HOLLYFRONTIER.

February 11, 2021

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

RE: 2020 2nd Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, WDW-4
HollyFrontier Navajo Refining LLC

Dear Mr. Chavez,

Enclosed, please find the second quarter 2020 sampling results for fluids injected into WDW-1, WDW-2, WDW-3 and WDW-4 and a table showing the volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the second quarter, the average injection pressure for each well was 1007 psig for WDW-1, 1047 psig for WDW-2, 965 psig for WDW-3 and 124 psig for WDW-4.The average flows were 195 gpm for WDW-1, 68 gpm for WDW-2, 75 gpm for WDW-3 and 188 gpm for WDW-4. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicate parameters are within permit limits.

This report covers the period from October 1, 2020 to December 31, 2020. Navajo has disposed a total of 1,657,646 barrels of fluid into the four wells during the second quarter of 2020. The volume per well is:

- 615,257 barrels into WDW-1; 30-015-27592
- 213,360 barrels into WDW-2; 30-015-20894
- 235,303 barrels into WDW-3; 30-015-26575
- 593,726 barrels into WDW-4: 30-015-44677

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

Respectfully,

Kawika Tupou
Environmental Manager
HollyFrontier Navajo Refining LLC

HollyFrontier Navajo Refining LLC
501 East Main • Artesia, NM 88210
(575) 748-3311 • http://www.hollyfrontier.com

2020 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1												46,346,717
Oct-20	1,008	143	443	115	197	352	124	4,903	15,188	3,943	**151,989**	46,498,706
Nov-20	917	221	296	147	173	299	45	7,577	10,148	5,040	**227,314**	46,726,020
Dec-20	1,096	222	283	0	71	142	28	7,611	9,703	0	**235,954**	46,961,974
Monthly Avg	1,007	195								**TOTAL**	615,257	
30-015-20894 WDW-2												28,988,494
Oct-20	1,040	67	77	51	177	342	92	2,997	2,640	1,749	**71,211**	29,059,705
Nov-20	1,063	70	101	31	120	147	94	2,400	2,797	1,063	**72,000**	29,131,705
Dec-20	1,037	66	96	0	114	127	98	2,263	3,291	0	**70,149**	29,201,854
Monthly Avg	1,047	68								**TOTAL**	213,360	
30-015-26575 WDW-3												20,793,339
Oct-20	983	84	132	39	345	525	205	2,880	4,256	1,337	**89,280**	20,882,619
Nov-20	983	81	114	21	419	544	251	2,777	3,909	720	**83,314**	20,965,933
Dec-20	929	59	109	13	461	584	286	2,023	3,737	446	**62,709**	21,028,642
Monthly Avg	965	75								**TOTAL**	235,303	
30-015-44677 WDW-4												5,142,481
Oct-20	115	178	214	135	144	259	59	6,103	7,337	4,629	**189,189**	5,331,670
Nov-20	122	198	238	125	96	118	81	6,789	8,160	4,286	**203,657**	5,535,327
Dec-20	134	189	232	134	155	209	75	6,480	7,954	4,594	**200,880**	5,736,207
Monthly Avg	124	188								**TOTAL**	593,726	

	Total BBLS	Beginning Volume	Ending Volume
WDW1	615,257	46,346,717	46,961,974
WDW2	213,360	28,988,494	29,201,854
WDW3	235,303	20,793,339	21,028,642
WDW4	593,726	5,142,481	5,736,207

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

February 10, 2021

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

RE: Quarterly WDW-1, 2, 3, & 4 Inj Well OrderNo.: 2101886

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 1/23/2021 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laborat
4901 Hawkins N
Albuquerque, NM 871
TEL: 505-345-3975 FAX: 505-345-41
Website: clients.hallenvironmental.c

Case Narrative

WO#: **2101886**
Date: **2/10/2021**

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, 3, & 4 Inj Well

Analytical Notes Regarding EPA Method 8270:
The recovery for 2,4-Dinitrotoluene, in the laboratory control spike (LCS), was outside of the sta limits.

Analytical Report
Lab Order 2101886
Date Reported: 2/10/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, 3, & 4 Inj Well
Lab ID: 2101886-001 Matrix: AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent
Collection Date: 1/22/2021 9:10:00 AM
Received Date: 1/23/2021 10:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8081: PESTICIDES TCLP							Analyst: **LSB**	
Chlordane	ND	0.00050	0.030		mg/L	1	2/4/2021 10:58:35 AM	57767
Surr: Decachlorobiphenyl	87.6	0	41.7-129		%Rec	1	2/4/2021 10:58:35 AM	57767
Surr: Tetrachloro-m-xylene	228	0	31.8-88.5	S	%Rec	1	2/4/2021 10:58:35 AM	57767
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Fluoride	23	0.87	2.0	*	mg/L	20	1/25/2021 1:49:12 PM	R74853
Chloride	520	25	50	*	mg/L	100	1/26/2021 7:20:29 PM	R74877
Bromide	1.3	0.25	0.50		mg/L	5	1/25/2021 1:36:51 PM	R74853
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5	H	mg/L	5	1/26/2021 7:07:37 PM	R74877
Sulfate	2400	25	50	*	mg/L	100	1/26/2021 7:20:29 PM	R74877
Nitrate+Nitrite as N	0.94	0.061	1.0	J	mg/L	5	1/25/2021 6:33:10 PM	R74853
EPA METHOD 7470: MERCURY							Analyst: **ags**	
Mercury	ND	0.00012	0.020		mg/L	1	1/28/2021 1:08:30 PM	57739
EPA METHOD 6010B: DISSOLVED METALS							Analyst: **JLF**	
Calcium	440	0.23	5.0		mg/L	5	1/27/2021 5:06:10 PM	A74913
Magnesium	150	0.097	5.0		mg/L	5	1/27/2021 5:06:10 PM	A74913
Potassium	160	1.0	5.0		mg/L	5	1/27/2021 5:06:10 PM	A74913
Sodium	810	2.6	10		mg/L	10	1/27/2021 5:16:42 PM	A74913
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: **JLF**	
Arsenic	ND	0.022	5.0		mg/L	1	1/28/2021 6:34:13 PM	57742
Barium	0.051	0.0011	100	J	mg/L	1	1/27/2021 6:04:20 PM	57742
Cadmium	ND	0.00090	1.0		mg/L	1	1/28/2021 6:34:13 PM	57742
Chromium	ND	0.0014	5.0		mg/L	1	1/28/2021 6:34:13 PM	57742
Lead	ND	0.013	5.0		mg/L	1	1/28/2021 6:34:13 PM	57742
Selenium	0.082	0.021	1.0	J	mg/L	1	1/29/2021 7:05:31 PM	57742
Silver	0.016	0.0013	5.0	J	mg/L	1	1/29/2021 5:03:39 PM	57742
EPA METHOD 8270C TCLP							Analyst: **DAM**	
2-Methylphenol	ND	0.00051	200		mg/L	1	2/1/2021 1:49:12 PM	57755
3+4-Methylphenol	ND	0.00045	200		mg/L	1	2/1/2021 1:49:12 PM	57755
2,4-Dinitrotoluene	ND	0.00062	0.13		mg/L	1	2/1/2021 1:49:12 PM	57755
Hexachlorobenzene	ND	0.00066	0.13		mg/L	1	2/1/2021 1:49:12 PM	57755
Hexachlorobutadiene	ND	0.00082	0.50		mg/L	1	2/1/2021 1:49:12 PM	57755
Hexachloroethane	ND	0.00045	3.0		mg/L	1	2/1/2021 1:49:12 PM	57755
Nitrobenzene	ND	0.00051	2.0		mg/L	1	2/1/2021 1:49:12 PM	57755
Pentachlorophenol	ND	0.00059	100		mg/L	1	2/1/2021 1:49:12 PM	57755
Pyridine	ND	0.00093	5.0		mg/L	1	2/1/2021 1:49:12 PM	57755
2,4,5-Trichlorophenol	ND	0.00062	400		mg/L	1	2/1/2021 1:49:12 PM	57755
2,4,6-Trichlorophenol	ND	0.00043	2.0		mg/L	1	2/1/2021 1:49:12 PM	57755

