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 06, 2020

Alvin Dorsey

Western Refining Southwest, Gallup
92 GIANT CROSSING ROAD
Gallup, NM 87301
TEL:
FAX:

RE: Carbon Canister WWTP OrderNo.: 1912C01

Dear Alvin Dorsey:

Hall Environmental Analysis Laboratory received 3 sample(s) on 12/23/2019 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, Inc.

Analytical Report
Lab Order **1912C01**
Date Reported: **1/6/2020**

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: Carbon Canister
Project: Carbon Canister WWTP
Collection Date: 12/20/2019 8:00:00 AM
Lab ID: 1912C01-001
Matrix: AQUEOUS
Received Date: 12/23/2019 12:40:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	0.71	1.0		mg/L	1	12/23/2019 5:03:29 PM	49481
Surr: DNOP	110	0	70-130		%Rec	1	12/23/2019 5:03:29 PM	49481
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	26	0.23	1.0	*	mg/L	10	12/24/2019 8:54:54 PM	R65404
Chloride	220	25	50		mg/L	100	12/24/2019 9:19:43 PM	R65404
Bromide	ND	0.50	1.0		mg/L	10	12/24/2019 8:54:54 PM	R65404
Phosphorus, Orthophosphate (As P)	ND	2.5	5.0	H	mg/L	10	12/24/2019 8:54:54 PM	R65404
Sulfate	1100	25	50	*	mg/L	100	12/24/2019 9:19:43 PM	R65404
Nitrate+Nitrite as N	0.34	0.24	2.0	J	mg/L	10	12/24/2019 9:32:08 PM	R65404
EPA METHOD 200.7: TOTAL METALS							Analyst: **bcv**	
Calcium	35	0.027	1.0		mg/L	1	12/29/2019 2:53:52 PM	49538
Magnesium	7.8	0.010	1.0		mg/L	1	12/29/2019 2:53:52 PM	49538
Potassium	15	0.062	1.0		mg/L	1	12/29/2019 2:53:52 PM	49538
Sodium	500	4.7	10		mg/L	10	12/29/2019 3:01:42 PM	49538
EPA METHOD 8260: VOLATILES SHORT LIST							Analyst: **CCM**	
Benzene	ND	3.3	10		µg/L	20	12/24/2019 3:03:00 PM	R65400
Toluene	ND	7.0	20		µg/L	20	12/24/2019 3:03:00 PM	R65400
Ethylbenzene	ND	2.6	20		µg/L	20	12/24/2019 3:03:00 PM	R65400
Methyl tert-butyl ether (MTBE)	ND	9.1	20		µg/L	20	12/24/2019 3:03:00 PM	R65400
Xylenes, Total	ND	9.1	30		µg/L	20	12/24/2019 3:03:00 PM	R65400
Surr: 1,2-Dichloroethane-d4	91.8	0	70-130		%Rec	20	12/24/2019 3:03:00 PM	R65400
Surr: 4-Bromofluorobenzene	94.4	0	70-130		%Rec	20	12/24/2019 3:03:00 PM	R65400
Surr: Dibromofluoromethane	96.0	0	70-130		%Rec	20	12/24/2019 3:03:00 PM	R65400
Surr: Toluene-d8	95.3	0	70-130		%Rec	20	12/24/2019 3:03:00 PM	R65400
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**	
Conductivity	7000	5.0	5.0		µmhos/c	1	12/27/2019 4:08:41 PM	R65457
SM4500-H+B / 9040C: PH							Analyst: **JRR**	
pH	7.36			H	pH units	1	12/27/2019 4:08:41 PM	R65457

