	200	12/1/2022 1:44:00 PM	T92985

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 Quanitative 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

Analytical Report
Lab Order **2211E05**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2211E05-004 **Matrix:** AQUEOUS

Client Sample ID: CTB to City POTW- Filtered
Collection Date: 11/28/2022 9:50:00 AM
Received Date: 11/29/2022 7:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8081: PESTICIDES TCLP							Analyst: **mb**	
Chlordane	ND	0.00050	0.030		mg/L	1	12/8/2022 9:47:08 AM	71840
Endrin	ND	0.000062	0.020		mg/L	1	12/8/2022 9:47:08 AM	71840
gamma-BHC (Lindane)	ND	0.000054	0.40		mg/L	1	12/8/2022 9:47:08 AM	71840
Heptachlor	ND	0.000041	0.0080		mg/L	1	12/8/2022 9:47:08 AM	71840
Heptachlor epoxide	ND	0.000051	0.0080		mg/L	1	12/8/2022 9:47:08 AM	71840
Methoxychlor	ND	0.000075	10		mg/L	1	12/8/2022 9:47:08 AM	71840
Toxaphene	ND	0.00050	0.50		mg/L	1	12/8/2022 9:47:08 AM	71840
Surr: Decachlorobiphenyl	85.8	0	40.9-111		%Rec	1	12/8/2022 9:47:08 AM	71840
Surr: Tetrachloro-m-xylene	69.4	0	15-107		%Rec	1	12/8/2022 9:47:08 AM	71840
EPA METHOD 8151: HERBICIDES TCLP							Analyst: **SB**	
2,4,5-TP (Silvex)	ND	0.010	1.0		mg/L	1	12/9/2022 7:48:46 AM	71824
2,4-D	ND	0.10	10		mg/L	1	12/9/2022 7:48:46 AM	71824
Surr: 2,4-Dichlorophenylacetic acid	96.4	0	70-130		%Rec	1	12/9/2022 7:48:46 AM	71824
EPA METHOD 7470A: TCLP MERCURY							Analyst: **VP**	
Mercury	ND	0.000092	0.020		mg/L	1	12/2/2022 1:30:22 PM	71802
EPA METHOD 6010B: TCLP METALS							Analyst: **JRR**	
Arsenic	ND	0.028	5.0		mg/L	1	12/9/2022 9:32:48 AM	71973
Barium	0.022	0.0045	100	J	mg/L	1	12/9/2022 9:32:48 AM	71973
Cadmium	ND	0.0067	1.0		mg/L	1	12/9/2022 9:32:48 AM	71973
Chromium	ND	0.0031	5.0		mg/L	1	12/9/2022 9:32:48 AM	71973
Lead	ND	0.0099	5.0		mg/L	1	12/9/2022 9:32:48 AM	71973
Selenium	ND	0.061	1.0		mg/L	1	12/9/2022 9:32:48 AM	71973
Silver	0.0037	0.0023	5.0	J	mg/L	1	12/9/2022 9:32:48 AM	71973
EPA METHOD 8270C TCLP							Analyst: **JME**	
2-Methylphenol	ND	0.0050	200		mg/L	1	12/8/2022 6:24:13 PM	71838
3+4-Methylphenol	ND	0.0051	200		mg/L	1	12/8/2022 6:24:13 PM	71838
2,4-Dinitrotoluene	ND	0.0049	0.13		mg/L	1	12/8/2022 6:24:13 PM	71838
Hexachlorobenzene	ND	0.019	0.13		mg/L	1	12/8/2022 6:24:13 PM	71838
Hexachlorobutadiene	ND	0.017	0.50		mg/L	1	12/8/2022 6:24:13 PM	71838
Hexachloroethane	ND	0.014	3.0		mg/L	1	12/8/2022 6:24:13 PM	71838
Nitrobenzene	ND	0.0049	2.0		mg/L	1	12/8/2022 6:24:13 PM	71838
Pentachlorophenol	ND	0.027	100		mg/L	1	12/8/2022 6:24:13 PM	71838
Pyridine	ND	0.014	5.0		mg/L	1	12/8/2022 6:24:13 PM	71838
2,4,5-Trichlorophenol	ND	0.0063	400		mg/L	1	12/8/2022 6:24:13 PM	71838
2,4,6-Trichlorophenol	ND	0.0059	2.0		mg/L	1	12/8/2022 6:24:13 PM	71838
Cresols, Total	ND	0.027	200		mg/L	1	12/8/2022 6:24:13 PM	71838
Surr: 2-Fluorophenol	59.0	0	18.1-88.9		%Rec	1	12/8/2022 6:24:13 PM	71838

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 Quanitative 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

Analytical Report
Lab Order **2211E05**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2211E05-004 **Matrix:** AQUEOUS

Client Sample ID: CTB to City POTW- Filtered
Collection Date: 11/28/2022 9:50:00 AM
Received Date: 11/29/2022 7:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C TCLP							Analyst: **JME**	
Surr: Phenol-d5	44.6	0	17-61.5		%Rec	1	12/8/2022 6:24:13 PM	71838
Surr: 2,4,6-Tribromophenol	78.9	0	29.8-104		%Rec	1	12/8/2022 6:24:13 PM	71838
Surr: Nitrobenzene-d5	74.1	0	22.2-111		%Rec	1	12/8/2022 6:24:13 PM	71838
Surr: 2-Fluorobiphenyl	62.3	0	24.6-96.3		%Rec	1	12/8/2022 6:24:13 PM	71838
Surr: 4-Terphenyl-d14	96.4	0	53.4-124		%Rec	1	12/8/2022 6:24:13 PM	71838
TCLP VOLATILES BY 8260B							Analyst: **CCM**	
Benzene	ND	0.00023	0.50		mg/L	200	12/1/2022 2:07:00 PM	T92985
1,2-Dichloroethane (EDC)	ND	0.00025	0.50		mg/L	200	12/1/2022 2:07:00 PM	T92985
2-Butanone	ND	0.0020	200		mg/L	200	12/1/2022 2:07:00 PM	T92985
Carbon Tetrachloride	ND	0.00018	0.50		mg/L	200	12/1/2022 2:07:00 PM	T92985
Chloroform	ND	0.00013	6.0		mg/L	200	12/1/2022 2:07:00 PM	T92985
1,4-Dichlorobenzene	ND	0.00021	7.5		mg/L	200	12/1/2022 2:07:00 PM	T92985
1,1-Dichloroethene	ND	0.00020	0.70		mg/L	200	12/1/2022 2:07:00 PM	T92985
Tetrachloroethene (PCE)	ND	0.00036	0.70		mg/L	200	12/1/2022 2:07:00 PM	T92985
Trichloroethene (TCE)	ND	0.00020	0.50		mg/L	200	12/1/2022 2:07:00 PM	T92985
Vinyl chloride	ND	0.00032	0.20		mg/L	200	12/1/2022 2:07:00 PM	T92985
Chlorobenzene	ND	0.00016	100		mg/L	200	12/1/2022 2:07:00 PM	T92985
Surr: 1,2-Dichloroethane-d4	93.3	0	70-130		%Rec	200	12/1/2022 2:07:00 PM	T92985
Surr: 4-Bromofluorobenzene	95.7	0	70-130		%Rec	200	12/1/2022 2:07:00 PM	T92985
Surr: Dibromofluoromethane	95.3	0	70-130		%Rec	200	12/1/2022 2:07:00 PM	T92985
Surr: Toluene-d8	93.9	0	70-130		%Rec	200	12/1/2022 2:07:00 PM	T92985

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 Quanitative 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

Pace Analytical®

ANALYTICAL REPORT

December 13, 2022

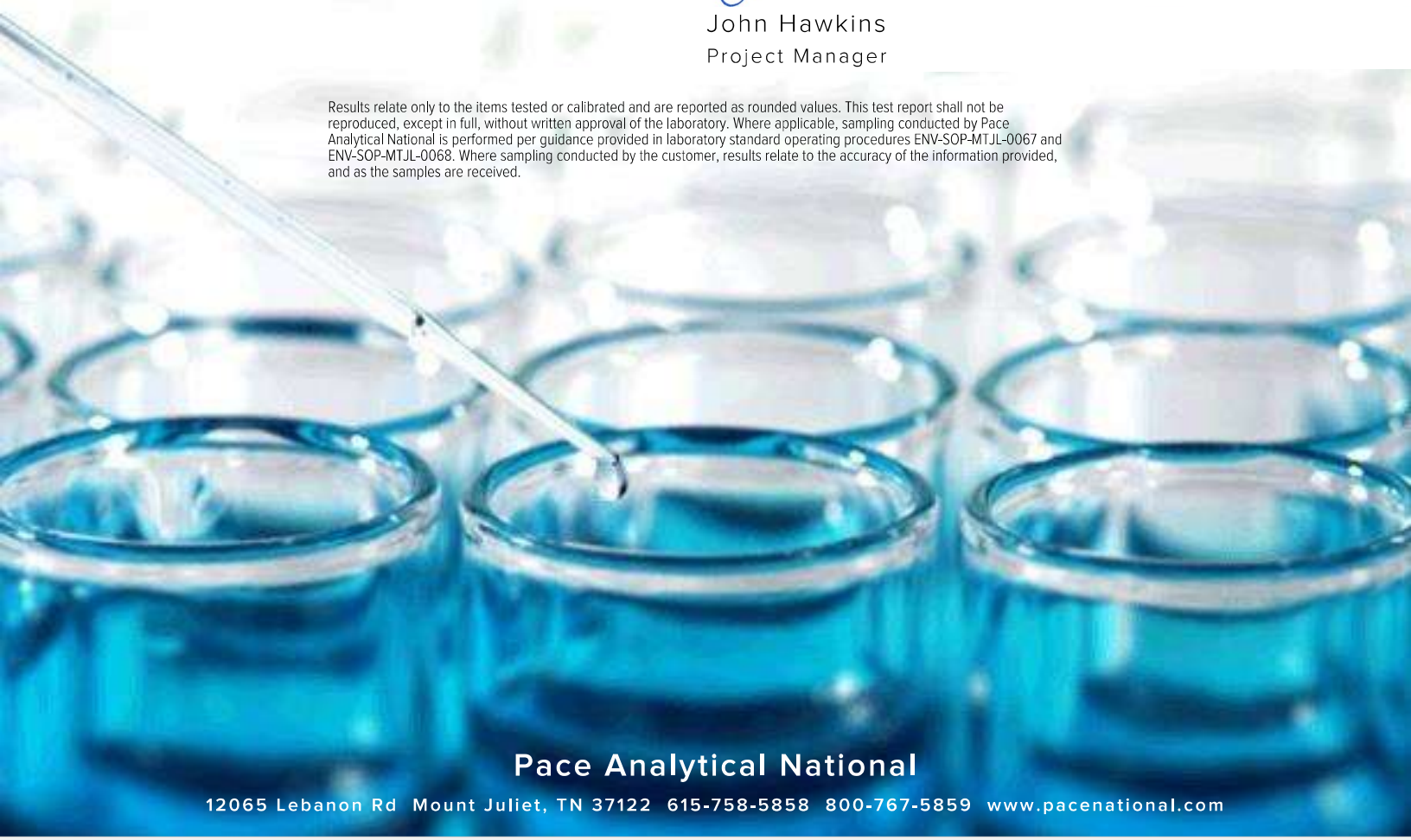
Hall Environmental Analysis Laboratory

Sample Delivery Group:	L1562692
Samples Received:	12/01/2022
Project Number:	
Description:	

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

Entire Report Reviewed By:

John Hawkins
Project Manager



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

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SAMPLE SUMMARY

211E05-001F WDW-1,2,3 & 4 EFFLUENT L1562692-01 Waste

			Collected by	Collected date/time	Received date/time	
				11/28/22 10:10	12/01/22 09:00	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1311	WG1967664	1	12/01/22 13:49	12/01/22 13:49	JWS	Mt. Juliet, TN
Chlorinated Acid Herbicides (GC) by Method 8151A	WG1970905	1	12/08/22 18:27	12/09/22 14:38	CCW	Mt. Juliet, TN
Chlorinated Acid Herbicides (GC) by Method 8151A	WG1970905	1	12/08/22 18:27	12/10/22 19:35	HMH	Mt. Juliet, TN

211E05-001G WDW-1,2,3 & 4 EFFLUENT L1562692-02 WW

			Collected by	Collected date/time	Received date/time	
				11/28/22 10:10	12/01/22 09:00	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2580	WG1968146	1	12/08/22 08:09	12/08/22 08:09	ARD	Mt. Juliet, TN
Wet Chemistry by Method 4500 CN E-2016	WG1967953	1	12/04/22 17:36	12/06/22 12:33	CAT	Mt. Juliet, TN
Wet Chemistry by Method 4500 S2 D-2011	WG1969451	1	12/05/22 11:59	12/05/22 11:59	JAR	Mt. Juliet, TN
Wet Chemistry by Method 4500H+ B-2011	WG1967837	1	12/02/22 10:30	12/02/22 10:30	KAD	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG1969665	1	12/06/22 01:00	12/06/22 01:00	WOS	Mt. Juliet, TN

211E05-002F CTB TO CITY POTW L1562692-03 Waste

			Collected by	Collected date/time	Received date/time	
				11/28/22 09:50	12/01/22 09:00	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1311	WG1967664	1	12/01/22 13:49	12/01/22 13:49	JWS	Mt. Juliet, TN
Chlorinated Acid Herbicides (GC) by Method 8151A	WG1970905	1	12/08/22 18:27	12/09/22 15:11	CCW	Mt. Juliet, TN
Chlorinated Acid Herbicides (GC) by Method 8151A	WG1970905	1	12/08/22 18:27	12/10/22 19:46	HMH	Mt. Juliet, TN

211E05-002G CTB TO CITY POTW L1562692-04 WW

			Collected by	Collected date/time	Received date/time	
				11/28/22 09:50	12/01/22 09:00	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2580	WG1968146	1	12/08/22 08:09	12/08/22 08:09	ARD	Mt. Juliet, TN
Wet Chemistry by Method 4500 CN E-2016	WG1967953	1	12/04/22 17:36	12/06/22 12:36	CAT	Mt. Juliet, TN
Wet Chemistry by Method 4500 S2 D-2011	WG1969451	1	12/05/22 11:59	12/05/22 11:59	JAR	Mt. Juliet, TN
Wet Chemistry by Method 4500H+ B-2011	WG1967837	1	12/02/22 10:30	12/02/22 10:30	KAD	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG1969665	1	12/06/22 01:00	12/06/22 01:00	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.

Lab Sample ID	Project Sample ID	Method
L1562692-02	211E05-001G WDW-1,2,3 & 4 EFFLUENT	4500 S2 D-2011
L1562692-04	211E05-002G CTB TO CITY POTW	4500 S2 D-2011

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		12/1/2022 1:49:16 PM	WG1967664
Fluid	1		12/1/2022 1:49:16 PM	WG1967664
Initial pH	N/A		12/1/2022 1:49:16 PM	WG1967664
Final pH	N/A		12/1/2022 1:49:16 PM	WG1967664

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	12/09/2022 14:38	WG1970905
2,4-D	0.00772		0.00200	10	1	12/10/2022 19:35	WG1970905
(S) 2,4-Dichlorophenyl Acetic Acid	*75.2*		*14.0-158*			*12/09/2022 14:38*	WG1970905
(S) 2,4-Dichlorophenyl Acetic Acid	*79.2*		*14.0-158*			*12/10/2022 19:35*	WG1970905

SAMPLE RESULTS - 02

Collected date/time: 11/28/22 10:10

L1562692

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	mV			date / time	
ORP	165	T8	1	12/08/2022 08:09	WG1968146

Wet Chemistry by Method 4500 CN E-2016

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Reactive Cyanide	0.0120		0.00500	1	12/06/2022 12:33	WG1967953

Wet Chemistry by Method 4500 S2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Reactive Sulfide	ND		0.0500	1	12/05/2022 11:59	WG1969451

Wet Chemistry by Method 4500H+ B-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
Corrosivity by pH	7.66	T8	1	12/02/2022 10:30	WG1967837

Sample Narrative:

L1562692-02 WG1967837: 7.66 at 19.8C

Wet Chemistry by Method D93/1010A

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	deg F			date / time	
Flashpoint	DNF at 170		1	12/06/2022 01:00	WG1969665

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		12/1/2022 1:49:16 PM	WG1967664
Fluid	1		12/1/2022 1:49:16 PM	WG1967664
Initial pH	N/A		12/1/2022 1:49:16 PM	WG1967664
Final pH	N/A		12/1/2022 1:49:16 PM	WG1967664

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	12/09/2022 15:11	WG1970905
2,4-D	0.00581		0.00200	10	1	12/10/2022 19:46	WG1970905
(S) 2,4-Dichlorophenyl Acetic Acid	*67.4*		*14.0-158*			*12/09/2022 15:11*	WG1970905
(S) 2,4-Dichlorophenyl Acetic Acid	*75.4*		*14.0-158*			*12/10/2022 19:46*	WG1970905

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	mV			date / time	
ORP	194	T8	1	12/08/2022 08:09	WG1968146

Wet Chemistry by Method 4500 CN E-2016

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Reactive Cyanide	0.00544		0.00500	1	12/06/2022 12:36	WG1967953

Wet Chemistry by Method 4500 S2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Reactive Sulfide	ND		0.0500	1	12/05/2022 11:59	WG1969451

Wet Chemistry by Method 4500H+ B-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
Corrosivity by pH	8.33	T8	1	12/02/2022 10:30	WG1967837

Sample Narrative:

L1562692-04 WG1967837: 8.33 at 19.5C

Wet Chemistry by Method D93/1010A

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	deg F			date / time	
Flashpoint	DNF at 170		1	12/06/2022 01:00	WG1969665

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

L1562692-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1562692-02 12/08/22 08:09 • (DUP) R3869467-3 12/08/22 08:09

	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
Analyte	mV	mV		mV		mV
ORP	165	165	1	0.600		20

L1562692-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1562692-04 12/08/22 08:09 • (DUP) R3869467-4 12/08/22 08:09

	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
Analyte	mV	mV		mV		mV
ORP	194	194	1	0.500		20

L1564442-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1564442-01 12/08/22 08:09 • (DUP) R3869467-5 12/08/22 08:09

	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
Analyte	mV	mV		mV		mV
ORP	630	637	1	7.50		20

L1564552-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1564552-01 12/08/22 08:09 • (DUP) R3869467-6 12/08/22 08:09

	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
Analyte	mV	mV		mV		mV
ORP	283	276	1	7.00		20

L1564552-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1564552-02 12/08/22 08:09 • (DUP) R3869467-7 12/08/22 08:09

	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
Analyte	mV	mV		mV		mV
ORP	307	311	1	3.50		20

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

(LCS) R3869467-1 12/08/22 08:09 • (LCSD) R3869467-2 12/08/22 08:09

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	Diff	Diff Limits
Analyte	mV	mV	mV	%	%	%			mV	mV
ORP	98.0	104	106	106	108	90.0-110			1.50	20

Method Blank (MB)

(MB) R3868625-1 12/06/22 11:59

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

L1561793-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1561793-03 12/06/22 12:08 • (DUP) R3868625-5 12/06/22 12:09

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

L1561815-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1561815-02 12/06/22 12:15 • (DUP) R3868625-8 12/06/22 12:16

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Cyanide	0.142	0.151	1	6.14		20

Laboratory Control Sample (LCS)

(LCS) R3868625-2 12/06/22 12:00

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Cyanide	0.100	0.0966	96.6	87.1-120	

L1561793-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1561793-02 12/06/22 12:04 • (MS) R3868625-3 12/06/22 12:05 • (MSD) R3868625-4 12/06/22 12:06

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	0.0108	0.0935	0.0924	82.7	81.6	1	90.0-110	J6	J6	1.18	20

Sample Narrative:

MS: Matrix spike failure due to matrix.

MSD: Matrix spike failure due to matrix.

L1561801-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1561801-02 12/06/22 12:12 • (MS) R3868625-6 12/06/22 12:13 • (MSD) R3868625-7 12/06/22 12:14

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	0.0923	0.0911	89.1	87.9	1	90.0-110	J6	J6	1.31	20

Sample Narrative:

MS: Matrix spike failure due to matrix.

MSD: Matrix spike failure due to matrix.

Method Blank (MB)

(MB) R3868196-1 12/05/22 11:56

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

Laboratory Control Sample (LCS)

(LCS) R3868196-2 12/05/22 11:56

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Reactive Sulfide	0.500	0.533	107	85.0-115	

Laboratory Control Sample (LCS)

(LCS) R3867408-1 12/02/22 10:30

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
Corrosivity by pH	10.0	9.90	99.0	99.0-101	

Sample Narrative:

LCS: 9.9 at 20.6C

QUALITY CONTROL SUMMARY

L1562692-02,04

L1563063-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1563063-05 12/06/22 01:00 • (DUP) R3868849-3 12/06/22 01:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	deg F	deg F		%		%
Flashpoint	81.9	79.9	1	2.47		10

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

(LCS) R3868849-1 12/06/22 01:00 • (LCSD) R3868849-2 12/06/22 01:00

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	deg F	deg F	deg F	%	%	%			%	%
Flashpoint	126	128	130	102	103	96.0-104			1.55	10

Method Blank (MB)

(MB) R3870389-1 12/09/22 14:15

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	*68.2*			*14.0-158*

Laboratory Control Sample (LCS)

(LCS) R3870389-2 12/09/22 14:27

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
2,4,5-TP (Silvex)	0.0500	0.0380	76.0	50.0-125	
2,4-D	0.0500	0.0569	114	50.0-120	E
(S) 2,4-Dichlorophenyl Acetic Acid			*76.2*	*14.0-158*	

L1562692-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1562692-01 12/09/22 14:38 • (MS) R3870389-3 12/09/22 14:49 • (MSD) R3870389-4 12/09/22 15:00

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	0.0451	0.0426	90.2	85.2	1	50.0-125			5.70	20
2,4-D	0.0500	0.00768	0.0605	0.0545	106	93.6	1	50.0-120	E	E	10.4	20
(S) 2,4-Dichlorophenyl Acetic Acid					*89.4*	*82.6*		*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).
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.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

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

SUB CONTRATOR: **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 L1562692	
1	2211E05-001F	WDW-1,2,3 & 4 Effluent	1LAMGU	Aqueous	11/28/2022 10:10:00 AM	1	8151TCLP	-01
2	2211E05-001G	WDW-1,2,3 & 4 Effluent	500HDPE	Aqueous	11/28/2022 10:10:00 AM	3	RCI, ORP pH	-02
3	2211E05-002F	CTB to City POTW	1LAMGU	Aqueous	11/28/2022 9:50:00 AM	1	8151TCLP	-03
4	2211E05-002G	CTB to City POTW	500HDPE	Aqueous	11/28/2022 9:50:00 AM	3	RCI, ORP pH	-04

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	GBAG	
Sufficient volume sent:	Y N		
RAD Screen <0.5 mR/hr:	Y N		

3-3 FO = 3-3

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.

D/C

Relinquished By:	Date: 11/30/2022	Time: 8:40 AM	Received By:	Date: 12-1-22	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 _____ °C Attempt to Cool ? _____

Comments: _____

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2211E05**

20-Jan-23

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: **R92979**	RunNo: **92979**
Prep Date:	Analysis Date: **12/1/2022**	SeqNo: **3347881** 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								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R92979**	RunNo: **92979**
Prep Date:	Analysis Date: **12/1/2022**	SeqNo: **3347882** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	101	90	110			
Chloride	4.7	0.50	5.000	0	94.0	90	110			
Bromide	2.4	0.10	2.500	0	97.4	90	110			
Phosphorus, Orthophosphate (As P	4.6	0.50	5.000	0	91.7	90	110			
Sulfate	9.6	0.50	10.00	0	96.1	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	99.8	90	110			

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R93187**	RunNo: **93187**
Prep Date:	Analysis Date: **12/9/2022**	SeqNo: **3357664** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R93187**	RunNo: **93187**
Prep Date:	Analysis Date: **12/9/2022**	SeqNo: **3357665** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.6	0.50	10.00	0	95.8	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 Quanitative 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#: **2211E05**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-71785**	SampType: **MBLK**	TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **PBW**	Batch ID: **71785**	RunNo: **93013**
Prep Date: **11/30/2022**	Analysis Date: **12/5/2022**	SeqNo: **3349809** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.0010								

Sample ID: **MSLLLCS-71785**	SampType: **LCSLL**	TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **BatchQC**	Batch ID: **71785**	RunNo: **93013**
Prep Date: **11/30/2022**	Analysis Date: **12/5/2022**	SeqNo: **3349810** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00091	0.0010	0.001000	0	91.1	70	130			J

Sample ID: **MSLCS-71785**	SampType: **LCS**	TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **LCSW**	Batch ID: **71785**	RunNo: **93013**
Prep Date: **11/30/2022**	Analysis Date: **12/5/2022**	SeqNo: **3349811** 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	96.8	80	120			

Sample ID: **MSLCSD-71785**	SampType: **LCSD**	TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **LCSS02**	Batch ID: **71785**	RunNo: **93013**
Prep Date: **11/30/2022**	Analysis Date: **12/5/2022**	SeqNo: **3349812** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.049	0.0010	0.05000	0	97.2	80	120	0.474	20	

Sample ID: **MB-71785**	SampType: **MBLK**	TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **PBW**	Batch ID: **71785**	RunNo: **93051**
Prep Date: **11/30/2022**	Analysis Date: **12/6/2022**	SeqNo: **3351252** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.0010								

Sample ID: **MSLLLCS-71785**	SampType: **LCSLL**	TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **BatchQC**	Batch ID: **71785**	RunNo: **93051**
Prep Date: **11/30/2022**	Analysis Date: **12/6/2022**	SeqNo: **3351253** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.00060	0.0010	0.001000	0	60.5	70	130			JS

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 Quanitative 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#: **2211E05**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MSLCS-71785**	SampType: **LCS**	TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **LCSW**	Batch ID: **71785**	RunNo: **93051**
Prep Date: **11/30/2022**	Analysis Date: **12/6/2022**	SeqNo: **3351254** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.047	0.0010	0.05000	0	93.4	80	120			

Sample ID: **MSLCSD-71785**	SampType: **LCSD**	TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **LCSS02**	Batch ID: **71785**	RunNo: **93051**
Prep Date: **11/30/2022**	Analysis Date: **12/6/2022**	SeqNo: **3351255** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.050	0.0010	0.05000	0	99.1	80	120	5.92	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 Quanitative 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#: **2211E05**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-71840**	SampType: **MBLK**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **PBW**	Batch ID: **71840**	RunNo: **93116**
Prep Date: **12/5/2022**	Analysis Date: **12/8/2022**	SeqNo: **3354163** 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		94.4	40.9	111			
Surr: Tetrachloro-m-xylene	0.0016		0.002500		63.5	15	107			

Sample ID: **LCS-71840**	SampType: **LCS**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSW**	Batch ID: **71840**	RunNo: **93116**
Prep Date: **12/5/2022**	Analysis Date: **12/8/2022**	SeqNo: **3354164** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Endrin	0.00052	0.00010	0.0005000	0	103	56.3	126			
gamma-BHC (Lindane)	0.00048	0.00010	0.0005000	0	95.6	45.8	103			
Heptachlor	0.00023	0.00010	0.0005000	0	45.2	33.7	104			
Heptachlor epoxide	0.00047	0.00010	0.0005000	0	94.0	50.1	116			
Methoxychlor	0.00055	0.00010	0.0005000	0	111	15	203			
Surr: Decachlorobiphenyl	0.0022		0.002500		87.9	40.9	111			
Surr: Tetrachloro-m-xylene	0.0010		0.002500		41.7	15	107			

Sample ID: **LCSD-71840**	SampType: **LCSD**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSS02**	Batch ID: **71840**	RunNo: **93116**
Prep Date: **12/5/2022**	Analysis Date: **12/8/2022**	SeqNo: **3354165** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Endrin	0.00050	0.020	0.0005000	0	99.5	56.3	126	3.79	20	J
gamma-BHC (Lindane)	0.00044	0.40	0.0005000	0	87.1	45.8	103	9.32	20	J
Heptachlor	0.00020	0.0080	0.0005000	0	39.8	33.7	104	12.8	20	J
Heptachlor epoxide	0.00044	0.0080	0.0005000	0	87.7	50.1	116	6.89	20	J
Methoxychlor	0.00055	10	0.0005000	0	110	15	203	1.14	20	J
Surr: Decachlorobiphenyl	0.0023		0.002500		91.3	40.9	111	0	0	
Surr: Tetrachloro-m-xylene	0.0014		0.002500		55.1	15	107	0	0	

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 Quanitative 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#: **2211E05**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-71840**	SampType: **MBLK**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **PBW**	Batch ID: **71840**	RunNo: **93116**
Prep Date: **12/5/2022**	Analysis Date: **12/8/2022**	SeqNo: **3354166** 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		96.1	40.9	111			
Surr: Tetrachloro-m-xylene	0.0016		0.002500		62.0	15	107			

Sample ID: **LCS-71840**	SampType: **LCS**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSW**	Batch ID: **71840**	RunNo: **93116**
Prep Date: **12/5/2022**	Analysis Date: **12/8/2022**	SeqNo: **3354167** 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)	0.00049	0.00010	0.0005000	0	97.7	45.8	103			
Heptachlor	0.00022	0.00010	0.0005000	0	44.8	33.7	104			
Heptachlor epoxide	0.00047	0.00010	0.0005000	0	93.7	50.1	116			
Methoxychlor	0.00054	0.00010	0.0005000	0	107	15	203			
Surr: Decachlorobiphenyl	0.0023		0.002500		90.2	40.9	111			
Surr: Tetrachloro-m-xylene	0.0011		0.002500		42.5	15	107			

Sample ID: **LCSD-71840**	SampType: **LCSD**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSS02**	Batch ID: **71840**	RunNo: **93116**
Prep Date: **12/5/2022**	Analysis Date: **12/8/2022**	SeqNo: **3354168** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Endrin	0.00049	0.00010	0.0005000	0	97.3	56.3	126	3.57	20	
gamma-BHC (Lindane)	0.00044	0.00010	0.0005000	0	87.8	45.8	103	10.8	20	
Heptachlor	0.00020	0.00010	0.0005000	0	39.5	33.7	104	12.6	20	
Heptachlor epoxide	0.00044	0.00010	0.0005000	0	87.7	50.1	116	6.59	20	
Methoxychlor	0.00054	0.00010	0.0005000	0	107	15	203	0.128	20	
Surr: Decachlorobiphenyl	0.0023		0.002500		93.6	40.9	111	0	0	
Surr: Tetrachloro-m-xylene	0.0013		0.002500		53.9	15	107	0	0	

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 Quanitative 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#: **2211E05**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-71824**	SampType: **MBLK**	TestCode: **EPA Method 8151: Herbicides TCLP**
Client ID: **PBW**	Batch ID: **71824**	RunNo: **93158**
Prep Date: **12/5/2022**	Analysis Date: **12/9/2022**	SeqNo: **3356399** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4,5-TP (Silvex)	ND	1.0								
2,4-D	ND	10								
Surr: 2,4-Dichlorophenylacetic aci	0.023		0.02500		91.1	70	130			

Sample ID: **LCS-71824**	SampType: **LCS**	TestCode: **EPA Method 8151: Herbicides TCLP**
Client ID: **LCSW**	Batch ID: **71824**	RunNo: **93158**
Prep Date: **12/5/2022**	Analysis Date: **12/9/2022**	SeqNo: **3356402** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4,5-TP (Silvex)	0.010	0.00010	0.01000	0	101	70	130			
2,4-D	0.011	0.00010	0.01000	0	111	70	130			
Surr: 2,4-Dichlorophenylacetic aci	0.024		0.02500		94.3	70	130			

Sample ID: **LCSD-71824**	SampType: **LCSD**	TestCode: **EPA Method 8151: Herbicides TCLP**
Client ID: **LCSS02**	Batch ID: **71824**	RunNo: **93158**
Prep Date: **12/5/2022**	Analysis Date: **12/9/2022**	SeqNo: **3356403** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4,5-TP (Silvex)	0.0094	0.00010	0.01000	0	93.9	70	130	7.37	20	
2,4-D	0.011	0.00010	0.01000	0	107	70	130	3.94	20	
Surr: 2,4-Dichlorophenylacetic aci	0.023		0.02500		91.4	70	130	0	20	

Sample ID: **MB-71824**	SampType: **MBLK**	TestCode: **EPA Method 8151: Herbicides TCLP**
Client ID: **PBW**	Batch ID: **71824**	RunNo: **93158**
Prep Date: **12/5/2022**	Analysis Date: **12/9/2022**	SeqNo: **3356589** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4,5-TP (Silvex)	ND	1.0								
2,4-D	ND	10								
Surr: 2,4-Dichlorophenylacetic aci	0.023		0.02500		92.3	70	130			

Sample ID: **LCS-71824**	SampType: **LCS**	TestCode: **EPA Method 8151: Herbicides TCLP**
Client ID: **LCSW**	Batch ID: **71824**	RunNo: **93158**
Prep Date: **12/5/2022**	Analysis Date: **12/9/2022**	SeqNo: **3356590** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4,5-TP (Silvex)	0.010	0.00010	0.01000	0	103	70	130			
2,4-D	0.0090	0.00010	0.01000	0	89.7	70	130			
Surr: 2,4-Dichlorophenylacetic aci	0.024		0.02500		95.6	70	130			

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 Quanitative 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#: **2211E05**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **LCSD-71824**	SampType: **LCSD**	TestCode: **EPA Method 8151: Herbicides TCLP**
Client ID: **LCSS02**	Batch ID: **71824**	RunNo: **93158**
Prep Date: **12/5/2022**	Analysis Date: **12/9/2022**	SeqNo: **3356591** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4,5-TP (Silvex)	0.0095	0.00010	0.01000	0	94.9	70	130	8.36	20	
2,4-D	0.0084	0.00010	0.01000	0	84.4	70	130	6.00	20	
Surr: 2,4-Dichlorophenylacetic aci	0.023		0.02500		93.0	70	130	0	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 Quanitative 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#: **2211E05**

20-Jan-23

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: **T92985**	RunNo: **92985**
Prep Date:	Analysis Date: **12/1/2022**	SeqNo: **3349863** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.018	0.50	0.02000	0	89.2	70	130			J
1,1-Dichloroethene	0.018	0.70	0.02000	0	90.1	70	130			J
Trichloroethene (TCE)	0.017	0.50	0.02000	0	85.5	70	130			J
Chlorobenzene	0.020	100	0.02000	0	98.6	70	130			J
Surr: 1,2-Dichloroethane-d4	0.0091		0.01000		90.6	70	130			
Surr: 4-Bromofluorobenzene	0.0099		0.01000		99.0	70	130			
Surr: Dibromofluoromethane	0.0091		0.01000		91.5	70	130			
Surr: Toluene-d8	0.0094		0.01000		94.0	70	130			

Sample ID: **mb**	SampType: **MBLK**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW**	Batch ID: **T92985**	RunNo: **92985**
Prep Date:	Analysis Date: **12/1/2022**	SeqNo: **3349864** 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	0.0092		0.01000		92.2	70	130			
Surr: 4-Bromofluorobenzene	0.0096		0.01000		95.5	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.	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 Quanitative 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#: **2211E05**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-71838**	SampType: **MBLK**	TestCode: **EPA Method 8270C TCLP**
Client ID: **PBW**	Batch ID: **71838**	RunNo: **93138**
Prep Date: **12/5/2022**	Analysis Date: **12/8/2022**	SeqNo: **3355095** 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		57.0	18.1	88.9			
Surr: Phenol-d5	0.085		0.2000		42.7	17	61.5			
Surr: 2,4,6-Tribromophenol	0.14		0.2000		72.3	29.8	104			
Surr: Nitrobenzene-d5	0.068		0.1000		68.4	22.2	111			
Surr: 2-Fluorobiphenyl	0.058		0.1000		58.4	24.6	96.3			
Surr: 4-Terphenyl-d14	0.11		0.1000		107	53.4	124			

Sample ID: **LCS-71838**	SampType: **LCS**	TestCode: **EPA Method 8270C TCLP**
Client ID: **LCSW**	Batch ID: **71838**	RunNo: **93138**
Prep Date: **12/5/2022**	Analysis Date: **12/8/2022**	SeqNo: **3355096** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.053	0.00010	0.1000	0	52.7	19	106			
3+4-Methylphenol	0.11	0.00010	0.2000	0	54.6	16.3	112			
2,4-Dinitrotoluene	0.046	0.00010	0.1000	0	45.6	15	99.6			
Hexachlorobenzene	0.069	0.00010	0.1000	0	68.8	41.8	111			
Hexachlorobutadiene	0.027	0.00010	0.1000	0	26.8	15	91.5			
Hexachloroethane	0.030	0.00010	0.1000	0	29.6	15	87.5			
Nitrobenzene	0.050	0.00010	0.1000	0	50.1	19.3	114			
Pentachlorophenol	0.065	0.00010	0.1000	0	65.1	29	103			
Pyridine	0.031	0.00010	0.1000	0	30.8	15	92.6			
2,4,5-Trichlorophenol	0.057	0.00010	0.1000	0	57.4	25.2	114			
2,4,6-Trichlorophenol	0.058	0.00010	0.1000	0	57.6	25.7	112			
Cresols, Total	0.16	0.00010	0.3000	0	54.0	15	145			
Surr: 2-Fluorophenol	0.086		0.2000		42.9	18.1	88.9			
Surr: Phenol-d5	0.065		0.2000		32.5	17	61.5			
Surr: 2,4,6-Tribromophenol	0.15		0.2000		73.5	29.8	104			

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 Quanitative 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#: **2211E05**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **LCS-71838**	SampType: **LCS**	TestCode: **EPA Method 8270C TCLP**
Client ID: **LCSW**	Batch ID: **71838**	RunNo: **93138**
Prep Date: **12/5/2022**	Analysis Date: **12/8/2022**	SeqNo: **3355096** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.057		0.1000		57.2	22.2	111			
Surr: 2-Fluorobiphenyl	0.050		0.1000		50.5	24.6	96.3			
Surr: 4-Terphenyl-d14	0.091		0.1000		90.8	53.4	124			