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

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 range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Orde 2101886
Date Reportec 2/10/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, 3, & 4 Inj Well
Lab ID: 2101886-001 Matrix: AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent
Collection Date: 1/22/2021 9:10:00 AM
Received Date 1/23/2021 10:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C TCLP							Analyst: **DAM**	
Cresols, Total	0.0013	0.00051	200	J	mg/L	1	2/1/2021 1:49:12 PM	57755
Surr: 2-Fluorophenol	43.6	0	15-81.1		%Rec	1	2/1/2021 1:49:12 PM	57755
Surr: Phenol-d5	33.5	0	15-61.1		%Rec	1	2/1/2021 1:49:12 PM	57755
Surr: 2,4,6-Tribromophenol	86.1	0	17.2-108		%Rec	1	2/1/2021 1:49:12 PM	57755
Surr: Nitrobenzene-d5	54.1	0	18.7-120		%Rec	1	2/1/2021 1:49:12 PM	57755
Surr: 2-Fluorobiphenyl	55.5	0	23.6-103		%Rec	1	2/1/2021 1:49:12 PM	57755
Surr: 4-Terphenyl-d14	120	0	24.1-105	S	%Rec	1	2/1/2021 1:49:12 PM	57755
TCLP VOLATILES BY 8260B							Analyst: **RAA**	
Benzene	ND	0.00023	0.50		mg/L	200	1/30/2021 6:32:28 AM	T74968
1,2-Dichloroethane (EDC)	ND	0.00022	0.50		mg/L	200	1/30/2021 6:32:28 AM	T74968
2-Butanone	ND	0.0011	200		mg/L	200	1/30/2021 6:32:28 AM	T74968
Carbon Tetrachloride	ND	0.00018	0.50		mg/L	200	1/30/2021 6:32:28 AM	T74968
Chloroform	ND	0.00013	6.0		mg/L	200	1/30/2021 6:32:28 AM	T74968
1,4-Dichlorobenzene	ND	0.00021	7.5		mg/L	200	1/30/2021 6:32:28 AM	T74968
1,1-Dichloroethene	ND	0.00013	0.70		mg/L	200	1/30/2021 6:32:28 AM	T74968
Tetrachloroethene (PCE)	ND	0.00036	0.70		mg/L	200	1/30/2021 6:32:28 AM	T74968
Trichloroethene (TCE)	ND	0.00020	0.50		mg/L	200	1/30/2021 6:32:28 AM	T74968
Vinyl chloride	ND	0.00020	0.20		mg/L	200	1/30/2021 6:32:28 AM	T74968
Chlorobenzene	ND	0.00014	100		mg/L	200	1/30/2021 6:32:28 AM	T74968
Surr: 1,2-Dichloroethane-d4	97.1	0	70-130		%Rec	200	1/30/2021 6:32:28 AM	T74968
Surr: 4-Bromofluorobenzene	95.2	0	70-130		%Rec	200	1/30/2021 6:32:28 AM	T74968
Surr: Dibromofluoromethane	83.3	0	70-130		%Rec	200	1/30/2021 6:32:28 AM	T74968
Surr: Toluene-d8	95.7	0	70-130		%Rec	200	1/30/2021 6:32:28 AM	T74968
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **MH**	
Conductivity	6500	10	10		µmhos/c	1	2/1/2021 12:18:44 PM	R74980
SM2320B: ALKALINITY							Analyst: **MH**	
Bicarbonate (As CaCO3)	421.3	20.00	20.00		mg/L Ca	1	1/28/2021 2:56:08 PM	R74933
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	1/28/2021 2:56:08 PM	R74933
Total Alkalinity (as CaCO3)	421.3	20.00	20.00		mg/L Ca	1	1/28/2021 2:56:08 PM	R74933
SPECIFIC GRAVITY							Analyst: **JRR**	
Specific Gravity	1.003	0	0			1	2/1/2021 8:24:00 AM	R74989
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	4940	40.0	40.0	*D	mg/L	1	1/29/2021 3:44:00 PM	57781

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

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 range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