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	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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: Carbon Canister
Project: Carbon Canister WWTP
Collection Date: 12/21/2019 8:00:00 AM
Lab ID: 1912C01-002
Matrix: AQUEOUS
Received Date: 12/23/2019 12:40:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: **BRM**	
Diesel Range Organics (DRO)	0.91	0.71	1.0	J	mg/L	1	12/23/2019 5:25:33 PM	49481
Surr: DNOP	103	0	70-130		%Rec	1	12/23/2019 5:25:33 PM	49481
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	4.2	0.23	1.0	*	mg/L	10	12/24/2019 9:56:58 PM	R65404
Chloride	210	25	50		mg/L	100	12/24/2019 10:21:47 P	R65404
Bromide	0.91	0.50	1.0	J	mg/L	10	12/24/2019 9:56:58 PM	R65404
Phosphorus, Orthophosphate (As P)	ND	2.5	5.0	H	mg/L	10	12/24/2019 9:56:58 PM	R65404
Sulfate	800	25	50	*	mg/L	100	12/24/2019 10:21:47 P	R65404
Nitrate+Nitrite as N	ND	0.24	2.0		mg/L	10	12/24/2019 10:34:12 P	R65404
EPA METHOD 200.7: TOTAL METALS							Analyst: **bcv**	
Calcium	55	0.027	1.0		mg/L	1	1/2/2020 1:31:49 PM	49563
Magnesium	11	0.010	1.0		mg/L	1	1/2/2020 1:31:49 PM	49563
Potassium	18	0.062	1.0		mg/L	1	1/2/2020 1:31:49 PM	49563
Sodium	460	2.4	5.0		mg/L	5	1/2/2020 2:02:26 PM	49563
EPA METHOD 8260: VOLATILES SHORT LIST							Analyst: **CCM**	
Benzene	ND	3.3	10		µg/L	20	12/24/2019 3:27:00 PM	R65400
Toluene	ND	7.0	20		µg/L	20	12/24/2019 3:27:00 PM	R65400
Ethylbenzene	ND	2.6	20		µg/L	20	12/24/2019 3:27:00 PM	R65400
Methyl tert-butyl ether (MTBE)	ND	9.1	20		µg/L	20	12/24/2019 3:27:00 PM	R65400
Xylenes, Total	ND	9.1	30		µg/L	20	12/24/2019 3:27:00 PM	R65400
Surr: 1,2-Dichloroethane-d4	92.9	0	70-130		%Rec	20	12/24/2019 3:27:00 PM	R65400
Surr: 4-Bromofluorobenzene	89.9	0	70-130		%Rec	20	12/24/2019 3:27:00 PM	R65400
Surr: Dibromofluoromethane	97.4	0	70-130		%Rec	20	12/24/2019 3:27:00 PM	R65400
Surr: Toluene-d8	95.7	0	70-130		%Rec	20	12/24/2019 3:27:00 PM	R65400
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**	
Conductivity	9500	5.0	5.0		µmhos/c	1	12/27/2019 4:13:09 PM	R65457
SM4500-H+B / 9040C: PH							Analyst: **JRR**	
pH	7.78			H	pH units	1	12/27/2019 4:13:09 PM	R65457

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	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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: Carbon Canister
Project: Carbon Canister WWTP
Collection Date: 12/22/2019 8:00:00 AM
Lab ID: 1912C01-003
Matrix: AQUEOUS
Received Date: 12/23/2019 12:40:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: **BRM**	
Diesel Range Organics (DRO)	7.3	0.71	1.0		mg/L	1	12/23/2019 5:47:49 PM	49481
Surr: DNOP	104	0	70-130		%Rec	1	12/23/2019 5:47:49 PM	49481
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	3.2	0.23	1.0		mg/L	10	12/24/2019 11:23:50 P	R65404
Chloride	210	25	50		mg/L	100	12/24/2019 11:48:40 P	R65404
Bromide	ND	0.50	1.0		mg/L	10	12/24/2019 11:23:50 P	R65404
Phosphorus, Orthophosphate (As P)	ND	2.5	5.0	H	mg/L	10	12/24/2019 11:23:50 P	R65404
Sulfate	920	25	50	*	mg/L	100	12/24/2019 11:48:40 P	R65404
Nitrate+Nitrite as N	ND	0.24	2.0		mg/L	10	12/25/2019 12:01:04 A	R65404
EPA METHOD 200.7: TOTAL METALS							Analyst: **bcv**	
Calcium	34	0.027	1.0		mg/L	1	12/29/2019 3:03:34 PM	49538
Magnesium	12	0.010	1.0		mg/L	1	12/29/2019 3:03:34 PM	49538
Potassium	22	0.062	1.0		mg/L	1	12/29/2019 3:03:34 PM	49538
Sodium	370	4.7	10		mg/L	10	12/29/2019 3:05:15 PM	49538
EPA METHOD 8260: VOLATILES SHORT LIST							Analyst: **CCM**	
Benzene	ND	3.3	10		µg/L	20	12/24/2019 3:51:00 PM	R65400
Toluene	ND	7.0	20		µg/L	20	12/24/2019 3:51:00 PM	R65400
Ethylbenzene	ND	2.6	20		µg/L	20	12/24/2019 3:51:00 PM	R65400
Methyl tert-butyl ether (MTBE)	ND	9.1	20		µg/L	20	12/24/2019 3:51:00 PM	R65400
Xylenes, Total	ND	9.1	30		µg/L	20	12/24/2019 3:51:00 PM	R65400
Surr: 1,2-Dichloroethane-d4	91.1	0	70-130		%Rec	20	12/24/2019 3:51:00 PM	R65400
Surr: 4-Bromofluorobenzene	99.2	0	70-130		%Rec	20	12/24/2019 3:51:00 PM	R65400
Surr: Dibromofluoromethane	98.1	0	70-130		%Rec	20	12/24/2019 3:51:00 PM	R65400
Surr: Toluene-d8	96.3	0	70-130		%Rec	20	12/24/2019 3:51:00 PM	R65400
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**	
Conductivity	6500	5.0	5.0		µmhos/c	1	12/27/2019 4:17:32 PM	R65457
SM4500-H+B / 9040C: PH							Analyst: **JRR**	
pH	7.45			H	pH units	1	12/27/2019 4:17:32 PM	R65457