Sample ID: **LCSD-71838**	SampType: **LCSD**	TestCode: **EPA Method 8270C TCLP**
Client ID: **LCSS02**	Batch ID: **71838**	RunNo: **93138**
Prep Date: **12/5/2022**	Analysis Date: **12/8/2022**	SeqNo: **3355097** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.058	0.00010	0.1000	0	58.2	19	106	9.78	20	
3+4-Methylphenol	0.12	0.00010	0.2000	0	59.9	16.3	112	9.21	20	
2,4-Dinitrotoluene	0.050	0.00010	0.1000	0	49.8	15	99.6	8.63	20	
Hexachlorobenzene	0.074	0.00010	0.1000	0	73.6	41.8	111	6.73	20	
Hexachlorobutadiene	0.034	0.00010	0.1000	0	33.7	15	91.5	22.7	20	R
Hexachloroethane	0.035	0.00010	0.1000	0	35.3	15	87.5	17.6	20	
Nitrobenzene	0.054	0.00010	0.1000	0	53.9	19.3	114	7.36	20	
Pentachlorophenol	0.072	0.00010	0.1000	0	72.3	29	103	10.5	20	
Pyridine	0.035	0.00010	0.1000	0	34.9	15	92.6	12.2	20	
2,4,5-Trichlorophenol	0.067	0.00010	0.1000	0	66.8	25.2	114	15.1	20	
2,4,6-Trichlorophenol	0.065	0.00010	0.1000	0	65.0	25.7	112	12.1	20	
Cresols, Total	0.18	0.00010	0.3000	0	59.3	15	145	9.39	20	
Surr: 2-Fluorophenol	0.091		0.2000		45.6	18.1	88.9	0	20	
Surr: Phenol-d5	0.068		0.2000		34.0	17	61.5	0	20	
Surr: 2,4,6-Tribromophenol	0.15		0.2000		77.0	29.8	104	0	20	
Surr: Nitrobenzene-d5	0.060		0.1000		60.3	22.2	111	0	20	
Surr: 2-Fluorobiphenyl	0.055		0.1000		55.0	24.6	96.3	0	20	
Surr: 4-Terphenyl-d14	0.10		0.1000		103	53.4	124	0	20	

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 Quanitative 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#: **2211E05**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **lcs-1 99.4uS eC**	SampType: **LCS**	TestCode: **SM2510B: Specific Conductance**							
Client ID: **LCSW**	Batch ID: **R92959**	RunNo: **92959**							
Prep Date:	Analysis Date: **12/1/2022**	SeqNo: **3347152**	Units: **µmhos/cm**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	10	99.40	0	101	85	115			

Sample ID: **lcs-2 99.4uS eC**	SampType: **LCS**	TestCode: **SM2510B: Specific Conductance**							
Client ID: **LCSW**	Batch ID: **R92959**	RunNo: **92959**							
Prep Date:	Analysis Date: **12/1/2022**	SeqNo: **3347178**	Units: **µmhos/cm**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	10	99.40	0	101	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 Quanitative 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#: **2211E05**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-71977**	SampType: **MBLK**	TestCode: **EPA Method 7470A: Mercury**
Client ID: **PBW**	Batch ID: **71977**	RunNo: **93189**
Prep Date: **12/9/2022**	Analysis Date: **12/9/2022**	SeqNo: **3357856** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: **LCSLL-71977**	SampType: **LCSLL**	TestCode: **EPA Method 7470A: Mercury**
Client ID: **BatchQC**	Batch ID: **71977**	RunNo: **93189**
Prep Date: **12/9/2022**	Analysis Date: **12/9/2022**	SeqNo: **3357857** 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-71977**	SampType: **LCS**	TestCode: **EPA Method 7470A: Mercury**
Client ID: **LCSW**	Batch ID: **71977**	RunNo: **93189**
Prep Date: **12/9/2022**	Analysis Date: **12/9/2022**	SeqNo: **3357858** 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	98.4	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 Quanitative 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#: **2211E05**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-71802**	SampType: **MBLK**	TestCode: **EPA Method 7470A: TCLP Mercury**
Client ID: **PBW**	Batch ID: **71802**	RunNo: **92992**
Prep Date: **12/1/2022**	Analysis Date: **12/2/2022**	SeqNo: **3348327** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID: **LCSLL-71802**	SampType: **LCSLL**	TestCode: **EPA Method 7470A: TCLP Mercury**
Client ID: **BatchQC**	Batch ID: **71802**	RunNo: **92992**
Prep Date: **12/1/2022**	Analysis Date: **12/2/2022**	SeqNo: **3348328** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00020	0.020	0.0001500	0	133	50	150			J

Sample ID: **LCS-71802**	SampType: **LCS**	TestCode: **EPA Method 7470A: TCLP Mercury**
Client ID: **LCSW**	Batch ID: **71802**	RunNo: **92992**
Prep Date: **12/1/2022**	Analysis Date: **12/2/2022**	SeqNo: **3348329** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.020	0.005000	0	104	85	115			J

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 Quanitative 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#: **2211E05**

20-Jan-23

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: **A93075**	RunNo: **93075**
Prep Date:	Analysis Date: **12/6/2022**	SeqNo: **3352138** 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: **A93075**	RunNo: **93075**
Prep Date:	Analysis Date: **12/6/2022**	SeqNo: **3352140** 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	52	1.0	50.00	0	104	80	120			
Potassium	53	1.0	50.00	0	106	80	120			
Sodium	54	1.0	50.00	0	109	80	120			

Sample ID: **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A93168**	RunNo: **93168**
Prep Date:	Analysis Date: **12/7/2022**	SeqNo: **3357058** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	1.1	1.0								

Sample ID: **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A93168**	RunNo: **93168**
Prep Date:	Analysis Date: **12/7/2022**	SeqNo: **3357063** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	50	1.0	50.00	0	101	80	120			B

Sample ID: **LCSD-A**	SampType: **LCSD**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **LCSS02**	Batch ID: **A93168**	RunNo: **93168**
Prep Date:	Analysis Date: **12/7/2022**	SeqNo: **3357064** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	52	1.0	50.00	0	103	80	120	2.33	20	B

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 Quanitative 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#: **2211E05**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-71973**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **71973**	RunNo: **93150**
Prep Date: **12/8/2022**	Analysis Date: **12/9/2022**	SeqNo: **3355925** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID: **LCS-71973**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **71973**	RunNo: **93150**
Prep Date: **12/8/2022**	Analysis Date: **12/9/2022**	SeqNo: **3355927** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.51	5.0	0.5000	0	103	80	120			J
Barium	0.46	100	0.5000	0	92.6	80	120			J
Cadmium	0.48	1.0	0.5000	0	97.0	80	120			J
Chromium	0.47	5.0	0.5000	0	93.4	80	120			J
Lead	0.47	5.0	0.5000	0	93.3	80	120			J
Selenium	0.52	1.0	0.5000	0	104	80	120			J
Silver	0.10	5.0	0.1000	0	101	80	120			J

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 Quanitative 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#: **2211E05**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-71785**	SampType: **MBLK**	TestCode: **EPA 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **71785**	RunNo: **93075**
Prep Date: **11/30/2022**	Analysis Date: **12/6/2022**	SeqNo: **3352132** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Silver	ND	0.0050								

Sample ID: **LCS-71785**	SampType: **LCS**	TestCode: **EPA 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **71785**	RunNo: **93075**
Prep Date: **11/30/2022**	Analysis Date: **12/6/2022**	SeqNo: **3352137** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.41	0.0020	0.5000	0	82.7	80	120			
Chromium	0.40	0.0060	0.5000	0	80.1	80	120			
Silver	0.088	0.0050	0.1000	0	87.5	80	120			

Sample ID: **2211E05-001EMS**	SampType: **MS**	TestCode: **EPA 6010B: TCLP Metals**
Client ID: **WDW-1,2,3 & 4 Efflu**	Batch ID: **71785**	RunNo: **93075**
Prep Date: **11/30/2022**	Analysis Date: **12/6/2022**	SeqNo: **3352167** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	0.088	0.0050	0.1000	0.008212	79.6	75	125			

Sample ID: **2211E05-001EMSD**	SampType: **MSD**	TestCode: **EPA 6010B: TCLP Metals**
Client ID: **WDW-1,2,3 & 4 Efflu**	Batch ID: **71785**	RunNo: **93075**
Prep Date: **11/30/2022**	Analysis Date: **12/6/2022**	SeqNo: **3352168** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	0.086	0.0050	0.1000	0.008212	77.8	75	125	2.09	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 Quanitative 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#: **2211E05**

20-Jan-23

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: **R92959**	RunNo: **92959**							
Prep Date:	Analysis Date: **12/1/2022**	SeqNo: **3347136**	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: **R92959**	RunNo: **92959**							
Prep Date:	Analysis Date: **12/1/2022**	SeqNo: **3347137**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.96	20.00	80.00	0	97.5	90	110			

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 Quanitative 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#: **2211E05**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-71767**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **71767**	RunNo: **92991**
Prep Date: **11/30/2022**	Analysis Date: **12/2/2022**	SeqNo: **3348279** 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-71767**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **71767**	RunNo: **92991**
Prep Date: **11/30/2022**	Analysis Date: **12/2/2022**	SeqNo: **3348280** 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			

Sample ID: **2211E05-002CDUP**	SampType: **DUP**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **CTB to City POTW**	Batch ID: **71767**	RunNo: **92991**
Prep Date: **11/30/2022**	Analysis Date: **12/2/2022**	SeqNo: **3348285** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1160	20.0						0.0864	10	*

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 Quanitative 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#: **2211E05**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-71794**	SampType: **MBLK**	TestCode: **SM 2540D: TSS**							
Client ID: **PBW**	Batch ID: **71794**	RunNo: **92971**							
Prep Date: **12/1/2022**	Analysis Date: **12/2/2022**	SeqNo: **3347568**	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-71794**	SampType: **LCS**	TestCode: **SM 2540D: TSS**							
Client ID: **LCSW**	Batch ID: **71794**	RunNo: **92971**							
Prep Date: **12/1/2022**	Analysis Date: **12/2/2022**	SeqNo: **3347569**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Suspended Solids	93	4.0	91.90	0	101	83.89	119.7			

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **Navajo Refining Company** Work Order Number: **2211E05** RcptNo: **1**

Received By: **Juan Rojas** **11/29/2022 7:40:00 AM** JR

Completed By: **Desiree Dominguez** **11/29/2022 12:48:22 PM** DD

Reviewed By: JR 11-29-22

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° 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: 8; 2
(<2 or >12 unless noted)
Adjusted? yes
Checked by: DAD 11/29/22

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:

For sample 003 poured off and filtered from unreserved volume provided from sample 001. For sample 004 poured off and filtered from unreserved volume provided from sample 002. For metals analysis added ~0.5 HNO_3 to 003 & 004 For pH <2. -DAD 11/29/22

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.5	Good				
2	0.4	Good				

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)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:

☐ Standard ☐ Rush

Project Name:

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

Project #:

Project Manager:

Randy Dade

Sampler:

On Ice: ☑ Yes ☐ No

# of Coolers: 2

Cooler Temp(including CF): 1.4 +0.1 = 1.5

0.3 +0.1 = 0.4

HEAL No. 2211E05

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type		Specific Gravity, C/A Balance, ORP, pH, TSS	8260 TCLP Compounds	8270 TCLP Compounds	RCI	RCRA 8 Metals	8081 TCLP Compounds	8151 TCLP Compounds			WDW-1,2,3+4 Effluent -	Filtered - 003		CTB to City POTW -	Filtered - 004
11/28/2022	10:10	Liquid	WDW-1, 2, 3 & 4 Effluent	**	**	-001	x													
11/28/2022	10:10	Liquid	WDW-1, 2, 3 & 4 Effluent	3-40ml VOA	HCL			x												
11/28/2022	10:10	Liquid	WDW-1, 2, 3 & 4 Effluent	1-1L Amber	none				x											
11/28/2022	10:10	Liquid	WDW-1, 2, 3 & 4 Effluent	***	***					x										
11/28/2022	10:10	Liquid	WDW-1, 2, 3 & 4 Effluent	1-250ml P	HNO3						x									
11/28/2022	10:10	Liquid	WDW-1, 2, 3 & 4 Effluent	1-1L Amber	none							x								
11/28/2022	10:10	Liquid	WDW-1, 2, 3 & 4 Effluent	1-1L Amber	none								x							
11/28/2022	9:50	Liquid	CTB to City POTW	**	**	-002	x													
11/28/2022	9:50	Liquid	CTB to City POTW	3-40ml VOA	HCL			x												
11/28/2022	9:50	Liquid	CTB to City POTW	1-1L Amber	none				x											
11/28/2022	9:50	Liquid	CTB to City POTW	***	***					x										
11/28/2022	9:50	Liquid	CTB to City POTW	1-250ml P	HNO3						x									
11/28/2022	9:50	Liquid	CTB to City POTW	1-1L Amber	none							x								
11/28/2022	9:50	Liquid	CTB to City POTW	1-1L Amber	none								x							

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
11.28.22	1:50pm	Brady Hibbard		FedEx	11/29/22	7:40
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks: Dissolved Cations by EPA Method 200.7.
1-500ml unpreserved p, 1-125ml H2SO4 p, 1-125ml HNO3 p.*1-500ml unpreserved p, 1-500ml NaOH p, 1-500ml NaOH/ZnAcetate p

RDU FEED RATE : 8826 BPD

Suffices for Q4 Quarterly WDW- 1, 2, 3 & 4 Inj Well

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

January 20, 2023

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.: 2212220

Dear Randy Dade:

Hall Environmental Analysis Laboratory received 4 sample(s) on 12/6/2022 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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Case Narrative

WO#: **2212220**
Date: **1/20/2023**

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". Even though the low solids content did not require filtration, all TCLP compounds are reported as both total and filtered, at the TCLP limits. 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.

EPA Method 8270:
The matrix spike and matrix spike duplicate had a low recovery for pyridine

EPA Method 8270:
The two filtered samples for WDW-1,2,3 & 4 Effluent and CTB to City POTW were associated with a laboratory control spike that had low recoveries for pentachlorophenol, 2,4,5-trichlorophenol and 2,4,6-Trichlorophenol.

"H" flags denote that the extraction holding time was exceeded.

"S" flags denote that the surrogate/spike recovery was outside of the standard limits.

Analytical Report
Lab Order **2212220**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2212220-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent
Collection Date: 12/5/2022 10:10:00 AM
Received Date: 12/6/2022 7:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8081: PESTICIDES TCLP							Analyst: **mb**	
Chlordane	ND	0.00050	0.030		mg/L	1	12/27/2022 10:07:43 A	71988
Endrin	ND	0.000062	0.020		mg/L	1	12/27/2022 10:07:43 A	71988
gamma-BHC (Lindane)	ND	0.000054	0.40		mg/L	1	12/27/2022 10:07:43 A	71988
Heptachlor	ND	0.000041	0.0080		mg/L	1	12/27/2022 10:07:43 A	71988
Heptachlor epoxide	ND	0.000051	0.0080		mg/L	1	12/27/2022 10:07:43 A	71988
Methoxychlor	ND	0.000075	10		mg/L	1	12/27/2022 10:07:43 A	71988
Toxaphene	ND	0.00050	0.50		mg/L	1	12/27/2022 10:07:43 A	71988
Surr: Decachlorobiphenyl	75.6	0	40.9-111		%Rec	1	12/27/2022 10:07:43 A	71988
Surr: Tetrachloro-m-xylene	100	0	15-107		%Rec	1	12/27/2022 10:07:43 A	71988
EPA METHOD 300.0: ANIONS							Analyst: **JTT**	
Fluoride	19	0.92	2.0	*	mg/L	20	12/7/2022 2:50:56 AM	R93070
Chloride	340	25	50	*	mg/L	100	12/7/2022 11:06:33 AM	R93118
Nitrogen, Nitrite (As N)	0.17	0.057	0.50	J	mg/L	5	12/7/2022 2:38:31 AM	R93070
Bromide	0.84	0.25	0.50		mg/L	5	12/7/2022 2:38:31 AM	R93070
Nitrogen, Nitrate (As N)	1.0	0.10	0.50		mg/L	5	12/7/2022 2:38:31 AM	R93070
Phosphorus, Orthophosphate (As P)	ND	25	50	H	mg/L	100	12/7/2022 3:45:33 PM	R93119
Sulfate	2000	25	50	*	mg/L	100	12/7/2022 11:06:33 AM	R93118
EPA METHOD 6020A: TCLP METALS							Analyst: **ELS**	
Arsenic	0.020	0.00050	5.0	J	mg/L	1	12/14/2022 1:21:53 PM	71959
Lead	ND	0.00050	5.0		mg/L	1	12/14/2022 11:10:52 A	71959
Selenium	0.022	0.00050	1.0	J	mg/L	1	12/15/2022 10:24:02 A	71959
EPA METHOD 7470A: MERCURY							Analyst: **VP**	
Mercury	ND	0.000091	0.020		mg/L	1	12/23/2022 4:07:31 PM	72298
EPA METHOD 6010B: DISSOLVED METALS							Analyst: **JRR**	
Calcium	380	0.29	5.0		mg/L	5	12/12/2022 1:47:06 PM	A93237
Magnesium	130	0.17	5.0		mg/L	5	12/12/2022 1:47:06 PM	A93237
Potassium	100	1.0	5.0		mg/L	5	12/12/2022 1:47:06 PM	A93237
Sodium	750	4.2	10		mg/L	10	12/12/2022 2:02:15 PM	A93237
EPA 6010B: TCLP METALS							Analyst: **JRR**	
Barium	0.040	0.0011	100	J	mg/L	1	12/12/2022 11:25:45 A	71959
Cadmium	ND	0.0012	1.0		mg/L	1	12/12/2022 11:25:45 A	71959
Chromium	ND	0.0017	5.0		mg/L	1	12/12/2022 11:25:45 A	71959
Silver	0.012	0.0013	5.0	J	mg/L	1	12/12/2022 11:25:45 A	71959
EPA METHOD 8270C TCLP							Analyst: **DAM**	
2-Methylphenol	ND	0.050	200		mg/L	1	12/12/2022 2:07:22 PM	71935
3+4-Methylphenol	ND	0.051	200		mg/L	1	12/12/2022 2:07:22 PM	71935

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 Quanitative 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

Analytical Report
Lab Order **2212220**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2212220-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent
Collection Date: 12/5/2022 10:10:00 AM
Received Date: 12/6/2022 7:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C TCLP							Analyst: **DAM**	
2,4-Dinitrotoluene	ND	0.049	0.13		mg/L	1	12/12/2022 2:07:22 PM	71935
Hexachlorobenzene	ND	0.19	0.13		mg/L	1	12/12/2022 2:07:22 PM	71935
Hexachlorobutadiene	ND	0.17	0.50		mg/L	1	12/12/2022 2:07:22 PM	71935
Hexachloroethane	ND	0.14	3.0		mg/L	1	12/12/2022 2:07:22 PM	71935
Nitrobenzene	ND	0.049	2.0		mg/L	1	12/12/2022 2:07:22 PM	71935
Pentachlorophenol	ND	0.27	100		mg/L	1	12/12/2022 2:07:22 PM	71935
Pyridine	ND	0.14	5.0		mg/L	1	12/12/2022 2:07:22 PM	71935
2,4,5-Trichlorophenol	ND	0.063	400		mg/L	1	12/12/2022 2:07:22 PM	71935
2,4,6-Trichlorophenol	ND	0.059	2.0		mg/L	1	12/12/2022 2:07:22 PM	71935
Cresols, Total	ND	0.27	200		mg/L	1	12/12/2022 2:07:22 PM	71935
Surr: 2-Fluorophenol	1.34	0	18.1-88.9	S	%Rec	1	12/12/2022 2:07:22 PM	71935
Surr: Phenol-d5	6.24	0	17-61.5	S	%Rec	1	12/12/2022 2:07:22 PM	71935
Surr: 2,4,6-Tribromophenol	4.15	0	29.8-104	S	%Rec	1	12/12/2022 2:07:22 PM	71935
Surr: Nitrobenzene-d5	57.9	0	22.2-111		%Rec	1	12/12/2022 2:07:22 PM	71935
Surr: 2-Fluorobiphenyl	53.1	0	24.6-96.3		%Rec	1	12/12/2022 2:07:22 PM	71935
Surr: 4-Terphenyl-d14	94.3	0	53.4-124		%Rec	1	12/12/2022 2:07:22 PM	71935
TCLP VOLATILES BY 8260B							Analyst: **CCM**	
Benzene	ND	0.00023	0.50		mg/L	200	12/6/2022 7:13:00 PM	T93064
1,2-Dichloroethane (EDC)	ND	0.00025	0.50		mg/L	200	12/6/2022 7:13:00 PM	T93064
2-Butanone	ND	0.0020	200		mg/L	200	12/6/2022 7:13:00 PM	T93064
Carbon Tetrachloride	ND	0.00018	0.50		mg/L	200	12/6/2022 7:13:00 PM	T93064
Chloroform	ND	0.00013	6.0		mg/L	200	12/6/2022 7:13:00 PM	T93064
1,4-Dichlorobenzene	ND	0.00021	7.5		mg/L	200	12/6/2022 7:13:00 PM	T93064
1,1-Dichloroethene	ND	0.00020	0.70		mg/L	200	12/6/2022 7:13:00 PM	T93064
Tetrachloroethene (PCE)	ND	0.00036	0.70		mg/L	200	12/6/2022 7:13:00 PM	T93064
Trichloroethene (TCE)	ND	0.00020	0.50		mg/L	200	12/6/2022 7:13:00 PM	T93064
Vinyl chloride	ND	0.00032	0.20		mg/L	200	12/6/2022 7:13:00 PM	T93064
Chlorobenzene	ND	0.00016	100		mg/L	200	12/6/2022 7:13:00 PM	T93064
Surr: 1,2-Dichloroethane-d4	92.6	0	70-130		%Rec	200	12/6/2022 7:13:00 PM	T93064
Surr: 4-Bromofluorobenzene	96.5	0	70-130		%Rec	200	12/6/2022 7:13:00 PM	T93064
Surr: Dibromofluoromethane	94.9	0	70-130		%Rec	200	12/6/2022 7:13:00 PM	T93064
Surr: Toluene-d8	90.9	0	70-130		%Rec	200	12/6/2022 7:13:00 PM	T93064
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **MRA**	
Conductivity	5800	10	10		µmhos/c	1	12/8/2022 12:08:24 PM	R93143
SM4500-H+B / 9040C: PH							Analyst: **MRA**	
pH	7.82			H	pH units	1	12/8/2022 12:08:24 PM	R93143
SM2320B: ALKALINITY							Analyst: **MRA**	

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2212220**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2212220-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent
Collection Date: 12/5/2022 10:10:00 AM
Received Date: 12/6/2022 7:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM2320B: ALKALINITY							Analyst: **MRA**	
Bicarbonate (As CaCO3)	538.1	20.00	20.00		mg/L Ca	1	12/8/2022 12:08:24 PM	R93143
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	12/8/2022 12:08:24 PM	R93143
Total Alkalinity (as CaCO3)	538.1	20.00	20.00		mg/L Ca	1	12/8/2022 12:08:24 PM	R93143
SPECIFIC GRAVITY							Analyst: **CAS**	
Specific Gravity	0.9956	0	0			1	12/12/2022 2:29:00 PM	R93206
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **SNS**	
Total Dissolved Solids	4210	200	200	*D	mg/L	1	12/9/2022 9:11:00 AM	71907
SM 2540D: TSS							Analyst: **SNS**	
Suspended Solids	25	4.0	4.0		mg/L	1	12/9/2022 1:12:00 PM	71942

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 Quanitative 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

Analytical Report
Lab Order **2212220**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2212220-002 **Matrix:** AQUEOUS

Client Sample ID: CTB to City POTW
Collection Date: 12/5/2022 9:50:00 AM
Received Date: 12/6/2022 7:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8081: PESTICIDES TCLP							Analyst: **mb**	
Chlordane	ND	0.00050	0.030		mg/L	1	12/27/2022 10:20:50 A	71988
Endrin	ND	0.000062	0.020		mg/L	1	12/27/2022 10:20:50 A	71988
gamma-BHC (Lindane)	ND	0.000054	0.40		mg/L	1	12/27/2022 10:20:50 A	71988
Heptachlor	ND	0.000041	0.0080		mg/L	1	12/27/2022 10:20:50 A	71988
Heptachlor epoxide	ND	0.000051	0.0080		mg/L	1	12/27/2022 10:20:50 A	71988
Methoxychlor	ND	0.000075	10		mg/L	1	12/27/2022 10:20:50 A	71988
Toxaphene	ND	0.00050	0.50		mg/L	1	12/27/2022 10:20:50 A	71988
Surr: Decachlorobiphenyl	81.2	0	40.9-111		%Rec	1	12/27/2022 10:20:50 A	71988
Surr: Tetrachloro-m-xylene	72.9	0	15-107		%Rec	1	12/27/2022 10:20:50 A	71988
EPA METHOD 300.0: ANIONS							Analyst: **JTT**	
Fluoride	1.4	0.23	0.50		mg/L	5	12/7/2022 3:03:21 AM	R93070
Chloride	33	1.2	2.5		mg/L	5	12/7/2022 3:03:21 AM	R93070
Nitrogen, Nitrite (As N)	ND	0.057	0.50		mg/L	5	12/7/2022 3:03:21 AM	R93070
Bromide	ND	0.25	0.50		mg/L	5	12/7/2022 3:03:21 AM	R93070
Nitrogen, Nitrate (As N)	0.94	0.10	0.50		mg/L	5	12/7/2022 3:03:21 AM	R93070
Phosphorus, Orthophosphate (As P)	ND	2.5	5.0	H	mg/L	10	12/7/2022 3:57:57 PM	R93119
Sulfate	820	5.0	10	*	mg/L	20	12/7/2022 3:15:46 AM	R93070
EPA METHOD 6020A: TCLP METALS							Analyst: **ELS**	
Arsenic	0.0010	0.00050	5.0	J	mg/L	1	12/14/2022 1:34:49 PM	71959
Lead	ND	0.00050	5.0		mg/L	1	12/14/2022 11:15:03 A	71959
Selenium	0.0023	0.00050	1.0	J	mg/L	1	12/15/2022 10:25:28 A	71959
EPA METHOD 7470A: MERCURY							Analyst: **VP**	
Mercury	ND	0.000091	0.020		mg/L	1	12/23/2022 4:09:40 PM	72298
EPA METHOD 6010B: DISSOLVED METALS							Analyst: **JRR**	
Calcium	220	0.29	5.0		mg/L	5	12/12/2022 1:56:05 PM	A93237
Magnesium	75	0.034	1.0		mg/L	1	12/12/2022 2:05:16 PM	A93237
Potassium	2.0	0.21	1.0		mg/L	1	12/12/2022 2:05:16 PM	A93237
Sodium	39	0.42	1.0		mg/L	1	12/12/2022 2:05:16 PM	A93237
EPA 6010B: TCLP METALS							Analyst: **JRR**	
Barium	0.016	0.0011	100	J	mg/L	1	12/12/2022 11:40:13 A	71959
Cadmium	ND	0.0012	1.0		mg/L	1	12/12/2022 11:40:13 A	71959
Chromium	0.0033	0.0017	5.0	J	mg/L	1	12/12/2022 11:40:13 A	71959
Silver	0.0068	0.0013	5.0	J	mg/L	1	12/12/2022 11:40:13 A	71959
EPA METHOD 8270C TCLP							Analyst: **DAM**	
2-Methylphenol	ND	0.050	200		mg/L	1	12/12/2022 4:11:18 PM	71935
3+4-Methylphenol	ND	0.051	200		mg/L	1	12/12/2022 4:11:18 PM	71935

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 Quanitative 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

Analytical Report
Lab Order **2212220**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2212220-002 **Matrix:** AQUEOUS

Client Sample ID: CTB to City POTW
Collection Date: 12/5/2022 9:50:00 AM
Received Date: 12/6/2022 7:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C TCLP							Analyst: **DAM**	
2,4-Dinitrotoluene	ND	0.049	0.13		mg/L	1	12/12/2022 4:11:18 PM	71935
Hexachlorobenzene	ND	0.19	0.13		mg/L	1	12/12/2022 4:11:18 PM	71935
Hexachlorobutadiene	ND	0.17	0.50		mg/L	1	12/12/2022 4:11:18 PM	71935
Hexachloroethane	ND	0.14	3.0		mg/L	1	12/12/2022 4:11:18 PM	71935
Nitrobenzene	ND	0.049	2.0		mg/L	1	12/12/2022 4:11:18 PM	71935
Pentachlorophenol	ND	0.27	100		mg/L	1	12/12/2022 4:11:18 PM	71935
Pyridine	ND	0.14	5.0		mg/L	1	12/12/2022 4:11:18 PM	71935
2,4,5-Trichlorophenol	ND	0.063	400		mg/L	1	12/12/2022 4:11:18 PM	71935
2,4,6-Trichlorophenol	ND	0.059	2.0		mg/L	1	12/12/2022 4:11:18 PM	71935
Cresols, Total	ND	0.27	200		mg/L	1	12/12/2022 4:11:18 PM	71935
Surr: 2-Fluorophenol	12.0	0	18.1-88.9	S	%Rec	1	12/12/2022 4:11:18 PM	71935
Surr: Phenol-d5	24.8	0	17-61.5		%Rec	1	12/12/2022 4:11:18 PM	71935
Surr: 2,4,6-Tribromophenol	11.9	0	29.8-104	S	%Rec	1	12/12/2022 4:11:18 PM	71935
Surr: Nitrobenzene-d5	56.4	0	22.2-111		%Rec	1	12/12/2022 4:11:18 PM	71935
Surr: 2-Fluorobiphenyl	45.6	0	24.6-96.3		%Rec	1	12/12/2022 4:11:18 PM	71935
Surr: 4-Terphenyl-d14	88.0	0	53.4-124		%Rec	1	12/12/2022 4:11:18 PM	71935
TCLP VOLATILES BY 8260B							Analyst: **CCM**	
Benzene	ND	0.00023	0.50		mg/L	200	12/6/2022 7:35:00 PM	T93064
1,2-Dichloroethane (EDC)	ND	0.00025	0.50		mg/L	200	12/6/2022 7:35:00 PM	T93064
2-Butanone	ND	0.0020	200		mg/L	200	12/6/2022 7:35:00 PM	T93064
Carbon Tetrachloride	ND	0.00018	0.50		mg/L	200	12/6/2022 7:35:00 PM	T93064
Chloroform	ND	0.00013	6.0		mg/L	200	12/6/2022 7:35:00 PM	T93064
1,4-Dichlorobenzene	ND	0.00021	7.5		mg/L	200	12/6/2022 7:35:00 PM	T93064
1,1-Dichloroethene	ND	0.00020	0.70		mg/L	200	12/6/2022 7:35:00 PM	T93064
Tetrachloroethene (PCE)	ND	0.00036	0.70		mg/L	200	12/6/2022 7:35:00 PM	T93064
Trichloroethene (TCE)	ND	0.00020	0.50		mg/L	200	12/6/2022 7:35:00 PM	T93064
Vinyl chloride	ND	0.00032	0.20		mg/L	200	12/6/2022 7:35:00 PM	T93064
Chlorobenzene	ND	0.00016	100		mg/L	200	12/6/2022 7:35:00 PM	T93064
Surr: 1,2-Dichloroethane-d4	90.5	0	70-130		%Rec	200	12/6/2022 7:35:00 PM	T93064
Surr: 4-Bromofluorobenzene	93.6	0	70-130		%Rec	200	12/6/2022 7:35:00 PM	T93064
Surr: Dibromofluoromethane	94.7	0	70-130		%Rec	200	12/6/2022 7:35:00 PM	T93064
Surr: Toluene-d8	91.4	0	70-130		%Rec	200	12/6/2022 7:35:00 PM	T93064
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **MRA**	
Conductivity	1600	10	10		µmhos/c	1	12/8/2022 12:30:33 PM	R93143
SM4500-H+B / 9040C: PH							Analyst: **MRA**	
pH	7.65			H	pH units	1	12/8/2022 12:30:33 PM	R93143
SM2320B: ALKALINITY							Analyst: **MRA**	

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2212220**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2212220-002 **Matrix:** AQUEOUS

Client Sample ID: CTB to City POTW
Collection Date: 12/5/2022 9:50:00 AM
Received Date: 12/6/2022 7:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM2320B: ALKALINITY							Analyst: **MRA**	
Bicarbonate (As CaCO3)	61.80	20.00	20.00		mg/L Ca	1	12/8/2022 12:30:33 PM	R93143
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	12/8/2022 12:30:33 PM	R93143
Total Alkalinity (as CaCO3)	61.80	20.00	20.00		mg/L Ca	1	12/8/2022 12:30:33 PM	R93143
SPECIFIC GRAVITY							Analyst: **CAS**	
Specific Gravity	0.9980	0	0			1	12/12/2022 2:29:00 PM	R93206
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **SNS**	
Total Dissolved Solids	1410	20.0	20.0	*	mg/L	1	12/9/2022 9:11:00 AM	71907
SM 2540D: TSS							Analyst: **SNS**	
Suspended Solids	ND	4.0	4.0		mg/L	1	12/9/2022 1:12:00 PM	71942

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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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2212220**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2212220-003 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent-Filtere
Collection Date: 12/5/2022 10:10:00 AM
Received Date: 12/6/2022 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	H	mg/L	1	1/5/2023 11:59:40 AM	72280
Endrin	ND	0.000062	0.020	H	mg/L	1	1/5/2023 11:59:40 AM	72280
gamma-BHC (Lindane)	ND	0.000054	0.40	H	mg/L	1	1/5/2023 11:59:40 AM	72280
Heptachlor	ND	0.000041	0.0080	H	mg/L	1	1/5/2023 11:59:40 AM	72280
Heptachlor epoxide	ND	0.000051	0.0080	H	mg/L	1	1/5/2023 11:59:40 AM	72280
Methoxychlor	ND	0.000075	10	H	mg/L	1	1/5/2023 11:59:40 AM	72280
Toxaphene	ND	0.00050	0.50	H	mg/L	1	1/5/2023 11:59:40 AM	72280
Surr: Decachlorobiphenyl	75.2	0	40.9-111	H	%Rec	1	1/5/2023 11:59:40 AM	72280
Surr: Tetrachloro-m-xylene	79.3	0	15-107	H	%Rec	1	1/5/2023 11:59:40 AM	72280
EPA METHOD 8151: HERBICIDES TCLP							Analyst: **SB**	
2,4,5-TP (Silvex)	ND	1.0	1.0	H	mg/L	1	12/22/2022 11:34:29 P	72185
2,4-D	ND	10	10	H	mg/L	1	12/22/2022 11:34:29 P	72185
Surr: 2,4-Dichlorophenylacetic acid	212	0	70-130	SH	%Rec	1	12/22/2022 11:34:29 P	72185
EPA METHOD 7470A: TCLP MERCURY							Analyst: **VP**	
Mercury	ND	0.000092	0.020		mg/L	1	12/29/2022 12:50:02 P	72362
EPA METHOD 6010B: TCLP METALS							Analyst: **JRR**	
Arsenic	ND	0.028	5.0		mg/L	1	12/22/2022 9:54:50 AM	72262
Barium	0.055	0.0045	100	J	mg/L	1	12/22/2022 9:54:50 AM	72262
Cadmium	ND	0.0067	1.0		mg/L	1	12/22/2022 9:54:50 AM	72262
Chromium	ND	0.0031	5.0		mg/L	1	12/22/2022 9:54:50 AM	72262
Lead	ND	0.0099	5.0		mg/L	1	12/22/2022 9:54:50 AM	72262
Selenium	ND	0.061	1.0		mg/L	1	12/22/2022 9:54:50 AM	72262
Silver	0.0071	0.0023	5.0	J	mg/L	1	12/22/2022 9:54:50 AM	72262
EPA METHOD 8270C TCLP							Analyst: **DAM**	
2-Methylphenol	ND	0.0050	200	H	mg/L	1	1/5/2023 2:54:33 PM	72267
3+4-Methylphenol	ND	0.0051	200	H	mg/L	1	1/5/2023 2:54:33 PM	72267
2,4-Dinitrotoluene	ND	0.0049	0.13	H	mg/L	1	1/5/2023 2:54:33 PM	72267
Hexachlorobenzene	ND	0.019	0.13	H	mg/L	1	1/5/2023 2:54:33 PM	72267
Hexachlorobutadiene	ND	0.017	0.50	H	mg/L	1	1/5/2023 2:54:33 PM	72267
Hexachloroethane	ND	0.014	3.0	H	mg/L	1	1/5/2023 2:54:33 PM	72267
Nitrobenzene	ND	0.0049	2.0	H	mg/L	1	1/5/2023 2:54:33 PM	72267
Pentachlorophenol	ND	0.027	100	EH	mg/L	1	1/5/2023 2:54:33 PM	72267
Pyridine	ND	0.014	5.0	H	mg/L	1	1/5/2023 2:54:33 PM	72267
2,4,5-Trichlorophenol	ND	0.0063	400	EH	mg/L	1	1/5/2023 2:54:33 PM	72267
2,4,6-Trichlorophenol	ND	0.0059	2.0	EH	mg/L	1	1/5/2023 2:54:33 PM	72267
Cresols, Total	ND	0.027	200	H	mg/L	1	1/5/2023 2:54:33 PM	72267
Surr: 2-Fluorophenol	54.1	0	18.1-88.9	H	%Rec	1	1/5/2023 2:54:33 PM	72267

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 Quanitative 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