National Center for Testing & Innovation

ANALYTICAL REPORT

February 04, 2021

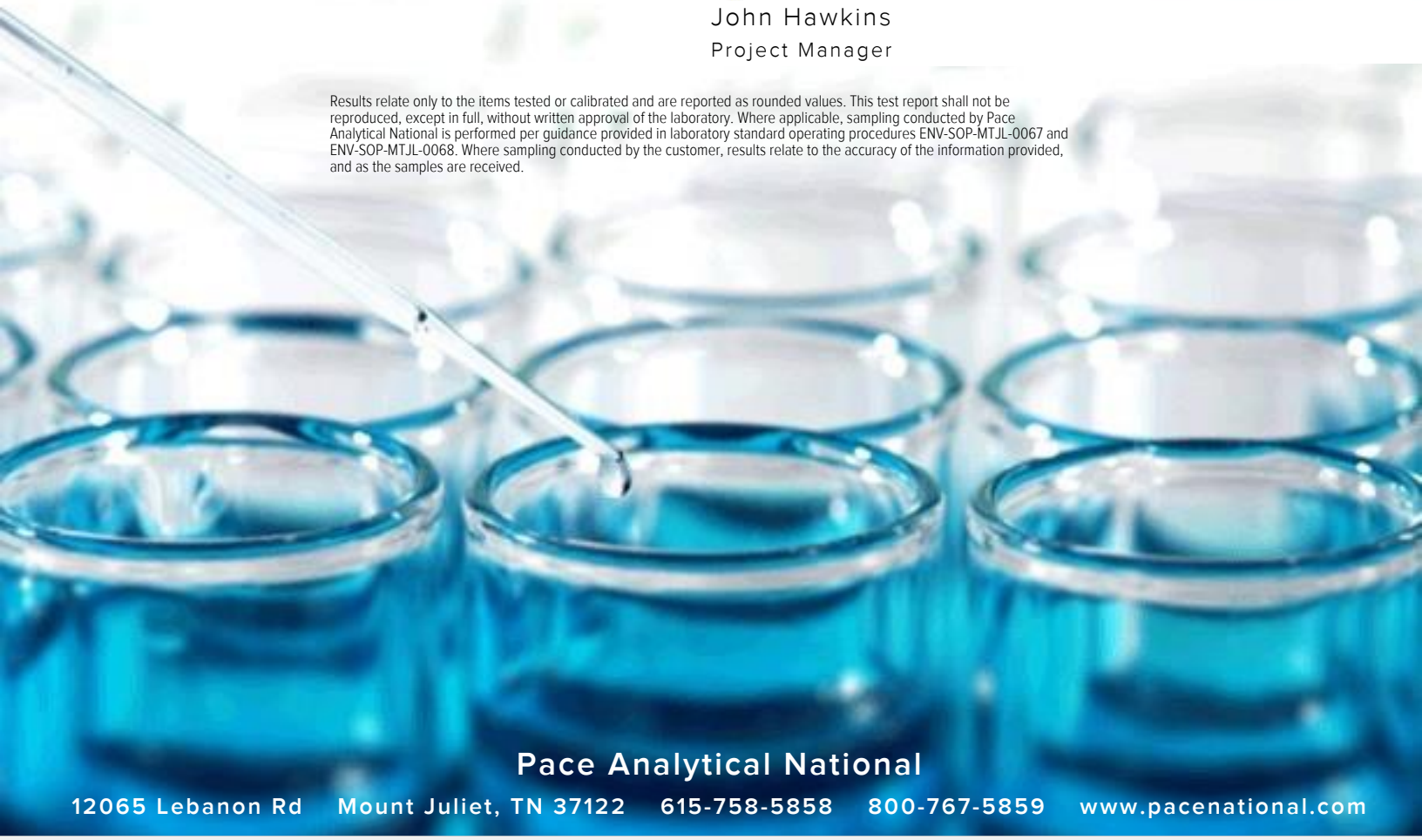
Hall Environmental Analysis Laboratory

Sample Delivery Group:	L1312369
Samples Received:	01/26/2021
Project Number:	
Description:	

Report To: Jackie Bolte
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

	Collected by	Collected date/time	Received date/time
2101886-001 WDW-1,2,3 & 4 EFFLUENT L1312369-01 GW		01/22/21 09:10	01/26/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2580	WG1615315	1	02/03/21 18:00	02/03/21 18:00	CO	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

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	mV			date / time	
ORP	155	T8	1	02/03/2021 18:00	WG1615315

L1312369-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1312369-01 02/03/21 18:00 • (DUP) R3619121-3 02/03/21 18:00

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	155	156	1	0.800		20

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

(LCS) R3619121-1 02/03/21 18:00 • (LCSD) R3619121-2 02/03/21 18:00

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	106	104	103	98.5	97.1	86.0-105			1.50	20

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

Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
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.

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* 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 National.

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	LAO000356
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		

Pace Analytical National 1313 Point Mallard Parkway SE Suite B Decatur, AL, 35601

Alabama	40160
ANSI National Accreditation Board	L2239

Pace Analytical National 660 Bercut Dr. Ste. C Sacramento, CA, 95811

California	2961	Oregon	CA300002
Minnesota	006-999-465	Washington	C926
North Dakota	R-214		

Pace Analytical National 6000 South Eastern Avenue Ste 9A Las Vegas, NV, 89119

Nevada	NV009412021-1

Pace Analytical National 1606 E. Brazos Street Suite D Victoria, TX, 77901

Texas	T104704328-20-18

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

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: clients.hallenvironmental.com

H060

L1312364

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			~~L1310268~~

AV 2/1/21

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2101886-001E	WDW-1,2,3 & 4 Effluent	500HDPE	Aqueous	1/22/2021 9:10:00 AM	1	Reactivity, Corrosivity, and Ignitability, ORP ** 3 Day TAT ** -01
2	2101886-001F	WDW-1,2,3 & 4 Effluent	500PLNAOH ZNAC	Aqueous	1/22/2021 9:10:00 AM	1	Reactivity, Corrosivity, and Ignitability ** 3 Day TAT ** -01 ~~-02~~ -01
3	2101886-001G	WDW-1,2,3 & 4 Effluent	500PL-NaOH	Aqueous	1/22/2021 9:10:00 AM	1	Reactivity, Corrosivity, and Ignitability ** 3 Day TAT ** -01 ~~-03~~

Sample Receipt Checklist

```
COC Seal Present/Intact: X 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:   X Y __N
```

1749 9998 4853 3 Total

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	Time	Received By	Date	Time
[signature]	1/25/2021	9:52 AM			
			[signature]	1-26-21	900

TAT: Standard ☐ RUSH (circled) Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED: ☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples: 0.2=.1 / 20.1 Attempt to Cool? OK