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	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#: **1912C01**

06-Jan-20

Client: Western Refining Southwest, Gallup

Project: Carbon Canister WWTP

Sample ID: **MB-49538** SampType: **MBLK** TestCode: **EPA Method 200.7: Total Metals**

Client ID: **PBW** Batch ID: **49538** RunNo: **65452**

Prep Date: **12/27/2019** Analysis Date: **12/29/2019** SeqNo: **2248291** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	0.037	1.0								J
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: **LLLCS-49538** SampType: **LCSLL** TestCode: **EPA Method 200.7: Total Metals**

Client ID: **BatchQC** Batch ID: **49538** RunNo: **65452**

Prep Date: **12/27/2019** Analysis Date: **12/29/2019** SeqNo: **2248292** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	0.51	1.0	0.5000	0	103	50	150			J
Magnesium	0.51	1.0	0.5000	0	103	50	150			J
Potassium	0.44	1.0	0.5000	0	89.0	50	150			J
Sodium	0.31	1.0	0.5000	0	61.2	50	150			J

Sample ID: **LCS-49538** SampType: **LCS** TestCode: **EPA Method 200.7: Total Metals**

Client ID: **LCSW** Batch ID: **49538** RunNo: **65452**

Prep Date: **12/27/2019** Analysis Date: **12/29/2019** SeqNo: **2248293** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	49	1.0	50.00	0	98.8	85	115			
Magnesium	50	1.0	50.00	0	100	85	115			
Potassium	49	1.0	50.00	0	99.0	85	115			
Sodium	48	1.0	50.00	0	96.6	85	115			

Sample ID: **MB-49563** SampType: **MBLK** TestCode: **EPA Method 200.7: Total Metals**

Client ID: **PBW** Batch ID: **49563** RunNo: **65546**

Prep Date: **12/30/2019** Analysis Date: **1/2/2020** SeqNo: **2251830** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	0.032	1.0								J
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: **LLLCS-49563** SampType: **LCSLL** TestCode: **EPA Method 200.7: Total Metals**

Client ID: **BatchQC** Batch ID: **49563** RunNo: **65546**

Prep Date: **12/30/2019** Analysis Date: **1/2/2020** SeqNo: **2251831** Units: **mg/L**

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

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#: **1912C01**
06-Jan-20

Client: Western Refining Southwest, Gallup
Project: Carbon Canister WWTP

Sample ID: **LLLCS-49563** SampType: **LCSLL** TestCode: **EPA Method 200.7: Total Metals**
Client ID: **BatchQC** Batch ID: **49563** RunNo: **65546**
Prep Date: **12/30/2019** Analysis Date: **1/2/2020** SeqNo: **2251831** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	0.52	1.0	0.5000	0	103	50	150			J
Magnesium	0.51	1.0	0.5000	0	103	50	150			J
Potassium	0.48	1.0	0.5000	0	95.0	50	150			J
Sodium	0.55	1.0	0.5000	0	109	50	150			J