Analytical Report
Lab Order **2212220**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2212220-003 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent-Filtere
Collection Date: 12/5/2022 10:10:00 AM
Received Date: 12/6/2022 7:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C TCLP							Analyst: **DAM**	
Surr: Phenol-d5	43.1	0	17-61.5	H	%Rec	1	1/5/2023 2:54:33 PM	72267
Surr: 2,4,6-Tribromophenol	97.2	0	29.8-104	H	%Rec	1	1/5/2023 2:54:33 PM	72267
Surr: Nitrobenzene-d5	69.9	0	22.2-111	H	%Rec	1	1/5/2023 2:54:33 PM	72267
Surr: 2-Fluorobiphenyl	59.2	0	24.6-96.3	H	%Rec	1	1/5/2023 2:54:33 PM	72267
Surr: 4-Terphenyl-d14	101	0	53.4-124	H	%Rec	1	1/5/2023 2:54:33 PM	72267
TCLP VOLATILES BY 8260B							Analyst: **JR**	
Benzene	ND	0.50	0.50	H	mg/L	200	12/23/2022 7:52:12 PM	T93557
1,2-Dichloroethane (EDC)	ND	0.50	0.50	H	mg/L	200	12/23/2022 7:52:12 PM	T93557
2-Butanone	ND	200	200	H	mg/L	200	12/23/2022 7:52:12 PM	T93557
Carbon Tetrachloride	ND	0.50	0.50	H	mg/L	200	12/23/2022 7:52:12 PM	T93557
Chloroform	ND	6.0	6.0	H	mg/L	200	12/23/2022 7:52:12 PM	T93557
1,4-Dichlorobenzene	ND	7.5	7.5	H	mg/L	200	12/23/2022 7:52:12 PM	T93557
1,1-Dichloroethene	ND	0.70	0.70	H	mg/L	200	12/23/2022 7:52:12 PM	T93557
Tetrachloroethene (PCE)	ND	0.70	0.70	H	mg/L	200	12/23/2022 7:52:12 PM	T93557
Trichloroethene (TCE)	ND	0.50	0.50	H	mg/L	200	12/23/2022 7:52:12 PM	T93557
Vinyl chloride	ND	0.20	0.20	H	mg/L	200	12/23/2022 7:52:12 PM	T93557
Chlorobenzene	ND	100	100	H	mg/L	200	12/23/2022 7:52:12 PM	T93557
Surr: 1,2-Dichloroethane-d4	106	0	70-130	H	%Rec	200	12/23/2022 7:52:12 PM	T93557
Surr: 4-Bromofluorobenzene	114	0	70-130	H	%Rec	200	12/23/2022 7:52:12 PM	T93557
Surr: Dibromofluoromethane	90.8	0	70-130	H	%Rec	200	12/23/2022 7:52:12 PM	T93557
Surr: Toluene-d8	107	0	70-130	H	%Rec	200	12/23/2022 7:52:12 PM	T93557

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 Quanitative 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

Analytical Report
Lab Order **2212220**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2212220-004 **Matrix:** AQUEOUS

Client Sample ID: CTB to City POTW-Filtered
Collection Date: 12/5/2022 9:50:00 AM
Received Date: 12/6/2022 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	H	mg/L	1	1/5/2023 12:12:45 PM	72280
Endrin	ND	0.000062	0.020	H	mg/L	1	1/5/2023 12:12:45 PM	72280
gamma-BHC (Lindane)	ND	0.000054	0.40	H	mg/L	1	1/5/2023 12:12:45 PM	72280
Heptachlor	ND	0.000041	0.0080	H	mg/L	1	1/5/2023 12:12:45 PM	72280
Heptachlor epoxide	ND	0.000051	0.0080	H	mg/L	1	1/5/2023 12:12:45 PM	72280
Methoxychlor	ND	0.000075	10	H	mg/L	1	1/5/2023 12:12:45 PM	72280
Toxaphene	ND	0.00050	0.50	H	mg/L	1	1/5/2023 12:12:45 PM	72280
Surr: Decachlorobiphenyl	81.2	0	40.9-111	H	%Rec	1	1/5/2023 12:12:45 PM	72280
Surr: Tetrachloro-m-xylene	66.2	0	15-107	H	%Rec	1	1/5/2023 12:12:45 PM	72280
EPA METHOD 8151: HERBICIDES TCLP							Analyst: **SB**	
2,4,5-TP (Silvex)	ND	1.0	1.0	H	mg/L	1	12/23/2022 12:00:15 A	72185
2,4-D	ND	10	10	H	mg/L	1	12/23/2022 12:00:15 A	72185
Surr: 2,4-Dichlorophenylacetic acid	102	0	70-130	H	%Rec	1	12/23/2022 12:00:15 A	72185
EPA METHOD 7470A: TCLP MERCURY							Analyst: **VP**	
Mercury	ND	0.000092	0.020		mg/L	1	12/29/2022 12:56:25 P	72362
EPA METHOD 6010B: TCLP METALS							Analyst: **JRR**	
Arsenic	ND	0.028	5.0		mg/L	1	12/22/2022 9:56:47 AM	72262
Barium	0.022	0.0045	100	J	mg/L	1	12/22/2022 9:56:47 AM	72262
Cadmium	ND	0.0067	1.0		mg/L	1	12/22/2022 9:56:47 AM	72262
Chromium	ND	0.0031	5.0		mg/L	1	12/22/2022 9:56:47 AM	72262
Lead	ND	0.0099	5.0		mg/L	1	12/22/2022 9:56:47 AM	72262
Selenium	ND	0.061	1.0		mg/L	1	12/22/2022 9:56:47 AM	72262
Silver	0.0040	0.0023	5.0	J	mg/L	1	12/22/2022 9:56:47 AM	72262
EPA METHOD 8270C TCLP							Analyst: **DAM**	
2-Methylphenol	ND	0.0050	200	H	mg/L	1	1/5/2023 4:58:16 PM	72267
3+4-Methylphenol	ND	0.0051	200	H	mg/L	1	1/5/2023 4:58:16 PM	72267
2,4-Dinitrotoluene	ND	0.0049	0.13	H	mg/L	1	1/5/2023 4:58:16 PM	72267
Hexachlorobenzene	ND	0.019	0.13	H	mg/L	1	1/5/2023 4:58:16 PM	72267
Hexachlorobutadiene	ND	0.017	0.50	H	mg/L	1	1/5/2023 4:58:16 PM	72267
Hexachloroethane	ND	0.014	3.0	H	mg/L	1	1/5/2023 4:58:16 PM	72267
Nitrobenzene	ND	0.0049	2.0	H	mg/L	1	1/5/2023 4:58:16 PM	72267
Pentachlorophenol	ND	0.027	100	EH	mg/L	1	1/5/2023 4:58:16 PM	72267
Pyridine	ND	0.014	5.0	H	mg/L	1	1/5/2023 4:58:16 PM	72267
2,4,5-Trichlorophenol	ND	0.0063	400	EH	mg/L	1	1/5/2023 4:58:16 PM	72267
2,4,6-Trichlorophenol	ND	0.0059	2.0	EH	mg/L	1	1/5/2023 4:58:16 PM	72267
Cresols, Total	ND	0.027	200	H	mg/L	1	1/5/2023 4:58:16 PM	72267
Surr: 2-Fluorophenol	35.3	0	18.1-88.9	H	%Rec	1	1/5/2023 4:58:16 PM	72267

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 Quanitative 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

Analytical Report
Lab Order **2212220**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2212220-004 **Matrix:** AQUEOUS

Client Sample ID: CTB to City POTW-Filtered
Collection Date: 12/5/2022 9:50:00 AM
Received Date: 12/6/2022 7:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C TCLP							Analyst: **DAM**	
Surr: Phenol-d5	33.6	0	17-61.5	H	%Rec	1	1/5/2023 4:58:16 PM	72267
Surr: 2,4,6-Tribromophenol	32.9	0	29.8-104	H	%Rec	1	1/5/2023 4:58:16 PM	72267
Surr: Nitrobenzene-d5	55.4	0	22.2-111	H	%Rec	1	1/5/2023 4:58:16 PM	72267
Surr: 2-Fluorobiphenyl	45.7	0	24.6-96.3	H	%Rec	1	1/5/2023 4:58:16 PM	72267
Surr: 4-Terphenyl-d14	94.3	0	53.4-124	H	%Rec	1	1/5/2023 4:58:16 PM	72267
TCLP VOLATILES BY 8260B							Analyst: **JR**	
Benzene	ND	0.50	0.50	H	mg/L	200	12/23/2022 8:20:43 PM	T93557
1,2-Dichloroethane (EDC)	ND	0.50	0.50	H	mg/L	200	12/23/2022 8:20:43 PM	T93557
2-Butanone	ND	200	200	H	mg/L	200	12/23/2022 8:20:43 PM	T93557
Carbon Tetrachloride	ND	0.50	0.50	H	mg/L	200	12/23/2022 8:20:43 PM	T93557
Chloroform	ND	6.0	6.0	H	mg/L	200	12/23/2022 8:20:43 PM	T93557
1,4-Dichlorobenzene	ND	7.5	7.5	H	mg/L	200	12/23/2022 8:20:43 PM	T93557
1,1-Dichloroethene	ND	0.70	0.70	H	mg/L	200	12/23/2022 8:20:43 PM	T93557
Tetrachloroethene (PCE)	ND	0.70	0.70	H	mg/L	200	12/23/2022 8:20:43 PM	T93557
Trichloroethene (TCE)	ND	0.50	0.50	H	mg/L	200	12/23/2022 8:20:43 PM	T93557
Vinyl chloride	ND	0.20	0.20	H	mg/L	200	12/23/2022 8:20:43 PM	T93557
Chlorobenzene	ND	100	100	H	mg/L	200	12/23/2022 8:20:43 PM	T93557
Surr: 1,2-Dichloroethane-d4	98.6	0	70-130	H	%Rec	200	12/23/2022 8:20:43 PM	T93557
Surr: 4-Bromofluorobenzene	113	0	70-130	H	%Rec	200	12/23/2022 8:20:43 PM	T93557
Surr: Dibromofluoromethane	87.4	0	70-130	H	%Rec	200	12/23/2022 8:20:43 PM	T93557
Surr: Toluene-d8	106	0	70-130	H	%Rec	200	12/23/2022 8:20:43 PM	T93557

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 Quanitative 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

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Client:	Hall Environmental Analysis Lab	Work Order:	MCL0240
Address:	4901 Hawkins NE Suite D	Project:	2212220
	Albuquerque, NM 87109	Reported:	1/5/2023 12:50
Attn:	Andy Freeman		

Analytical Results Report

Sample Location:	2212220-001F (WDW-1,2,3 &4 Effluent)		
Lab/Sample Number:	MCL0240-01	Collect Date:	12/05/22 10:10
Date Received:	12/07/22 11:31	Collected By:	
Matrix:	Water		

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
TCLP Organics							
TCLP 2,4,5-TP (Silvex)	ND	ppm	0.0100	12/13/22 15:44	SAT	EPA 8151A	
TCLP 2,4-D	ND	ppm	0.0100	12/13/22 15:44	SAT	EPA 8151A	
TCLP Pentachlorophenol	ND	ppm	0.00500	12/13/22 15:44	SAT	EPA 8151A	

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Analytical Results Report
(Continued)

Sample Location:	2212220-002F (CTB to City POTW)		
Lab/Sample Number:	MCL0240-02	Collect Date:	12/05/22 09:50
Date Received:	12/07/22 11:31	Collected By:	
Matrix:	Water		

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
TCLP Organics							
TCLP 2,4,5-TP (Silvex)	ND	ppm	0.0100	12/13/22 16:17	SAT	EPA 8151A	
TCLP 2,4-D	ND	ppm	0.0100	12/13/22 16:17	SAT	EPA 8151A	
TCLP Pentachlorophenol	ND	ppm	0.00500	12/13/22 16:17	SAT	EPA 8151A	

Authorized Signature,

Justin Doty For Todd Taruscio, Laboratory Manager

PQL	Practical Quantitation Limit
ND	Not Detected
MCL	EPA's Maximum Contaminant Level
Dry	Sample results reported on a dry weight basis
*	Not a state-certified analyte

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504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Quality Control Data

TCLP Organics

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BCL0510 - Herbicides										
Blank (BCL0510-BLK1)					Prepared & Analyzed: 12/13/2022					
TCLP 2,4-D	ND		0.0100	ppm						
TCLP 2,4,5-TP (Silvex)	ND		0.0100	ppm						
TCLP Pentachlorophenol	ND		0.00500	ppm						
LCS (BCL0510-BS1)					Prepared & Analyzed: 12/13/2022					
TCLP 2,4-D	0.0513		0.0100	ppm	0.0500		103	70-130		
TCLP 2,4,5-TP (Silvex)	0.0118		0.0100	ppm	0.0125		94.8	70-130		
TCLP Pentachlorophenol	0.00503		0.00500	ppm	0.00500		101	70-130		
Matrix Spike (BCL0510-MS1)		**Source: MCL0240-02**			Prepared & Analyzed: 12/13/2022					
TCLP 2,4-D	0.0488		0.0100	ppm	0.0500	ND	97.7	70-130		
TCLP 2,4,5-TP (Silvex)	0.0115		0.0100	ppm	0.0125	ND	91.7	70-130		
TCLP Pentachlorophenol	0.00476		0.00500	ppm	0.00500	ND	95.2	70-130		
Matrix Spike Dup (BCL0510-MSD1)		**Source: MCL0240-02**			Prepared & Analyzed: 12/13/2022					
TCLP 2,4-D	0.0501		0.0100	ppm	0.0500	ND	100	70-130	2.53	25
TCLP 2,4,5-TP (Silvex)	0.0118		0.0100	ppm	0.0125	ND	94.6	70-130	3.12	25
TCLP Pentachlorophenol	0.00491		0.00500	ppm	0.00500	ND	98.2	70-130	3.08	25

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

Hall Enviror

Website: w

MCL0240

Due: 12/21/22

SUB CONTRATOR: **Anatek ID**	COMPANY: **Anatek Labs, Inc.**	PHONE: **(208) 883-2839**	FAX: **(208) 882-9246**
ADDRESS: **1282 Alturas Dr**		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: **Moscow, ID 83843**			

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2212220-001F	WDW-1,2,3 & 4 Effluent	1LAMGU	Aqueous	12/5/2022 10:10:00 AM	1	8151TCLP
2	2212220-002F	CTB to City POTW	1LAMGU	Aqueous	12/5/2022 9:50:00 AM	1	8151TCLP

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:	Date: 12/6/2022	Time: 10:51 AM	Received By:	Date: 12/7/22	Time: 11:31
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: _____

MCL0240

Due: 12/21/22

Anatek Labs, Inc.

Sample Receipt and Preservation Form

Client Name: Hall

TAT: (Normal) RUSH: _____ days

Samples Received From: (FedEx) UPS USPS Client Courier Other: _____

Custody Seal on Cooler/Box: (Yes) No Custody Seals Intact: (Yes) No N/A

Number of Coolers/Boxes: 1 Type of Ice: Wet Ice (Ice Packs) Dry Ice None

Packing Material: (Bubble Wrap) Bags Foam/Peanuts (Paper) None Other: _____

Cooler Temp As Read (°C): 2.2 Cooler Temp Corrected (°C): _____ Thermometer Used: IR-5

				Comments:
Samples Received Intact?	(Yes)	No	N/A	
Chain of Custody Present/Complete?	(Yes)	No	N/A	
Labels and Chains Agree?	(Yes)	No	N/A	
Samples Received Within Hold Time?	(Yes)	No	N/A	
Correct Containers Received?	(Yes)	No	N/A	
Anatek Bottles Used?	Yes	No	(Unknown)	
Total Number of Sample Bottles Received: 2				

				Initial pH:	pH Paper ID:
Samples Properly Preserved?	Yes	No	(N/A)	<2 or	
If No, record preservation and pH-after details					
VOC Vials Free of Headspace (<6mm)?	Yes	No	(N/A)		
VOC Trip Blanks Present?	Yes	No	(N/A)		

Record preservatives (and lot numbers, if known) for containers below:

Notes, comments, etc. (also use this space if contacting the client - record names and date/time)

8151 TCLP-gJL x2

Received/Inspected By: JKI Date/Time: 12/7/22 11:31

Form F19.01 - Eff 1 Dec 2022

Page 1 of 1

Pace Analytical®

ANALYTICAL REPORT

December 13, 2022

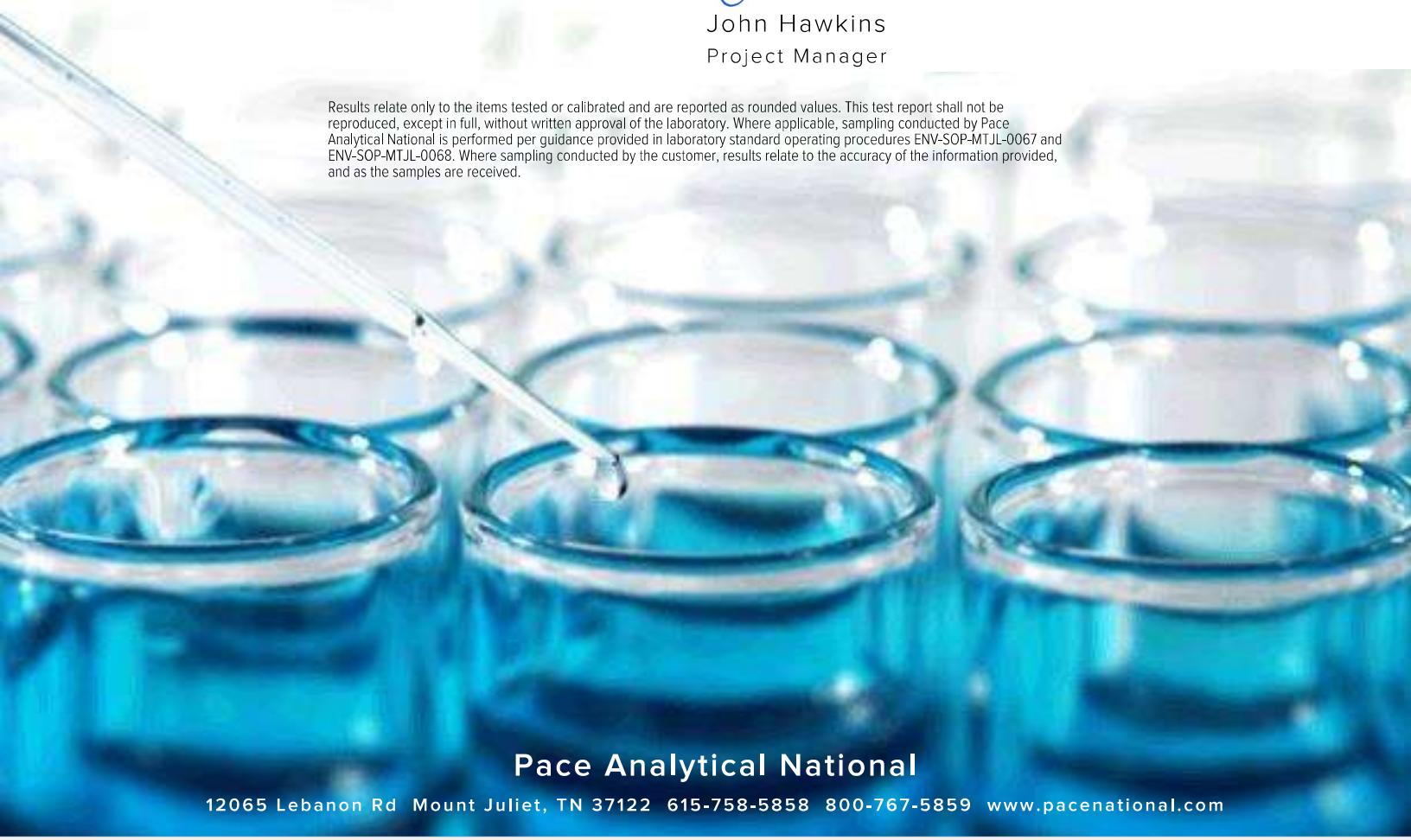
Hall Environmental Analysis Laboratory

Sample Delivery Group:	L1564552
Samples Received:	12/07/2022
Project Number:	
Description:	

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

Entire Report Reviewed By:

John Hawkins
Project Manager



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

TABLE OF CONTENTS

SAMPLE SUMMARY

2212220-001G WDW-1,2,3 & 4 EFFLUENT L1564552-01 GW

Collected by	Collected date/time	Received date/time
	12/05/22 10:10	12/07/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2580	WG1968146	1	12/08/22 08:09	12/08/22 08:09	ARD	Mt. Juliet, TN
Wet Chemistry by Method 4500 CN E-2016	WG1970528	1	12/08/22 03:15	12/09/22 13:22	JCS	Mt. Juliet, TN
Wet Chemistry by Method 4500 S2 D-2011	WG1971569	1	12/08/22 17:16	12/08/22 17:16	RLS	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1971042	1	12/09/22 09:44	12/09/22 09:44	KAD	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG1970875	1	12/08/22 03:00	12/08/22 03:00	WOS	Mt. Juliet, TN

2212220-002G CTB TO CITY POTW L1564552-02 GW

Collected by	Collected date/time	Received date/time
	12/05/22 09:50	12/07/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2580	WG1968146	1	12/08/22 08:09	12/08/22 08:09	ARD	Mt. Juliet, TN
Wet Chemistry by Method 4500 CN E-2016	WG1970528	1	12/08/22 03:15	12/09/22 13:23	JCS	Mt. Juliet, TN
Wet Chemistry by Method 4500 S2 D-2011	WG1971569	1	12/08/22 17:17	12/08/22 17:17	RLS	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1971042	1	12/09/22 09:44	12/09/22 09:44	KAD	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG1970875	1	12/08/22 03:00	12/08/22 03:00	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.

Lab Sample ID	Project Sample ID	Method
L1564552-01	2212220-001G WDW-1,2,3 & 4 EFFLUENT	4500 S2 D-2011
L1564552-02	2212220-002G CTB TO CITY POTW	4500 S2 D-2011

Wet Chemistry by Method 2580

Analyte	Result mV	Qualifier	Dilution	Analysis date / time	Batch
ORP	283	T8	1	12/08/2022 08:09	WG1968146

Wet Chemistry by Method 4500 CN E-2016

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Cyanide	0.0113		0.00500	1	12/09/2022 13:22	WG1970528

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	12/08/2022 17:16	WG1971569

Wet Chemistry by Method 9040C

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.81	T8	1	12/09/2022 09:44	WG1971042

Sample Narrative:

L1564552-01 WG1971042: 7.81 at 20.2C

Wet Chemistry by Method D93/1010A

Analyte	Result deg F	Qualifier	Dilution	Analysis date / time	Batch
Flashpoint	DNF at 170		1	12/08/2022 03:00	WG1970875

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	mV			date / time	
ORP	307	T8	1	12/08/2022 08:09	WG1968146

Wet Chemistry by Method 4500 CN E-2016

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Reactive Cyanide	ND	J6	0.00500	1	12/09/2022 13:23	WG1970528

Wet Chemistry by Method 4500 S2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Reactive Sulfide	ND		0.0500	1	12/08/2022 17:17	WG1971569

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.80	T8	1	12/09/2022 09:44	WG1971042

Sample Narrative:

L1564552-02 WG1971042: 7.8 at 20.2C

Wet Chemistry by Method D93/1010A

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	deg F			date / time	
Flashpoint	DNF at 170		1	12/08/2022 03:00	WG1970875

L1562692-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1562692-02 12/08/22 08:09 • (DUP) R3869467-3 12/08/22 08:09

	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
Analyte	mV	mV		mV		mV
ORP	165	165	1	0.600		20

L1562692-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1562692-04 12/08/22 08:09 • (DUP) R3869467-4 12/08/22 08:09

	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
Analyte	mV	mV		mV		mV
ORP	194	194	1	0.500		20

L1564442-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1564442-01 12/08/22 08:09 • (DUP) R3869467-5 12/08/22 08:09

	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
Analyte	mV	mV		mV		mV
ORP	630	637	1	7.50		20

L1564552-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1564552-01 12/08/22 08:09 • (DUP) R3869467-6 12/08/22 08:09

	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
Analyte	mV	mV		mV		mV
ORP	283	276	1	7.00		20

L1564552-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1564552-02 12/08/22 08:09 • (DUP) R3869467-7 12/08/22 08:09

	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
Analyte	mV	mV		mV		mV
ORP	307	311	1	3.50		20

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

(LCS) R3869467-1 12/08/22 08:09 • (LCSD) R3869467-2 12/08/22 08:09

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	Diff	Diff Limits
Analyte	mV	mV	mV	%	%	%			mV	mV
ORP	98.0	104	106	106	108	90.0-110			1.50	20

Method Blank (MB)

(MB) R3870174-1 12/09/22 13:02

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

L1564480-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1564480-02 12/09/22 13:15 • (DUP) R3870174-5 12/09/22 13:16

	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

L1564495-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1564495-01 12/09/22 13:17 • (DUP) R3870174-6 12/09/22 13:18

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Reactive Cyanide	ND	ND	1	200	P1	20

Laboratory Control Sample (LCS)

(LCS) R3870174-2 12/09/22 13:03

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Reactive Cyanide	0.100	0.0991	99.1	87.1-120	

L1564433-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1564433-01 12/09/22 13:09 • (MS) R3870174-3 12/09/22 13:10 • (MSD) R3870174-4 12/09/22 13:11

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Reactive Cyanide	0.100	ND	0.0967	0.0918	96.7	91.8	1	90.0-110			5.20	20

L1564552-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1564552-02 12/09/22 13:23 • (MS) R3870174-7 12/09/22 13:26 • (MSD) R3870174-8 12/09/22 13:27

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Reactive Cyanide	0.100	ND	0.0909	0.0907	88.8	88.6	1	90.0-110	J6	J6	0.220	20

Method Blank (MB)

(MB) R3869828-1 12/08/22 17:12

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) R3869828-2 12/08/22 17:14

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Sulfide	0.500	0.532	106	85.0-115	

L1564542-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1564542-01 12/09/22 09:44 • (DUP) R3870032-2 12/09/22 09:44

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.62	7.61	1	0.131		1

Sample Narrative:
OS: 7.62 at 20.3C
DUP: 7.61 at 20.3C

L1564772-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1564772-01 12/09/22 09:44 • (DUP) R3870032-3 12/09/22 09:44

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.86	7.88	1	0.254		1

Sample Narrative:
OS: 7.86 at 20.1C
DUP: 7.88 at 19.9C

Laboratory Control Sample (LCS)

(LCS) R3870032-1 12/09/22 09:44

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 20.8C

QUALITY CONTROL SUMMARY

L1564552-01,02

L1564803-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1564803-03 12/08/22 03:00 • (DUP) R3869818-3 12/08/22 03:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	deg F	deg F		%		%
Flashpoint	DNF at 200	DNF at 200	1	0.000		10

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

(LCS) R3869818-1 12/08/22 03:00 • (LCSD) R3869818-2 12/08/22 03:00

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	deg F	deg F	deg F	%	%	%			%	%
Flashpoint	126	129	127	103	101	96.0-104			1.56	10

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
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
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.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

H139

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

SUB CONTRATOR: 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					

LR5045552

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2212220-001G	WDW-1,2,3 & 4 Effluent	500HDPE	Aqueous	12/5/2022 10:10:00 AM	3	RCI, ORP -01
2	2212220-002G	CTB to City POTW	500HDPE	Aqueous	12/5/2022 9:50:00 AM	3	RCI, ORP -02

CN = Chlorine – O
pH 7 12

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	Temp: GBAZ	
Sufficient volume sent:	Y N	0.1 - 0.0 = 0.1	
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:	Date: 12/6/2022	Time: 10:54 AM	Received By:	Date: 12-7-22	Time: 9:30
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: FedEx TRK#: 7706 95 49670

# of containers: 6 Trip Blank: No

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2212220**

20-Jan-23

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: **R93070**	RunNo: **93070**
Prep Date:	Analysis Date: **12/6/2022**	SeqNo: **3351927** 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								
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R93070**	RunNo: **93070**
Prep Date:	Analysis Date: **12/6/2022**	SeqNo: **3351928** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	102	90	110			
Chloride	4.6	0.50	5.000	0	91.4	90	110			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	94.4	90	110			
Bromide	2.4	0.10	2.500	0	94.2	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	97.9	90	110			
Sulfate	9.4	0.50	10.00	0	93.7	90	110			

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R93118**	RunNo: **93118**
Prep Date:	Analysis Date: **12/7/2022**	SeqNo: **3354238** 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: **R93118**	RunNo: **93118**
Prep Date:	Analysis Date: **12/7/2022**	SeqNo: **3354243** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.5	0.50	5.000	0	90.1	90	110			
Sulfate	9.2	0.50	10.00	0	92.1	90	110			

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R93119**	RunNo: **93119**
Prep Date:	Analysis Date: **12/7/2022**	SeqNo: **3354349** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative 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#: **2212220**

20-Jan-23

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: **R93119**	RunNo: **93119**
Prep Date:	Analysis Date: **12/7/2022**	SeqNo: **3354349** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R93119**	RunNo: **93119**
Prep Date:	Analysis Date: **12/7/2022**	SeqNo: **3354350** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	4.6	0.50	5.000	0	91.3	90	110			

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 Quanitative 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#: **2212220**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-71959**	SampType: **MBLK**	TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **PBW**	Batch ID: **71959**	RunNo: **93281**
Prep Date: **12/8/2022**	Analysis Date: **12/14/2022**	SeqNo: **3362248** 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: **MSLLLCS-71959**	SampType: **LCSLL**	TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **BatchQC**	Batch ID: **71959**	RunNo: **93281**
Prep Date: **12/8/2022**	Analysis Date: **12/14/2022**	SeqNo: **3362249** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0011	0.0010	0.001000	0	109	70	130			
Lead	0.00096	0.0010	0.001000	0	95.5	70	130			J

Sample ID: **MSLCS-71959**	SampType: **LCS**	TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **LCSW**	Batch ID: **71959**	RunNo: **93281**
Prep Date: **12/8/2022**	Analysis Date: **12/14/2022**	SeqNo: **3362250** 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	99.2	80	120			
Lead	0.051	0.0010	0.05000	0	102	80	120			
Selenium	0.051	0.0010	0.05000	0	103	80	120			

Sample ID: **MSLLLCS-71959**	SampType: **LCSLL**	TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **BatchQC**	Batch ID: **71959**	RunNo: **93281**
Prep Date: **12/8/2022**	Analysis Date: **12/14/2022**	SeqNo: **3362251** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.0013	0.0010	0.001000	0	125	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 Quanitative 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#: **2212220**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-71988**	SampType: **MBLK**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **PBW**	Batch ID: **71988**	RunNo: **93751**
Prep Date: **12/9/2022**	Analysis Date: **12/27/2022**	SeqNo: **3384023** 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	0.0020		0.002500		78.9	40.9	111			
Surr: Tetrachloro-m-xylene	0.0014		0.002500		55.9	15	107			

Sample ID: **LCS-71988**	SampType: **LCS**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSW**	Batch ID: **71988**	RunNo: **93751**
Prep Date: **12/9/2022**	Analysis Date: **12/27/2022**	SeqNo: **3384027** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Endrin	0.00044	0.00010	0.0005000	0	88.3	56.3	126			
gamma-BHC (Lindane)	0.00036	0.00010	0.0005000	0	71.6	45.8	103			
Heptachlor	0.00034	0.00010	0.0005000	0	68.3	33.7	104			
Heptachlor epoxide	0.00041	0.00010	0.0005000	0	82.5	50.1	116			
Methoxychlor	0.00047	0.00010	0.0005000	0	94.4	15	203			
Surr: Decachlorobiphenyl	0.0022		0.002500		89.5	40.9	111			
Surr: Tetrachloro-m-xylene	0.0017		0.002500		70.0	15	107			

Sample ID: **LCSD-71988**	SampType: **LCSD**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSS02**	Batch ID: **71988**	RunNo: **93751**
Prep Date: **12/9/2022**	Analysis Date: **12/27/2022**	SeqNo: **3384028** 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	94.1	56.3	126	6.34	20	
gamma-BHC (Lindane)	0.00043	0.00010	0.0005000	0	85.2	45.8	103	17.4	20	
Heptachlor	0.00032	0.00010	0.0005000	0	64.1	33.7	104	6.35	20	
Heptachlor epoxide	0.00045	0.00010	0.0005000	0	89.3	50.1	116	7.91	20	
Methoxychlor	0.00050	0.00010	0.0005000	0	100	15	203	6.17	20	
Surr: Decachlorobiphenyl	0.0021		0.002500		86.0	40.9	111	0	0	
Surr: Tetrachloro-m-xylene	0.0016		0.002500		65.1	15	107	0	0	

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 Quanitative 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#: **2212220**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-71988**	SampType: **MBLK**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **PBW**	Batch ID: **71988**	RunNo: **93751**
Prep Date: **12/9/2022**	Analysis Date: **12/27/2022**	SeqNo: **3384075** 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	0.0021		0.002500		82.5	40.9	111			
Surr: Tetrachloro-m-xylene	0.0014		0.002500		55.3	15	107			

Sample ID: **LCS-71988**	SampType: **LCS**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSW**	Batch ID: **71988**	RunNo: **93751**
Prep Date: **12/9/2022**	Analysis Date: **12/27/2022**	SeqNo: **3384076** 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	91.7	56.3	126			
gamma-BHC (Lindane)	0.00039	0.00010	0.0005000	0	78.1	45.8	103			
Heptachlor	0.00036	0.00010	0.0005000	0	72.4	33.7	104			
Heptachlor epoxide	0.00043	0.00010	0.0005000	0	86.6	50.1	116			
Methoxychlor	0.00049	0.00010	0.0005000	0	98.0	15	203			
Surr: Decachlorobiphenyl	0.0023		0.002500		93.0	40.9	111			
Surr: Tetrachloro-m-xylene	0.0017		0.002500		69.5	15	107			

Sample ID: **LCSD-71988**	SampType: **LCSD**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSS02**	Batch ID: **71988**	RunNo: **93751**
Prep Date: **12/9/2022**	Analysis Date: **12/27/2022**	SeqNo: **3384077** 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	100	56.3	126	8.71	20	
gamma-BHC (Lindane)	0.00046	0.00010	0.0005000	0	92.2	45.8	103	16.5	20	
Heptachlor	0.00034	0.00010	0.0005000	0	68.6	33.7	104	5.41	20	
Heptachlor epoxide	0.00047	0.00010	0.0005000	0	94.0	50.1	116	8.13	20	
Methoxychlor	0.00051	0.00010	0.0005000	0	103	15	203	4.81	20	
Surr: Decachlorobiphenyl	0.0023		0.002500		90.3	40.9	111	0	0	
Surr: Tetrachloro-m-xylene	0.0017		0.002500		66.7	15	107	0	0	

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 Quanitative 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#: **2212220**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-72280**	SampType: **MBLK**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **PBW**	Batch ID: **72280**	RunNo: **93759**
Prep Date: **12/22/2022**	Analysis Date: **1/5/2023**	SeqNo: **3384697** 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		93.1	40.9	111			
Surr: Tetrachloro-m-xylene	0.0021		0.002500		84.4	15	107			

Sample ID: **MB-72280**	SampType: **MBLK**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **PBW**	Batch ID: **72280**	RunNo: **93759**
Prep Date: **12/22/2022**	Analysis Date: **1/5/2023**	SeqNo: **3384698** 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		96.3	40.9	111			
Surr: Tetrachloro-m-xylene	0.0021		0.002500		83.8	15	107			

Sample ID: **LCS-72280**	SampType: **LCS**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSW**	Batch ID: **72280**	RunNo: **93759**
Prep Date: **12/22/2022**	Analysis Date: **1/5/2023**	SeqNo: **3384699** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Endrin	0.00045	0.00010	0.0005000	0	89.7	56.3	126			
gamma-BHC (Lindane)	0.00038	0.00010	0.0005000	0	76.0	45.8	103			
Heptachlor	0.00026	0.00010	0.0005000	0	51.2	33.7	104			
Heptachlor epoxide	0.00041	0.00010	0.0005000	0	82.4	50.1	116			
Methoxychlor	0.00049	0.00010	0.0005000	0	98.6	15	203			
Surr: Decachlorobiphenyl	0.0024		0.002500		94.2	40.9	111			
Surr: Tetrachloro-m-xylene	0.0016		0.002500		62.4	15	107			

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 Quanitative 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#: **2212220**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **LCS-72280**	SampType: **LCS**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSW**	Batch ID: **72280**	RunNo: **93759**
Prep Date: **12/22/2022**	Analysis Date: **1/5/2023**	SeqNo: **3384700** 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	95.3	56.3	126			
gamma-BHC (Lindane)	0.00042	0.00010	0.0005000	0	83.2	45.8	103			
Heptachlor	0.00028	0.00010	0.0005000	0	55.1	33.7	104			
Heptachlor epoxide	0.00044	0.00010	0.0005000	0	87.2	50.1	116			
Methoxychlor	0.00050	0.00010	0.0005000	0	101	15	203			
Surr: Decachlorobiphenyl	0.0024		0.002500		98.0	40.9	111			
Surr: Tetrachloro-m-xylene	0.0015		0.002500		61.9	15	107			

Sample ID: **LCSD-72280**	SampType: **LCSD**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSS02**	Batch ID: **72280**	RunNo: **93759**
Prep Date: **12/22/2022**	Analysis Date: **1/5/2023**	SeqNo: **3384701** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Endrin	0.00044	0.00010	0.0005000	0	88.4	56.3	126	1.40	20	
gamma-BHC (Lindane)	0.00035	0.00010	0.0005000	0	69.5	45.8	103	8.88	20	
Heptachlor	0.00029	0.00010	0.0005000	0	58.4	33.7	104	13.2	20	
Heptachlor epoxide	0.00041	0.00010	0.0005000	0	81.2	50.1	116	1.51	20	
Methoxychlor	0.00048	0.00010	0.0005000	0	95.9	15	203	2.77	20	
Surr: Decachlorobiphenyl	0.0023		0.002500		91.1	40.9	111	0	0	
Surr: Tetrachloro-m-xylene	0.0012		0.002500		46.6	15	107	0	0	