Comments: LOCST

L1310268-01 R3 due 2-4-21 HALLENVANM

R3/R4/RX/EX

Please log for ORP to new SDG

Time estimate: oh **Time spent:** oh

Members

JVH John V Hawkins

National Center for Testing & Innovation

ANALYTICAL REPORT

February 01, 2021

Hall Environmental Analysis Laboratory

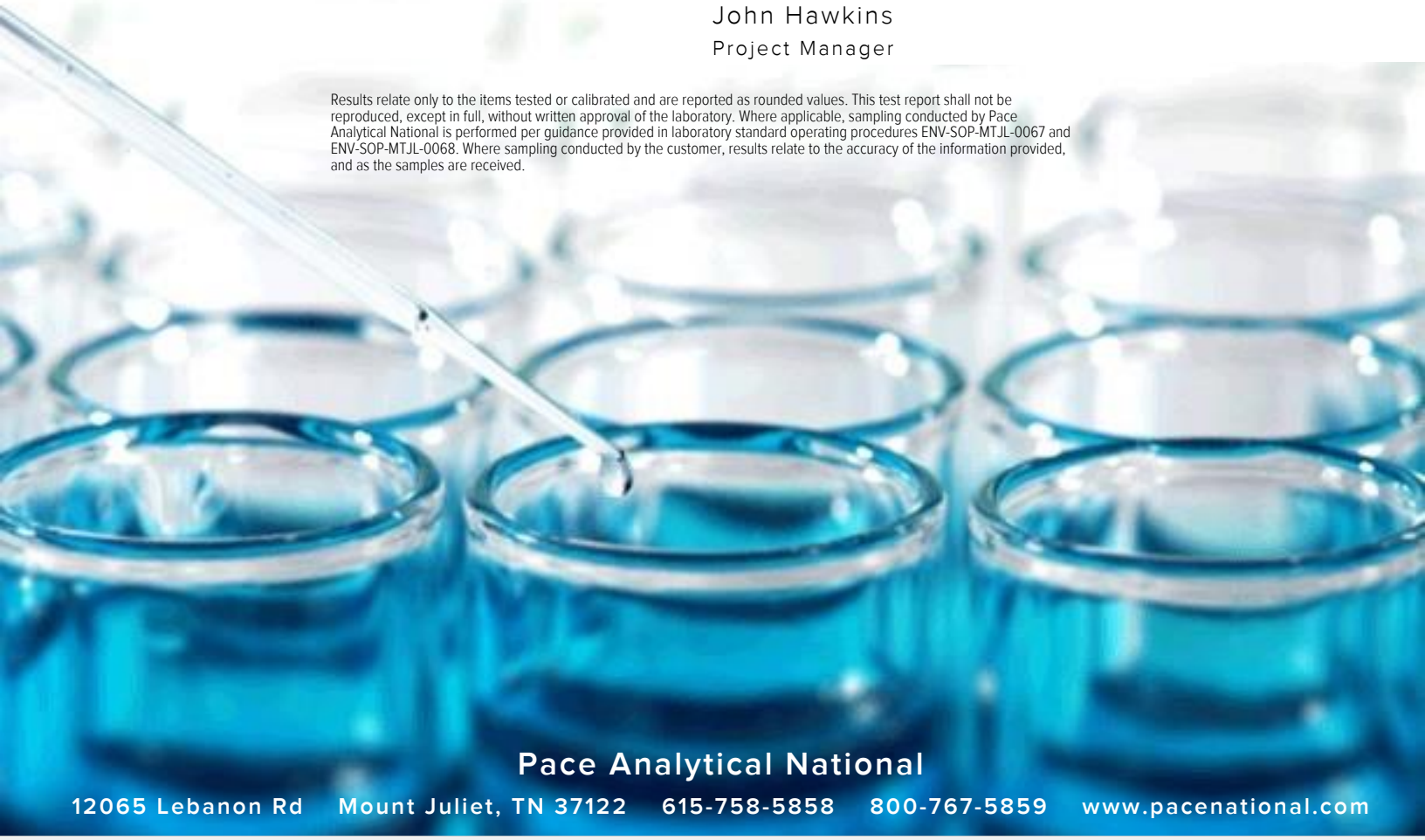
Sample Delivery Group:	L1310268
Samples Received:	01/26/2021
Project Number:	
Description:	

Report To: Jackie Bolte
4901 Hawkins NE
Albuquerque, NM 87109

Entire Report Reviewed By:

John Hawkins
Project Manager

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



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

TABLE OF CONTENTS

SAMPLE SUMMARY

2101886-001 WDW-1,2,3 & 4 EFFLUENT L1310268-01 WW

Collected by	Collected date/time	Received date/time
	01/22/21 09:10	01/26/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 4500 CN E-2011	WG1613866	1	01/30/21 09:40	01/31/21 02:20	SDL	Mt. Juliet, TN
Wet Chemistry by Method 4500H+ B-2011	WG1612418	1	01/28/21 00:40	01/28/21 00:40	WOS	Mt. Juliet, TN
Wet Chemistry by Method 9034-9030B	WG1613445	1	01/29/21 12:15	01/29/21 12:15	MJA	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG1613546	1	01/29/21 16:00	01/29/21 16:00	SRG	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 9012B.
All Reactive Sulfide results reported in the attached report were determined as totals using method 9034/9030B.

Wet Chemistry by Method 4500 CN E-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Cyanide	0.0358		0.00500	1	01/31/2021 02:20	WG1613866

Wet Chemistry by Method 4500H+ B-2011

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
Corrosivity by pH	7.27	T8	1	01/28/2021 00:40	WG1612418

Sample Narrative:

L1310268-01 WG1612418: 7.27 at 19.3C

Wet Chemistry by Method 9034-9030B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Sulfide	ND		0.0500	1	01/29/2021 12:15	WG1613445

Wet Chemistry by Method D93/1010A

Analyte	Result deg F	Qualifier	Dilution	Analysis date / time	Batch
Flashpoint	DNF at 170		1	01/29/2021 16:00	WG1613546

Method Blank (MB)

(MB) R3617835-1 01/31/21 01:49

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

L1309816-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1309816-03 01/31/21 02:10 • (DUP) R3617835-5 01/31/21 02:11

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) R3617835-2 01/31/21 01:50

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Cyanide	0.100	0.0995	99.5	90.0-117	

L1309445-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1309445-01 01/31/21 01:55 • (MS) R3617835-3 01/31/21 01:56 • (MSD) R3617835-4 01/31/21 01:57

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	0.0899	0.0970	89.9	97.0	1	90.0-110	J6		7.60	20

L1310583-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1310583-01 01/31/21 02:21 • (MS) R3617835-6 01/31/21 02:22 • (MSD) R3617835-7 01/31/21 02:23

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	0.0136	0.113	0.111	99.4	97.4	1	90.0-110			1.79	20

Laboratory Control Sample (LCS)

(LCS) R3616816-1 01/28/21 00:40

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
Corrosivity by pH	10.0	10.1	101	99.0-101	

Sample Narrative:

LCS: 10.06 at 21.3C

Method Blank (MB)

(MB) R3617448-1 01/29/21 12:13

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) R3617448-2 01/29/21 12:14

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Sulfide	0.500	0.442	88.4	85.0-115	

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

(LCS) R3617586-1 01/29/21 16:00 • (LCSD) R3617586-2 01/29/21 16:00

Analyte	Spike Amount deg F	LCS Result deg F	LCSD Result deg F	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Flashpoint	126	126	126	100	100	96.0-104			0.000	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.
T8	Sample(s) received past/too close to holding time expiration.