Sample ID: **LCS-49563** SampType: **LCS** TestCode: **EPA Method 200.7: Total Metals**
Client ID: **LCSW** Batch ID: **49563** RunNo: **65546**
Prep Date: **12/30/2019** Analysis Date: **1/2/2020** SeqNo: **2251832** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	99.1	85	115			
Magnesium	49	1.0	50.00	0	97.9	85	115			
Potassium	48	1.0	50.00	0	96.6	85	115			
Sodium	48	1.0	50.00	0	96.8	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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#: **1912C01**
06-Jan-20

Client: Western Refining Southwest, Gallup
Project: Carbon Canister WWTP

Sample ID: **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R65404** RunNo: **65404**
Prep Date: Analysis Date: **12/24/2019** SeqNo: **2246799** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.5	0.10	1.600	0	95.1	90	110			
Chloride	7.6	0.50	8.000	0	95.2	90	110			
Bromide	7.8	0.10	8.000	0	97.1	90	110			
Phosphorus, Orthophosphate (As P	7.4	0.50	8.000	0	92.5	90	110			
Sulfate	19	0.50	20.00	0	96.8	90	110			
Nitrate+Nitrite as N	8.0	0.20	8.000	0	100	90	110			

Sample ID: **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R65404** RunNo: **65404**
Prep Date: Analysis Date: **12/24/2019** SeqNo: **2246802** 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: **R65404** RunNo: **65404**
Prep Date: Analysis Date: **12/24/2019** SeqNo: **2246803** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	100	90	110			
Chloride	4.8	0.50	5.000	0	96.3	90	110			
Bromide	2.5	0.10	2.500	0	98.9	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.0	90	110			
Sulfate	9.8	0.50	10.00	0	97.7	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	99.4	90	110			

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R65404** RunNo: **65404**
Prep Date: Analysis Date: **12/24/2019** SeqNo: **2246812** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.99	0.10	1.000	0	98.7	90	110			
Chloride	4.6	0.50	5.000	0	92.8	90	110			
Bromide	4.8	0.10	5.000	0	96.0	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	93.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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#: **1912C01**
06-Jan-20

Client: Western Refining Southwest, Gallup
Project: Carbon Canister WWTP

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R65404** RunNo: **65404**
Prep Date: Analysis Date: **12/24/2019** SeqNo: **2246812** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	12	0.50	12.50	0	94.4	90	110			
Nitrate+Nitrite as N	4.9	0.20	5.000	0	97.5	90	110			

Sample ID: **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R65404** RunNo: **65404**
Prep Date: Analysis Date: **12/24/2019** SeqNo: **2246824** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.6	0.10	1.600	0	100	90	110			
Chloride	7.7	0.50	8.000	0	96.1	90	110			
Bromide	7.8	0.10	8.000	0	97.9	90	110			
Phosphorus, Orthophosphate (As P	7.8	0.50	8.000	0	97.7	90	110			
Sulfate	20	0.50	20.00	0	97.6	90	110			
Nitrate+Nitrite as N	8.1	0.20	8.000	0	101	90	110			

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R65404** RunNo: **65404**
Prep Date: Analysis Date: **12/24/2019** SeqNo: **2246836** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.0	0.10	1.000	0	101	90	110			
Chloride	4.6	0.50	5.000	0	92.9	90	110			
Bromide	4.8	0.10	5.000	0	96.5	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.9	90	110			
Sulfate	12	0.50	12.50	0	94.6	90	110			
Nitrate+Nitrite as N	4.9	0.20	5.000	0	97.8	90	110			

Sample ID: **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R65404** RunNo: **65404**
Prep Date: Analysis Date: **12/24/2019** SeqNo: **2246845** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.6	0.10	1.600	0	102	90	110			
Chloride	7.7	0.50	8.000	0	96.2	90	110			
Bromide	7.8	0.10	8.000	0	97.9	90	110			
Phosphorus, Orthophosphate (As P	7.8	0.50	8.000	0	97.9	90	110			
Sulfate	20	0.50	20.00	0	97.6	90	110			
Nitrate+Nitrite as N	8.1	0.20	8.000	0	101	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 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#: **1912C01**