Sample ID: **LCSD-72280**	SampType: **LCSD**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSS02**	Batch ID: **72280**	RunNo: **93759**
Prep Date: **12/22/2022**	Analysis Date: **1/5/2023**	SeqNo: **3384702** 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	92.2	56.3	126	3.28	20	
gamma-BHC (Lindane)	0.00040	0.00010	0.0005000	0	79.9	45.8	103	4.05	20	
Heptachlor	0.00032	0.00010	0.0005000	0	63.1	33.7	104	13.5	20	
Heptachlor epoxide	0.00043	0.00010	0.0005000	0	86.8	50.1	116	0.448	20	
Methoxychlor	0.00050	0.00010	0.0005000	0	99.1	15	203	1.78	20	
Surr: Decachlorobiphenyl	0.0024		0.002500		95.0	40.9	111	0	0	
Surr: Tetrachloro-m-xylene	0.0012		0.002500		46.7	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 Quanitative 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#: **2212220**

20-Jan-23

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

Sample ID: **MB-72185**	SampType: **MBLK**	TestCode: **EPA Method 8151: Herbicides TCLP**							
Client ID: **PBW**	Batch ID: **72185**	RunNo: **93499**							
Prep Date: **12/22/2022**	Analysis Date: **12/22/2022**	SeqNo: **3376751**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4,5-TP (Silvex)	ND	1.0								
2,4-D	ND	10								
Surr: 2,4-Dichlorophenylacetic aci	0.027		0.02500		108	70	130			

Sample ID: **0.0075 PPM**	SampType: **LCS**	TestCode: **EPA Method 8151: Herbicides TCLP**							
Client ID: **LCSW**	Batch ID: **72185**	RunNo: **93499**							
Prep Date: **12/22/2022**	Analysis Date: **12/22/2022**	SeqNo: **3376754**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4,5-TP (Silvex)	0.0078	0.00010	0.007500	0	104	70	130			
2,4-D	0.0071	0.00010	0.007500	0	95.3	70	130			
Surr: 2,4-Dichlorophenylacetic aci	0.0073		0.007500		97.4	70	130			

Sample ID: **0.0075 PPM**	SampType: **LCS**	TestCode: **EPA Method 8151: Herbicides TCLP**							
Client ID: **LCSW**	Batch ID: **72185**	RunNo: **93499**							
Prep Date: **12/22/2022**	Analysis Date: **12/22/2022**	SeqNo: **3376764**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4,5-TP (Silvex)	0.0078	0.00010	0.007500	0	104	70	130			
2,4-D	0.0063	0.00010	0.007500	0	83.7	70	130			
Surr: 2,4-Dichlorophenylacetic aci	0.0075		0.007500		99.4	70	130			

Sample ID: **MB-72185**	SampType: **MBLK**	TestCode: **EPA Method 8151: Herbicides TCLP**							
Client ID: **PBW**	Batch ID: **72185**	RunNo: **93499**							
Prep Date: **12/22/2022**	Analysis Date: **12/22/2022**	SeqNo: **3376765**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4,5-TP (Silvex)	ND	1.0								
2,4-D	ND	10								
Surr: 2,4-Dichlorophenylacetic aci	0.027		0.02500		109	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 Quanitative 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#: **2212220**

20-Jan-23

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: **T93064**	RunNo: **93064**
Prep Date:	Analysis Date: **12/6/2022**	SeqNo: **3351858** 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	104	70	130			J
1,1-Dichloroethene	0.021	0.70	0.02000	0	105	70	130			J
Trichloroethene (TCE)	0.020	0.50	0.02000	0	100	70	130			J
Chlorobenzene	0.022	100	0.02000	0	108	70	130			J
Surr: 1,2-Dichloroethane-d4	0.0091		0.01000		90.9	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		100	70	130			
Surr: Dibromofluoromethane	0.0093		0.01000		92.5	70	130			
Surr: Toluene-d8	0.0092		0.01000		92.4	70	130			

Sample ID: **mb**	SampType: **MBLK**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW**	Batch ID: **T93064**	RunNo: **93064**
Prep Date:	Analysis Date: **12/6/2022**	SeqNo: **3351859** 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	0.0092		0.01000		91.8	70	130			
Surr: 4-Bromofluorobenzene	0.0096		0.01000		95.6	70	130			
Surr: Dibromofluoromethane	0.0097		0.01000		96.5	70	130			
Surr: Toluene-d8	0.0093		0.01000		92.5	70	130			

Sample ID: **mb**	SampType: **MBLK**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW**	Batch ID: **T93557**	RunNo: **93557**
Prep Date:	Analysis Date: **12/23/2022**	SeqNo: **3375396** 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								

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 Quanitative 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#: **2212220**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **mb**	SampType: **MBLK**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW**	Batch ID: **T93557**	RunNo: **93557**
Prep Date:	Analysis Date: **12/23/2022**	SeqNo: **3375396** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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	0.010		0.01000		102	70	130			
Surr: 4-Bromofluorobenzene	0.011		0.01000		110	70	130			
Surr: Dibromofluoromethane	0.0093		0.01000		93.0	70	130			
Surr: Toluene-d8	0.011		0.01000		107	70	130			

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **LCSW**	Batch ID: **T93557**	RunNo: **93557**
Prep Date:	Analysis Date: **12/23/2022**	SeqNo: **3376279** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.023	0.010	0.02000	0	114	70	130			
1,1-Dichloroethene	0.021	0.010	0.02000	0	103	70	130			
Trichloroethene (TCE)	0.020	0.010	0.02000	0	101	70	130			
Chlorobenzene	0.020	0.010	0.02000	0	100	70	130			
Surr: 1,2-Dichloroethane-d4	0.010		0.01000		104	70	130			
Surr: 4-Bromofluorobenzene	0.011		0.01000		112	70	130			
Surr: Dibromofluoromethane	0.0095		0.01000		94.6	70	130			
Surr: Toluene-d8	0.010		0.01000		103	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative 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#: **2212220**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **mb-72267**	SampType: **MBLK**	TestCode: **EPA Method 8270C TCLP**
Client ID: **PBW**	Batch ID: **72267**	RunNo: **93749**
Prep Date: **12/22/2022**	Analysis Date: **1/5/2023**	SeqNo: **3384444** 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	0.074		0.2000		37.1	18.1	88.9			
Surr: Phenol-d5	0.059		0.2000		29.3	17	61.5			
Surr: 2,4,6-Tribromophenol	0.099		0.2000		49.6	29.8	104			
Surr: Nitrobenzene-d5	0.045		0.1000		45.2	22.2	111			
Surr: 2-Fluorobiphenyl	0.034		0.1000		33.7	24.6	96.3			
Surr: 4-Terphenyl-d14	0.073		0.1000		72.5	53.4	124			

Sample ID: **lcs-72267**	SampType: **LCS**	TestCode: **EPA Method 8270C TCLP**
Client ID: **LCSW**	Batch ID: **72267**	RunNo: **93749**
Prep Date: **12/22/2022**	Analysis Date: **1/5/2023**	SeqNo: **3384445** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.072	0.0010	0.1000	0	71.9	19	106			
3+4-Methylphenol	0.14	0.0010	0.2000	0	68.7	16.3	112			
2,4-Dinitrotoluene	0.063	0.0010	0.1000	0	62.5	15	99.6			
Hexachlorobenzene	0.082	0.0010	0.1000	0	82.3	41.8	111			
Hexachlorobutadiene	0.042	0.0010	0.1000	0	42.1	15	91.5			
Hexachloroethane	0.044	0.0010	0.1000	0	44.5	15	87.5			
Nitrobenzene	0.070	0.0010	0.1000	0	70.0	19.3	114			
Pentachlorophenol	0.021	0.0010	0.1000	0	21.2	29	103			S
Pyridine	0.056	0.0010	0.1000	0	56.2	15	92.6			
2,4,5-Trichlorophenol	0.020	0.0010	0.1000	0	20.2	25.2	114			S
2,4,6-Trichlorophenol	0.018	0.0010	0.1000	0	18.5	25.7	112			S
Cresols, Total	0.21	0.0010	0.3000	0	69.8	15	145			
Surr: 2-Fluorophenol	0.024		0.2000		12.2	18.1	88.9			S
Surr: Phenol-d5	0.055		0.2000		27.4	17	61.5			
Surr: 2,4,6-Tribromophenol	0.044		0.2000		21.8	29.8	104			S

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 Quanitative 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#: **2212220**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **lcs-72267** SampType: **LCS** TestCode: **EPA Method 8270C TCLP**

Client ID: **LCSW** Batch ID: **72267** RunNo: **93749**

Prep Date: **12/22/2022** Analysis Date: **1/5/2023** SeqNo: **3384445** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.075		0.1000		75.3	22.2	111			
Surr: 2-Fluorobiphenyl	0.058		0.1000		58.5	24.6	96.3			
Surr: 4-Terphenyl-d14	0.11		0.1000		107	53.4	124			

Sample ID: **2212220-003bms** SampType: **MS** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,3 & 4 Efflu** Batch ID: **72267** RunNo: **93749**

Prep Date: **12/22/2022** Analysis Date: **1/5/2023** SeqNo: **3384447** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.058	0.0010	0.1000	0	57.5	15.8	101			H
3+4-Methylphenol	0.12	0.0010	0.2000	0	61.4	16.9	97.9			H
2,4-Dinitrotoluene	0.057	0.0010	0.1000	0	57.2	20.1	90.5			H
Hexachlorobenzene	0.067	0.0010	0.1000	0	66.5	34	108			H
Hexachlorobutadiene	0.038	0.0010	0.1000	0	38.0	15	99.7			H
Hexachloroethane	0.039	0.0010	0.1000	0	39.0	15	86.4			H
Nitrobenzene	0.057	0.0010	0.1000	0	57.1	15	109			H
Pentachlorophenol	0.070	0.0010	0.1000	0	70.0	15	130			H
Pyridine	0.0093	0.0010	0.1000	0	9.26	15	82			SH
2,4,5-Trichlorophenol	0.072	0.0010	0.1000	0	72.1	28.1	105			H
2,4,6-Trichlorophenol	0.068	0.0010	0.1000	0	68.3	21.5	110			H
Cresols, Total	0.18	0.0010	0.3000	0	60.1	15	127			H
Surr: 2-Fluorophenol	0.085		0.2000		42.7	18.1	88.9			H
Surr: Phenol-d5	0.068		0.2000		34.2	17	61.5			H
Surr: 2,4,6-Tribromophenol	0.16		0.2000		78.7	29.8	104			H
Surr: Nitrobenzene-d5	0.062		0.1000		61.7	22.2	111			H
Surr: 2-Fluorobiphenyl	0.053		0.1000		53.1	24.6	96.3			H
Surr: 4-Terphenyl-d14	0.086		0.1000		85.8	53.4	124			H

Sample ID: **2212220-003bmsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,3 & 4 Efflu** Batch ID: **72267** RunNo: **93749**

Prep Date: **12/22/2022** Analysis Date: **1/5/2023** SeqNo: **3384448** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.064	0.0010	0.1000	0	63.5	15.8	101	9.94	20	H
3+4-Methylphenol	0.13	0.0010	0.2000	0	66.9	16.9	97.9	8.70	20	H
2,4-Dinitrotoluene	0.060	0.0010	0.1000	0	60.4	20.1	90.5	5.30	20	H
Hexachlorobenzene	0.062	0.0010	0.1000	0	62.0	34	108	7.10	20	H
Hexachlorobutadiene	0.036	0.0010	0.1000	0	36.1	15	99.7	5.19	20	H
Hexachloroethane	0.040	0.0010	0.1000	0	40.4	15	86.4	3.42	20	H
Nitrobenzene	0.061	0.0010	0.1000	0	61.0	15	109	6.63	20	H

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 Quanitative 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#: **2212220**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **2212220-003bmsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,3 & 4 Efflu** Batch ID: **72267** RunNo: **93749**

Prep Date: **12/22/2022** Analysis Date: **1/5/2023** SeqNo: **3384448** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Pentachlorophenol	0.070	0.0010	0.1000	0	70.1	15	130	0.143	20	H
Pyridine	0.012	0.0010	0.1000	0	12.4	15	82	28.8	20	RSH
2,4,5-Trichlorophenol	0.075	0.0010	0.1000	0	74.5	28.1	105	3.25	20	H
2,4,6-Trichlorophenol	0.069	0.0010	0.1000	0	69.3	21.5	110	1.47	20	H
Cresols, Total	0.20	0.0010	0.3000	0	65.8	15	127	9.10	20	H
Surr: 2-Fluorophenol	0.095		0.2000		47.7	18.1	88.9	0	0	H
Surr: Phenol-d5	0.075		0.2000		37.6	17	61.5	0	0	H
Surr: 2,4,6-Tribromophenol	0.15		0.2000		76.6	29.8	104	0	0	H
Surr: Nitrobenzene-d5	0.065		0.1000		64.7	22.2	111	0	0	H
Surr: 2-Fluorobiphenyl	0.060		0.1000		59.6	24.6	96.3	0	0	H
Surr: 4-Terphenyl-d14	0.092		0.1000		92.2	53.4	124	0	0	H

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 Quanitative 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#: **2212220**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **lcs-1 99.4uS eC**	SampType: **lcs**	TestCode: **SM2510B: Specific Conductance**
Client ID: **LCSW**	Batch ID: **R93143**	RunNo: **93143**
Prep Date:	Analysis Date: **12/8/2022**	SeqNo: **3355383** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	99	10	99.40	0	99.9	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 Quanitative 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#: **2212220**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-72298**	SampType: **MBLK**	TestCode: **EPA Method 7470A: Mercury**							
Client ID: **PBW**	Batch ID: **72298**	RunNo: **93535**							
Prep Date: **12/23/2022**	Analysis Date: **12/23/2022**	SeqNo: **3374388**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.000094	0.00020								J

Sample ID: **LCS-72298**	SampType: **LCS**	TestCode: **EPA Method 7470A: Mercury**							
Client ID: **LCSW**	Batch ID: **72298**	RunNo: **93535**							
Prep Date: **12/23/2022**	Analysis Date: **12/23/2022**	SeqNo: **3374394**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0057	0.00020	0.005000	0	114	85	115			

Sample ID: **LCSLL-72298**	SampType: **LCSLL**	TestCode: **EPA Method 7470A: Mercury**							
Client ID: **BatchQC**	Batch ID: **72298**	RunNo: **93535**							
Prep Date: **12/23/2022**	Analysis Date: **12/23/2022**	SeqNo: **3374396**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00017	0.00020	0.0001500	0	115	50	150			J

Sample ID: **2212220-002EMS**	SampType: **MS**	TestCode: **EPA Method 7470A: Mercury**							
Client ID: **CTB to City POTW**	Batch ID: **72298**	RunNo: **93535**							
Prep Date: **12/23/2022**	Analysis Date: **12/23/2022**	SeqNo: **3374471**	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	75	125			

Sample ID: **2212220-002EMSD**	SampType: **MSD**	TestCode: **EPA Method 7470A: Mercury**							
Client ID: **CTB to City POTW**	Batch ID: **72298**	RunNo: **93535**							
Prep Date: **12/23/2022**	Analysis Date: **12/23/2022**	SeqNo: **3374472**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	103	75	125	1.76	20	

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 Quanitative 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#: **2212220**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-72362**	SampType: **MBLK**	TestCode: **EPA Method 7470A: TCLP Mercury**
Client ID: **PBW**	Batch ID: **72362**	RunNo: **93613**
Prep Date: **12/28/2022**	Analysis Date: **12/29/2022**	SeqNo: **3378122** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID: **LCSLL-72362**	SampType: **LCSLL**	TestCode: **EPA Method 7470A: TCLP Mercury**
Client ID: **BatchQC**	Batch ID: **72362**	RunNo: **93613**
Prep Date: **12/28/2022**	Analysis Date: **12/29/2022**	SeqNo: **3378123** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00019	0.020	0.0001500	0	129	50	150			J

Sample ID: **LCS-72362**	SampType: **LCS**	TestCode: **EPA Method 7470A: TCLP Mercury**
Client ID: **LCSW**	Batch ID: **72362**	RunNo: **93613**
Prep Date: **12/28/2022**	Analysis Date: **12/29/2022**	SeqNo: **3378124** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.020	0.005000	0	100	85	115			J

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 Quanitative 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#: **2212220**

20-Jan-23

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: **A93237**	RunNo: **93237**
Prep Date:	Analysis Date: **12/12/2022**	SeqNo: **3360414** 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: **A93237**	RunNo: **93237**
Prep Date:	Analysis Date: **12/12/2022**	SeqNo: **3360416** 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	105	80	120			
Sodium	53	1.0	50.00	0	105	80	120			

Sample ID: **2212220-001DMS**	SampType: **MS**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **WDW-1,2,3 & 4 Efflu**	Batch ID: **A93237**	RunNo: **93237**
Prep Date:	Analysis Date: **12/12/2022**	SeqNo: **3360458** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	390	5.0	250.0	134.5	102	75	125			
Potassium	360	5.0	250.0	102.3	102	75	125			

Sample ID: **2212220-001DMSD**	SampType: **MSD**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **WDW-1,2,3 & 4 Efflu**	Batch ID: **A93237**	RunNo: **93237**
Prep Date:	Analysis Date: **12/12/2022**	SeqNo: **3360459** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	390	5.0	250.0	134.5	101	75	125	0.509	20	
Potassium	360	5.0	250.0	102.3	102	75	125	0.122	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 Quanitative 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#: **2212220**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-72262**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **72262**	RunNo: **93496**
Prep Date: **12/21/2022**	Analysis Date: **12/22/2022**	SeqNo: **3372566** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID: **LCS-72262**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **72262**	RunNo: **93496**
Prep Date: **12/21/2022**	Analysis Date: **12/22/2022**	SeqNo: **3372568** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.54	5.0	0.5000	0	108	80	120			J
Barium	0.47	100	0.5000	0	93.6	80	120			J
Cadmium	0.52	1.0	0.5000	0	104	80	120			J
Chromium	0.48	5.0	0.5000	0	95.4	80	120			J
Lead	0.45	5.0	0.5000	0	89.9	80	120			J
Selenium	0.55	1.0	0.5000	0	110	80	120			J
Silver	0.11	5.0	0.1000	0	106	80	120			J

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 Quanitative 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#: **2212220**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-71959**	SampType: **MBLK**	TestCode: **EPA 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **71959**	RunNo: **93237**
Prep Date: **12/8/2022**	Analysis Date: **12/12/2022**	SeqNo: **3360411** 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-71959**	SampType: **LCS**	TestCode: **EPA 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **71959**	RunNo: **93237**
Prep Date: **12/8/2022**	Analysis Date: **12/12/2022**	SeqNo: **3360413** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.41	0.0020	0.5000	0	81.2	80	120			
Cadmium	0.42	0.0020	0.5000	0	83.8	80	120			
Chromium	0.40	0.0060	0.5000	0	80.2	80	120			
Silver	0.084	0.0050	0.1000	0	84.0	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 Quanitative 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#: **2212220**

20-Jan-23

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: **R93143**	RunNo: **93143**
Prep Date:	Analysis Date: **12/8/2022**	SeqNo: **3355333** 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: **R93143**	RunNo: **93143**
Prep Date:	Analysis Date: **12/8/2022**	SeqNo: **3355334** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	75.96	20.00	80.00	0	95.0	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative 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#: **2212220**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **2212220-001CDUP** SampType: **DUP** TestCode: **Specific Gravity**

Client ID: **WDW-1,2,3 & 4 Efflu** Batch ID: **R93206** RunNo: **93206**

Prep Date: Analysis Date: **12/12/2022** SeqNo: **3358605** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	0.9989	0						0.331	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 Quanitative 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#: **2212220**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-71907**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **71907**	RunNo: **93177**
Prep Date: **12/7/2022**	Analysis Date: **12/9/2022**	SeqNo: **3357138** 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-71907**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **71907**	RunNo: **93177**
Prep Date: **12/7/2022**	Analysis Date: **12/9/2022**	SeqNo: **3357139** 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.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative 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#: **2212220**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-71942**	SampType: **MBLK**	TestCode: **SM 2540D: TSS**							
Client ID: **PBW**	Batch ID: **71942**	RunNo: **93176**							
Prep Date: **12/8/2022**	Analysis Date: **12/9/2022**	SeqNo: **3357114**	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-71942**	SampType: **LCSD**	TestCode: **SM 2540D: TSS**							
Client ID: **LCSS02**	Batch ID: **71942**	RunNo: **93176**							
Prep Date: **12/8/2022**	Analysis Date: **12/9/2022**	SeqNo: **3357115**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Suspended Solids	88	4.0	91.90	0	95.8	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 Quanitative 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

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: 2212220 | RcptNo: 1

Received By: Juan Rojas 12/6/2022 7:30:00 AM

Completed By: Sean Livingston 12/6/2022 9:00:38 AM

Reviewed By: JR 12-6-22

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° C to 6.0°C Yes ☐ No ☑ NA ☐
   Samples not frozen.
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: 3 4 (<2 or >12 unless noted)
Adjusted? yes
Checked by: KPA 12.06.22

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 0.4ml of H2SO4 to sample 001C-002C for pH <2 - KPA 12.06.22

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	-1.8	Good				
2	0.0	Good				

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)

Accreditation:
☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush

Project Name:
PSP WDW-1, 2, 3 & 4 Inj Well

Project #:

Project Manager:
Randy Dade

Sampler:

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): -1.6-0.2=-1.8 (0.1-0.1=0)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2212220	Specific Gravity, C/A Balance, ORP, pH, TSS	8260 TCLP Compounds	8270 TCLP Compounds	RCI	RCRA 8 Metals	8081 TCLP Compounds	8151 TCLP Compounds		Filtered 8260, 8051, 8151, 8044, 8270	ID -003			
12/5/2022	10:10	Liquid	WDW-1, 2, 3 & 4 Effluent	**	**	001	x												
12/5/2022	10:10	Liquid	WDW-1, 2, 3 & 4 Effluent	3-40ml VOA	HCL			x											
12/5/2022	10:10	Liquid	WDW-1, 2, 3 & 4 Effluent	1-1L Amber	none				x										
12/5/2022	10:10	Liquid	WDW-1, 2, 3 & 4 Effluent	***	***					x									
12/5/2022	10:10	Liquid	WDW-1, 2, 3 & 4 Effluent	1-250ml P	HNO3						x								
12/5/2022	10:10	Liquid	WDW-1, 2, 3 & 4 Effluent	1-1L Amber	none							x							
12/5/2022	10:10	Liquid	WDW-1, 2, 3 & 4 Effluent	1-1L Amber	none								x						
12/5/2022	9:50	Liquid	CTB to City POTW	**	**	002	x												
12/5/2022	9:50	Liquid	CTB to City POTW	3-40ml VOA	HCL			x											
12/5/2022	9:50	Liquid	CTB to City POTW	1-1L Amber	none				x										
12/5/2022	9:50	Liquid	CTB to City POTW	***	***					x									
12/5/2022	9:50	Liquid	CTB to City POTW	1-250ml P	HNO3						x								
12/5/2022	9:50	Liquid	CTB to City POTW	1-1L Amber	none							x							
12/5/2022	9:50	Liquid	CTB to City POTW	1-1L Amber	none								x						

Date	Time	Relinquished by	Received by	Via	Date	Time
12-5-22	12:15	Brady Hibbard			12/6/22	12:15
12/5/22	1900		Courier		12/6/22	7:30

Remarks: Dissolved Cations by EPA Method 200.7.
1-500ml unpreserved p, 1-125ml H2SO4 p, 1-125ml HNO3 p.*1-500ml unpreserved p, 1-500ml NaOH p, 1-500ml NaOH/ZnAcetate p

RDU FEED RATE : 9000 BPD

not Frozen Jn 12/6/22

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

January 20, 2023

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.: 2212731

Dear Randy Dade:

Hall Environmental Analysis Laboratory received 4 sample(s) on 12/13/2022 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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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Case Narrative

WO#: **2212731**
Date: **1/20/2023**

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". Even though the low solids content did not require filtration, all TCLP compounds are reported as both total and filtered, at the TCLP limits. 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.

EPA Method 8270:
The matrix spike and matrix spike duplicate had a low recovery for pyridine

EPA Method 8270:
The two filtered samples for WDW-1,2,3 & 4 Effluent and CTB to City POTW were associated with a laboratory control spike that had low recoveries for pentachlorophenol, 2,4,5-trichlorophenol and 2,4,6-Trichlorophenol.

"H" flags denote that the extraction holding time was exceeded.

"S" flags denote that the surrogate/spike recovery was outside of the standard limits.

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2212731**
Date Reported: **1/20/2023**

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2212731-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent
Collection Date: 12/12/2022 10:10:00 AM
Received Date: 12/13/2022 7:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8081: PESTICIDES TCLP							Analyst: **mb**	
Chlordane	ND	0.00050	0.030		mg/L	1	12/27/2022 9:02:02 AM	72137
Endrin	ND	0.000062	0.020		mg/L	1	12/27/2022 9:02:02 AM	72137
gamma-BHC (Lindane)	ND	0.000054	0.40		mg/L	1	12/27/2022 9:02:02 AM	72137
Heptachlor	ND	0.000041	0.0080		mg/L	1	12/27/2022 9:02:02 AM	72137
Heptachlor epoxide	ND	0.000051	0.0080		mg/L	1	12/27/2022 9:02:02 AM	72137
Methoxychlor	ND	0.000075	10		mg/L	1	12/27/2022 9:02:02 AM	72137
Toxaphene	ND	0.00050	0.50		mg/L	1	12/27/2022 9:02:02 AM	72137
Surr: Decachlorobiphenyl	33.5	0	40.9-111	S	%Rec	1	12/27/2022 9:02:02 AM	72137
Surr: Tetrachloro-m-xylene	54.1	0	15-107		%Rec	1	12/27/2022 9:02:02 AM	72137
EPA METHOD 300.0: ANIONS							Analyst: **JTT**	
Fluoride	34	0.92	2.0	*	mg/L	20	12/13/2022 5:04:45 PM	R93258
Chloride	340	25	50	*	mg/L	100	12/29/2022 9:21:06 PM	R93618
Nitrogen, Nitrite (As N)	ND	0.057	0.50		mg/L	5	12/13/2022 4:52:25 PM	R93258
Bromide	0.90	0.25	0.50		mg/L	5	12/13/2022 4:52:25 PM	R93258
Nitrogen, Nitrate (As N)	0.91	0.10	0.50		mg/L	5	12/13/2022 4:52:25 PM	R93258
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5		mg/L	5	12/13/2022 4:52:25 PM	R93258
Sulfate	2100	25	50	*	mg/L	100	12/29/2022 9:21:06 PM	R93618
EPA METHOD 6020A: TCLP METALS							Analyst: **ELS**	
Arsenic	0.022	0.00050	5.0	J	mg/L	1	12/14/2022 1:50:43 PM	72042
Lead	ND	0.00050	5.0		mg/L	1	12/14/2022 11:52:42 A	72042
Selenium	0.021	0.00050	1.0	J	mg/L	1	12/15/2022 12:03:38 P	72042
EPA METHOD 7470A: MERCURY							Analyst: **VP**	
Mercury	ND	0.000091	0.020		mg/L	1	12/23/2022 3:11:47 PM	72297
EPA METHOD 6010B: DISSOLVED METALS							Analyst: **JRR**	
Calcium	400	0.29	5.0		mg/L	5	12/21/2022 3:39:44 PM	A93491
Magnesium	120	0.17	5.0		mg/L	5	12/21/2022 3:39:44 PM	A93491
Potassium	140	1.0	5.0		mg/L	5	12/21/2022 3:39:44 PM	A93491
Sodium	710	4.2	10		mg/L	10	1/3/2023 10:03:35 AM	A93678
EPA 6010B: TCLP METALS							Analyst: **JRR**	
Barium	0.047	0.0011	100	J	mg/L	1	12/15/2022 1:26:24 PM	72042
Cadmium	ND	0.0012	1.0		mg/L	1	12/15/2022 1:26:24 PM	72042
Chromium	ND	0.0017	5.0		mg/L	1	12/15/2022 1:26:24 PM	72042
Silver	0.0066	0.0025	5.0	J	mg/L	2	12/29/2022 10:50:43 A	72042
EPA METHOD 8270C TCLP							Analyst: **DAM**	
2-Methylphenol	ND	0.0050	200		mg/L	1	12/20/2022 2:40:52 PM	72115
3+4-Methylphenol	ND	0.0051	200		mg/L	1	12/20/2022 2:40:52 PM	72115

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 Quanitative 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

Analytical Report
Lab Order **2212731**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2212731-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent
Collection Date: 12/12/2022 10:10:00 AM
Received Date: 12/13/2022 7:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C TCLP							Analyst: **DAM**	
2,4-Dinitrotoluene	ND	0.0049	0.13		mg/L	1	12/20/2022 2:40:52 PM	72115
Hexachlorobenzene	ND	0.019	0.13		mg/L	1	12/20/2022 2:40:52 PM	72115
Hexachlorobutadiene	ND	0.017	0.50		mg/L	1	12/20/2022 2:40:52 PM	72115
Hexachloroethane	ND	0.014	3.0		mg/L	1	12/20/2022 2:40:52 PM	72115
Nitrobenzene	ND	0.0049	2.0		mg/L	1	12/20/2022 2:40:52 PM	72115
Pentachlorophenol	ND	0.027	100		mg/L	1	12/20/2022 2:40:52 PM	72115
Pyridine	ND	0.014	5.0		mg/L	1	12/20/2022 2:40:52 PM	72115
2,4,5-Trichlorophenol	ND	0.0063	400		mg/L	1	12/20/2022 2:40:52 PM	72115
2,4,6-Trichlorophenol	ND	0.0059	2.0		mg/L	1	12/20/2022 2:40:52 PM	72115
Cresols, Total	ND	0.027	200		mg/L	1	12/20/2022 2:40:52 PM	72115
Surr: 2-Fluorophenol	35.5	0	18.1-88.9		%Rec	1	12/20/2022 2:40:52 PM	72115
Surr: Phenol-d5	27.3	0	17-61.5		%Rec	1	12/20/2022 2:40:52 PM	72115
Surr: 2,4,6-Tribromophenol	67.2	0	29.8-104		%Rec	1	12/20/2022 2:40:52 PM	72115
Surr: Nitrobenzene-d5	46.4	0	22.2-111		%Rec	1	12/20/2022 2:40:52 PM	72115
Surr: 2-Fluorobiphenyl	37.6	0	24.6-96.3		%Rec	1	12/20/2022 2:40:52 PM	72115
Surr: 4-Terphenyl-d14	74.9	0	53.4-124		%Rec	1	12/20/2022 2:40:52 PM	72115
TCLP VOLATILES BY 8260B							Analyst: **JR**	
Benzene	ND	0.50	0.50		mg/L	200	12/23/2022 8:49:10 PM	T93557
1,2-Dichloroethane (EDC)	ND	0.50	0.50		mg/L	200	12/23/2022 8:49:10 PM	T93557
2-Butanone	ND	200	200		mg/L	200	12/23/2022 8:49:10 PM	T93557
Carbon Tetrachloride	ND	0.50	0.50		mg/L	200	12/23/2022 8:49:10 PM	T93557
Chloroform	ND	6.0	6.0		mg/L	200	12/23/2022 8:49:10 PM	T93557
1,4-Dichlorobenzene	ND	7.5	7.5		mg/L	200	12/23/2022 8:49:10 PM	T93557
1,1-Dichloroethene	ND	0.70	0.70		mg/L	200	12/23/2022 8:49:10 PM	T93557
Tetrachloroethene (PCE)	ND	0.70	0.70		mg/L	200	12/23/2022 8:49:10 PM	T93557
Trichloroethene (TCE)	ND	0.50	0.50		mg/L	200	12/23/2022 8:49:10 PM	T93557
Vinyl chloride	ND	0.20	0.20		mg/L	200	12/23/2022 8:49:10 PM	T93557
Chlorobenzene	ND	100	100		mg/L	200	12/23/2022 8:49:10 PM	T93557
Surr: 1,2-Dichloroethane-d4	96.5	0	70-130		%Rec	200	12/23/2022 8:49:10 PM	T93557
Surr: 4-Bromofluorobenzene	111	0	70-130		%Rec	200	12/23/2022 8:49:10 PM	T93557
Surr: Dibromofluoromethane	85.7	0	70-130		%Rec	200	12/23/2022 8:49:10 PM	T93557
Surr: Toluene-d8	105	0	70-130		%Rec	200	12/23/2022 8:49:10 PM	T93557
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **CAS**	
Conductivity	5800	10	10		µmhos/c	1	12/15/2022 12:44:40 P	R93338
SM4500-H+B / 9040C: PH							Analyst: **CAS**	
pH	7.79			H	pH units	1	12/15/2022 12:44:40 P	R93338
SM2320B: ALKALINITY							Analyst: **CAS**	

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2212731**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2212731-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent
Collection Date: 12/12/2022 10:10:00 AM
Received Date: 12/13/2022 7:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM2320B: ALKALINITY							Analyst: **CAS**	
Bicarbonate (As CaCO3)	511.1	20.00	20.00		mg/L Ca	1	12/15/2022 12:44:40 P	R93338
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	12/15/2022 12:44:40 P	R93338
Total Alkalinity (as CaCO3)	511.1	20.00	20.00		mg/L Ca	1	12/15/2022 12:44:40 P	R93338
SPECIFIC GRAVITY							Analyst: **CAS**	
Specific Gravity	1.001	0	0			1	12/30/2022 5:04:00 PM	R93653
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **SNS**	
Total Dissolved Solids	4170	200	200	*HD	mg/L	1	12/20/2022 5:43:00 PM	72174
SM 2540D: TSS							Analyst: **SNS**	
Suspended Solids	30	8.0	8.0	D	mg/L	1	12/16/2022 2:25:00 PM	72122

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

Qualifiers:

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PQL	Practical Quanitative 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

Analytical Report
Lab Order **2212731**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2212731-002 **Matrix:** AQUEOUS

Client Sample ID: CTB to City POTW
Collection Date: 12/12/2022 9:50:00 AM
Received Date: 12/13/2022 7:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8081: PESTICIDES TCLP							Analyst: **mb**	
Chlordane	ND	0.00050	0.030		mg/L	1	12/27/2022 9:15:11 AM	72137
Endrin	ND	0.000062	0.020		mg/L	1	12/27/2022 9:15:11 AM	72137
gamma-BHC (Lindane)	ND	0.000054	0.40		mg/L	1	12/27/2022 9:15:11 AM	72137
Heptachlor	ND	0.000041	0.0080		mg/L	1	12/27/2022 9:15:11 AM	72137
Heptachlor epoxide	ND	0.000051	0.0080		mg/L	1	12/27/2022 9:15:11 AM	72137
Methoxychlor	ND	0.000075	10		mg/L	1	12/27/2022 9:15:11 AM	72137
Toxaphene	ND	0.00050	0.50		mg/L	1	12/27/2022 9:15:11 AM	72137
Surr: Decachlorobiphenyl	75.1	0	40.9-111		%Rec	1	12/27/2022 9:15:11 AM	72137
Surr: Tetrachloro-m-xylene	63.8	0	15-107		%Rec	1	12/27/2022 9:15:11 AM	72137
EPA METHOD 300.0: ANIONS							Analyst: **JTT**	
Fluoride	1.1	0.046	0.10		mg/L	1	12/13/2022 5:17:07 PM	R93258
Chloride	35	5.0	10		mg/L	20	12/13/2022 5:29:27 PM	R93258
Nitrogen, Nitrite (As N)	0.037	0.011	0.10	J	mg/L	1	12/13/2022 5:17:07 PM	R93258
Bromide	ND	0.050	0.10		mg/L	1	12/13/2022 5:17:07 PM	R93258
Nitrogen, Nitrate (As N)	1.6	0.020	0.10		mg/L	1	12/13/2022 5:17:07 PM	R93258
Phosphorus, Orthophosphate (As P)	7.7	5.0	10	J	mg/L	20	12/13/2022 5:29:27 PM	R93258
Sulfate	690	5.0	10	*	mg/L	20	12/13/2022 5:29:27 PM	R93258
EPA METHOD 6020A: TCLP METALS							Analyst: **ELS**	
Arsenic	0.00086	0.00050	5.0	J	mg/L	1	12/14/2022 1:56:23 PM	72042
Lead	ND	0.00050	5.0		mg/L	1	12/14/2022 12:05:13 P	72042
Selenium	0.0029	0.00050	1.0	J	mg/L	1	12/15/2022 12:07:58 P	72042
EPA METHOD 7470A: MERCURY							Analyst: **VP**	
Mercury	ND	0.000091	0.020		mg/L	1	12/23/2022 3:13:56 PM	72297
EPA METHOD 6010B: DISSOLVED METALS							Analyst: **JRR**	
Calcium	180	0.29	5.0		mg/L	5	12/21/2022 3:48:48 PM	A93491
Magnesium	54	0.17	5.0		mg/L	5	12/21/2022 3:48:48 PM	A93491
Potassium	1.8	0.21	1.0		mg/L	1	12/28/2022 3:46:02 PM	A93600
Sodium	37	0.42	1.0		mg/L	1	12/28/2022 3:46:02 PM	A93600
EPA 6010B: TCLP METALS							Analyst: **JRR**	
Barium	0.019	0.0011	100	J	mg/L	1	12/15/2022 1:28:26 PM	72042
Cadmium	ND	0.0012	1.0		mg/L	1	12/15/2022 1:28:26 PM	72042
Chromium	0.0033	0.0017	5.0	J	mg/L	1	12/15/2022 1:28:26 PM	72042
Silver	0.0030	0.0013	5.0	J	mg/L	1	12/29/2022 10:54:09 A	72042
EPA METHOD 8270C TCLP							Analyst: **DAM**	
2-Methylphenol	ND	0.0050	200		mg/L	1	12/20/2022 3:22:08 PM	72115
3+4-Methylphenol	ND	0.0051	200		mg/L	1	12/20/2022 3:22:08 PM	72115

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 Quanitative 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

Analytical Report
Lab Order **2212731**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2212731-002 **Matrix:** AQUEOUS