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

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* 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 National.

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	LAO000356
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		

Pace Analytical National 1313 Point Mallard Parkway SE Suite B Decatur, AL, 35601

Alabama	40160
ANSI National Accreditation Board	L2239

Pace Analytical National 660 Bercut Dr. Ste. C Sacramento, CA, 95811

California	2961	Oregon	CA300002
Minnesota	006-999-465	Washington	C926
North Dakota	R-214		

Pace Analytical National 6000 South Eastern Avenue Ste 9A Las Vegas, NV, 89119

Nevada	NV009412021-1

Pace Analytical National 1606 E. Brazos Street Suite D Victoria, TX, 77901

Texas	T104704328-20-18

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

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: clients.hallenvironmental.com

H060

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		L1310268	

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2101886-001E	WDW-1,2,3 & 4 Effluent	500HDPE	Aqueous	1/22/2021 9:10:00 AM	1	Reactivity, Corrosivity, and Ignitability, ORP ** 3 Day TAT ** -01
2	2101886-001F	WDW-1,2,3 & 4 Effluent	500PLNAOH ZNAC	Aqueous	1/22/2021 9:10:00 AM	1	Reactivity, Corrosivity, and Ignitability ** 3 Day TAT ** -01 -02
3	2101886-001G	WDW-1,2,3 & 4 Effluent	500PL-NaOH	Aqueous	1/22/2021 9:10:00 AM	1	Reactivity, Corrosivity, and Ignitability ** 3 Day TAT ** -01 -03

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		

1749 9998 4653 3 Total

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:	Time:	Received By:	Date:	Time:
[signature]	1/25/2021	9:52 AM			
			MPappas	1-26-21	900

TAT: Standard ☐ RUSH (circled) Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples 0.2-1=-1.2 Attempt to Cool ? OK

Comments: LOCST

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2101886

11-Feb-21

Client: Navajo Refining Company

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

Sample ID: MB	SampType: mblk	TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R74853	RunNo: 74853							
Prep Date:	Analysis Date: 1/25/2021	SeqNo: 2641807	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: LCS	SampType: lcs	TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R74853	RunNo: 74853							
Prep Date:	Analysis Date: 1/25/2021	SeqNo: 2641808	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.46	0.10	0.5000	0	92.9	90	110			
Bromide	2.4	0.10	2.500	0	95.1	90	110			
Nitrate+Nitrite as N	3.3	0.20	3.500	0	95.1	90	110			

Sample ID: MB	SampType: mblk	TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R74877	RunNo: 74877							
Prep Date:	Analysis Date: 1/26/2021	SeqNo: 2642875	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
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: R74877	RunNo: 74877							
Prep Date:	Analysis Date: 1/26/2021	SeqNo: 2642876	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.6	90	110			
Phosphorus, Orthophosphate (As P	4.5	0.50	5.000	0	90.6	90	110			
Sulfate	9.7	0.50	10.00	0	96.6	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2101886

11-Feb-21

Client: Navajo Refining Company

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

Sample ID: MB-57767	SampType: MBLK	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: PBW	Batch ID: 57767	RunNo: 75098							
Prep Date: 1/27/2021	Analysis Date: 2/4/2021	SeqNo: 2652622	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Surr: Decachlorobiphenyl	0.0020		0.002500		79.2	41.7	129			
Surr: Tetrachloro-m-xylene	0.0017		0.002500		66.4	31.8	88.5			

Sample ID: MB-57767	SampType: MBLK	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: PBW	Batch ID: 57767	RunNo: 75098							
Prep Date: 1/27/2021	Analysis Date: 2/4/2021	SeqNo: 2652623	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Surr: Decachlorobiphenyl	0.0020		0.002500		80.5	41.7	129			
Surr: Tetrachloro-m-xylene	0.0017		0.002500		66.9	31.8	88.5			

Sample ID: LCS-57767	SampType: LCS	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: LCSW	Batch ID: 57767	RunNo: 75098							
Prep Date: 1/27/2021	Analysis Date: 2/4/2021	SeqNo: 2652624	Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0021		0.002500		82.8	41.7	129			
Surr: Tetrachloro-m-xylene	0.0014		0.002500		57.0	31.8	88.5			

Sample ID: LCS-57767	SampType: LCS	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: LCSW	Batch ID: 57767	RunNo: 75098							
Prep Date: 1/27/2021	Analysis Date: 2/4/2021	SeqNo: 2652625	Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0021		0.002500		84.1	41.7	129			
Surr: Tetrachloro-m-xylene	0.0014		0.002500		57.9	31.8	88.5			

Sample ID: LCSD-57767	SampType: LCSD	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: LCSS02	Batch ID: 57767	RunNo: 75098							
Prep Date: 1/27/2021	Analysis Date: 2/4/2021	SeqNo: 2652626	Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0019		0.002500		76.4	41.7	129	0	0	
Surr: Tetrachloro-m-xylene	0.0013		0.002500		50.6	31.8	88.5	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2101886

11-Feb-21

Client: Navajo Refining Company

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

Sample ID: LCSD-57767	SampType: LCSD	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: LCSS02	Batch ID: 57767	RunNo: 75098							
Prep Date: 1/27/2021	Analysis Date: 2/4/2021	SeqNo: 2652627	Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0020		0.002500		78.2	41.7	129	0	0	
Surr: Tetrachloro-m-xylene	0.0013		0.002500		51.1	31.8	88.5	0	0	

Sample ID: MDL 57767	SampType: LCS	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: LCSW	Batch ID: 57767	RunNo: 75098							
Prep Date: 1/27/2021	Analysis Date: 2/4/2021	SeqNo: 2652629	Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0022		0.002500		90.0	41.7	129			
Surr: Tetrachloro-m-xylene	0.0014		0.002500		56.8	31.8	88.5			