06-Jan-20

Client: Western Refining Southwest, Gallup

Project: Carbon Canister WWTP

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R65404** RunNo: **65404**

Prep Date: Analysis Date: **12/24/2019** SeqNo: **2246857** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.0	0.10	1.000	0	104	90	110			
Chloride	4.7	0.50	5.000	0	93.6	90	110			
Bromide	4.9	0.10	5.000	0	97.0	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	96.4	90	110			
Sulfate	12	0.50	12.50	0	95.3	90	110			
Nitrate+Nitrite as N	4.9	0.20	5.000	0	98.3	90	110			

Sample ID: **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R65404** RunNo: **65404**

Prep Date: Analysis Date: **12/25/2019** SeqNo: **2246868** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.7	0.10	1.600	0	104	90	110			
Chloride	7.7	0.50	8.000	0	96.4	90	110			
Bromide	7.9	0.10	8.000	0	98.2	90	110			
Phosphorus, Orthophosphate (As P	7.9	0.50	8.000	0	99.0	90	110			
Sulfate	20	0.50	20.00	0	97.8	90	110			
Nitrate+Nitrite as N	8.1	0.20	8.000	0	101	90	110			

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R65404** RunNo: **65404**

Prep Date: Analysis Date: **12/25/2019** SeqNo: **2246879** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.0	0.10	1.000	0	105	90	110			
Chloride	4.7	0.50	5.000	0	93.2	90	110			
Bromide	4.8	0.10	5.000	0	96.7	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	96.6	90	110			
Sulfate	12	0.50	12.50	0	94.9	90	110			
Nitrate+Nitrite as N	4.9	0.20	5.000	0	97.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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#: **1912C01**
06-Jan-20

Client: Western Refining Southwest, Gallup
Project: Carbon Canister WWTP

Sample ID: **LCS-49481** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **LCSW** Batch ID: **49481** RunNo: **65362**
Prep Date: **12/23/2019** Analysis Date: **12/23/2019** SeqNo: **2245260** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.5	1.0	5.000	0	111	71.8	135			
Surr: DNOP	0.55		0.5000		109	70	130			

Sample ID: **MB-49481** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **PBW** Batch ID: **49481** RunNo: **65362**
Prep Date: **12/23/2019** Analysis Date: **12/23/2019** SeqNo: **2245261** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Surr: DNOP	1.1		1.000		111	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 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#: **1912C01**
06-Jan-20

Client: Western Refining Southwest, Gallup
Project: Carbon Canister WWTP

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **LCSW**	Batch ID: **R65400**	RunNo: **65400**
Prep Date:	Analysis Date: **12/24/2019**	SeqNo: **2246661** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	97.5	70	130			
Toluene	18	1.0	20.00	0	92.3	70	130			
Surr: 1,2-Dichloroethane-d4	9.0		10.00		90.3	70	130			
Surr: 4-Bromofluorobenzene	12		10.00		119	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.1	70	130			
Surr: Toluene-d8	9.6		10.00		96.0	70	130			

Sample ID: **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **PBW**	Batch ID: **R65400**	RunNo: **65400**
Prep Date:	Analysis Date: **12/24/2019**	SeqNo: **2246662** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.0		10.00		90.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.7	70	130			
Surr: Toluene-d8	8.4		10.00		84.4	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#: **1912C01**
06-Jan-20

Client: Western Refining Southwest, Gallup
Project: Carbon Canister WWTP

Sample ID: **lcs-1 99.9uS eC**	SampType: **lcs**	TestCode: **SM2510B: Specific Conductance**
Client ID: **LCSW**	Batch ID: **R65457**	RunNo: **65457**
Prep Date:	Analysis Date: **12/27/2019**	SeqNo: **2248599** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	5.0	99.90	0	100	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

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: **Western Refining Gallup** Work Order Number: **1912C01** RcptNo: 1

Received By: **Daniel Marquez** **12/23/2019 12:40:00 PM**

Completed By: **Yazmine Garduno** **12/23/2019 1:00:07 PM**

Reviewed By: YG 12/23/19

Chain of Custody

1. Is Chain of Custody sufficiently 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 preservative added to bottles?	Yes ☑	No ☑ JR 12/23/19	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 (<2 or >12 unless noted)

Adjusted? yes

Checked by: JR 12/23/19

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: ~ 0.4ml of H_2SO_4 was added to sample 001C. .05ml of HNO_3 was added to sample 002D for <2 Ph metals analysis JR 12/23/19.