Client Sample ID: CTB to City POTW
Collection Date: 12/12/2022 9:50:00 AM
Received Date: 12/13/2022 7:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C TCLP							Analyst: **DAM**	
2,4-Dinitrotoluene	ND	0.0049	0.13		mg/L	1	12/20/2022 3:22:08 PM	72115
Hexachlorobenzene	ND	0.019	0.13		mg/L	1	12/20/2022 3:22:08 PM	72115
Hexachlorobutadiene	ND	0.017	0.50		mg/L	1	12/20/2022 3:22:08 PM	72115
Hexachloroethane	ND	0.014	3.0		mg/L	1	12/20/2022 3:22:08 PM	72115
Nitrobenzene	ND	0.0049	2.0		mg/L	1	12/20/2022 3:22:08 PM	72115
Pentachlorophenol	ND	0.027	100		mg/L	1	12/20/2022 3:22:08 PM	72115
Pyridine	ND	0.014	5.0		mg/L	1	12/20/2022 3:22:08 PM	72115
2,4,5-Trichlorophenol	ND	0.0063	400		mg/L	1	12/20/2022 3:22:08 PM	72115
2,4,6-Trichlorophenol	ND	0.0059	2.0		mg/L	1	12/20/2022 3:22:08 PM	72115
Cresols, Total	ND	0.027	200		mg/L	1	12/20/2022 3:22:08 PM	72115
Surr: 2-Fluorophenol	52.2	0	18.1-88.9		%Rec	1	12/20/2022 3:22:08 PM	72115
Surr: Phenol-d5	39.6	0	17-61.5		%Rec	1	12/20/2022 3:22:08 PM	72115
Surr: 2,4,6-Tribromophenol	73.5	0	29.8-104		%Rec	1	12/20/2022 3:22:08 PM	72115
Surr: Nitrobenzene-d5	64.0	0	22.2-111		%Rec	1	12/20/2022 3:22:08 PM	72115
Surr: 2-Fluorobiphenyl	58.9	0	24.6-96.3		%Rec	1	12/20/2022 3:22:08 PM	72115
Surr: 4-Terphenyl-d14	101	0	53.4-124		%Rec	1	12/20/2022 3:22:08 PM	72115
TCLP VOLATILES BY 8260B							Analyst: **JR**	
Benzene	ND	0.50	0.50		mg/L	200	12/23/2022 9:17:36 PM	T93557
1,2-Dichloroethane (EDC)	ND	0.50	0.50		mg/L	200	12/23/2022 9:17:36 PM	T93557
2-Butanone	ND	200	200		mg/L	200	12/23/2022 9:17:36 PM	T93557
Carbon Tetrachloride	ND	0.50	0.50		mg/L	200	12/23/2022 9:17:36 PM	T93557
Chloroform	ND	6.0	6.0		mg/L	200	12/23/2022 9:17:36 PM	T93557
1,4-Dichlorobenzene	ND	7.5	7.5		mg/L	200	12/23/2022 9:17:36 PM	T93557
1,1-Dichloroethene	ND	0.70	0.70		mg/L	200	12/23/2022 9:17:36 PM	T93557
Tetrachloroethene (PCE)	ND	0.70	0.70		mg/L	200	12/23/2022 9:17:36 PM	T93557
Trichloroethene (TCE)	ND	0.50	0.50		mg/L	200	12/23/2022 9:17:36 PM	T93557
Vinyl chloride	ND	0.20	0.20		mg/L	200	12/23/2022 9:17:36 PM	T93557
Chlorobenzene	ND	100	100		mg/L	200	12/23/2022 9:17:36 PM	T93557
Surr: 1,2-Dichloroethane-d4	104	0	70-130		%Rec	200	12/23/2022 9:17:36 PM	T93557
Surr: 4-Bromofluorobenzene	109	0	70-130		%Rec	200	12/23/2022 9:17:36 PM	T93557
Surr: Dibromofluoromethane	87.4	0	70-130		%Rec	200	12/23/2022 9:17:36 PM	T93557
Surr: Toluene-d8	103	0	70-130		%Rec	200	12/23/2022 9:17:36 PM	T93557
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **CAS**	
Conductivity	1300	10	10		µmhos/c	1	12/15/2022 1:06:21 PM	R93338
SM4500-H+B / 9040C: PH							Analyst: **CAS**	
pH	7.16			H	pH units	1	12/15/2022 1:06:21 PM	R93338
SM2320B: ALKALINITY							Analyst: **CAS**	

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2212731**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2212731-002 **Matrix:** AQUEOUS

Client Sample ID: CTB to City POTW
Collection Date: 12/12/2022 9:50:00 AM
Received Date: 12/13/2022 7:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM2320B: ALKALINITY							Analyst: **CAS**	
Bicarbonate (As CaCO3)	25.72	20.00	20.00		mg/L Ca	1	12/15/2022 1:06:21 PM	R93338
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	12/15/2022 1:06:21 PM	R93338
Total Alkalinity (as CaCO3)	25.72	20.00	20.00		mg/L Ca	1	12/15/2022 1:06:21 PM	R93338
SPECIFIC GRAVITY							Analyst: **CAS**	
Specific Gravity	0.9969	0	0			1	12/30/2022 5:04:00 PM	R93653
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **SNS**	
Total Dissolved Solids	1080	20.0	20.0	*H	mg/L	1	12/20/2022 5:43:00 PM	72174
SM 2540D: TSS							Analyst: **SNS**	
Suspended Solids	ND	4.0	4.0		mg/L	1	12/16/2022 2:25:00 PM	72122

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 Quanitative 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

Analytical Report
Lab Order **2212731**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2212731-003 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent-Filtere
Collection Date: 12/12/2022 10:10:00 AM
Received Date: 12/13/2022 7:50:00 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	H	mg/L	1	1/5/2023 12:25:51 PM	72280
Endrin	ND	0.000062	0.020	H	mg/L	1	1/5/2023 12:25:51 PM	72280
gamma-BHC (Lindane)	ND	0.000054	0.40	H	mg/L	1	1/5/2023 12:25:51 PM	72280
Heptachlor	ND	0.000041	0.0080	H	mg/L	1	1/5/2023 12:25:51 PM	72280
Heptachlor epoxide	ND	0.000051	0.0080	H	mg/L	1	1/5/2023 12:25:51 PM	72280
Methoxychlor	ND	0.000075	10	H	mg/L	1	1/5/2023 12:25:51 PM	72280
Toxaphene	ND	0.00050	0.50	H	mg/L	1	1/5/2023 12:25:51 PM	72280
Surr: Decachlorobiphenyl	58.0	0	40.9-111	H	%Rec	1	1/5/2023 12:25:51 PM	72280
Surr: Tetrachloro-m-xylene	63.6	0	15-107	H	%Rec	1	1/5/2023 12:25:51 PM	72280
EPA METHOD 8151: HERBICIDES TCLP							Analyst: **SB**	
2,4,5-TP (Silvex)	ND	1.0	1.0	H	mg/L	1	12/23/2022 12:51:51 A	72185
2,4-D	ND	10	10	H	mg/L	1	12/23/2022 12:51:51 A	72185
Surr: 2,4-Dichlorophenylacetic acid	231	0	70-130	SH	%Rec	1	12/23/2022 12:51:51 A	72185
EPA METHOD 7470A: TCLP MERCURY							Analyst: **VP**	
Mercury	ND	0.000092	0.020		mg/L	1	12/29/2022 12:37:17 P	72362
EPA METHOD 6010B: TCLP METALS							Analyst: **JRR**	
Arsenic	0.030	0.028	5.0	J	mg/L	1	12/22/2022 10:05:53 A	72262
Barium	0.047	0.0045	100	J	mg/L	1	12/22/2022 10:05:53 A	72262
Cadmium	ND	0.0067	1.0		mg/L	1	12/22/2022 10:05:53 A	72262
Chromium	ND	0.0031	5.0		mg/L	1	12/22/2022 10:05:53 A	72262
Lead	ND	0.0099	5.0		mg/L	1	12/22/2022 10:05:53 A	72262
Selenium	ND	0.061	1.0		mg/L	1	12/22/2022 10:05:53 A	72262
Silver	0.0066	0.0023	5.0	J	mg/L	1	12/22/2022 10:05:53 A	72262
EPA METHOD 8270C TCLP							Analyst: **DAM**	
2-Methylphenol	ND	0.0050	200	H	mg/L	1	1/5/2023 8:24:07 PM	72267
3+4-Methylphenol	ND	0.0051	200	H	mg/L	1	1/5/2023 8:24:07 PM	72267
2,4-Dinitrotoluene	ND	0.0049	0.13	H	mg/L	1	1/5/2023 8:24:07 PM	72267
Hexachlorobenzene	ND	0.019	0.13	H	mg/L	1	1/5/2023 8:24:07 PM	72267
Hexachlorobutadiene	ND	0.017	0.50	H	mg/L	1	1/5/2023 8:24:07 PM	72267
Hexachloroethane	ND	0.014	3.0	H	mg/L	1	1/5/2023 8:24:07 PM	72267
Nitrobenzene	ND	0.0049	2.0	H	mg/L	1	1/5/2023 8:24:07 PM	72267
Pentachlorophenol	ND	0.027	100	EH	mg/L	1	1/5/2023 8:24:07 PM	72267
Pyridine	ND	0.014	5.0	H	mg/L	1	1/5/2023 8:24:07 PM	72267
2,4,5-Trichlorophenol	ND	0.0063	400	EH	mg/L	1	1/5/2023 8:24:07 PM	72267
2,4,6-Trichlorophenol	ND	0.0059	2.0	EH	mg/L	1	1/5/2023 8:24:07 PM	72267
Cresols, Total	ND	0.027	200	H	mg/L	1	1/5/2023 8:24:07 PM	72267
Surr: 2-Fluorophenol	45.3	0	18.1-88.9	H	%Rec	1	1/5/2023 8:24:07 PM	72267

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 Quanitative 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

Analytical Report
Lab Order **2212731**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2212731-003 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent-Filtere
Collection Date: 12/12/2022 10:10:00 AM
Received Date: 12/13/2022 7:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C TCLP							Analyst: **DAM**	
Surr: Phenol-d5	35.0	0	17-61.5	H	%Rec	1	1/5/2023 8:24:07 PM	72267
Surr: 2,4,6-Tribromophenol	72.9	0	29.8-104	H	%Rec	1	1/5/2023 8:24:07 PM	72267
Surr: Nitrobenzene-d5	58.0	0	22.2-111	H	%Rec	1	1/5/2023 8:24:07 PM	72267
Surr: 2-Fluorobiphenyl	47.2	0	24.6-96.3	H	%Rec	1	1/5/2023 8:24:07 PM	72267
Surr: 4-Terphenyl-d14	93.7	0	53.4-124	H	%Rec	1	1/5/2023 8:24:07 PM	72267
TCLP VOLATILES BY 8260B							Analyst: **JR**	
Benzene	ND	0.50	0.50		mg/L	200	12/23/2022 9:45:59 PM	T93557
1,2-Dichloroethane (EDC)	ND	0.50	0.50		mg/L	200	12/23/2022 9:45:59 PM	T93557
2-Butanone	ND	200	200		mg/L	200	12/23/2022 9:45:59 PM	T93557
Carbon Tetrachloride	ND	0.50	0.50		mg/L	200	12/23/2022 9:45:59 PM	T93557
Chloroform	ND	6.0	6.0		mg/L	200	12/23/2022 9:45:59 PM	T93557
1,4-Dichlorobenzene	ND	7.5	7.5		mg/L	200	12/23/2022 9:45:59 PM	T93557
1,1-Dichloroethene	ND	0.70	0.70		mg/L	200	12/23/2022 9:45:59 PM	T93557
Tetrachloroethene (PCE)	ND	0.70	0.70		mg/L	200	12/23/2022 9:45:59 PM	T93557
Trichloroethene (TCE)	ND	0.50	0.50		mg/L	200	12/23/2022 9:45:59 PM	T93557
Vinyl chloride	ND	0.20	0.20		mg/L	200	12/23/2022 9:45:59 PM	T93557
Chlorobenzene	ND	100	100		mg/L	200	12/23/2022 9:45:59 PM	T93557
Surr: 1,2-Dichloroethane-d4	99.6	0	70-130		%Rec	200	12/23/2022 9:45:59 PM	T93557
Surr: 4-Bromofluorobenzene	115	0	70-130		%Rec	200	12/23/2022 9:45:59 PM	T93557
Surr: Dibromofluoromethane	91.8	0	70-130		%Rec	200	12/23/2022 9:45:59 PM	T93557
Surr: Toluene-d8	105	0	70-130		%Rec	200	12/23/2022 9:45:59 PM	T93557

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2212731**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2212731-004 **Matrix:** AQUEOUS

Client Sample ID: CTB to City POTW-Filtered
Collection Date: 12/12/2022 9:50:00 AM
Received Date: 12/13/2022 7:50:00 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	H	mg/L	1	1/5/2023 12:39:02 PM	72280
Endrin	ND	0.000062	0.020	H	mg/L	1	1/5/2023 12:39:02 PM	72280
gamma-BHC (Lindane)	ND	0.000054	0.40	H	mg/L	1	1/5/2023 12:39:02 PM	72280
Heptachlor	ND	0.000041	0.0080	H	mg/L	1	1/5/2023 12:39:02 PM	72280
Heptachlor epoxide	ND	0.000051	0.0080	H	mg/L	1	1/5/2023 12:39:02 PM	72280
Methoxychlor	ND	0.000075	10	H	mg/L	1	1/5/2023 12:39:02 PM	72280
Toxaphene	ND	0.00050	0.50	H	mg/L	1	1/5/2023 12:39:02 PM	72280
Surr: Decachlorobiphenyl	81.1	0	40.9-111	H	%Rec	1	1/5/2023 12:39:02 PM	72280
Surr: Tetrachloro-m-xylene	66.7	0	15-107	H	%Rec	1	1/5/2023 12:39:02 PM	72280
EPA METHOD 8151: HERBICIDES TCLP							Analyst: **SB**	
2,4,5-TP (Silvex)	ND	1.0	1.0	H	mg/L	1	12/23/2022 1:17:37 AM	72185
2,4-D	ND	10	10	H	mg/L	1	12/23/2022 1:17:37 AM	72185
Surr: 2,4-Dichlorophenylacetic acid	111	0	70-130	H	%Rec	1	12/23/2022 1:17:37 AM	72185
EPA METHOD 7470A: TCLP MERCURY							Analyst: **VP**	
Mercury	ND	0.000092	0.020		mg/L	1	12/29/2022 12:39:27 P	72362
EPA METHOD 6010B: TCLP METALS							Analyst: **JRR**	
Arsenic	ND	0.028	5.0		mg/L	1	12/22/2022 10:07:47 A	72262
Barium	0.017	0.0045	100	J	mg/L	1	12/22/2022 10:07:47 A	72262
Cadmium	ND	0.0067	1.0		mg/L	1	12/22/2022 10:07:47 A	72262
Chromium	ND	0.0031	5.0		mg/L	1	12/22/2022 10:07:47 A	72262
Lead	ND	0.0099	5.0		mg/L	1	12/22/2022 10:07:47 A	72262
Selenium	ND	0.061	1.0		mg/L	1	12/22/2022 10:07:47 A	72262
Silver	0.0030	0.0023	5.0	J	mg/L	1	12/22/2022 10:07:47 A	72262
EPA METHOD 8270C TCLP							Analyst: **DAM**	
2-Methylphenol	ND	0.0050	200	H	mg/L	1	1/5/2023 9:04:52 PM	72267
3+4-Methylphenol	ND	0.0051	200	H	mg/L	1	1/5/2023 9:04:52 PM	72267
2,4-Dinitrotoluene	ND	0.0049	0.13	H	mg/L	1	1/5/2023 9:04:52 PM	72267
Hexachlorobenzene	ND	0.019	0.13	H	mg/L	1	1/5/2023 9:04:52 PM	72267
Hexachlorobutadiene	ND	0.017	0.50	H	mg/L	1	1/5/2023 9:04:52 PM	72267
Hexachloroethane	ND	0.014	3.0	H	mg/L	1	1/5/2023 9:04:52 PM	72267
Nitrobenzene	ND	0.0049	2.0	H	mg/L	1	1/5/2023 9:04:52 PM	72267
Pentachlorophenol	ND	0.027	100	EH	mg/L	1	1/5/2023 9:04:52 PM	72267
Pyridine	ND	0.014	5.0	H	mg/L	1	1/5/2023 9:04:52 PM	72267
2,4,5-Trichlorophenol	ND	0.0063	400	EH	mg/L	1	1/5/2023 9:04:52 PM	72267
2,4,6-Trichlorophenol	ND	0.0059	2.0	EH	mg/L	1	1/5/2023 9:04:52 PM	72267
Cresols, Total	ND	0.027	200	H	mg/L	1	1/5/2023 9:04:52 PM	72267
Surr: 2-Fluorophenol	51.9	0	18.1-88.9	H	%Rec	1	1/5/2023 9:04:52 PM	72267

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 Quanitative 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

Analytical Report
Lab Order **2212731**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2212731-004 **Matrix:** AQUEOUS

Client Sample ID: CTB to City POTW-Filtered
Collection Date: 12/12/2022 9:50:00 AM
Received Date: 12/13/2022 7:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C TCLP							Analyst: **DAM**	
Surr: Phenol-d5	41.6	0	17-61.5	H	%Rec	1	1/5/2023 9:04:52 PM	72267
Surr: 2,4,6-Tribromophenol	67.3	0	29.8-104	H	%Rec	1	1/5/2023 9:04:52 PM	72267
Surr: Nitrobenzene-d5	63.2	0	22.2-111	H	%Rec	1	1/5/2023 9:04:52 PM	72267
Surr: 2-Fluorobiphenyl	54.5	0	24.6-96.3	H	%Rec	1	1/5/2023 9:04:52 PM	72267
Surr: 4-Terphenyl-d14	95.2	0	53.4-124	H	%Rec	1	1/5/2023 9:04:52 PM	72267
TCLP VOLATILES BY 8260B							Analyst: **JR**	
Benzene	ND	0.50	0.50		mg/L	200	12/23/2022 10:14:21 P	T93557
1,2-Dichloroethane (EDC)	ND	0.50	0.50		mg/L	200	12/23/2022 10:14:21 P	T93557
2-Butanone	ND	200	200		mg/L	200	12/23/2022 10:14:21 P	T93557
Carbon Tetrachloride	ND	0.50	0.50		mg/L	200	12/23/2022 10:14:21 P	T93557
Chloroform	ND	6.0	6.0		mg/L	200	12/23/2022 10:14:21 P	T93557
1,4-Dichlorobenzene	ND	7.5	7.5		mg/L	200	12/23/2022 10:14:21 P	T93557
1,1-Dichloroethene	ND	0.70	0.70		mg/L	200	12/23/2022 10:14:21 P	T93557
Tetrachloroethene (PCE)	ND	0.70	0.70		mg/L	200	12/23/2022 10:14:21 P	T93557
Trichloroethene (TCE)	ND	0.50	0.50		mg/L	200	12/23/2022 10:14:21 P	T93557
Vinyl chloride	ND	0.20	0.20		mg/L	200	12/23/2022 10:14:21 P	T93557
Chlorobenzene	ND	100	100		mg/L	200	12/23/2022 10:14:21 P	T93557
Surr: 1,2-Dichloroethane-d4	91.4	0	70-130		%Rec	200	12/23/2022 10:14:21 P	T93557
Surr: 4-Bromofluorobenzene	113	0	70-130		%Rec	200	12/23/2022 10:14:21 P	T93557
Surr: Dibromofluoromethane	85.5	0	70-130		%Rec	200	12/23/2022 10:14:21 P	T93557
Surr: Toluene-d8	106	0	70-130		%Rec	200	12/23/2022 10:14:21 P	T93557

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 Quanitative 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

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ANALYTICAL REPORT

December 30, 2022

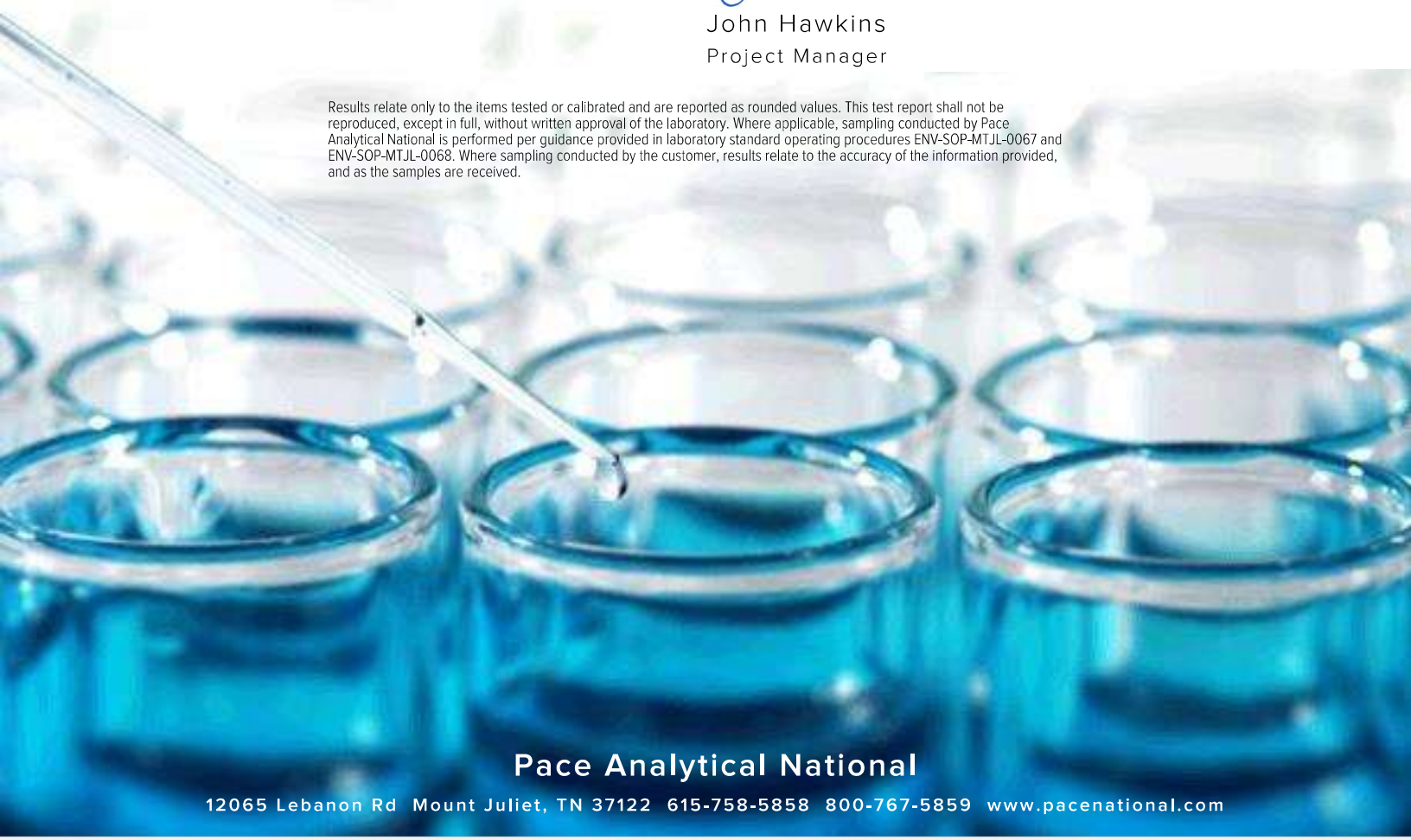
Hall Environmental Analysis Laboratory

Sample Delivery Group:	L1567608
Samples Received:	12/14/2022
Project Number:	
Description:	

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

Entire Report Reviewed By: John V Hawkins

John Hawkins
Project Manager



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

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SAMPLE SUMMARY

2212731-001FG WDW-1,2,3 & 4 EFFLUENT L1567608-01 GW

Collected by	Collected date/time	Received date/time
	12/12/22 10:10	12/14/22 09:10

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1311	WG1975409	1	12/16/22 10:48	12/16/22 10:48	BTP	Mt. Juliet, TN
Wet Chemistry by Method 2580	WG1975133	1	12/15/22 14:12	12/15/22 14:12	ARD	Mt. Juliet, TN
Wet Chemistry by Method 4500 CN E-2016	WG1975196	1	12/20/22 18:30	12/21/22 00:07	LDT	Mt. Juliet, TN
Wet Chemistry by Method 4500 S2 D-2011	WG1975003	1.07	12/15/22 11:49	12/15/22 11:49	RLS	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1975892	1	12/20/22 11:25	12/20/22 11:25	KAD	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG1976854	1	12/20/22 02:00	12/20/22 02:00	WOS	Mt. Juliet, TN
Chlorinated Acid Herbicides (GC) by Method 8151A	WG1977767	1	12/28/22 07:50	12/29/22 12:37	HMH	Mt. Juliet, TN

2212731-002FG CTB TO CITY POTW L1567608-02 GW

Collected by	Collected date/time	Received date/time
	12/12/22 09:50	12/14/22 09:10

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1311	WG1975409	1	12/16/22 10:48	12/16/22 10:48	BTP	Mt. Juliet, TN
Wet Chemistry by Method 2580	WG1975133	1	12/15/22 14:12	12/15/22 14:12	ARD	Mt. Juliet, TN
Wet Chemistry by Method 4500 CN E-2016	WG1975196	1	12/20/22 18:30	12/21/22 00:08	LDT	Mt. Juliet, TN
Wet Chemistry by Method 4500 S2 D-2011	WG1975003	1.07	12/15/22 11:49	12/15/22 11:49	RLS	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1975892	1	12/20/22 11:25	12/20/22 11:25	KAD	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG1976854	1	12/20/22 02:00	12/20/22 02:00	WOS	Mt. Juliet, TN
Chlorinated Acid Herbicides (GC) by Method 8151A	WG1977767	1	12/28/22 07:50	12/29/22 12:48	HMH	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

The following analysis were performed from an unpreserved, insufficiently or inadequately preserved sample.

Lab Sample ID	Project Sample ID	Method
L1567608-01	2212731-001FG WDW-1,2,3 & 4 EFFLUENT	4500 S2 D-2011
L1567608-02	2212731-002FG CTB TO CITY POTW	4500 S2 D-2011

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		12/16/2022 10:48:59 AM	WG1975409
Fluid	1		12/16/2022 10:48:59 AM	WG1975409
Initial pH	N/A		12/16/2022 10:48:59 AM	WG1975409
Final pH	N/A		12/16/2022 10:48:59 AM	WG1975409

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	mV				
ORP	95.8	T8	1	12/15/2022 14:12	WG1975133

Wet Chemistry by Method 4500 CN E-2016

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Reactive Cyanide	0.0151		0.00500	1	12/21/2022 00:07	WG1975196

Wet Chemistry by Method 4500 S2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Reactive Sulfide	ND		0.0535	1.07	12/15/2022 11:49	WG1975003

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	su				
pH	7.77	T8	1	12/20/2022 11:25	WG1975892

Sample Narrative:

L1567608-01 WG1975892: 7.77 at 20C

Wet Chemistry by Method D93/1010A

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	deg F				
Flashpoint	DNF at 170		1	12/20/2022 02:00	WG1976854

Chlorinated Acid Herbicides (GC) by Method 8151A

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
	mg/l		mg/l	mg/l			
2,4,5-TP (Silvex)	ND		0.00200	1	1	12/29/2022 12:37	WG1977767
2,4-D	ND		0.00200	10	1	12/29/2022 12:37	WG1977767
(S) 2,4-Dichlorophenyl Acetic Acid	*89.6*		*14.0-158*			*12/29/2022 12:37*	WG1977767

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		12/16/2022 10:48:59 AM	WG1975409
Fluid	1		12/16/2022 10:48:59 AM	WG1975409
Initial pH	N/A		12/16/2022 10:48:59 AM	WG1975409
Final pH	N/A		12/16/2022 10:48:59 AM	WG1975409

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	mV				
ORP	263	T8	1	12/15/2022 14:12	WG1975133

Wet Chemistry by Method 4500 CN E-2016

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Reactive Cyanide	0.00590		0.00500	1	12/21/2022 00:08	WG1975196

Wet Chemistry by Method 4500 S2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Reactive Sulfide	ND		0.0535	1.07	12/15/2022 11:49	WG1975003

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	su				
pH	7.34	T8	1	12/20/2022 11:25	WG1975892

Sample Narrative:

L1567608-02 WG1975892: 7.34 at 20.3C

Wet Chemistry by Method D93/1010A

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	deg F				
Flashpoint	DNF at 170		1	12/20/2022 02:00	WG1976854

Chlorinated Acid Herbicides (GC) by Method 8151A

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
2,4,5-TP (Silvex)	ND		0.00200	1	1	12/29/2022 12:48	WG1977767
2,4-D	ND		0.00200	10	1	12/29/2022 12:48	WG1977767
(S) 2,4-Dichlorophenyl Acetic Acid	*66.6*		*14.0-158*			*12/29/2022 12:48*	WG1977767

L1565234-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1565234-01 12/15/22 14:12 • (DUP) R3872259-3 12/15/22 14:12

	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
Analyte	mV	mV		mV		mV
ORP	182	191	1	8.90		20

L1567608-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1567608-01 12/15/22 14:12 • (DUP) R3872259-4 12/15/22 14:12

	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
Analyte	mV	mV		mV		mV
ORP	95.8	89.6	1	6.20		20

L1567608-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1567608-02 12/15/22 14:12 • (DUP) R3872259-5 12/15/22 14:12

	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
Analyte	mV	mV		mV		mV
ORP	263	271	1	7.80		20

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

(LCS) R3872259-1 12/15/22 14:12 • (LCSD) R3872259-2 12/15/22 14:12

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	Diff	Diff Limits
Analyte	mV	mV	mV	%	%	%			mV	mV
ORP	98.0	106	105	108	107	90.0-110			0.800	20

Method Blank (MB)

(MB) R3874139-1 12/20/22 23:39

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

L1567285-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1567285-02 12/20/22 23:45 • (DUP) R3874139-3 12/20/22 23:46

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

L1567308-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1567308-02 12/20/22 23:52 • (DUP) R3874139-6 12/20/22 23:53

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) R3874139-2 12/20/22 23:40

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Cyanide	0.100	0.103	103	87.1-120	

L1567303-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1567303-02 12/20/22 23:47 • (MS) R3874139-4 12/20/22 23:48 • (MSD) R3874139-5 12/20/22 23:51

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	0.102	0.101	102	101	1	90.0-110			0.985	20

QUALITY CONTROL SUMMARY

L1567608-01,02

Method Blank (MB)

(MB) R3872134-1 12/15/22 11:48

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) R3872134-2 12/15/22 11:48

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Sulfide	0.500	0.505	101	85.0-115	

L1567276-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1567276-01 12/20/22 11:25 • (DUP) R3873766-2 12/20/22 11:25

Analyte	Original Result su	DUP Result su	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
pH	7.52	7.50	1	0.266		1

Sample Narrative:
OS: 7.52 at 19.7C
DUP: 7.5 at 19.8C

L1569123-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1569123-01 12/20/22 11:25 • (DUP) R3873766-3 12/20/22 11:25

Analyte	Original Result su	DUP Result su	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
pH	7.24	7.22	1	0.277		1

Sample Narrative:
OS: 7.24 at 18.9C
DUP: 7.22 at 18.7C

Laboratory Control Sample (LCS)

(LCS) R3873766-1 12/20/22 11:25

Analyte	Spike Amount su	LCS Result su	LCS Rec. %	Rec. Limits %	LCS Qualifier
pH	10.0	9.93	99.3	99.0-101	

Sample Narrative:
LCS: 9.93 at 19.9C

L1561308-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1561308-02 12/20/22 02:00 • (DUP) R3874038-3 12/20/22 02:00

	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

L1568236-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1568236-01 12/20/22 02:00 • (DUP) R3874038-4 12/20/22 02:00

	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) R3874038-1 12/20/22 02:00 • (LCSD) R3874038-2 12/20/22 02:00

	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	128	130	102	103	96.0-104			1.55	10

QUALITY CONTROL SUMMARY

L1567608-01,02

Method Blank (MB)

(MB) R3876784-1 12/29/22 10:13

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	*78.6*			*14.0-158*

Laboratory Control Sample (LCS)

(LCS) R3876784-2 12/29/22 10:23

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
2,4,5-TP (Silvex)	0.0500	0.0385	77.0	50.0-125	
2,4-D	0.0500	0.0378	75.6	50.0-120	
(S) 2,4-Dichlorophenyl Acetic Acid			*74.0*	*14.0-158*	

L1569526-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1569526-01 12/29/22 15:11 • (MS) R3876784-3 12/29/22 15:22 • (MSD) R3876784-4 12/29/22 15:33

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	0.0109	0.0334	21.8	66.8	1	50.0-125	J6 P	J3	102	20
2,4-D	0.0500	ND	0.0393	0.0383	78.6	76.6	1	50.0-120			2.58	20
(S) 2,4-Dichlorophenyl Acetic Acid					*80.8*	*75.8*		*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
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.
P	RPD between the primary and confirmatory analysis exceeded 40%.
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.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

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B155

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

SUB CONTRATOR: 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					

L1567608

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2212731-001F	WDW-1,2,3 & 4 Effluent	1LAMGU	Aqueous	12/12/2022 10:10:00 AM	1	8151TCLP
2	2212731-001G	WDW-1,2,3 & 4 Effluent	500HDPE	Aqueous	12/12/2022 10:10:00 AM	3	RCI, ORP
3	2212731-002F	CTB to City POTW	1LAMGU	Aqueous	12/12/2022 9:50:00 AM	1	8151TCLP
4	2212731-002G	CTB to City POTW	500HDPE	Aqueous	12/12/2022 9:50:00 AM	3	RCI, ORP

001
002

Sample Receipt Checklist

COC Seal Present/Intact: __Y__N
COC Signed/Accurate: __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

If Applicable
VOA Zero Headspace: __Y__N
Pres.Correct/Check: __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:	Date: 12/13/2022	Time: 9:16 AM	Received By:	Date: 12/14/22	Time: 0910
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 NFA 3.2 °C Attempt to Cool ? _____
Comments: _____

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2212731**

20-Jan-23

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: **R93258**	RunNo: **93258**
Prep Date:	Analysis Date: **12/13/2022**	SeqNo: **3361379** 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: **R93258**	RunNo: **93258**
Prep Date:	Analysis Date: **12/13/2022**	SeqNo: **3361380** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.53	0.10	0.5000	0	106	90	110			
Chloride	4.7	0.50	5.000	0	93.5	90	110			
Nitrogen, Nitrite (As N)	0.97	0.10	1.000	0	96.6	90	110			
Bromide	2.4	0.10	2.500	0	97.1	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	93.1	90	110			
Sulfate	9.6	0.50	10.00	0	96.4	90	110			

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R93618**	RunNo: **93618**
Prep Date:	Analysis Date: **12/29/2022**	SeqNo: **3379434** 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	92.0	90	110			
Sulfate	9.5	0.50	10.00	0	94.9	90	110			

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R93618**	RunNo: **93618**
Prep Date:	Analysis Date: **12/29/2022**	SeqNo: **3379435** 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								

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 Quanitative 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#: **2212731**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-72042**	SampType: **MBLK**	TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **PBW**	Batch ID: **72042**	RunNo: **93281**
Prep Date: **12/13/2022**	Analysis Date: **12/14/2022**	SeqNo: **3362252** 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								

Sample ID: **MSLLLCS-72042**	SampType: **LCSLL**	TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **BatchQC**	Batch ID: **72042**	RunNo: **93281**
Prep Date: **12/13/2022**	Analysis Date: **12/14/2022**	SeqNo: **3362253** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00088	0.0010	0.001000	0	87.7	70	130			J
Lead	0.00077	0.0010	0.001000	0	76.9	70	130			J

Sample ID: **MSLCS-72042**	SampType: **LCS**	TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **LCSW**	Batch ID: **72042**	RunNo: **93281**
Prep Date: **12/13/2022**	Analysis Date: **12/14/2022**	SeqNo: **3362254** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.051	0.0010	0.05000	0	102	80	120			
Lead	0.053	0.0010	0.05000	0	106	80	120			

Sample ID: **2212731-001EMSLL**	SampType: **MS**	TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **WDW-1,2,3 & 4 Efflu**	Batch ID: **72042**	RunNo: **93281**
Prep Date: **12/13/2022**	Analysis Date: **12/14/2022**	SeqNo: **3362292** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.053	0.0010	0.05000	0	105	75	125			

Sample ID: **2212731-001EMSDL**	SampType: **MSD**	TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **WDW-1,2,3 & 4 Efflu**	Batch ID: **72042**	RunNo: **93281**
Prep Date: **12/13/2022**	Analysis Date: **12/14/2022**	SeqNo: **3362293** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.055	0.0010	0.05000	0	110	75	125	4.57	20	

Sample ID: **MB-72042**	SampType: **MBLK**	TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **PBW**	Batch ID: **72042**	RunNo: **93281**
Prep Date: **12/13/2022**	Analysis Date: **12/14/2022**	SeqNo: **3362300** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.00051	0.0010								J

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 Quanitative 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#: **2212731**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MSLCS-72042** SampType: **LCS** TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **LCSW** Batch ID: **72042** RunNo: **93281**
Prep Date: **12/13/2022** Analysis Date: **12/14/2022** SeqNo: **3362302** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.049	0.0010	0.05000	0	97.5	80	120			

Sample ID: **2212731-001EMSLL** SampType: **MS** TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **WDW-1,2,3 & 4 Efflu** Batch ID: **72042** RunNo: **93281**
Prep Date: **12/13/2022** Analysis Date: **12/14/2022** SeqNo: **3362338** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.074	0.0010	0.05000	0.02161	106	75	125			

Sample ID: **2212731-001EMSDL** SampType: **MSD** TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **WDW-1,2,3 & 4 Efflu** Batch ID: **72042** RunNo: **93281**
Prep Date: **12/13/2022** Analysis Date: **12/14/2022** SeqNo: **3362339** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.075	0.0010	0.05000	0.02161	107	75	125	0.912	20	