Sample ID: MDL 57767	SampType: LCS	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: LCSW	Batch ID: 57767	RunNo: 75098							
Prep Date: 1/27/2021	Analysis Date: 2/4/2021	SeqNo: 2652630	Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0023		0.002500		93.7	41.7	129			
Surr: Tetrachloro-m-xylene	0.0014		0.002500		56.8	31.8	88.5			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2101886

11-Feb-21

Client: Navajo Refining Company

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

Sample ID: 100ng lcs	SampType: LCS	TestCode: TCLP Volatiles by 8260B							
Client ID: LCSW	Batch ID: T74968	RunNo: 74968							
Prep Date:	Analysis Date: 1/29/2021	SeqNo: 2646828	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.021	0.00023	0.02000	0	105	70	130			
1,1-Dichloroethene	0.020	0.00013	0.02000	0	102	70	130			
Trichloroethene (TCE)	0.020	0.00020	0.02000	0	102	70	130			
Chlorobenzene	0.019	0.00014	0.02000	0	95.3	70	130			
Surr: 1,2-Dichloroethane-d4	0.010		0.01000		104	70	130			
Surr: 4-Bromofluorobenzene	0.011		0.01000		106	70	130			
Surr: Dibromofluoromethane	0.0091		0.01000		91.2	70	130			
Surr: Toluene-d8	0.0094		0.01000		93.6	70	130			

Sample ID: mb	SampType: MBLK	TestCode: TCLP Volatiles by 8260B							
Client ID: PBW	Batch ID: T74968	RunNo: 74968							
Prep Date:	Analysis Date: 1/29/2021	SeqNo: 2646832	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	0.011		0.01000		108	70	130			
Surr: 4-Bromofluorobenzene	0.011		0.01000		109	70	130			
Surr: Dibromofluoromethane	0.0093		0.01000		93.2	70	130			
Surr: Toluene-d8	0.0099		0.01000		98.9	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2101886

11-Feb-21

Client: Navajo Refining Company

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

Sample ID: mb-57755	SampType: MBLK	TestCode: EPA Method 8270C TCLP
Client ID: PBW	Batch ID: 57755	RunNo: 74984
Prep Date: 1/27/2021	Analysis Date: 2/1/2021	SeqNo: 2647446 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	0.094		0.2000		47.0	15	81.1			
Surr: Phenol-d5	0.074		0.2000		36.8	15	61.1			
Surr: 2,4,6-Tribromophenol	0.14		0.2000		72.2	17.2	108			
Surr: Nitrobenzene-d5	0.055		0.1000		55.3	18.7	120			
Surr: 2-Fluorobiphenyl	0.058		0.1000		58.2	23.6	103			
Surr: 4-Terphenyl-d14	0.11		0.1000		107	24.1	105			S

Sample ID: lcs-57755	SampType: LCS	TestCode: EPA Method 8270C TCLP
Client ID: LCSW	Batch ID: 57755	RunNo: 74984
Prep Date: 1/27/2021	Analysis Date: 2/1/2021	SeqNo: 2647447 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.054	0.0010	0.1000	0	54.4	33.8	121			
3+4-Methylphenol	0.11	0.0010	0.2000	0	55.2	33.6	109			
2,4-Dinitrotoluene	0.046	0.0010	0.1000	0	46.3	50.4	124			S
Hexachlorobenzene	0.073	0.0010	0.1000	0	73.4	50.1	120			
Hexachlorobutadiene	0.053	0.0010	0.1000	0	52.9	16.1	103			
Hexachloroethane	0.047	0.0010	0.1000	0	46.9	15	94.2			
Nitrobenzene	0.057	0.0010	0.1000	0	57.5	32.4	125			
Pentachlorophenol	0.061	0.0010	0.1000	0	61.0	44.6	114			
Pyridine	0.046	0.0010	0.1000	0	45.8	15	67			
2,4,5-Trichlorophenol	0.062	0.0010	0.1000	0	61.7	49.4	118			
2,4,6-Trichlorophenol	0.064	0.0010	0.1000	0	63.6	50.3	116			
Cresols, Total	0.16	0.0010	0.3000	0	54.9	33.8	109			
Surr: 2-Fluorophenol	0.081		0.2000		40.3	15	81.1			
Surr: Phenol-d5	0.064		0.2000		31.8	15	61.1			
Surr: 2,4,6-Tribromophenol	0.13		0.2000		62.7	17.2	108			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2101886

11-Feb-21

Client: Navajo Refining Company

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

Sample ID: lcs-57755	SampType: LCS			TestCode: EPA Method 8270C TCLP						
Client ID: LCSW	Batch ID: 57755			RunNo: 74984						
Prep Date: 1/27/2021	Analysis Date: 2/1/2021			SeqNo: 2647447		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.051		0.1000		50.6	18.7	120			
Surr: 2-Fluorobiphenyl	0.052		0.1000		52.1	23.6	103			
Surr: 4-Terphenyl-d14	0.083		0.1000		82.6	24.1	105			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2101886

11-Feb-21

Client: Navajo Refining Company

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

Sample ID: lcs-1 99.5uS eC SampType: lcs TestCode: SM2510B: Specific Conductance

Client ID: LCSW Batch ID: R74980 RunNo: 74980

Prep Date: Analysis Date: 2/1/2021 SeqNo: 2647264 Units: µmhos/cm

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	10	99.50	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 range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2101886

11-Feb-21

Client: Navajo Refining Company

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

Sample ID: MB-57739	SampType: MBLK	TestCode: EPA Method 7470: Mercury
Client ID: PBW	Batch ID: 57739	RunNo: 74923
Prep Date: 1/26/2021	Analysis Date: 1/28/2021	SeqNo: 2644706 Units: mg/L

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

Sample ID: LLLCS-57739	SampType: LCSLL	TestCode: EPA Method 7470: Mercury
Client ID: BatchQC	Batch ID: 57739	RunNo: 74923
Prep Date: 1/26/2021	Analysis Date: 1/28/2021	SeqNo: 2644707 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00010	0.00020	0.0001500	0	67.2	50	150			J

Sample ID: LCS-57739	SampType: LCS	TestCode: EPA Method 7470: Mercury
Client ID: LCSW	Batch ID: 57739	RunNo: 74923
Prep Date: 1/26/2021	Analysis Date: 1/28/2021	SeqNo: 2644708 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	97.2	85	115			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 210188(

11-Feb-21

Client: Navajo Refining Company

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

Sample ID: MB	SampType: MBLK	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: PBW	Batch ID: A74913	RunNo: 74913
Prep Date:	Analysis Date: 1/27/2021	SeqNo: 2644236 Units: mg/L