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.2	Good				

Chain-of-Custody Record

Client:	Western - Refining		
	Gallup Refinery		
Mailing Address:	92 GIANT CROSSING ROAD		
Gallup NM 87301			
Phone #:	505	722	3833
email or Fax#:	505	863	0930

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
☐ Standard ☒ Rush

Project Name:
Carbon Canister - WWTP

Project #:

Sample Day's: 12/20/2019 12/21/2019

Project Manager:
A. Dorsey

Sampler: WWTP-OPPs

On Ice: ☑ Yes ☐ No

Sample Temperature: 03-01 = 0.2°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID		Preservative Type	HEAL No.	BTEX + MTBE + (8021)B	BTEX + MTBE + TPH (Gas	TPH 8015B (DRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4)	8081 Pesticides / 8082 PC	8260B (VOA)	8270 (Semi-VOA)	PH	Specific Conductance	Cations	Anions	Air Bubbles (Y or N)
						1912801																
12/20/2019	08:00AM	H2O	Carbon Canister	125ml-1	H2SO4	-001								X								
12/20/2019	08:00AM	H2O	Carbon Canister	500ml-1	None	↓												X	X			
12/20/2019	08:00AM	H2O	Carbon Canister	500ml-1	HNO3	↓														X		
12/20/2019	08:00AM	H2O	Carbon Canister	40ml-3 /125ml-1 Amber	HCL / None	↓	X		X													
12/21/2019	08:00AM	H2O	Carbon Canister	125ml-1	H2SO4	-002								X								
12/21/2019	08:00AM	H2O	Carbon Canister	500ml-1	None	↓												X	X			
12/21/2019	08:00AM	H2O	Carbon Canister	500ml-1	HNO3	↓														X		
12/21/2019	08:00AM	H2O	Carbon Canister	40ml-3 /125ml-1 Amber	HCL / None	↓	X		X													

Date: 12-23-19	Time: 11:00	Relinquished by: Alvin Dorsey	Received by:	Date	Time
			Courier	12/23/19	12:40
Date:	Time:	Relinquished by:	Received by:	Date	Time

Carbon Canister

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.

Chain-of-Custody Record

Client:	Western - Refining		
	Gallup Refinery		
Mailing Address:	92 GIANT CROSSING ROAD		
Gallup NM 87301			
Phone #:	505	722	3833
email or Fax#:	505	863	0930

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

☐ Standard ☒ Rush

Project Name: Carbon Canister - WWTP

Project #:

Sample Day's: 12/22/2019

Project Manager: A. Dorsey

Sampler: WWTP-OPPs

On Ice: ☑ Yes ☐ No

Sample Temperature: 0.3-0.1=0.2°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

4901 Hawkins NE - Albuquerque, NM 87109

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

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
						1912B001
12/22/2019	08:00AM	H2O	Carbon Canister	125ml-1	H2SO4	-003
12/22/2019	08:00AM	H2O	Carbon Canister	500ml-1	None	
12/22/2019	08:00AM	H2O	Carbon Canister	500ml-1	HNO3	
12/22/2019	08:00AM	H2O	Carbon Canister	40ml-3 /125ml-1 Amber	HCL / None	

Analysis Request

BTEX + MTBE + (8021)B	BTEX + MTBE + TPH (Gas	TPH:8015B (DRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4)	8081 Pesticides / 8082 PC	8260B (VOA)	8270 (Semi-VOA)	PH	Specific Conductance	Cations	Anions	Air Bubbles (Y or N)
							X								
											X	X			
													X		
X		X													

Date: 12-23-19	Time: 11:00	Relinquished by: Alvin Dorsey	Received by: Courier	Date: 12/23/19	Time: 12:40
Date:	Time:	Relinquished by:	Received by:	Date	Time

Carbon Canister

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.