Sample ID: **MSLLLCS-72042** SampType: **LCSLL** TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **BatchQC** Batch ID: **72042** RunNo: **93281**
Prep Date: **12/13/2022** Analysis Date: **12/14/2022** SeqNo: **3362538** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.0012	0.0010	0.001000	0	122	70	130			

Sample ID: **2212731-001EMSLL** SampType: **MS** TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **WDW-1,2,3 & 4 Efflu** Batch ID: **72042** RunNo: **93334**
Prep Date: **12/13/2022** Analysis Date: **12/15/2022** SeqNo: **3364671** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.079	0.0010	0.05000	0.02084	116	75	125			

Sample ID: **2212731-001EMSDL** SampType: **MSD** TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **WDW-1,2,3 & 4 Efflu** Batch ID: **72042** RunNo: **93334**
Prep Date: **12/13/2022** Analysis Date: **12/15/2022** SeqNo: **3364672** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.077	0.0010	0.05000	0.02084	113	75	125	2.27	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 Quanitative 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#: **2212731**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-72137**	SampType: **MBLK**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **PBW**	Batch ID: **72137**	RunNo: **93751**
Prep Date: **12/16/2022**	Analysis Date: **12/27/2022**	SeqNo: **3383999** 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		93.0	40.9	111			
Surr: Tetrachloro-m-xylene	0.0015		0.002500		59.3	15	107			

Sample ID: **LCS-72137**	SampType: **LCS**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSW**	Batch ID: **72137**	RunNo: **93751**
Prep Date: **12/16/2022**	Analysis Date: **12/27/2022**	SeqNo: **3384000** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Endrin	0.00045	0.00010	0.0005000	0	89.0	56.3	126			
gamma-BHC (Lindane)	0.00033	0.00010	0.0005000	0	66.8	45.8	103			
Heptachlor	0.00023	0.00010	0.0005000	0	45.1	33.7	104			
Heptachlor epoxide	0.00039	0.00010	0.0005000	0	77.5	50.1	116			
Methoxychlor	0.00050	0.00010	0.0005000	0	101	15	203			
Surr: Decachlorobiphenyl	0.0022		0.002500		88.7	40.9	111			
Surr: Tetrachloro-m-xylene	0.0013		0.002500		50.5	15	107			

Sample ID: **LCSD-72137**	SampType: **LCSD**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSS02**	Batch ID: **72137**	RunNo: **93751**
Prep Date: **12/16/2022**	Analysis Date: **12/27/2022**	SeqNo: **3384001** 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	99.9	56.3	126	11.5	20	
gamma-BHC (Lindane)	0.00039	0.00010	0.0005000	0	77.6	45.8	103	14.8	20	
Heptachlor	0.00027	0.00010	0.0005000	0	53.5	33.7	104	16.9	20	
Heptachlor epoxide	0.00045	0.00010	0.0005000	0	90.6	50.1	116	15.6	20	
Methoxychlor	0.00054	0.00010	0.0005000	0	108	15	203	6.42	20	
Surr: Decachlorobiphenyl	0.0024		0.002500		96.3	40.9	111	0	0	
Surr: Tetrachloro-m-xylene	0.0014		0.002500		55.3	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 Quanitative 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#: **2212731**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-72137**	SampType: **MBLK**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **PBW**	Batch ID: **72137**	RunNo: **93751**
Prep Date: **12/16/2022**	Analysis Date: **12/27/2022**	SeqNo: **3384072** 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		94.5	40.9	111			
Surr: Tetrachloro-m-xylene	0.0015		0.002500		58.5	15	107			

Sample ID: **LCS-72137**	SampType: **LCS**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSW**	Batch ID: **72137**	RunNo: **93751**
Prep Date: **12/16/2022**	Analysis Date: **12/27/2022**	SeqNo: **3384073** 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	91.7	56.3	126			
gamma-BHC (Lindane)	0.00036	0.00010	0.0005000	0	71.6	45.8	103			
Heptachlor	0.00024	0.00010	0.0005000	0	47.9	33.7	104			
Heptachlor epoxide	0.00040	0.00010	0.0005000	0	79.1	50.1	116			
Methoxychlor	0.00049	0.00010	0.0005000	0	97.2	15	203			
Surr: Decachlorobiphenyl	0.0023		0.002500		92.3	40.9	111			
Surr: Tetrachloro-m-xylene	0.0013		0.002500		51.0	15	107			

Sample ID: **LCSD-72137**	SampType: **LCSD**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSS02**	Batch ID: **72137**	RunNo: **93751**
Prep Date: **12/16/2022**	Analysis Date: **12/27/2022**	SeqNo: **3384074** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Endrin	0.00051	0.00010	0.0005000	0	103	56.3	126	11.3	20	
gamma-BHC (Lindane)	0.00043	0.00010	0.0005000	0	86.2	45.8	103	18.5	20	
Heptachlor	0.00028	0.00010	0.0005000	0	56.5	33.7	104	16.5	20	
Heptachlor epoxide	0.00047	0.00010	0.0005000	0	94.6	50.1	116	17.8	20	
Methoxychlor	0.00055	0.00010	0.0005000	0	109	15	203	11.8	20	
Surr: Decachlorobiphenyl	0.0025		0.002500		99.1	40.9	111	0	0	
Surr: Tetrachloro-m-xylene	0.0014		0.002500		56.2	15	107	0	0	

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 Quanitative 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#: **2212731**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-72280**	SampType: **MBLK**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **PBW**	Batch ID: **72280**	RunNo: **93759**
Prep Date: **12/22/2022**	Analysis Date: **1/5/2023**	SeqNo: **3384697** 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		93.1	40.9	111			
Surr: Tetrachloro-m-xylene	0.0021		0.002500		84.4	15	107			

Sample ID: **MB-72280**	SampType: **MBLK**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **PBW**	Batch ID: **72280**	RunNo: **93759**
Prep Date: **12/22/2022**	Analysis Date: **1/5/2023**	SeqNo: **3384698** 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		96.3	40.9	111			
Surr: Tetrachloro-m-xylene	0.0021		0.002500		83.8	15	107			

Sample ID: **LCS-72280**	SampType: **LCS**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSW**	Batch ID: **72280**	RunNo: **93759**
Prep Date: **12/22/2022**	Analysis Date: **1/5/2023**	SeqNo: **3384699** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Endrin	0.00045	0.00010	0.0005000	0	89.7	56.3	126			
gamma-BHC (Lindane)	0.00038	0.00010	0.0005000	0	76.0	45.8	103			
Heptachlor	0.00026	0.00010	0.0005000	0	51.2	33.7	104			
Heptachlor epoxide	0.00041	0.00010	0.0005000	0	82.4	50.1	116			
Methoxychlor	0.00049	0.00010	0.0005000	0	98.6	15	203			
Surr: Decachlorobiphenyl	0.0024		0.002500		94.2	40.9	111			
Surr: Tetrachloro-m-xylene	0.0016		0.002500		62.4	15	107			

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 Quanitative 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#: **2212731**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **LCS-72280**	SampType: **LCS**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSW**	Batch ID: **72280**	RunNo: **93759**
Prep Date: **12/22/2022**	Analysis Date: **1/5/2023**	SeqNo: **3384700** 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	95.3	56.3	126			
gamma-BHC (Lindane)	0.00042	0.00010	0.0005000	0	83.2	45.8	103			
Heptachlor	0.00028	0.00010	0.0005000	0	55.1	33.7	104			
Heptachlor epoxide	0.00044	0.00010	0.0005000	0	87.2	50.1	116			
Methoxychlor	0.00050	0.00010	0.0005000	0	101	15	203			
Surr: Decachlorobiphenyl	0.0024		0.002500		98.0	40.9	111			
Surr: Tetrachloro-m-xylene	0.0015		0.002500		61.9	15	107			

Sample ID: **LCSD-72280**	SampType: **LCSD**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSS02**	Batch ID: **72280**	RunNo: **93759**
Prep Date: **12/22/2022**	Analysis Date: **1/5/2023**	SeqNo: **3384701** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Endrin	0.00044	0.00010	0.0005000	0	88.4	56.3	126	1.40	20	
gamma-BHC (Lindane)	0.00035	0.00010	0.0005000	0	69.5	45.8	103	8.88	20	
Heptachlor	0.00029	0.00010	0.0005000	0	58.4	33.7	104	13.2	20	
Heptachlor epoxide	0.00041	0.00010	0.0005000	0	81.2	50.1	116	1.51	20	
Methoxychlor	0.00048	0.00010	0.0005000	0	95.9	15	203	2.77	20	
Surr: Decachlorobiphenyl	0.0023		0.002500		91.1	40.9	111	0	0	
Surr: Tetrachloro-m-xylene	0.0012		0.002500		46.6	15	107	0	0	

Sample ID: **LCSD-72280**	SampType: **LCSD**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSS02**	Batch ID: **72280**	RunNo: **93759**
Prep Date: **12/22/2022**	Analysis Date: **1/5/2023**	SeqNo: **3384702** 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	92.2	56.3	126	3.28	20	
gamma-BHC (Lindane)	0.00040	0.00010	0.0005000	0	79.9	45.8	103	4.05	20	
Heptachlor	0.00032	0.00010	0.0005000	0	63.1	33.7	104	13.5	20	
Heptachlor epoxide	0.00043	0.00010	0.0005000	0	86.8	50.1	116	0.448	20	
Methoxychlor	0.00050	0.00010	0.0005000	0	99.1	15	203	1.78	20	
Surr: Decachlorobiphenyl	0.0024		0.002500		95.0	40.9	111	0	0	
Surr: Tetrachloro-m-xylene	0.0012		0.002500		46.7	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 Quanitative 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#: **2212731**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-72185**	SampType: **MBLK**	TestCode: **EPA Method 8151: Herbicides TCLP**
Client ID: **PBW**	Batch ID: **72185**	RunNo: **93499**
Prep Date: **12/22/2022**	Analysis Date: **12/22/2022**	SeqNo: **3376751** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4,5-TP (Silvex)	ND	1.0								
2,4-D	ND	10								
Surr: 2,4-Dichlorophenylacetic aci	0.027		0.02500		108	70	130			

Sample ID: **0.0075 PPM**	SampType: **LCS**	TestCode: **EPA Method 8151: Herbicides TCLP**
Client ID: **LCSW**	Batch ID: **72185**	RunNo: **93499**
Prep Date: **12/22/2022**	Analysis Date: **12/22/2022**	SeqNo: **3376754** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4,5-TP (Silvex)	0.0078	0.00010	0.007500	0	104	70	130			
2,4-D	0.0071	0.00010	0.007500	0	95.3	70	130			
Surr: 2,4-Dichlorophenylacetic aci	0.0073		0.007500		97.4	70	130			

Sample ID: **0.0075 PPM**	SampType: **LCS**	TestCode: **EPA Method 8151: Herbicides TCLP**
Client ID: **LCSW**	Batch ID: **72185**	RunNo: **93499**
Prep Date: **12/22/2022**	Analysis Date: **12/22/2022**	SeqNo: **3376764** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4,5-TP (Silvex)	0.0078	0.00010	0.007500	0	104	70	130			
2,4-D	0.0063	0.00010	0.007500	0	83.7	70	130			
Surr: 2,4-Dichlorophenylacetic aci	0.0075		0.007500		99.4	70	130			

Sample ID: **MB-72185**	SampType: **MBLK**	TestCode: **EPA Method 8151: Herbicides TCLP**
Client ID: **PBW**	Batch ID: **72185**	RunNo: **93499**
Prep Date: **12/22/2022**	Analysis Date: **12/22/2022**	SeqNo: **3376765** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4,5-TP (Silvex)	ND	1.0								
2,4-D	ND	10								
Surr: 2,4-Dichlorophenylacetic aci	0.027		0.02500		109	70	130			

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative 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#: **2212731**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **mb**	SampType: **MBLK**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW**	Batch ID: **T93557**	RunNo: **93557**
Prep Date:	Analysis Date: **12/23/2022**	SeqNo: **3375396** 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	0.010		0.01000		102	70	130			
Surr: 4-Bromofluorobenzene	0.011		0.01000		110	70	130			
Surr: Dibromofluoromethane	0.0093		0.01000		93.0	70	130			
Surr: Toluene-d8	0.011		0.01000		107	70	130			

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **LCSW**	Batch ID: **T93557**	RunNo: **93557**
Prep Date:	Analysis Date: **12/23/2022**	SeqNo: **3376279** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.023	0.010	0.02000	0	114	70	130			
1,1-Dichloroethene	0.021	0.010	0.02000	0	103	70	130			
Trichloroethene (TCE)	0.020	0.010	0.02000	0	101	70	130			
Chlorobenzene	0.020	0.010	0.02000	0	100	70	130			
Surr: 1,2-Dichloroethane-d4	0.010		0.01000		104	70	130			
Surr: 4-Bromofluorobenzene	0.011		0.01000		112	70	130			
Surr: Dibromofluoromethane	0.0095		0.01000		94.6	70	130			
Surr: Toluene-d8	0.010		0.01000		103	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative 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#: **2212731**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **mb-72115**	SampType: **MBLK**	TestCode: **EPA Method 8270C TCLP**
Client ID: **PBW**	Batch ID: **72115**	RunNo: **93435**
Prep Date: **12/15/2022**	Analysis Date: **12/20/2022**	SeqNo: **3369931** 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	0.10		0.2000		50.7	18.1	88.9			
Surr: Phenol-d5	0.077		0.2000		38.7	17	61.5			
Surr: 2,4,6-Tribromophenol	0.15		0.2000		75.5	29.8	104			
Surr: Nitrobenzene-d5	0.062		0.1000		61.6	22.2	111			
Surr: 2-Fluorobiphenyl	0.051		0.1000		50.8	24.6	96.3			
Surr: 4-Terphenyl-d14	0.096		0.1000		96.5	53.4	124			

Sample ID: **lcs-72115**	SampType: **LCS**	TestCode: **EPA Method 8270C TCLP**
Client ID: **LCSW**	Batch ID: **72115**	RunNo: **93435**
Prep Date: **12/15/2022**	Analysis Date: **12/20/2022**	SeqNo: **3369932** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.049	0.00010	0.1000	0	49.3	19	106			
3+4-Methylphenol	0.10	0.00010	0.2000	0	51.9	16.3	112			
2,4-Dinitrotoluene	0.041	0.00010	0.1000	0	41.4	15	99.6			
Hexachlorobenzene	0.070	0.00010	0.1000	0	70.2	41.8	111			
Hexachlorobutadiene	0.024	0.00010	0.1000	0	24.0	15	91.5			
Hexachloroethane	0.027	0.00010	0.1000	0	27.0	15	87.5			
Nitrobenzene	0.046	0.00010	0.1000	0	46.3	19.3	114			
Pentachlorophenol	0.074	0.00010	0.1000	0	73.8	29	103			
Pyridine	0.023	0.00010	0.1000	0	23.5	15	92.6			
2,4,5-Trichlorophenol	0.055	0.00010	0.1000	0	54.7	25.2	114			
2,4,6-Trichlorophenol	0.051	0.00010	0.1000	0	51.5	25.7	112			
Cresols, Total	0.15	0.00010	0.3000	0	51.0	15	145			
Surr: 2-Fluorophenol	0.076		0.2000		37.9	18.1	88.9			
Surr: Phenol-d5	0.060		0.2000		30.0	17	61.5			
Surr: 2,4,6-Tribromophenol	0.11		0.2000		56.9	29.8	104			

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 Quanitative 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#: **2212731**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **lcs-72115**	SampType: **LCS**	TestCode: **EPA Method 8270C TCLP**
Client ID: **LCSW**	Batch ID: **72115**	RunNo: **93435**
Prep Date: **12/15/2022**	Analysis Date: **12/20/2022**	SeqNo: **3369932** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.050		0.1000		49.5	22.2	111			
Surr: 2-Fluorobiphenyl	0.041		0.1000		41.2	24.6	96.3			
Surr: 4-Terphenyl-d14	0.10		0.1000		101	53.4	124			

Sample ID: **mb-72267**	SampType: **MBLK**	TestCode: **EPA Method 8270C TCLP**
Client ID: **PBW**	Batch ID: **72267**	RunNo: **93749**
Prep Date: **12/22/2022**	Analysis Date: **1/5/2023**	SeqNo: **3384444** 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	0.074		0.2000		37.1	18.1	88.9			
Surr: Phenol-d5	0.059		0.2000		29.3	17	61.5			
Surr: 2,4,6-Tribromophenol	0.099		0.2000		49.6	29.8	104			
Surr: Nitrobenzene-d5	0.045		0.1000		45.2	22.2	111			
Surr: 2-Fluorobiphenyl	0.034		0.1000		33.7	24.6	96.3			
Surr: 4-Terphenyl-d14	0.073		0.1000		72.5	53.4	124			

Sample ID: **lcs-72267**	SampType: **LCS**	TestCode: **EPA Method 8270C TCLP**
Client ID: **LCSW**	Batch ID: **72267**	RunNo: **93749**
Prep Date: **12/22/2022**	Analysis Date: **1/5/2023**	SeqNo: **3384445** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.072	0.0010	0.1000	0	71.9	19	106			
3+4-Methylphenol	0.14	0.0010	0.2000	0	68.7	16.3	112			
2,4-Dinitrotoluene	0.063	0.0010	0.1000	0	62.5	15	99.6			
Hexachlorobenzene	0.082	0.0010	0.1000	0	82.3	41.8	111			
Hexachlorobutadiene	0.042	0.0010	0.1000	0	42.1	15	91.5			
Hexachloroethane	0.044	0.0010	0.1000	0	44.5	15	87.5			
Nitrobenzene	0.070	0.0010	0.1000	0	70.0	19.3	114			

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 Quanitative 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#: **2212731**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **lcs-72267**	SampType: **LCS**	TestCode: **EPA Method 8270C TCLP**							
Client ID: **LCSW**	Batch ID: **72267**	RunNo: **93749**							
Prep Date: **12/22/2022**	Analysis Date: **1/5/2023**	SeqNo: **3384445**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Pentachlorophenol	0.021	0.0010	0.1000	0	21.2	29	103			S
Pyridine	0.056	0.0010	0.1000	0	56.2	15	92.6			
2,4,5-Trichlorophenol	0.020	0.0010	0.1000	0	20.2	25.2	114			S
2,4,6-Trichlorophenol	0.018	0.0010	0.1000	0	18.5	25.7	112			S
Cresols, Total	0.21	0.0010	0.3000	0	69.8	15	145			
Surr: 2-Fluorophenol	0.024		0.2000		12.2	18.1	88.9			S
Surr: Phenol-d5	0.055		0.2000		27.4	17	61.5			
Surr: 2,4,6-Tribromophenol	0.044		0.2000		21.8	29.8	104			S
Surr: Nitrobenzene-d5	0.075		0.1000		75.3	22.2	111			
Surr: 2-Fluorobiphenyl	0.058		0.1000		58.5	24.6	96.3			
Surr: 4-Terphenyl-d14	0.11		0.1000		107	53.4	124			

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 Quanitative 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#: **2212731**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **lcs-1 99.4uS eC**	SampType: **lcs**	TestCode: **SM2510B: Specific Conductance**
Client ID: **LCSW**	Batch ID: **R93338**	RunNo: **93338**
Prep Date:	Analysis Date: **12/15/2022**	SeqNo: **3364797** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	10	99.40	0	103	85	115			

Sample ID: **2212731-002C dup**	SampType: **dup**	TestCode: **SM2510B: Specific Conductance**
Client ID: **CTB to City POTW**	Batch ID: **R93338**	RunNo: **93338**
Prep Date:	Analysis Date: **12/15/2022**	SeqNo: **3364802** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	1300	10						0.497	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 Quanitative 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#: **2212731**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-72297**	SampType: **MBLK**	TestCode: **EPA Method 7470A: Mercury**							
Client ID: **PBW**	Batch ID: **72297**	RunNo: **93535**							
Prep Date: **12/23/2022**	Analysis Date: **12/23/2022**	SeqNo: **3374385**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: **LCSLL-72297**	SampType: **LCSLL**	TestCode: **EPA Method 7470A: Mercury**							
Client ID: **BatchQC**	Batch ID: **72297**	RunNo: **93535**							
Prep Date: **12/23/2022**	Analysis Date: **12/23/2022**	SeqNo: **3374386**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00027	0.00020	0.0001500	0	181	50	150			S

Sample ID: **LCS-72297**	SampType: **LCS**	TestCode: **EPA Method 7470A: Mercury**							
Client ID: **LCSW**	Batch ID: **72297**	RunNo: **93535**							
Prep Date: **12/23/2022**	Analysis Date: **12/23/2022**	SeqNo: **3374387**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0056	0.00020	0.005000	0	111	85	115			

Sample ID: **LCSLL-72297**	SampType: **LCSLL**	TestCode: **EPA Method 7470A: Mercury**							
Client ID: **BatchQC**	Batch ID: **72297**	RunNo: **93535**							
Prep Date: **12/23/2022**	Analysis Date: **12/23/2022**	SeqNo: **3374391**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00026	0.00020	0.0001500	0	173	50	150			S

Sample ID: **LCSLL-72297**	SampType: **LCSLL**	TestCode: **EPA Method 7470A: Mercury**							
Client ID: **BatchQC**	Batch ID: **72297**	RunNo: **93535**							
Prep Date: **12/23/2022**	Analysis Date: **12/23/2022**	SeqNo: **3374441**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00011	0.00020	0.0001500	0	76.5	50	150			J

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 Quanitative 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#: **2212731**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-72362**	SampType: **MBLK**	TestCode: **EPA Method 7470A: TCLP Mercury**							
Client ID: **PBW**	Batch ID: **72362**	RunNo: **93613**							
Prep Date: **12/28/2022**	Analysis Date: **12/29/2022**	SeqNo: **3378122**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID: **LCSLL-72362**	SampType: **LCSLL**	TestCode: **EPA Method 7470A: TCLP Mercury**							
Client ID: **BatchQC**	Batch ID: **72362**	RunNo: **93613**							
Prep Date: **12/28/2022**	Analysis Date: **12/29/2022**	SeqNo: **3378123**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00019	0.020	0.0001500	0	129	50	150			J

Sample ID: **LCS-72362**	SampType: **LCS**	TestCode: **EPA Method 7470A: TCLP Mercury**							
Client ID: **LCSW**	Batch ID: **72362**	RunNo: **93613**							
Prep Date: **12/28/2022**	Analysis Date: **12/29/2022**	SeqNo: **3378124**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.020	0.005000	0	100	85	115			J

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 Quanitative 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#: **2212731**

20-Jan-23

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: **A93491**	RunNo: **93491**
Prep Date:	Analysis Date: **12/21/2022**	SeqNo: **3372353** 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: **A93491**	RunNo: **93491**
Prep Date:	Analysis Date: **12/21/2022**	SeqNo: **3372355** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	54	1.0	50.00	0	108	80	120			
Magnesium	51	1.0	50.00	0	102	80	120			
Potassium	49	1.0	50.00	0	98.8	80	120			

Sample ID: **2212731-001DMS**	SampType: **MS**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **WDW-1,2,3 & 4 Efflu**	Batch ID: **A93491**	RunNo: **93491**
Prep Date:	Analysis Date: **12/21/2022**	SeqNo: **3372357** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	370	5.0	50.00	119.5	506	75	125			S
Potassium	390	5.0	50.00	143.1	501	75	125			S

Sample ID: **2212731-001DMSD**	SampType: **MSD**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **WDW-1,2,3 & 4 Efflu**	Batch ID: **A93491**	RunNo: **93491**
Prep Date:	Analysis Date: **12/21/2022**	SeqNo: **3372358** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	400	5.0	50.00	119.5	567	75	125	7.91	20	S
Potassium	430	5.0	50.00	143.1	569	75	125	8.23	20	S

Sample ID: **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A93600**	RunNo: **93600**
Prep Date:	Analysis Date: **12/28/2022**	SeqNo: **3377522** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Potassium	ND	1.0								
Sodium	ND	1.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative 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#: **2212731**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A93600**	RunNo: **93600**
Prep Date:	Analysis Date: **12/28/2022**	SeqNo: **3377524** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Potassium	51	1.0	50.00	0	102	80	120			
Sodium	50	1.0	50.00	0	100	80	120			

Sample ID: **2212731-002DMS**	SampType: **MS**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **CTB to City POTW**	Batch ID: **A93600**	RunNo: **93600**
Prep Date:	Analysis Date: **12/28/2022**	SeqNo: **3377535** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Potassium	56	1.0	50.00	1.757	109	75	125			
Sodium	90	1.0	50.00	37.28	105	75	125			

Sample ID: **2212731-002DMSD**	SampType: **MSD**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **CTB to City POTW**	Batch ID: **A93600**	RunNo: **93600**
Prep Date:	Analysis Date: **12/28/2022**	SeqNo: **3377536** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Potassium	59	1.0	50.00	1.757	114	75	125	4.36	20	
Sodium	94	1.0	50.00	37.28	114	75	125	5.07	20	

Sample ID: **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A93678**	RunNo: **93678**
Prep Date:	Analysis Date: **1/3/2023**	SeqNo: **3381160** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	ND	1.0								

Sample ID: **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A93678**	RunNo: **93678**
Prep Date:	Analysis Date: **1/3/2023**	SeqNo: **3381162** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	47	1.0	50.00	0	94.1	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 Quanitative 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#: **2212731**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-72262**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **72262**	RunNo: **93496**
Prep Date: **12/21/2022**	Analysis Date: **12/22/2022**	SeqNo: **3372566** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID: **LCS-72262**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **72262**	RunNo: **93496**
Prep Date: **12/21/2022**	Analysis Date: **12/22/2022**	SeqNo: **3372568** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.54	5.0	0.5000	0	108	80	120			J
Barium	0.47	100	0.5000	0	93.6	80	120			J
Cadmium	0.52	1.0	0.5000	0	104	80	120			J
Chromium	0.48	5.0	0.5000	0	95.4	80	120			J
Lead	0.45	5.0	0.5000	0	89.9	80	120			J
Selenium	0.55	1.0	0.5000	0	110	80	120			J
Silver	0.11	5.0	0.1000	0	106	80	120			J

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 Quanitative 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#: **2212731**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-72042**	SampType: **MBLK**	TestCode: **EPA 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **72042**	RunNo: **93353**
Prep Date: **12/13/2022**	Analysis Date: **12/15/2022**	SeqNo: **3365878** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	0.0012	0.0020								J
Chromium	ND	0.0060								

Sample ID: **LCS-72042**	SampType: **LCS**	TestCode: **EPA 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **72042**	RunNo: **93353**
Prep Date: **12/13/2022**	Analysis Date: **12/15/2022**	SeqNo: **3365880** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.51	0.0020	0.5000	0	102	80	120			
Cadmium	0.51	0.0020	0.5000	0	103	80	120			
Chromium	0.51	0.0060	0.5000	0	103	80	120			

Sample ID: **MB-72042**	SampType: **MBLK**	TestCode: **EPA 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **72042**	RunNo: **93600**
Prep Date: **12/13/2022**	Analysis Date: **12/28/2022**	SeqNo: **3377358** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	ND	0.0050								

Sample ID: **LCS-72042**	SampType: **LCS**	TestCode: **EPA 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **72042**	RunNo: **93600**
Prep Date: **12/13/2022**	Analysis Date: **12/28/2022**	SeqNo: **3377360** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	0.092	0.0050	0.1000	0	91.5	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 Quanitative 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#: **2212731**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **2212731-002C dup**	SampType: **dup**			TestCode: **SM4500-H+B / 9040C: pH**						
Client ID: **CTB to City POTW**	Batch ID: **R93338**			RunNo: **93338**						
Prep Date:	Analysis Date: **12/15/2022**			SeqNo: **3364816**		Units: **pH units**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	7.26									H

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 Quanitative 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#: **2212731**

20-Jan-23

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: **R93338**	RunNo: **93338**							
Prep Date:	Analysis Date: **12/15/2022**	SeqNo: **3364763**	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: **R93338**	RunNo: **93338**							
Prep Date:	Analysis Date: **12/15/2022**	SeqNo: **3364764**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	75.56	20.00	80.00	0	94.4	90	110			

Sample ID: **2212731-002C dup**	SampType: **dup**	TestCode: **SM2320B: Alkalinity**							
Client ID: **CTB to City POTW**	Batch ID: **R93338**	RunNo: **93338**							
Prep Date:	Analysis Date: **12/15/2022**	SeqNo: **3364769**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	25.44	20.00						1.09	20	

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 Quanitative 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#: **2212731**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-72174**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **72174**	RunNo: **93440**
Prep Date: **12/19/2022**	Analysis Date: **12/20/2022**	SeqNo: **3370085** 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-72174**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **72174**	RunNo: **93440**
Prep Date: **12/19/2022**	Analysis Date: **12/20/2022**	SeqNo: **3370086** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	982	20.0	1000	0	98.2	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 Quanitative 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#: **2212731**

20-Jan-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-72122**	SampType: **MBLK**	TestCode: **SM 2540D: TSS**							
Client ID: **PBW**	Batch ID: **72122**	RunNo: **93354**							
Prep Date: **12/15/2022**	Analysis Date: **12/16/2022**	SeqNo: **3366219**	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-72122**	SampType: **LCS**	TestCode: **SM 2540D: TSS**							
Client ID: **LCSW**	Batch ID: **72122**	RunNo: **93354**							
Prep Date: **12/15/2022**	Analysis Date: **12/16/2022**	SeqNo: **3366220**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Suspended Solids	84	4.0	91.90	0	91.4	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 Quanitative 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

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: 2212731 RcptNo: 1

Received By: Sean Livingston 12/13/2022 7:50:00 AM S Livingston

Completed By: Sean Livingston 12/13/2022 9:18:06 AM S Livingston

Reviewed By: KPA 12.13.22

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° 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 preserved added to bottles?	Yes ☑	No ☑ KPA 12.13.22	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 (≤2 or ≥12 unless noted)

Adjusted? Yes

Checked by: KPA 12.13.22

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 0.5 ml of HNO3 to Sample 001E. and added 0.4 ml of HNO3 to Sample 001D for ph less than 2.

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	-2.5	Good				
2	-2.0	Good				

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)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name:
PSP WDW-1, 2, 3 & 4 Inj Well

Project #:

Project Manager:
Randy Dade

Sampler:

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): -2.4-0.1=-2.5

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2212731	Specific Gravity, C/A Balance, ORP, pH, TSS	8260 TCLP Compounds	8270 TCLP Compounds	RCI	RCRA 8 Metals	8081 TCLP Compounds	8151 TCLP Compounds		Filtered 8260, 8081	8151, RCRA 8, 8270		TCLP -003 & -004	12-12-22	
12/12/2022	10:10	Liquid	WDW-1, 2, 3 & 4 Effluent	**	**	001	x													
12/12/2022	10:10	Liquid	WDW-1, 2, 3 & 4 Effluent	3-40ml VOA	HCL			x												
12/12/2022	10:10	Liquid	WDW-1, 2, 3 & 4 Effluent	1-1L Amber	none				x											
12/12/2022	10:10	Liquid	WDW-1, 2, 3 & 4 Effluent	***	***					x										
12/12/2022	10:10	Liquid	WDW-1, 2, 3 & 4 Effluent	1-250ml P	HNO3						x									
12/12/2022	10:10	Liquid	WDW-1, 2, 3 & 4 Effluent	1-1L Amber	none							x								
12/12/2022	10:10	Liquid	WDW-1, 2, 3 & 4 Effluent	1-1L Amber	none								x							
12/12/2022	9:50	Liquid	CTB to City POTW	**	**	002	x													
12/12/2022	9:50	Liquid	CTB to City POTW	3-40ml VOA	HCL			x												
12/12/2022	9:50	Liquid	CTB to City POTW	1-1L Amber	none				x											
12/12/2022	9:50	Liquid	CTB to City POTW	***	***					x										
12/12/2022	9:50	Liquid	CTB to City POTW	1-250ml P	HNO3						x									
12/12/2022	9:50	Liquid	CTB to City POTW	1-1L Amber	none							x								
12/12/2022	9:50	Liquid	CTB to City POTW	1-1L Amber	none								x							

Date	Time	Relinquished by	Received by	Via	Date	Time
12-12-22	11:13	Brady Hibbard	[signature]		12/12/22	1113
12/12/22	1900	[signature]	[signature]	courier	12/13/22	7:50

Remarks: Dissolved Cations by EPA Method 200.7.
1-500ml unpreserved p, 1-125ml H2SO4 p, 1-125ml HNO3 p.*1-500ml unpreserved p, 1-500ml NaOH p, 1-500ml NaOH/ZnAcetate p

RDU FEED RATE : 6300 BPD

-1.9-0.1=-2.0°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

February 07, 2023

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.: 2212B32

Dear Randy Dade:

Hall Environmental Analysis Laboratory received 4 sample(s) on 12/20/2022 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued January 20, 2023.

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. 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. All samples are reported as received unless otherwise indicated.

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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Case Narrative

WO#: **2212B32**
Date: **2/7/2023**

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". Even though the low solids content did not require filtration, all TCLP compounds are reported as both total and filtered, at the TCLP limits. 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 Notes Regarding 8151.
The 1-L amber bottle for CTB to City POTW was broken during shipping. The 8151 test cannot be performed.

EPA Method 8270:
The two filtered samples for WDW-1,2,3 & 4 Effluent and CTB to City POTW were associated with a laboratory control spike that had low recoveries for pentachlorophenol, 2,4,5-trichlorophenol and 2,4,6-Trichlorophenol.

"S" flags denote that the surrogate/spike recovery was outside of the standard limits.