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

Sample ID: LCS	SampType: LCS	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: LCSW	Batch ID: A74913	RunNo: 74913
Prep Date:	Analysis Date: 1/27/2021	SeqNo: 2644238 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	48	1.0	50.00	0	96.9	80	120			
Magnesium	51	1.0	50.00	0	102	80	120			
Potassium	52	1.0	50.00	0	103	80	120			
Sodium	52	1.0	50.00	0	103	80	120			

Sample ID: 2101886-001BMS	SampType: MS	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: WDW-1,2,3 & 4 Effl	Batch ID: A74913	RunNo: 74913
Prep Date:	Analysis Date: 1/27/2021	SeqNo: 2644241 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	400	5.0	250.0	150.7	101	75	125			
Potassium	420	5.0	250.0	161.5	104	75	125			

Sample ID: 2101886-001BMSD	SampType: MSD	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: WDW-1,2,3 & 4 Effl	Batch ID: A74913	RunNo: 74913
Prep Date:	Analysis Date: 1/27/2021	SeqNo: 2644242 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	400	5.0	250.0	150.7	101	75	125	0.122	20	
Potassium	420	5.0	250.0	161.5	103	75	125	0.532	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2101886

11-Feb-21

Client: Navajo Refining Company

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

Sample ID: MB-57742	SampType: MBLK	TestCode: EPA 6010B: Total Recoverable Metals							
Client ID: PBW	Batch ID: 57742	RunNo: 74913							
Prep Date: 1/26/2021	Analysis Date: 1/27/2021	SeqNo: 2644272	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								

Sample ID: LCS-57742	SampType: LCS	TestCode: EPA 6010B: Total Recoverable Metals							
Client ID: LCSW	Batch ID: 57742	RunNo: 74913							
Prep Date: 1/26/2021	Analysis Date: 1/27/2021	SeqNo: 2644274	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	101	80	120			

Sample ID: 2101886-001HMS	SampType: MS	TestCode: EPA 6010B: Total Recoverable Metals							
Client ID: WDW-1,2,3 & 4 Effl	Batch ID: 57742	RunNo: 74913							
Prep Date: 1/26/2021	Analysis Date: 1/27/2021	SeqNo: 2644276	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.49	0.0020	0.5000	0.05051	88.1	75	125			

Sample ID: 2101886-001HMSD	SampType: MSD	TestCode: EPA 6010B: Total Recoverable Metals							
Client ID: WDW-1,2,3 & 4 Effl	Batch ID: 57742	RunNo: 74913							
Prep Date: 1/26/2021	Analysis Date: 1/27/2021	SeqNo: 2644277	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.48	0.0020	0.5000	0.05051	86.2	75	125	1.93	20	

Sample ID: MB-57742	SampType: MBLK	TestCode: EPA 6010B: Total Recoverable Metals							
Client ID: PBW	Batch ID: 57742	RunNo: 74913							
Prep Date: 1/26/2021	Analysis Date: 1/27/2021	SeqNo: 2644314	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-57742	SampType: LCS	TestCode: EPA 6010B: Total Recoverable Metals							
Client ID: LCSW	Batch ID: 57742	RunNo: 74913							
Prep Date: 1/26/2021	Analysis Date: 1/27/2021	SeqNo: 2644316	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.47	0.0020	0.5000	0	93.9	80	120			
Chromium	0.45	0.0060	0.5000	0	89.5	80	120			
Silver	0.11	0.0050	0.1000	0	109	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2101886

11-Feb-21

Client: Navajo Refining Company

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

Sample ID: MB-57742	SampType: MBLK	TestCode: EPA 6010B: Total Recoverable Metals
Client ID: PBW	Batch ID: 57742	RunNo: 74943
Prep Date: 1/26/2021	Analysis Date: 1/28/2021	SeqNo: 2645598 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.030								
Lead	ND	0.020								
Selenium	ND	0.050								

Sample ID: LCS-57742	SampType: LCS	TestCode: EPA 6010B: Total Recoverable Metals
Client ID: LCSW	Batch ID: 57742	RunNo: 74943
Prep Date: 1/26/2021	Analysis Date: 1/28/2021	SeqNo: 2645603 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.49	0.030	0.5000	0	98.7	80	120			
Lead	0.49	0.020	0.5000	0	97.7	80	120			
Selenium	0.46	0.050	0.5000	0	92.3	80	120			

Sample ID: 2101886-001HMS	SampType: MS	TestCode: EPA 6010B: Total Recoverable Metals
Client ID: WDW-1,2,3 & 4 Effl	Batch ID: 57742	RunNo: 74943
Prep Date: 1/26/2021	Analysis Date: 1/28/2021	SeqNo: 2645620 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.50	0.030	0.5000	0	100	75	125			
Cadmium	0.46	0.0020	0.5000	0	92.0	75	125			
Chromium	0.44	0.0060	0.5000	0	87.6	75	125			
Lead	0.43	0.020	0.5000	0	85.1	75	125			

Sample ID: 2101886-001HMSD	SampType: MSD	TestCode: EPA 6010B: Total Recoverable Metals
Client ID: WDW-1,2,3 & 4 Effl	Batch ID: 57742	RunNo: 74943
Prep Date: 1/26/2021	Analysis Date: 1/28/2021	SeqNo: 2645621 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.52	0.030	0.5000	0	103	75	125	2.95	20	
Cadmium	0.46	0.0020	0.5000	0	92.3	75	125	0.276	20	
Chromium	0.43	0.0060	0.5000	0	86.9	75	125	0.876	20	
Lead	0.42	0.020	0.5000	0	84.5	75	125	0.668	20	

Sample ID: 2101886-001HMS	SampType: MS	TestCode: EPA 6010B: Total Recoverable Metals
Client ID: WDW-1,2,3 & 4 Effl	Batch ID: 57742	RunNo: 74967
Prep Date: 1/26/2021	Analysis Date: 1/29/2021	SeqNo: 2646745 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	0.11	0.0050	0.1000	0.01637	97.4	75	125			

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 range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 210188(

11-Feb-21

Client: Navajo Refining Company

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

Sample ID: 2101886-001HMSD SampType: MSD TestCode: EPA 6010B: Total Recoverable Metals

Client ID: WDW-1,2,3 & 4 Effl Batch ID: 57742 RunNo: 74967

Prep Date: 1/26/2021 Analysis Date: 1/29/2021 SeqNo: 2646746 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	0.12	0.0050	0.1000	0.01637	100	75	125	2.51	20	