Analytical Report
Lab Order **2212B32**
Date Reported: **2/7/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2212B32-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent
Collection Date: 12/19/2022 10:10:00 AM
Received Date: 12/20/2022 9:00:00 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	1/5/2023 12:52:09 PM	72280
Endrin	ND	0.000062	0.020		mg/L	1	1/5/2023 12:52:09 PM	72280
gamma-BHC (Lindane)	ND	0.000054	0.40		mg/L	1	1/5/2023 12:52:09 PM	72280
Heptachlor	ND	0.000041	0.0080		mg/L	1	1/5/2023 12:52:09 PM	72280
Heptachlor epoxide	ND	0.000051	0.0080		mg/L	1	1/5/2023 12:52:09 PM	72280
Methoxychlor	ND	0.000075	10		mg/L	1	1/5/2023 12:52:09 PM	72280
Toxaphene	ND	0.00050	0.50		mg/L	1	1/5/2023 12:52:09 PM	72280
Surr: Decachlorobiphenyl	52.5	0	40.9-111		%Rec	1	1/5/2023 12:52:09 PM	72280
Surr: Tetrachloro-m-xylene	63.8	0	15-107		%Rec	1	1/5/2023 12:52:09 PM	72280
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Fluoride	24	0.92	2.0	*	mg/L	20	12/20/2022 10:58:42 P	R93450
Chloride	520	25	50	*	mg/L	100	1/5/2023 12:25:07 AM	A93728
Nitrogen, Nitrite (As N)	0.092	0.057	0.50	J	mg/L	5	12/20/2022 10:45:49 P	R93450
Bromide	0.72	0.25	0.50		mg/L	5	12/20/2022 10:45:49 P	R93450
Nitrogen, Nitrate (As N)	0.78	0.10	0.50		mg/L	5	12/20/2022 10:45:49 P	R93450
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5	H	mg/L	5	1/10/2023 1:03:16 PM	R93860
Sulfate	2000	25	50	*	mg/L	100	1/5/2023 12:25:07 AM	A93728
EPA METHOD 6020A: TCLP METALS							Analyst: **ELS**	
Arsenic	0.017	0.0025	5.0	J	mg/L	5	12/22/2022 12:20:35 P	72238
Lead	ND	0.0025	5.0		mg/L	5	12/22/2022 12:20:35 P	72238
Selenium	0.013	0.0025	1.0	J	mg/L	5	12/28/2022 11:57:52 A	72238
EPA METHOD 7470A: MERCURY							Analyst: **VP**	
Mercury	ND	0.000091	0.020		mg/L	1	12/23/2022 3:16:06 PM	72297
EPA METHOD 6010B: DISSOLVED METALS							Analyst: **JRR**	
Calcium	400	0.29	5.0		mg/L	5	12/21/2022 3:50:25 PM	A93491
Magnesium	120	0.17	5.0		mg/L	5	12/21/2022 3:50:25 PM	A93491
Potassium	130	1.0	5.0		mg/L	5	12/21/2022 3:50:25 PM	A93491
Sodium	710	4.2	10		mg/L	10	12/28/2022 3:51:16 PM	A93600
EPA 6010B: TCLP METALS							Analyst: **JRR**	
Barium	0.042	0.0011	100	J	mg/L	1	12/29/2022 12:10:33 P	72238
Cadmium	ND	0.0012	1.0		mg/L	1	12/29/2022 12:10:33 P	72238
Chromium	ND	0.0017	1.0		mg/L	1	12/29/2022 12:10:33 P	72238
Silver	0.0065	0.0013	5.0	J	mg/L	1	12/29/2022 2:15:50 PM	72238
EPA METHOD 8270C TCLP							Analyst: **DAM**	
2-Methylphenol	ND	0.050	200		mg/L	1	1/6/2023 11:24:00 AM	72267
3+4-Methylphenol	ND	0.051	200		mg/L	1	1/6/2023 11:24:00 AM	72267

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 Quanitative 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

Analytical Report
Lab Order **2212B32**
Date Reported: **2/7/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2212B32-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent
Collection Date: 12/19/2022 10:10:00 AM
Received Date: 12/20/2022 9:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C TCLP							Analyst: **DAM**	
2,4-Dinitrotoluene	ND	0.049	0.13		mg/L	1	1/6/2023 11:24:00 AM	72267
Hexachlorobenzene	ND	0.19	0.13		mg/L	1	1/6/2023 11:24:00 AM	72267
Hexachlorobutadiene	ND	0.17	0.50		mg/L	1	1/6/2023 11:24:00 AM	72267
Hexachloroethane	ND	0.14	3.0		mg/L	1	1/6/2023 11:24:00 AM	72267
Nitrobenzene	ND	0.049	2.0		mg/L	1	1/6/2023 11:24:00 AM	72267
Pentachlorophenol	ND	0.27	100	E	mg/L	1	1/6/2023 11:24:00 AM	72267
Pyridine	ND	0.14	5.0		mg/L	1	1/6/2023 11:24:00 AM	72267
2,4,5-Trichlorophenol	ND	0.063	400	E	mg/L	1	1/6/2023 11:24:00 AM	72267
2,4,6-Trichlorophenol	ND	0.059	2.0	E	mg/L	1	1/6/2023 11:24:00 AM	72267
Cresols, Total	ND	0.27	200		mg/L	1	1/6/2023 11:24:00 AM	72267
Surr: 2-Fluorophenol	38.1	0	18.1-88.9		%Rec	1	1/6/2023 11:24:00 AM	72267
Surr: Phenol-d5	30.5	0	17-61.5		%Rec	1	1/6/2023 11:24:00 AM	72267
Surr: 2,4,6-Tribromophenol	74.3	0	29.8-104		%Rec	1	1/6/2023 11:24:00 AM	72267
Surr: Nitrobenzene-d5	48.6	0	22.2-111		%Rec	1	1/6/2023 11:24:00 AM	72267
Surr: 2-Fluorobiphenyl	43.0	0	24.6-96.3		%Rec	1	1/6/2023 11:24:00 AM	72267
Surr: 4-Terphenyl-d14	93.8	0	53.4-124		%Rec	1	1/6/2023 11:24:00 AM	72267
TCLP VOLATILES BY 8260B							Analyst: **JR**	
Benzene	ND	0.50	0.50		mg/L	200	12/30/2022 3:08:59 PM	T93662
1,2-Dichloroethane (EDC)	ND	0.50	0.50		mg/L	200	12/30/2022 3:08:59 PM	T93662
2-Butanone	ND	200	200		mg/L	200	12/30/2022 3:08:59 PM	T93662
Carbon Tetrachloride	ND	0.50	0.50		mg/L	200	12/30/2022 3:08:59 PM	T93662
Chloroform	ND	6.0	6.0		mg/L	200	12/30/2022 3:08:59 PM	T93662
1,4-Dichlorobenzene	ND	7.5	7.5		mg/L	200	12/30/2022 3:08:59 PM	T93662
1,1-Dichloroethene	ND	0.70	0.70		mg/L	200	12/30/2022 3:08:59 PM	T93662
Tetrachloroethene (PCE)	ND	0.70	0.70		mg/L	200	12/30/2022 3:08:59 PM	T93662
Trichloroethene (TCE)	ND	0.50	0.50		mg/L	200	12/30/2022 3:08:59 PM	T93662
Vinyl chloride	ND	0.20	0.20		mg/L	200	12/30/2022 3:08:59 PM	T93662
Chlorobenzene	ND	100	100		mg/L	200	12/30/2022 3:08:59 PM	T93662
Surr: 1,2-Dichloroethane-d4	88.8	0	70-130		%Rec	200	12/30/2022 3:08:59 PM	T93662
Surr: 4-Bromofluorobenzene	115	0	70-130		%Rec	200	12/30/2022 3:08:59 PM	T93662
Surr: Dibromofluoromethane	92.3	0	70-130		%Rec	200	12/30/2022 3:08:59 PM	T93662
Surr: Toluene-d8	106	0	70-130		%Rec	200	12/30/2022 3:08:59 PM	T93662
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **CAS**	
Conductivity	5800	10	10		µmhos/c	1	12/21/2022 4:39:38 PM	R93481
SM4500-H+B / 9040C: PH							Analyst: **CAS**	
pH	7.66			H	pH units	1	12/21/2022 4:39:38 PM	R93481
SM2320B: ALKALINITY							Analyst: **CAS**	

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

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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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2212B32**
Date Reported: **2/7/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2212B32-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent
Collection Date: 12/19/2022 10:10:00 AM
Received Date: 12/20/2022 9:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM2320B: ALKALINITY							Analyst: **CAS**	
Bicarbonate (As CaCO3)	370.5	20.00	20.00		mg/L Ca	1	12/21/2022 4:39:38 PM	R93481
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	12/21/2022 4:39:38 PM	R93481
Total Alkalinity (as CaCO3)	370.5	20.00	20.00		mg/L Ca	1	12/21/2022 4:39:38 PM	R93481
SPECIFIC GRAVITY							Analyst: **CAS**	
Specific Gravity	0.9954	0	0			1	12/30/2022 5:04:00 PM	R93653
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **SNS**	
Total Dissolved Solids	4350	40.0	40.0	*D	mg/L	1	12/28/2022 10:20:00 A	72286
SM 2540D: TSS							Analyst: **KS**	
Suspended Solids	38	8.0	8.0	D	mg/L	1	12/23/2022 11:03:00 A	72294

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Analytical Report
Lab Order **2212B32**
Date Reported: **2/7/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2212B32-002 **Matrix:** AQUEOUS

Client Sample ID: CTB to City POTW
Collection Date: 12/19/2022 9:50:00 AM
Received Date: 12/20/2022 9:00:00 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	1/5/2023 1:05:14 PM	72280
Endrin	ND	0.000062	0.020		mg/L	1	1/5/2023 1:05:14 PM	72280
gamma-BHC (Lindane)	ND	0.000054	0.40		mg/L	1	1/5/2023 1:05:14 PM	72280
Heptachlor	ND	0.000041	0.0080		mg/L	1	1/5/2023 1:05:14 PM	72280
Heptachlor epoxide	ND	0.000051	0.0080		mg/L	1	1/5/2023 1:05:14 PM	72280
Methoxychlor	ND	0.000075	10		mg/L	1	1/5/2023 1:05:14 PM	72280
Toxaphene	ND	0.00050	0.50		mg/L	1	1/5/2023 1:05:14 PM	72280
Surr: Decachlorobiphenyl	61.5	0	40.9-111		%Rec	1	1/5/2023 1:05:14 PM	72280
Surr: Tetrachloro-m-xylene	47.3	0	15-107		%Rec	1	1/5/2023 1:05:14 PM	72280
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Fluoride	1.7	0.046	0.10		mg/L	1	12/20/2022 11:11:33 P	R93450
Chloride	54	5.0	10		mg/L	20	12/20/2022 11:24:24 P	R93450
Nitrogen, Nitrite (As N)	ND	0.011	0.10		mg/L	1	12/20/2022 11:11:33 P	R93450
Bromide	ND	0.050	0.10		mg/L	1	12/20/2022 11:11:33 P	R93450
Nitrogen, Nitrate (As N)	1.5	0.020	0.10		mg/L	1	12/20/2022 11:11:33 P	R93450
Phosphorus, Orthophosphate (As P)	ND	5.0	10	H	mg/L	20	1/10/2023 1:41:51 PM	R93860
Sulfate	2200	25	50	*	mg/L	100	1/5/2023 12:37:59 AM	A93728
EPA METHOD 6020A: TCLP METALS							Analyst: **ELS**	
Arsenic	0.0013	0.00050	5.0	J	mg/L	1	12/22/2022 12:11:37 P	72238
Lead	ND	0.00050	5.0		mg/L	1	12/22/2022 12:11:37 P	72238
Selenium	0.0054	0.00050	1.0	J	mg/L	1	12/29/2022 8:38:24 AM	72238
EPA METHOD 7470A: MERCURY							Analyst: **VP**	
Mercury	ND	0.000091	0.020		mg/L	1	12/23/2022 3:18:16 PM	72297
EPA METHOD 6010B: DISSOLVED METALS							Analyst: **JRR**	
Calcium	320	0.29	5.0		mg/L	5	12/21/2022 3:52:05 PM	A93491
Magnesium	95	0.17	5.0		mg/L	5	12/21/2022 3:52:05 PM	A93491
Potassium	2.5	0.21	1.0		mg/L	1	12/21/2022 4:09:15 PM	A93491
Sodium	58	2.1	5.0		mg/L	5	1/3/2023 10:32:10 AM	A93678
EPA 6010B: TCLP METALS							Analyst: **JRR**	
Barium	0.023	0.0011	100	J	mg/L	1	12/29/2022 12:23:11 P	72238
Cadmium	ND	0.0012	1.0		mg/L	1	12/29/2022 12:23:11 P	72238
Chromium	ND	0.0017	1.0		mg/L	1	12/29/2022 12:23:11 P	72238
Silver	0.0060	0.0013	5.0	J	mg/L	1	12/29/2022 2:17:58 PM	72238
EPA METHOD 8270C TCLP							Analyst: **DAM**	
2-Methylphenol	ND	0.050	200		mg/L	1	1/6/2023 12:05:19 PM	72267
3+4-Methylphenol	ND	0.051	200		mg/L	1	1/6/2023 12:05:19 PM	72267

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
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Lab ID: 2212B32-002 **Matrix:** AQUEOUS

Client Sample ID: CTB to City POTW
Collection Date: 12/19/2022 9:50:00 AM
Received Date: 12/20/2022 9:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C TCLP							Analyst: **DAM**	
2,4-Dinitrotoluene	ND	0.049	0.13		mg/L	1	1/6/2023 12:05:19 PM	72267
Hexachlorobenzene	ND	0.19	0.13		mg/L	1	1/6/2023 12:05:19 PM	72267
Hexachlorobutadiene	ND	0.17	0.50		mg/L	1	1/6/2023 12:05:19 PM	72267
Hexachloroethane	ND	0.14	3.0		mg/L	1	1/6/2023 12:05:19 PM	72267
Nitrobenzene	ND	0.049	2.0		mg/L	1	1/6/2023 12:05:19 PM	72267
Pentachlorophenol	ND	0.27	100	E	mg/L	1	1/6/2023 12:05:19 PM	72267
Pyridine	ND	0.14	5.0		mg/L	1	1/6/2023 12:05:19 PM	72267
2,4,5-Trichlorophenol	ND	0.063	400	E	mg/L	1	1/6/2023 12:05:19 PM	72267
2,4,6-Trichlorophenol	ND	0.059	2.0	E	mg/L	1	1/6/2023 12:05:19 PM	72267
Cresols, Total	ND	0.27	200		mg/L	1	1/6/2023 12:05:19 PM	72267
Surr: 2-Fluorophenol	38.1	0	18.1-88.9		%Rec	1	1/6/2023 12:05:19 PM	72267
Surr: Phenol-d5	29.7	0	17-61.5		%Rec	1	1/6/2023 12:05:19 PM	72267
Surr: 2,4,6-Tribromophenol	53.1	0	29.8-104		%Rec	1	1/6/2023 12:05:19 PM	72267
Surr: Nitrobenzene-d5	51.1	0	22.2-111		%Rec	1	1/6/2023 12:05:19 PM	72267
Surr: 2-Fluorobiphenyl	41.7	0	24.6-96.3		%Rec	1	1/6/2023 12:05:19 PM	72267
Surr: 4-Terphenyl-d14	85.5	0	53.4-124		%Rec	1	1/6/2023 12:05:19 PM	72267
TCLP VOLATILES BY 8260B							Analyst: **JR**	
Benzene	ND	0.50	0.50		mg/L	200	12/30/2022 3:37:40 PM	T93662
1,2-Dichloroethane (EDC)	ND	0.50	0.50		mg/L	200	12/30/2022 3:37:40 PM	T93662
2-Butanone	ND	200	200		mg/L	200	12/30/2022 3:37:40 PM	T93662
Carbon Tetrachloride	ND	0.50	0.50		mg/L	200	12/30/2022 3:37:40 PM	T93662
Chloroform	ND	6.0	6.0		mg/L	200	12/30/2022 3:37:40 PM	T93662
1,4-Dichlorobenzene	ND	7.5	7.5		mg/L	200	12/30/2022 3:37:40 PM	T93662
1,1-Dichloroethene	ND	0.70	0.70		mg/L	200	12/30/2022 3:37:40 PM	T93662
Tetrachloroethene (PCE)	ND	0.70	0.70		mg/L	200	12/30/2022 3:37:40 PM	T93662
Trichloroethene (TCE)	ND	0.50	0.50		mg/L	200	12/30/2022 3:37:40 PM	T93662
Vinyl chloride	ND	0.20	0.20		mg/L	200	12/30/2022 3:37:40 PM	T93662
Chlorobenzene	ND	100	100		mg/L	200	12/30/2022 3:37:40 PM	T93662
Surr: 1,2-Dichloroethane-d4	94.9	0	70-130		%Rec	200	12/30/2022 3:37:40 PM	T93662
Surr: 4-Bromofluorobenzene	110	0	70-130		%Rec	200	12/30/2022 3:37:40 PM	T93662
Surr: Dibromofluoromethane	93.1	0	70-130		%Rec	200	12/30/2022 3:37:40 PM	T93662
Surr: Toluene-d8	107	0	70-130		%Rec	200	12/30/2022 3:37:40 PM	T93662
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **CAS**	
Conductivity	2100	10	10		µmhos/c	1	12/21/2022 5:06:38 PM	R93481
SM4500-H+B / 9040C: PH							Analyst: **CAS**	
pH	7.60			H	pH units	1	12/21/2022 5:06:38 PM	R93481
SM2320B: ALKALINITY							Analyst: **CAS**	

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2212B32**
Date Reported: **2/7/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2212B32-002 **Matrix:** AQUEOUS

Client Sample ID: CTB to City POTW
Collection Date: 12/19/2022 9:50:00 AM
Received Date: 12/20/2022 9:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM2320B: ALKALINITY							Analyst: **CAS**	
Bicarbonate (As CaCO3)	62.56	20.00	20.00		mg/L Ca	1	12/21/2022 5:06:38 PM	R93481
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	12/21/2022 5:06:38 PM	R93481
Total Alkalinity (as CaCO3)	62.56	20.00	20.00		mg/L Ca	1	12/21/2022 5:06:38 PM	R93481
SPECIFIC GRAVITY							Analyst: **CAS**	
Specific Gravity	0.9980	0	0			1	12/30/2022 5:04:00 PM	R93653
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **SNS**	
Total Dissolved Solids	1940	20.0	20.0	*	mg/L	1	12/28/2022 10:20:00 A	72286
SM 2540D: TSS							Analyst: **KS**	
Suspended Solids	ND	4.0	4.0		mg/L	1	12/23/2022 11:03:00 A	72294

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 Quanitative 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

Analytical Report
Lab Order **2212B32**
Date Reported: **2/7/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2212B32-003 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent-Filtere
Collection Date: 12/19/2022 10:10:00 AM
Received Date: 12/20/2022 9:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8081: PESTICIDES TCLP							Analyst: **JME**	
Chlordane	ND	0.00051	0.030		mg/L	1	1/5/2023 1:18:18 PM	72280
Endrin	ND	0.000064	0.020		mg/L	1	1/5/2023 1:18:18 PM	72280
gamma-BHC (Lindane)	ND	0.000055	0.41		mg/L	1	1/5/2023 1:18:18 PM	72280
Heptachlor	ND	0.000042	0.0082		mg/L	1	1/5/2023 1:18:18 PM	72280
Heptachlor epoxide	ND	0.000053	0.0082		mg/L	1	1/5/2023 1:18:18 PM	72280
Methoxychlor	ND	0.000077	10		mg/L	1	1/5/2023 1:18:18 PM	72280
Toxaphene	ND	0.00051	0.51		mg/L	1	1/5/2023 1:18:18 PM	72280
Surr: Decachlorobiphenyl	53.1	0	40.9-111		%Rec	1	1/5/2023 1:18:18 PM	72280
Surr: Tetrachloro-m-xylene	68.0	0	15-107		%Rec	1	1/5/2023 1:18:18 PM	72280
EPA METHOD 8151: HERBICIDES TCLP							Analyst: **SB**	
2,4,5-TP (Silvex)	ND	1.0	1.0		mg/L	1	12/23/2022 3:00:55 AM	72185
2,4-D	ND	10	10		mg/L	1	12/23/2022 3:00:55 AM	72185
Surr: 2,4-Dichlorophenylacetic acid	175	0	70-130	S	%Rec	1	12/23/2022 3:00:55 AM	72185
EPA METHOD 7470A: TCLP MERCURY							Analyst: **VP**	
Mercury	ND	0.000092	0.020		mg/L	1	12/29/2022 12:41:34 P	72362
EPA METHOD 6010B: TCLP METALS							Analyst: **JRR**	
Arsenic	ND	0.028	5.0		mg/L	1	12/22/2022 10:32:30 A	72262
Barium	0.054	0.0045	100	J	mg/L	1	12/22/2022 10:32:30 A	72262
Cadmium	ND	0.0067	1.0		mg/L	1	12/22/2022 10:32:30 A	72262
Chromium	ND	0.0031	5.0		mg/L	1	12/22/2022 10:32:30 A	72262
Lead	ND	0.0099	5.0		mg/L	1	12/22/2022 10:32:30 A	72262
Selenium	ND	0.061	1.0		mg/L	1	12/22/2022 10:32:30 A	72262
Silver	0.0067	0.0023	5.0	J	mg/L	1	12/22/2022 10:32:30 A	72262
EPA METHOD 8270C TCLP							Analyst: **DAM**	
2-Methylphenol	ND	0.050	200		mg/L	1	1/6/2023 12:46:37 PM	72267
3+4-Methylphenol	ND	0.051	200		mg/L	1	1/6/2023 12:46:37 PM	72267
2,4-Dinitrotoluene	ND	0.049	0.13		mg/L	1	1/6/2023 12:46:37 PM	72267
Hexachlorobenzene	ND	0.19	0.13		mg/L	1	1/6/2023 12:46:37 PM	72267
Hexachlorobutadiene	ND	0.17	0.50		mg/L	1	1/6/2023 12:46:37 PM	72267
Hexachloroethane	ND	0.14	3.0		mg/L	1	1/6/2023 12:46:37 PM	72267
Nitrobenzene	ND	0.049	2.0		mg/L	1	1/6/2023 12:46:37 PM	72267
Pentachlorophenol	ND	0.27	100	E	mg/L	1	1/6/2023 12:46:37 PM	72267
Pyridine	ND	0.14	5.0		mg/L	1	1/6/2023 12:46:37 PM	72267
2,4,5-Trichlorophenol	ND	0.063	400	E	mg/L	1	1/6/2023 12:46:37 PM	72267
2,4,6-Trichlorophenol	ND	0.059	2.0	E	mg/L	1	1/6/2023 12:46:37 PM	72267
Cresols, Total	ND	0.27	200		mg/L	1	1/6/2023 12:46:37 PM	72267
Surr: 2-Fluorophenol	54.2	0	18.1-88.9		%Rec	1	1/6/2023 12:46:37 PM	72267

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 Quanitative 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

Analytical Report
Lab Order **2212B32**
Date Reported: **2/7/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2212B32-003 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent-Filtere
Collection Date: 12/19/2022 10:10:00 AM
Received Date: 12/20/2022 9:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C TCLP							Analyst: **DAM**	
Surr: Phenol-d5	43.4	0	17-61.5		%Rec	1	1/6/2023 12:46:37 PM	72267
Surr: 2,4,6-Tribromophenol	82.6	0	29.8-104		%Rec	1	1/6/2023 12:46:37 PM	72267
Surr: Nitrobenzene-d5	65.2	0	22.2-111		%Rec	1	1/6/2023 12:46:37 PM	72267
Surr: 2-Fluorobiphenyl	54.0	0	24.6-96.3		%Rec	1	1/6/2023 12:46:37 PM	72267
Surr: 4-Terphenyl-d14	93.3	0	53.4-124		%Rec	1	1/6/2023 12:46:37 PM	72267
TCLP VOLATILES BY 8260B							Analyst: **JR**	
Benzene	ND	0.50	0.50		mg/L	200	12/30/2022 4:06:24 PM	T93662
1,2-Dichloroethane (EDC)	ND	0.50	0.50		mg/L	200	12/30/2022 4:06:24 PM	T93662
2-Butanone	ND	200	200		mg/L	200	12/30/2022 4:06:24 PM	T93662
Carbon Tetrachloride	ND	0.50	0.50		mg/L	200	12/30/2022 4:06:24 PM	T93662
Chloroform	ND	6.0	6.0		mg/L	200	12/30/2022 4:06:24 PM	T93662
1,4-Dichlorobenzene	ND	7.5	7.5		mg/L	200	12/30/2022 4:06:24 PM	T93662
1,1-Dichloroethene	ND	0.70	0.70		mg/L	200	12/30/2022 4:06:24 PM	T93662
Tetrachloroethene (PCE)	ND	0.70	0.70		mg/L	200	12/30/2022 4:06:24 PM	T93662
Trichloroethene (TCE)	ND	0.50	0.50		mg/L	200	12/30/2022 4:06:24 PM	T93662
Vinyl chloride	ND	0.20	0.20		mg/L	200	12/30/2022 4:06:24 PM	T93662
Chlorobenzene	ND	100	100		mg/L	200	12/30/2022 4:06:24 PM	T93662
Surr: 1,2-Dichloroethane-d4	95.9	0	70-130		%Rec	200	12/30/2022 4:06:24 PM	T93662
Surr: 4-Bromofluorobenzene	113	0	70-130		%Rec	200	12/30/2022 4:06:24 PM	T93662
Surr: Dibromofluoromethane	92.4	0	70-130		%Rec	200	12/30/2022 4:06:24 PM	T93662
Surr: Toluene-d8	104	0	70-130		%Rec	200	12/30/2022 4:06:24 PM	T93662

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
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PQL	Practical Quanitative 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

Analytical Report
Lab Order **2212B32**
Date Reported: **2/7/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2212B32-004 **Matrix:** AQUEOUS

Client Sample ID: CTB to City POTW-Filtered
Collection Date: 12/19/2022 9:50:00 AM
Received Date: 12/20/2022 9:00:00 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	1/5/2023 1:31:26 PM	72280
Endrin	ND	0.000062	0.020		mg/L	1	1/5/2023 1:31:26 PM	72280
gamma-BHC (Lindane)	ND	0.000054	0.40		mg/L	1	1/5/2023 1:31:26 PM	72280
Heptachlor	ND	0.000041	0.0080		mg/L	1	1/5/2023 1:31:26 PM	72280
Heptachlor epoxide	ND	0.000051	0.0080		mg/L	1	1/5/2023 1:31:26 PM	72280
Methoxychlor	ND	0.000075	10		mg/L	1	1/5/2023 1:31:26 PM	72280
Toxaphene	ND	0.00050	0.50		mg/L	1	1/5/2023 1:31:26 PM	72280
Surr: Decachlorobiphenyl	85.9	0	40.9-111		%Rec	1	1/5/2023 1:31:26 PM	72280
Surr: Tetrachloro-m-xylene	68.3	0	15-107		%Rec	1	1/5/2023 1:31:26 PM	72280
EPA METHOD 8151: HERBICIDES TCLP							Analyst: **SB**	
2,4,5-TP (Silvex)	ND	1.0	1.0		mg/L	1	12/23/2022 3:26:43 AM	72185
2,4-D	ND	10	10		mg/L	1	12/23/2022 3:26:43 AM	72185
Surr: 2,4-Dichlorophenylacetic acid	109	0	70-130		%Rec	1	12/23/2022 3:26:43 AM	72185
EPA METHOD 7470A: TCLP MERCURY							Analyst: **VP**	
Mercury	ND	0.000092	0.020		mg/L	1	12/29/2022 12:43:41 P	72362
EPA METHOD 6010B: TCLP METALS							Analyst: **JRR**	
Arsenic	ND	0.028	5.0		mg/L	1	12/22/2022 10:34:12 A	72262
Barium	0.030	0.0045	100	J	mg/L	1	12/22/2022 10:34:12 A	72262
Cadmium	ND	0.0067	1.0		mg/L	1	12/22/2022 10:34:12 A	72262
Chromium	ND	0.0031	5.0		mg/L	1	12/22/2022 10:34:12 A	72262
Lead	ND	0.0099	5.0		mg/L	1	12/22/2022 10:34:12 A	72262
Selenium	ND	0.061	1.0		mg/L	1	12/22/2022 10:34:12 A	72262
Silver	0.0055	0.0023	5.0	J	mg/L	1	12/22/2022 10:34:12 A	72262
EPA METHOD 8270C TCLP							Analyst: **DAM**	
2-Methylphenol	ND	0.050	200		mg/L	1	1/6/2023 1:28:09 PM	72267
3+4-Methylphenol	ND	0.051	200		mg/L	1	1/6/2023 1:28:09 PM	72267
2,4-Dinitrotoluene	ND	0.049	0.13		mg/L	1	1/6/2023 1:28:09 PM	72267
Hexachlorobenzene	ND	0.19	0.13		mg/L	1	1/6/2023 1:28:09 PM	72267
Hexachlorobutadiene	ND	0.17	0.50		mg/L	1	1/6/2023 1:28:09 PM	72267
Hexachloroethane	ND	0.14	3.0		mg/L	1	1/6/2023 1:28:09 PM	72267
Nitrobenzene	ND	0.049	2.0		mg/L	1	1/6/2023 1:28:09 PM	72267
Pentachlorophenol	ND	0.27	100	E	mg/L	1	1/6/2023 1:28:09 PM	72267
Pyridine	ND	0.14	5.0		mg/L	1	1/6/2023 1:28:09 PM	72267
2,4,5-Trichlorophenol	ND	0.063	400	E	mg/L	1	1/6/2023 1:28:09 PM	72267
2,4,6-Trichlorophenol	ND	0.059	2.0	E	mg/L	1	1/6/2023 1:28:09 PM	72267
Cresols, Total	ND	0.27	200		mg/L	1	1/6/2023 1:28:09 PM	72267
Surr: 2-Fluorophenol	40.6	0	18.1-88.9		%Rec	1	1/6/2023 1:28:09 PM	72267

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 Quanitative 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

Analytical Report
Lab Order **2212B32**
Date Reported: **2/7/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2212B32-004 **Matrix:** AQUEOUS

Client Sample ID: CTB to City POTW-Filtered
Collection Date: 12/19/2022 9:50:00 AM
Received Date: 12/20/2022 9:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C TCLP							Analyst: **DAM**	
Surr: Phenol-d5	31.8	0	17-61.5		%Rec	1	1/6/2023 1:28:09 PM	72267
Surr: 2,4,6-Tribromophenol	55.4	0	29.8-104		%Rec	1	1/6/2023 1:28:09 PM	72267
Surr: Nitrobenzene-d5	53.2	0	22.2-111		%Rec	1	1/6/2023 1:28:09 PM	72267
Surr: 2-Fluorobiphenyl	41.7	0	24.6-96.3		%Rec	1	1/6/2023 1:28:09 PM	72267
Surr: 4-Terphenyl-d14	89.1	0	53.4-124		%Rec	1	1/6/2023 1:28:09 PM	72267
TCLP VOLATILES BY 8260B							Analyst: **JR**	
Benzene	ND	0.50	0.50		mg/L	200	12/30/2022 4:35:07 PM	T93662
1,2-Dichloroethane (EDC)	ND	0.50	0.50		mg/L	200	12/30/2022 4:35:07 PM	T93662
2-Butanone	ND	200	200		mg/L	200	12/30/2022 4:35:07 PM	T93662
Carbon Tetrachloride	ND	0.50	0.50		mg/L	200	12/30/2022 4:35:07 PM	T93662
Chloroform	ND	6.0	6.0		mg/L	200	12/30/2022 4:35:07 PM	T93662
1,4-Dichlorobenzene	ND	7.5	7.5		mg/L	200	12/30/2022 4:35:07 PM	T93662
1,1-Dichloroethene	ND	0.70	0.70		mg/L	200	12/30/2022 4:35:07 PM	T93662
Tetrachloroethene (PCE)	ND	0.70	0.70		mg/L	200	12/30/2022 4:35:07 PM	T93662
Trichloroethene (TCE)	ND	0.50	0.50		mg/L	200	12/30/2022 4:35:07 PM	T93662
Vinyl chloride	ND	0.20	0.20		mg/L	200	12/30/2022 4:35:07 PM	T93662
Chlorobenzene	ND	100	100		mg/L	200	12/30/2022 4:35:07 PM	T93662
Surr: 1,2-Dichloroethane-d4	96.3	0	70-130		%Rec	200	12/30/2022 4:35:07 PM	T93662
Surr: 4-Bromofluorobenzene	109	0	70-130		%Rec	200	12/30/2022 4:35:07 PM	T93662
Surr: Dibromofluoromethane	91.9	0	70-130		%Rec	200	12/30/2022 4:35:07 PM	T93662
Surr: Toluene-d8	107	0	70-130		%Rec	200	12/30/2022 4:35:07 PM	T93662

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
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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

Pace Analytical®

ANALYTICAL REPORT

February 03, 2023

Revised Report

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

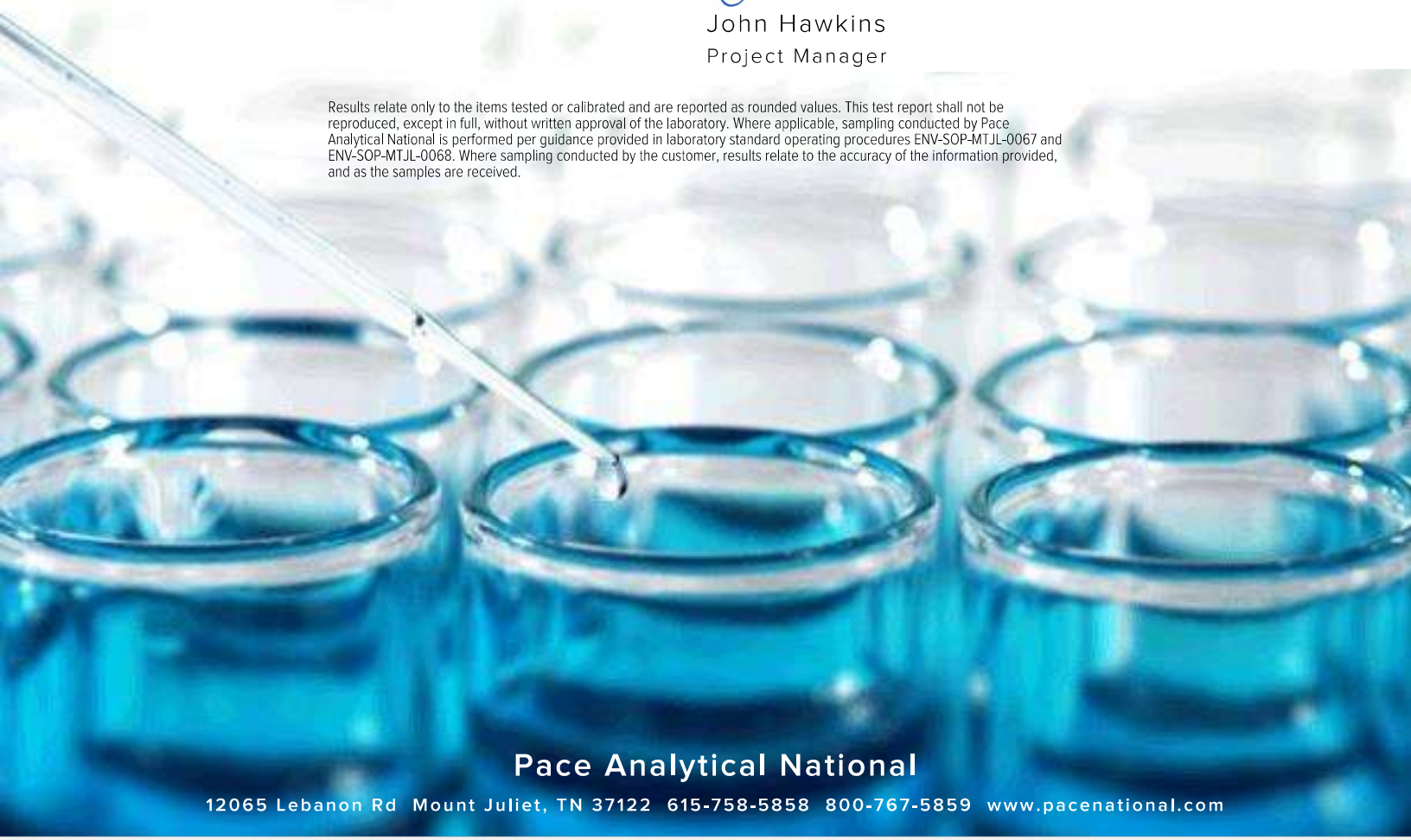
Hall Environmental Analysis Laboratory

Sample Delivery Group:	L1569837
Samples Received:	12/21/2022
Project Number:	
Description:	

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

Entire Report Reviewed By:

John Hawkins
Project Manager



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

TABLE OF CONTENTS

SAMPLE SUMMARY

2212B32-001F WDW-1,2,3,& 4 EFFLUENT L1569837-01 WW

Collected by	Collected date/time	Received date/time
	12/19/22 10:10	12/21/22 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1311	WG1978097	1	12/22/22 14:07	12/22/22 14:07	JTM	Mt. Juliet, TN
Wet Chemistry by Method 4500H+ B-2011	WG1982838	1	01/04/23 11:45	01/04/23 11:45	JAR	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG1984023	1	01/05/23 20:09	01/05/23 20:09	CRB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (LCMS) by Method SW-846 8321	WG1978527	1	12/28/22 23:50	12/30/22 12:20	JNJ	Mt. Juliet, TN

2212B32-001G WDW-1,2,3,& 4 EFFLUENT L1569837-02 GW

Collected by	Collected date/time	Received date/time
	12/19/22 10:10	12/21/22 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2580	WG1981271	1	12/30/22 08:07	12/30/22 08:07	ARD	Mt. Juliet, TN
Wet Chemistry by Method 4500 CN E-2016	WG1979336	1	12/24/22 16:52	12/26/22 17:30	CAT	Mt. Juliet, TN
Wet Chemistry by Method 4500 S2 D-2011	WG1978443	1	12/22/22 03:38	12/22/22 03:38	CRB	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG1981124	1	12/29/22 23:39	12/29/22 23:39	CRB	Mt. Juliet, TN

2212B32-002G CTB TO CITY POTW L1569837-03 GW

Collected by	Collected date/time	Received date/time
	12/19/22 09:50	12/21/22 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2580	WG1981271	1	12/30/22 08:07	12/30/22 08:07	ARD	Mt. Juliet, TN
Wet Chemistry by Method 4500 CN E-2016	WG1979336	1	12/24/22 16:52	12/26/22 17:31	CAT	Mt. Juliet, TN
Wet Chemistry by Method 4500 S2 D-2011	WG1978443	1	12/22/22 03:39	12/22/22 03:39	CRB	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1979726	1	12/27/22 14:05	12/27/22 14:05	ARD	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG1978305	1	12/22/22 03:38	12/22/22 03:38	TQP	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

Report Revision History

Level II Report - Version 1: 01/06/23 09:39

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.

Revised per client request

Sample Delivery Group (SDG) Narrative

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

Lab Sample ID	Project Sample ID	Method
L1569837-02	2212B32-001G WDW-1,2,3,& 4 EFFLUENT	4500 S2 D-2011
L1569837-03	2212B32-002G CTB TO CITY POTW	4500 S2 D-2011

The following analysis were performed from an unpreserved, insufficiently or inadequately preserved sample.