Sample ID: 2101886-001HMS SampType: MS TestCode: EPA 6010B: Total Recoverable Metals

Client ID: WDW-1,2,3 & 4 Effl Batch ID: 57742 RunNo: 74967

Prep Date: 1/26/2021 Analysis Date: 1/29/2021 SeqNo: 2646775 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.58	0.050	0.5000	0.08196	100	75	125			

Sample ID: 2101886-001HMSD SampType: MSD TestCode: EPA 6010B: Total Recoverable Metals

Client ID: WDW-1,2,3 & 4 Effl Batch ID: 57742 RunNo: 74967

Prep Date: 1/26/2021 Analysis Date: 1/29/2021 SeqNo: 2646776 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.60	0.050	0.5000	0.08196	104	75	125	3.49	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2101886

11-Feb-21

Client: Navajo Refining Company

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

Sample ID: mb-1 alk	SampType: mblk	TestCode: SM2320B: Alkalinity							
Client ID: PBW	Batch ID: R74933	RunNo: 74933							
Prep Date:	Analysis Date: 1/28/2021	SeqNo: 2645266	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: R74933	RunNo: 74933							
Prep Date:	Analysis Date: 1/28/2021	SeqNo: 2645267	Units: mg/L CaCO3						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	72.36	20.00	80.00	0	90.4	90	110			

Sample ID: mb-2 alk	SampType: mblk	TestCode: SM2320B: Alkalinity							
Client ID: PBW	Batch ID: R74933	RunNo: 74933							
Prep Date:	Analysis Date: 1/28/2021	SeqNo: 2645277	Units: mg/L CaCO3						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: lcs-2 alk	SampType: lcs	TestCode: SM2320B: Alkalinity							
Client ID: LCSW	Batch ID: R74933	RunNo: 74933							
Prep Date:	Analysis Date: 1/28/2021	SeqNo: 2645278	Units: mg/L CaCO3						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	74.96	20.00	80.00	0	93.7	90	110			

Sample ID: mb-3 alk	SampType: mblk	TestCode: SM2320B: Alkalinity							
Client ID: PBW	Batch ID: R74933	RunNo: 74933							
Prep Date:	Analysis Date: 1/28/2021	SeqNo: 2645300	Units: mg/L CaCO3						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: lcs-3 alk	SampType: lcs	TestCode: SM2320B: Alkalinity							
Client ID: LCSW	Batch ID: R74933	RunNo: 74933							
Prep Date:	Analysis Date: 1/28/2021	SeqNo: 2645301	Units: mg/L CaCO3						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	72.92	20.00	80.00	0	91.2	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 210188(

11-Feb-21

Client: Navajo Refining Company

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

Sample ID: 2101886-001ADUP SampType: DUP TestCode: Specific Gravity

Client ID: WDW-1,2,3 & 4 Effl Batch ID: R74989 RunNo: 74989

Prep Date: Analysis Date: 2/1/2021 SeqNo: 2647528 Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.002	0						0.0897	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 range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2101886

11-Feb-21

Client: Navajo Refining Company

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

Sample ID: MB-57781	SampType: MBLK	TestCode: SM2540C MOD: Total Dissolved Solids
Client ID: PBW	Batch ID: 57781	RunNo: 74951
Prep Date: 1/28/2021	Analysis Date: 1/29/2021	SeqNo: 2645845 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-57781	SampType: LCS	TestCode: SM2540C MOD: Total Dissolved Solids
Client ID: LCSW	Batch ID: 57781	RunNo: 74951
Prep Date: 1/28/2021	Analysis Date: 1/29/2021	SeqNo: 2645846 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1030	20.0	1000	0	103	80	120			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **Navajo Refining Company** Work Order Number: **2101886** RcptNo: **1**

Received By: **Desiree Dominguez** **1/23/2021 10:45:00 AM** DD

Completed By: **Desiree Dominguez** **1/23/2021 10:51:34 AM** DD

Reviewed By: 1/25/20

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 ☑ Not frozen No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐ JR 1/25/21
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 ☑

    # of preserved bottles checked for pH: 3 4 1 JR 1/25/21 (<2 or >12 unless noted)
    Adjusted? yes
    Checked by: JR 1/25/21

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 ☐

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: 0.5ml of HNO3 was added to sample 001H for pH<2. Poured off 125ml from unpreserved 1Hr bottle. 0.4ml of HNO3 was added to sample 001B for pH<2. JR 1/25/21.

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.2	Good	No			

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 X Rush

Project Name:

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

Project #: P.O. # 251841

Project Manager:

Robert Combs / Scott Denton / Randy Dade

Sampler: Brady Hubbard

On Ice: ☐ Yes ☐ No

Sample Temperature: 1.4 -0.2 = 1.2°c

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. 2101886	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
1/22/21	9:10	Liquid	WDW-1, 2, 3 & 4 Effluent	3	Neat/H2SO4	-001	X						X	
1/22/21	9:10	Liquid	WDW-1, 2, 3 & 4 Effluent	1	HNO3						X	X		
1/22/21	9:10	Liquid	WDW-1, 2, 3 & 4 Effluent	3	HCL			X						
1/22/21	9:10	Liquid	WDW-1, 2, 3 & 4 Effluent	2	Neat				X					
1/22/21	9:10	Liquid	WDW-1, 2, 3 & 4 Effluent	2	Neat					X				
1/22/21	9:10	Liquid	WDW-1, 2, 3 & 4 Effluent	1	Neat									x

Date:	Time:	Relinquished by:	Received by:	Date	Time
1-22-21	12:20	Brady Hubbard	Cummings	1/22/21	1200
1/22/21	1900	Cummings	Courier	1/23/21	10:45

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

pH 6.92, 33.6C

See WO 2009F63 - Logon the same as of 1/25/2021

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 18165

COMMENTS

Operator:			OGRID:	Action Number:	Action Type:
NAVAJO REFINING COMPANY, L.L.C	P.O. Box 159	Artesia, NM88211	15694	18165	DISCHARGE PERMIT

Created By	Comment	Comment Date
cchavez	QR FY21 Q1 Effluent	02/17/2021

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 18165

CONDITIONS OF APPROVAL

Operator:			OGRID:	Action Number:	Action Type:
NAVAJO REFINING COMPANY, L.L.C	P.O. Box 159	Artesia, NM88211	15694	18165	DISCHARGE PERMIT

OCD Reviewer	Condition
cchavez	Refinery Wastewater Effluent Quality to WDWs.