Lab Sample ID	Project Sample ID	Method
L1569837-02	2212B32-001G WDW-1,2,3,& 4 EFFLUENT	4500 CN E-2016

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		12/22/2022 2:07:26 PM	WG1978097
Fluid	1		12/22/2022 2:07:26 PM	WG1978097
Initial pH	7.30		12/22/2022 2:07:26 PM	WG1978097
Final pH	4.91		12/22/2022 2:07:26 PM	WG1978097

Wet Chemistry by Method 4500H+ B-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	su				
Corrosivity by pH	7.26	T8	1	01/04/2023 11:45	WG1982838

Sample Narrative:

L1569837-01 WG1982838: 7.26 at 18C

Wet Chemistry by Method D93/1010A

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	deg F				
Flashpoint	DNF at 170		1	01/05/2023 20:09	WG1984023

Semi-Volatile Organic Compounds (LCMS) by Method SW-846 8321

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
	mg/l		mg/l	mg/l			
2,4-D	ND		0.0200	10	1	12/30/2022 12:20	WG1978527
2,4,5-TP (Silvex)	ND		0.0200	1	1	12/30/2022 12:20	WG1978527
(S) 2,4-DB-D3	*105*		*70.0-130*			*12/30/2022 12:20*	WG1978527

Wet Chemistry by Method 2580

Analyte	Result mV	Qualifier	Dilution	Analysis date / time	Batch
ORP	338	T8	1	12/30/2022 08:07	WG1981271

Wet Chemistry by Method 4500 CN E-2016

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Cyanide	0.0140		0.00500	1	12/26/2022 17:30	WG1979336

Wet Chemistry by Method 4500 S2 D-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Sulfide	0.0750		0.0500	1	12/22/2022 03:38	WG1978443

Wet Chemistry by Method D93/1010A

Analyte	Result deg F	Qualifier	Dilution	Analysis date / time	Batch
Flashpoint	DNF at 170		1	12/29/2022 23:39	WG1981124

Wet Chemistry by Method 2580

Analyte	Result mV	Qualifier	Dilution	Analysis date / time	Batch
ORP	362	T8	1	12/30/2022 08:07	WG1981271

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	12/26/2022 17:31	WG1979336

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	12/22/2022 03:39	WG1978443

Wet Chemistry by Method 9040C

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.70	T8	1	12/27/2022 14:05	WG1979726

Sample Narrative:

L1569837-03 WG1979726: 7.7 at 18.8C

Wet Chemistry by Method D93/1010A

Analyte	Result deg F	Qualifier	Dilution	Analysis date / time	Batch
Flashpoint	DNF at 170		1	12/22/2022 03:38	WG1978305

L1569837-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1569837-02 12/30/22 08:07 • (DUP) R3876722-3 12/30/22 08:07

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	338	340	1	1.80		20

L1569837-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1569837-03 12/30/22 08:07 • (DUP) R3876722-4 12/30/22 08:07

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	362	363	1	1.30		20

L1569894-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1569894-01 12/30/22 08:07 • (DUP) R3876722-5 12/30/22 08:07

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	340	344	1	4.20		20

L1569894-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1569894-02 12/30/22 08:07 • (DUP) R3876722-6 12/30/22 08:07

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	343	343	1	0.100		20

L1569894-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1569894-04 12/30/22 08:07 • (DUP) R3876722-7 12/30/22 08:07

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	347	348	1	0.100		20

L1569894-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1569894-05 12/30/22 08:07 • (DUP) R3876722-8 12/30/22 08:07

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	521	520	1	0.600		20

L1569894-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1569894-06 12/30/22 08:07 • (DUP) R3876722-9 12/30/22 08:07

	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
Analyte	mV	mV		mV		mV
ORP	335	334	1	0.500		20

L1569894-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1569894-07 12/30/22 08:07 • (DUP) R3876722-10 12/30/22 08:07

	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
Analyte	mV	mV		mV		mV
ORP	346	346	1	0.200		20

L1569894-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1569894-08 12/30/22 08:07 • (DUP) R3876722-11 12/30/22 08:07

	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
Analyte	mV	mV		mV		mV
ORP	346	346	1	0.100		20

L1569894-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1569894-09 12/30/22 08:07 • (DUP) R3876722-12 12/30/22 08:07

	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
Analyte	mV	mV		mV		mV
ORP	661	668	1	7.30		20

L1569894-10 Original Sample (OS) • Duplicate (DUP)

(OS) L1569894-10 12/30/22 08:07 • (DUP) R3876722-13 12/30/22 08:07

	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
Analyte	mV	mV		mV		mV
ORP	444	444	1	0.100		20

L1569894-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1569894-11 12/30/22 08:07 • (DUP) R3876722-14 12/30/22 08:07

	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
Analyte	mV	mV		mV		mV
ORP	543	543	1	0.300		20

L1569894-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1569894-12 12/30/22 08:07 • (DUP) R3876722-15 12/30/22 08:07

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	476	476	1	0.200		20

L1569894-13 Original Sample (OS) • Duplicate (DUP)

(OS) L1569894-13 12/30/22 08:07 • (DUP) R3876722-16 12/30/22 08:07

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	395	396	1	0.400		20

L1569894-14 Original Sample (OS) • Duplicate (DUP)

(OS) L1569894-14 12/30/22 08:07 • (DUP) R3876722-17 12/30/22 08:07

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	391	391	1	0.100		20

L1569894-15 Original Sample (OS) • Duplicate (DUP)

(OS) L1569894-15 12/30/22 08:07 • (DUP) R3876722-18 12/30/22 08:07

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	400	400	1	0.300		20

L1569894-16 Original Sample (OS) • Duplicate (DUP)

(OS) L1569894-16 12/30/22 08:07 • (DUP) R3876722-19 12/30/22 08:07

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	544	545	1	0.300		20

L1569894-17 Original Sample (OS) • Duplicate (DUP)

(OS) L1569894-17 12/30/22 08:07 • (DUP) R3876722-20 12/30/22 08:07

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	531	530	1	1.20		20

L1569894-18 Original Sample (OS) • Duplicate (DUP)

(OS) L1569894-18 12/30/22 08:07 • (DUP) R3876722-21 12/30/22 08:07

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	397	396	1	0.300		20

L1569894-19 Original Sample (OS) • Duplicate (DUP)

(OS) L1569894-19 12/30/22 08:07 • (DUP) R3876722-22 12/30/22 08:07

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	403	403	1	0.200		20

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

(LCS) R3876722-1 12/30/22 08:07 • (LCSD) R3876722-2 12/30/22 08:07

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	98.0	107	103	109	105	90.0-110			3.20	20

Method Blank (MB)

(MB) R3875478-1 12/26/22 17:22

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

L1569738-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1569738-02 12/26/22 17:28 • (DUP) R3875478-3 12/26/22 17:29

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

L1569879-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1569879-02 12/26/22 17:38 • (DUP) R3875478-6 12/26/22 17:39

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) R3875478-2 12/26/22 17:23

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Cyanide	0.100	0.104	104	87.1-120	

L1569837-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1569837-03 12/26/22 17:31 • (MS) R3875478-4 12/26/22 17:34 • (MSD) R3875478-5 12/26/22 17:35

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	0.0948	0.0932	94.8	93.2	1	90.0-110			1.70	20

Method Blank (MB)

(MB) R3874646-1 12/22/22 03:35

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) R3874646-2 12/22/22 03:35

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Sulfide	0.500	0.458	91.6	85.0-115	

L1569873-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1569873-04 12/22/22 03:39 • (MS) R3874646-3 12/22/22 03:39 • (MSD) R3874646-4 12/22/22 03:39

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	0.430	0.419	86.0	83.8	1	80.0-120			2.59	20

Laboratory Control Sample (LCS)

(LCS) R3877886-1 01/04/23 11:45

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
Corrosivity by pH	10.0	9.90	99.0	99.0-101	

Sample Narrative:

LCS: 9.9 at 20.6C

L1570532-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1570532-01 12/27/22 14:05 • (DUP) R3875770-3 12/27/22 14:05

Analyte	Original Result su	DUP Result su	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
pH	7.89	7.87	1	0.254		1

Sample Narrative:
OS: 7.89 at 18.6C
DUP: 7.87 at 18.4C

Laboratory Control Sample (LCS)

(LCS) R3875770-1 12/27/22 14:05

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

Sample Narrative:
LCS: 9.91 at 19.6C

L1569837-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1569837-03 12/22/22 03:38 • (DUP) R3874642-3 12/22/22 03:38

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	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) R3874642-1 12/22/22 03:38 • (LCSD) R3874642-2 12/22/22 03:38

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	deg F	deg F	deg F	%	%	%			%	%
Flashpoint	126	129	131	102	104	96.0-104			1.54	10

L1569837-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1569837-02 12/29/22 23:39 • (DUP) R3876672-3 12/29/22 23:39

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) R3876672-1 12/29/22 23:39 • (LCSD) R3876672-2 12/29/22 23:39

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	128	98.8	102	96.0-104			3.16	10

L1569837-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1569837-01 01/05/23 20:09 • (DUP) R3878465-3 01/05/23 20:09

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	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) R3878465-1 01/05/23 20:09 • (LCSD) R3878465-2 01/05/23 20:09

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	deg F	deg F	deg F	%	%	%			%	%
Flashpoint	126	129	127	102	100	96.0-104			1.57	10

Method Blank (MB)

(MB) R3876878-2 12/30/22 10:15

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
2,4-D	U		0.00667	0.0200
2,4,5-TP (Silvex)	U		0.00667	0.0200
(S) 2,4-DB-D3	*113*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3876878-1 12/30/22 09:57

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
2,4-D	0.200	0.188	94.0	70.0-130	
2,4,5-TP (Silvex)	0.200	0.178	89.0	70.0-130	
(S) 2,4-DB-D3			*116*	*70.0-130*	

L1567931-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1567931-01 12/30/22 10:33 • (MS) R3876878-3 12/30/22 10:51 • (MSD) R3876878-4 12/30/22 11:09

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	0.194	0.195	97.0	97.5	1	70.0-130			0.514	30
2,4,5-TP (Silvex)	0.200	ND	0.199	0.195	99.5	97.5	1	70.0-130			2.03	30
(S) 2,4-DB-D3					*115*	*117*		*70.0-130*				

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
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.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

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

SUB CONTRATOR:	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				

L1569837

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2212B32-001F	WDW-1,2,3 & 4 Effluent	1LAMGU	Aqueous	12/19/2022 10:10:00 AM	1	8151TCLP -01
2	2212B32-001G	WDW-1,2,3 & 4 Effluent	500HDPE	Aqueous	12/19/2022 10:10:00 AM	3	RCI, ORP -02
3	2212B32-002F	CTB to City POTW	1LAMGU	Aqueous	12/19/2022 9:50:00 AM	1	8151TCLP
4	2212B32-002G	CTB to City POTW	500HDPE	Aqueous	12/19/2022 9:50:00 AM	3	RCI, ORP -03

L-170

L-169

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:	Date: 12/20/2022	Time: 9:46 AM	Received By:	Date:	Time:
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: ____

12/21 L1569837 HALLENVANM

R5

Time estimate: oh **Time spent:** oh

Members

NF Nicolle Faulk (responsible) JVH John V Hawkins

~~Due on *28 December 2022 5:00 PM* for target *Done*~~ (Was done by Nicolle Faulk at 29 December 2022 2:02 PM)

- [ ] Parameter(s) past holding time
- [ ] Temperature not in range
- [ ] Improper container type
- [ ] pH not in range
- [ ] Insufficient sample volume
- [ ] Sample is biphasic
- [ ] Vials received with headspace
- [x] Broken container
- [ ] Sufficient sample remains
- [ ] If broken container: Insufficient packing material around container
- [ ] If broken container: Insufficient packing material inside cooler
- [ ] If broken container: Improper handling by carrier:_____
- [ ] If broken container: Sample was frozen
- [ ] If broken container: Container lid not intact
- [ ] Client informed by Call
- [ ] Client informed by Email
- [ ] Client informed by Voicemail
- [x] Date/Time:12-29-22 1:55
- [x] PM initials:__JVH_____
- [x] Client Contact:____Michelle_____

Comments

Nicolle Faulk *21 December 2022 1:44 PM*

1. item #3 on COC is broken
2. on item #2, we received a container that the lid says NAOH and the side label say NAOH.. & a container that says NAOH on the lid but unpres on the side label. Both containers are greater than 12 when check for preservation

Nicolle Faulk *29 December 2022 7:53 AM*

any word?

John V Hawkins *29 December 2022 1:56 PM*

Proceed with analysis as NAOH preserved

Nicolle Faulk *29 December 2022 2:02 PM*

done.

John V Hawkins *30 December 2022 11:00 AM*

See instructions from client below

Hi John,

1. item #3 on COC is broken – Please note and cancel this sample.
2. on item #2, we received a container that the lid says NAOH and the side label say NAOH.. & a container that says NAOH on the lid but unpres on the side label. Both containers are greater than 12 when check for preservation. Please perform the Reactive CN and Reactive sulfide analysis from the plastic preserved bottles. For the Ignibability and corrosivity can you take volume from 2212B32-001F. This is the same sample. You should have extra unpreserved volume remaining from this sample to analyze for ignitability and corrosivity.

Thank you,

Andy Freeman - Hall Environmental, 4901 Hawkins NE, Albuquerque, NM 87109, 505-345-3975, 505-345-4107 fax

Nicolle Faulk *30 December 2022 11:38 AM*

done. Flash & CRSV is QC and cannot be removed

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2212B32**

07-Feb-23

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: **R93450**	RunNo: **93450**
Prep Date:	Analysis Date: **12/20/2022**	SeqNo: **3370561** 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								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R93450**	RunNo: **93450**
Prep Date:	Analysis Date: **12/20/2022**	SeqNo: **3370562** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	103	90	110			
Chloride	4.6	0.50	5.000	0	92.4	90	110			
Nitrogen, Nitrite (As N)	0.95	0.10	1.000	0	94.8	90	110			
Bromide	2.4	0.10	2.500	0	94.8	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	98.4	90	110			

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A93728**	RunNo: **93728**
Prep Date:	Analysis Date: **1/4/2023**	SeqNo: **3383396** 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: **A93728**	RunNo: **93728**
Prep Date:	Analysis Date: **1/4/2023**	SeqNo: **3383397** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.0	90	110			
Sulfate	9.6	0.50	10.00	0	96.3	90	110			

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R93860**	RunNo: **93860**
Prep Date:	Analysis Date: **1/10/2023**	SeqNo: **3388284** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	ND	0.50								

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 Quanitative 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#: **2212B32**

07-Feb-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R93860**	RunNo: **93860**							
Prep Date:	Analysis Date: **1/10/2023**	SeqNo: **3388285**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	93.3	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 Quanitative 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#: **2212B32**

07-Feb-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-72238**	SampType: **MBLK**	TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **PBW**	Batch ID: **72238**	RunNo: **93516**
Prep Date: **12/20/2022**	Analysis Date: **12/22/2022**	SeqNo: **3373486** 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: **MSLLLCS-72238**	SampType: **LCSLL**	TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **BatchQC**	Batch ID: **72238**	RunNo: **93516**
Prep Date: **12/20/2022**	Analysis Date: **12/22/2022**	SeqNo: **3373487** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0012	0.0010	0.001000	0	115	70	130			
Lead	0.00091	0.0010	0.001000	0	91.4	70	130			J
Selenium	0.0010	0.0010	0.001000	0	103	70	130			

Sample ID: **MSLCS-72238**	SampType: **LCS**	TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **LCSW**	Batch ID: **72238**	RunNo: **93516**
Prep Date: **12/20/2022**	Analysis Date: **12/22/2022**	SeqNo: **3373488** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.051	0.0010	0.05000	0	101	80	120			
Lead	0.048	0.0010	0.05000	0	95.9	80	120			
Selenium	0.049	0.0010	0.05000	0	98.5	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 Quanitative 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#: **2212B32**

07-Feb-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-72280**	SampType: **MBLK**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **PBW**	Batch ID: **72280**	RunNo: **93759**
Prep Date: **12/22/2022**	Analysis Date: **1/5/2023**	SeqNo: **3384697** 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		93.1	40.9	111			
Surr: Tetrachloro-m-xylene	0.0021		0.002500		84.4	15	107			

Sample ID: **MB-72280**	SampType: **MBLK**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **PBW**	Batch ID: **72280**	RunNo: **93759**
Prep Date: **12/22/2022**	Analysis Date: **1/5/2023**	SeqNo: **3384698** 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		96.3	40.9	111			
Surr: Tetrachloro-m-xylene	0.0021		0.002500		83.8	15	107			

Sample ID: **LCS-72280**	SampType: **LCS**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSW**	Batch ID: **72280**	RunNo: **93759**
Prep Date: **12/22/2022**	Analysis Date: **1/5/2023**	SeqNo: **3384699** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Endrin	0.00045	0.00010	0.0005000	0	89.7	56.3	126			
gamma-BHC (Lindane)	0.00038	0.00010	0.0005000	0	76.0	45.8	103			
Heptachlor	0.00026	0.00010	0.0005000	0	51.2	33.7	104			
Heptachlor epoxide	0.00041	0.00010	0.0005000	0	82.4	50.1	116			
Methoxychlor	0.00049	0.00010	0.0005000	0	98.6	15	203			
Surr: Decachlorobiphenyl	0.0024		0.002500		94.2	40.9	111			
Surr: Tetrachloro-m-xylene	0.0016		0.002500		62.4	15	107			

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 Quanitative 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#: **2212B32**

07-Feb-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **LCS-72280**	SampType: **LCS**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSW**	Batch ID: **72280**	RunNo: **93759**
Prep Date: **12/22/2022**	Analysis Date: **1/5/2023**	SeqNo: **3384700** 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	95.3	56.3	126			
gamma-BHC (Lindane)	0.00042	0.00010	0.0005000	0	83.2	45.8	103			
Heptachlor	0.00028	0.00010	0.0005000	0	55.1	33.7	104			
Heptachlor epoxide	0.00044	0.00010	0.0005000	0	87.2	50.1	116			
Methoxychlor	0.00050	0.00010	0.0005000	0	101	15	203			
Surr: Decachlorobiphenyl	0.0024		0.002500		98.0	40.9	111			
Surr: Tetrachloro-m-xylene	0.0015		0.002500		61.9	15	107			

Sample ID: **LCSD-72280**	SampType: **LCSD**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSS02**	Batch ID: **72280**	RunNo: **93759**
Prep Date: **12/22/2022**	Analysis Date: **1/5/2023**	SeqNo: **3384701** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Endrin	0.00044	0.00010	0.0005000	0	88.4	56.3	126	1.40	20	
gamma-BHC (Lindane)	0.00035	0.00010	0.0005000	0	69.5	45.8	103	8.88	20	
Heptachlor	0.00029	0.00010	0.0005000	0	58.4	33.7	104	13.2	20	
Heptachlor epoxide	0.00041	0.00010	0.0005000	0	81.2	50.1	116	1.51	20	
Methoxychlor	0.00048	0.00010	0.0005000	0	95.9	15	203	2.77	20	
Surr: Decachlorobiphenyl	0.0023		0.002500		91.1	40.9	111	0	0	
Surr: Tetrachloro-m-xylene	0.0012		0.002500		46.6	15	107	0	0	

Sample ID: **LCSD-72280**	SampType: **LCSD**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSS02**	Batch ID: **72280**	RunNo: **93759**
Prep Date: **12/22/2022**	Analysis Date: **1/5/2023**	SeqNo: **3384702** 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	92.2	56.3	126	3.28	20	
gamma-BHC (Lindane)	0.00040	0.00010	0.0005000	0	79.9	45.8	103	4.05	20	
Heptachlor	0.00032	0.00010	0.0005000	0	63.1	33.7	104	13.5	20	
Heptachlor epoxide	0.00043	0.00010	0.0005000	0	86.8	50.1	116	0.448	20	
Methoxychlor	0.00050	0.00010	0.0005000	0	99.1	15	203	1.78	20	
Surr: Decachlorobiphenyl	0.0024		0.002500		95.0	40.9	111	0	0	
Surr: Tetrachloro-m-xylene	0.0012		0.002500		46.7	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 Quanitative 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#: **2212B32**

07-Feb-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-72185**	SampType: **MBLK**	TestCode: **EPA Method 8151: Herbicides TCLP**
Client ID: **PBW**	Batch ID: **72185**	RunNo: **93499**
Prep Date: **12/22/2022**	Analysis Date: **12/22/2022**	SeqNo: **3376751** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4,5-TP (Silvex)	ND	1.0								
2,4-D	ND	10								
Surr: 2,4-Dichlorophenylacetic aci	0.027		0.02500		108	70	130			

Sample ID: **0.0075 PPM**	SampType: **LCS**	TestCode: **EPA Method 8151: Herbicides TCLP**
Client ID: **LCSW**	Batch ID: **72185**	RunNo: **93499**
Prep Date: **12/22/2022**	Analysis Date: **12/22/2022**	SeqNo: **3376754** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4,5-TP (Silvex)	0.0078	0.00010	0.007500	0	104	70	130			
2,4-D	0.0071	0.00010	0.007500	0	95.3	70	130			
Surr: 2,4-Dichlorophenylacetic aci	0.0073		0.007500		97.4	70	130			

Sample ID: **0.0075 PPM**	SampType: **LCS**	TestCode: **EPA Method 8151: Herbicides TCLP**
Client ID: **LCSW**	Batch ID: **72185**	RunNo: **93499**
Prep Date: **12/22/2022**	Analysis Date: **12/22/2022**	SeqNo: **3376764** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4,5-TP (Silvex)	0.0078	0.00010	0.007500	0	104	70	130			
2,4-D	0.0063	0.00010	0.007500	0	83.7	70	130			
Surr: 2,4-Dichlorophenylacetic aci	0.0075		0.007500		99.4	70	130			

Sample ID: **MB-72185**	SampType: **MBLK**	TestCode: **EPA Method 8151: Herbicides TCLP**
Client ID: **PBW**	Batch ID: **72185**	RunNo: **93499**
Prep Date: **12/22/2022**	Analysis Date: **12/22/2022**	SeqNo: **3376765** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4,5-TP (Silvex)	ND	1.0								
2,4-D	ND	10								
Surr: 2,4-Dichlorophenylacetic aci	0.027		0.02500		109	70	130			

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 Quanitative 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#: **2212B32**

07-Feb-23

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: **T93662**	RunNo: **93662**
Prep Date:	Analysis Date: **12/30/2022**	SeqNo: **3380275** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.021	0.010	0.02000	0	105	70	130			
1,1-Dichloroethene	0.020	0.010	0.02000	0	99.8	70	130			
Trichloroethene (TCE)	0.021	0.010	0.02000	0	103	70	130			
Chlorobenzene	0.021	0.010	0.02000	0	104	70	130			
Surr: 1,2-Dichloroethane-d4	0.0095		0.01000		94.7	70	130			
Surr: 4-Bromofluorobenzene	0.011		0.01000		111	70	130			
Surr: Dibromofluoromethane	0.0094		0.01000		94.2	70	130			
Surr: Toluene-d8	0.010		0.01000		104	70	130			

Sample ID: **mb**	SampType: **MBLK**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW**	Batch ID: **T93662**	RunNo: **93662**
Prep Date:	Analysis Date: **12/30/2022**	SeqNo: **3380280** 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	0.0085		0.01000		85.0	70	130			
Surr: 4-Bromofluorobenzene	0.011		0.01000		114	70	130			
Surr: Dibromofluoromethane	0.0089		0.01000		88.6	70	130			
Surr: Toluene-d8	0.011		0.01000		106	70	130			

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 Quanitative 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#: **2212B32**

07-Feb-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **mb-72267**	SampType: **MBLK**	TestCode: **EPA Method 8270C TCLP**
Client ID: **PBW**	Batch ID: **72267**	RunNo: **93749**
Prep Date: **12/22/2022**	Analysis Date: **1/5/2023**	SeqNo: **3384444** 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	0.074		0.2000		37.1	18.1	88.9			
Surr: Phenol-d5	0.059		0.2000		29.3	17	61.5			
Surr: 2,4,6-Tribromophenol	0.099		0.2000		49.6	29.8	104			
Surr: Nitrobenzene-d5	0.045		0.1000		45.2	22.2	111			
Surr: 2-Fluorobiphenyl	0.034		0.1000		33.7	24.6	96.3			
Surr: 4-Terphenyl-d14	0.073		0.1000		72.5	53.4	124			

Sample ID: **lcs-72267**	SampType: **LCS**	TestCode: **EPA Method 8270C TCLP**
Client ID: **LCSW**	Batch ID: **72267**	RunNo: **93749**
Prep Date: **12/22/2022**	Analysis Date: **1/5/2023**	SeqNo: **3384445** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.072	0.0010	0.1000	0	71.9	19	106			
3+4-Methylphenol	0.14	0.0010	0.2000	0	68.7	16.3	112			
2,4-Dinitrotoluene	0.063	0.0010	0.1000	0	62.5	15	99.6			
Hexachlorobenzene	0.082	0.0010	0.1000	0	82.3	41.8	111			
Hexachlorobutadiene	0.042	0.0010	0.1000	0	42.1	15	91.5			
Hexachloroethane	0.044	0.0010	0.1000	0	44.5	15	87.5			
Nitrobenzene	0.070	0.0010	0.1000	0	70.0	19.3	114			
Pentachlorophenol	0.021	0.0010	0.1000	0	21.2	29	103			S
Pyridine	0.056	0.0010	0.1000	0	56.2	15	92.6			
2,4,5-Trichlorophenol	0.020	0.0010	0.1000	0	20.2	25.2	114			S
2,4,6-Trichlorophenol	0.018	0.0010	0.1000	0	18.5	25.7	112			S
Cresols, Total	0.21	0.0010	0.3000	0	69.8	15	145			
Surr: 2-Fluorophenol	0.024		0.2000		12.2	18.1	88.9			S
Surr: Phenol-d5	0.055		0.2000		27.4	17	61.5			
Surr: 2,4,6-Tribromophenol	0.044		0.2000		21.8	29.8	104			S

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 Quanitative 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#: **2212B32**

07-Feb-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **lcs-72267**	SampType: **LCS**	TestCode: **EPA Method 8270C TCLP**							
Client ID: **LCSW**	Batch ID: **72267**	RunNo: **93749**							
Prep Date: **12/22/2022**	Analysis Date: **1/5/2023**	SeqNo: **3384445**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.075		0.1000		75.3	22.2	111			
Surr: 2-Fluorobiphenyl	0.058		0.1000		58.5	24.6	96.3			
Surr: 4-Terphenyl-d14	0.11		0.1000		107	53.4	124			

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 Quanitative 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#: **2212B32**

07-Feb-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **lcs-1 99.4uS eC**	SampType: **lcs**	TestCode: **SM2510B: Specific Conductance**
Client ID: **LCSW**	Batch ID: **R93481**	RunNo: **93481**
Prep Date:	Analysis Date: **12/21/2022**	SeqNo: **3371544** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	10	99.40	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 Quanitative 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#: **2212B32**

07-Feb-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-72297**	SampType: **MBLK**	TestCode: **EPA Method 7470A: Mercury**							
Client ID: **PBW**	Batch ID: **72297**	RunNo: **93535**							
Prep Date: **12/23/2022**	Analysis Date: **12/23/2022**	SeqNo: **3374385**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: **LCSLL-72297**	SampType: **LCSLL**	TestCode: **EPA Method 7470A: Mercury**							
Client ID: **BatchQC**	Batch ID: **72297**	RunNo: **93535**							
Prep Date: **12/23/2022**	Analysis Date: **12/23/2022**	SeqNo: **3374386**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00027	0.00020	0.0001500	0	181	50	150			S

Sample ID: **LCS-72297**	SampType: **LCS**	TestCode: **EPA Method 7470A: Mercury**							
Client ID: **LCSW**	Batch ID: **72297**	RunNo: **93535**							
Prep Date: **12/23/2022**	Analysis Date: **12/23/2022**	SeqNo: **3374387**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0056	0.00020	0.005000	0	111	85	115			

Sample ID: **LCSLL-72297**	SampType: **LCSLL**	TestCode: **EPA Method 7470A: Mercury**							
Client ID: **BatchQC**	Batch ID: **72297**	RunNo: **93535**							
Prep Date: **12/23/2022**	Analysis Date: **12/23/2022**	SeqNo: **3374391**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00026	0.00020	0.0001500	0	173	50	150			S

Sample ID: **LCSLL-72297**	SampType: **LCSLL**	TestCode: **EPA Method 7470A: Mercury**							
Client ID: **BatchQC**	Batch ID: **72297**	RunNo: **93535**							
Prep Date: **12/23/2022**	Analysis Date: **12/23/2022**	SeqNo: **3374441**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00011	0.00020	0.0001500	0	76.5	50	150			J

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 Quanitative 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#: **2212B32**

07-Feb-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-72362**	SampType: **MBLK**	TestCode: **EPA Method 7470A: TCLP Mercury**
Client ID: **PBW**	Batch ID: **72362**	RunNo: **93613**
Prep Date: **12/28/2022**	Analysis Date: **12/29/2022**	SeqNo: **3378122** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID: **LCSLL-72362**	SampType: **LCSLL**	TestCode: **EPA Method 7470A: TCLP Mercury**
Client ID: **BatchQC**	Batch ID: **72362**	RunNo: **93613**
Prep Date: **12/28/2022**	Analysis Date: **12/29/2022**	SeqNo: **3378123** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00019	0.020	0.0001500	0	129	50	150			J

Sample ID: **LCS-72362**	SampType: **LCS**	TestCode: **EPA Method 7470A: TCLP Mercury**
Client ID: **LCSW**	Batch ID: **72362**	RunNo: **93613**
Prep Date: **12/28/2022**	Analysis Date: **12/29/2022**	SeqNo: **3378124** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.020	0.005000	0	100	85	115			J

Sample ID: **2212B32-004CMS**	SampType: **MS**	TestCode: **EPA Method 7470A: TCLP Mercury**
Client ID: **CTB to City POTW-F**	Batch ID: **72362**	RunNo: **93613**
Prep Date: **12/28/2022**	Analysis Date: **12/29/2022**	SeqNo: **3378129** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.020	0.005000	0	98.7	75	125			J

Sample ID: **2212B32-004CMSD**	SampType: **MSD**	TestCode: **EPA Method 7470A: TCLP Mercury**
Client ID: **CTB to City POTW-F**	Batch ID: **72362**	RunNo: **93613**
Prep Date: **12/28/2022**	Analysis Date: **12/29/2022**	SeqNo: **3378130** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.020	0.005000	0	98.6	75	125	0.148	20	J

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 Quanitative 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#: **2212B32**

07-Feb-23

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: **A93491**	RunNo: **93491**
Prep Date:	Analysis Date: **12/21/2022**	SeqNo: **3372353** 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: **A93491**	RunNo: **93491**
Prep Date:	Analysis Date: **12/21/2022**	SeqNo: **3372355** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	54	1.0	50.00	0	108	80	120			
Magnesium	51	1.0	50.00	0	102	80	120			
Potassium	49	1.0	50.00	0	98.8	80	120			

Sample ID: **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A93600**	RunNo: **93600**
Prep Date:	Analysis Date: **12/28/2022**	SeqNo: **3377522** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	ND	1.0								

Sample ID: **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A93600**	RunNo: **93600**
Prep Date:	Analysis Date: **12/28/2022**	SeqNo: **3377524** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	50	1.0	50.00	0	100	80	120			

Sample ID: **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A93678**	RunNo: **93678**
Prep Date:	Analysis Date: **1/3/2023**	SeqNo: **3381160** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	ND	1.0								

Sample ID: **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A93678**	RunNo: **93678**
Prep Date:	Analysis Date: **1/3/2023**	SeqNo: **3381162** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	47	1.0	50.00	0	94.1	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 Quanitative 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#: **2212B32**

07-Feb-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **2212B32-002DMS**	SampType: **MS**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **CTB to City POTW**	Batch ID: **A93678**	RunNo: **93678**
Prep Date:	Analysis Date: **1/3/2023**	SeqNo: **3381177** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	320	5.0	250.0	57.67	105	75	125			

Sample ID: **2212B32-002DMSD**	SampType: **MSD**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **CTB to City POTW**	Batch ID: **A93678**	RunNo: **93678**
Prep Date:	Analysis Date: **1/3/2023**	SeqNo: **3381178** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	310	5.0	250.0	57.67	101	75	125	3.33	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 Quanitative 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#: **2212B32**

07-Feb-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-72262**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **72262**	RunNo: **93496**
Prep Date: **12/21/2022**	Analysis Date: **12/22/2022**	SeqNo: **3372566** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID: **LCS-72262**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **72262**	RunNo: **93496**
Prep Date: **12/21/2022**	Analysis Date: **12/22/2022**	SeqNo: **3372568** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.54	5.0	0.5000	0	108	80	120			J
Barium	0.47	100	0.5000	0	93.6	80	120			J
Cadmium	0.52	1.0	0.5000	0	104	80	120			J
Chromium	0.48	5.0	0.5000	0	95.4	80	120			J
Lead	0.45	5.0	0.5000	0	89.9	80	120			J
Selenium	0.55	1.0	0.5000	0	110	80	120			J
Silver	0.11	5.0	0.1000	0	106	80	120			J

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 Quanitative 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#: **2212B32**

07-Feb-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-72238**	SampType: **MBLK**	TestCode: **EPA 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **72238**	RunNo: **93600**
Prep Date: **12/20/2022**	Analysis Date: **12/28/2022**	SeqNo: **3377364** 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-72238**	SampType: **LCS**	TestCode: **EPA 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **72238**	RunNo: **93600**
Prep Date: **12/20/2022**	Analysis Date: **12/28/2022**	SeqNo: **3377366** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.44	0.0020	0.5000	0	87.3	80	120			
Cadmium	0.44	0.0020	0.5000	0	87.2	80	120			
Chromium	0.44	0.0060	0.5000	0	87.7	80	120			
Silver	0.088	0.0050	0.1000	0	87.5	80	120			

Sample ID: **MB-72238**	SampType: **MBLK**	TestCode: **EPA 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **72238**	RunNo: **93615**
Prep Date: **12/20/2022**	Analysis Date: **12/29/2022**	SeqNo: **3378301** 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								

Sample ID: **LCS-72238**	SampType: **LCS**	TestCode: **EPA 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **72238**	RunNo: **93615**
Prep Date: **12/20/2022**	Analysis Date: **12/29/2022**	SeqNo: **3378303** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.46	0.0020	0.5000	0	91.7	80	120			
Cadmium	0.42	0.0020	0.5000	0	84.9	80	120			
Chromium	0.43	0.0060	0.5000	0	85.2	80	120			

Sample ID: **MB-72238**	SampType: **MBLK**	TestCode: **EPA 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **72238**	RunNo: **93615**
Prep Date: **12/20/2022**	Analysis Date: **12/29/2022**	SeqNo: **3378403** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	ND	0.0050								

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 Quanitative 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#: **2212B32**

07-Feb-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **LCS-72238**	SampType: **LCS**	TestCode: **EPA 6010B: TCLP Metals**							
Client ID: **LCSW**	Batch ID: **72238**	RunNo: **93615**							
Prep Date: **12/20/2022**	Analysis Date: **12/29/2022**	SeqNo: **3378405**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	0.098	0.0050	0.1000	0	97.8	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 Quanitative 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#: **2212B32**

07-Feb-23

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: **R93481**	RunNo: **93481**
Prep Date:	Analysis Date: **12/21/2022**	SeqNo: **3371498** 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: **R93481**	RunNo: **93481**
Prep Date:	Analysis Date: **12/21/2022**	SeqNo: **3371499** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	75.68	20.00	80.00	0	94.6	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 Quanitative 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#: **2212B32**

07-Feb-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **2212B32-002CDUP**		SampType: **DUP**			TestCode: **Specific Gravity**						
Client ID: **CTB to City POTW**		Batch ID: **R93653**			RunNo: **93653**						
Prep Date:		Analysis Date: **12/30/2022**			SeqNo: **3379947**		Units:				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Specific Gravity	0.9994	0						0.140	20		

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 Quanitative 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#: **2212B32**

07-Feb-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-72286**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**							
Client ID: **PBW**	Batch ID: **72286**	RunNo: **93562**							
Prep Date: **12/22/2022**	Analysis Date: **12/28/2022**	SeqNo: **3375930**	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-72286**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**							
Client ID: **LCSW**	Batch ID: **72286**	RunNo: **93562**							
Prep Date: **12/22/2022**	Analysis Date: **12/28/2022**	SeqNo: **3375931**	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.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative 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#: **2212B32**

07-Feb-23

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-72294**	SampType: **MBLK**	TestCode: **SM 2540D: TSS**							
Client ID: **PBW**	Batch ID: **72294**	RunNo: **93519**							
Prep Date: **12/22/2022**	Analysis Date: **12/23/2022**	SeqNo: **3373660**	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-72294**	SampType: **LCS**	TestCode: **SM 2540D: TSS**							
Client ID: **LCSW**	Batch ID: **72294**	RunNo: **93519**							
Prep Date: **12/22/2022**	Analysis Date: **12/23/2022**	SeqNo: **3373661**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Suspended Solids	94	4.0	91.90	0	102	83.89	119.7			

Sample ID: **2212B32-002CDUP**	SampType: **DUP**	TestCode: **SM 2540D: TSS**							
Client ID: **CTB to City POTW**	Batch ID: **72294**	RunNo: **93519**							
Prep Date: **12/22/2022**	Analysis Date: **12/23/2022**	SeqNo: **3373665**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Suspended Solids	ND	4.0						0	10	

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: Navajo Refining | Work Order Number: 2212B32 | RcptNo: 1

Received By: Kasandra Jimena Garcia 12/20/2022 9:00:00 AM

Completed By: Sean Livingston 12/20/2022 9:41:11 AM

Reviewed By: 12.20.22

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° 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 (<2 or >12 unless noted)

Adjusted? NO

Checked by: JN 12/20/22

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: Sample 002G 2 of 3 did not ph. JN 12/20/22.

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good				
2	0.7	Good				

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: 0.8+0.2=1.0 0.5+0.2=0.7

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 2212B32	Specific Gravity, C/A Balance, ORP, pH, TSS	8260 TCLP Compounds	8270 TCLP Compounds	RCI	RCRA 8 Metals	8081 TCLP Compounds	8151 TCLP Compounds		Filtered 8260, 8081	8151, RCRA 8, 8270	ID -003, -004					
12/19/02	10:10	Liquid	WDW-1, 2, 3 & 4 Effluent	**	**	001	X															
12/19/22	10:10	Liquid	WDW-1, 2, 3 & 4 Effluent	3-40ml VOA	HCL			X														
12/19/22	10:10	Liquid	WDW-1, 2, 3 & 4 Effluent	1-1L Amber	none				X													
12/19/22	10:10	Liquid	WDW-1, 2, 3 & 4 Effluent	***	***					X												
12/19/22	10:10	Liquid	WDW-1, 2, 3 & 4 Effluent	1-250ml P	HNO3						X											
12/19/22	10:10	Liquid	WDW-1, 2, 3 & 4 Effluent	1-1L Amber	none							X										
12/19/22	10:10	Liquid	WDW-1, 2, 3 & 4 Effluent	1-1L Amber	none								X									
12/19/22	9:50	Liquid	CTB to City POTW	**	**	002	X															
12/19/22	9:50	Liquid	CTB to City POTW	3-40ml VOA	HCL			X														
12/19/22	9:50	Liquid	CTB to City POTW	1-1L Amber	none				X													
12/19/22	9:50	Liquid	CTB to City POTW	***	***					X												
12/19/22	9:50	Liquid	CTB to City POTW	1-250ml P	HNO3						X											
12/19/22	9:50	Liquid	CTB to City POTW	1-1L Amber	none							X										
12/19/22	9:50	Liquid	CTB to City POTW	1-1L Amber	none								X									

Date: 12-19-22 Time: 12:53 Relinquished by: Brady Hubbard *Brady Hubbard* Received by: *[signature]* Fedex Date 12-20-22 Time 9:00

Date: Time: Relinquished by: Received by: Date Time

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.
RDU FEED RATE: 6100 BPD

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.

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 186139

COMMENTS

Operator: HF Sinclair Navajo Refining LLC ATTN: GENERAL COUNSEL Dallas, TX 75201	OGRID: 15694
	Action Number: 186139
	Action Type: [UF-DP] Discharge Permit (DISCHARGE PERMIT)

COMMENTS

Created By	Comment	Comment Date
cchavez	Quarterly Report FY 2023 Q1 Submittal of 2/14/2023	11/20/2023

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CONDITIONS

Action 186139

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Operator: HF Sinclair Navajo Refining LLC ATTN: GENERAL COUNSEL Dallas, TX 75201	OGRID: 15694
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CONDITIONS

Created By	Condition	Condition Date
cchavez	None	11/20/2023