



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

December 18, 2019

Vernon Marcum
MARATHON
92 Giant Crossing Rd
Gallup, NM 87301
TEL:
FAX:

RE: Carbon Canister
WWTP BWON

OrderNo.: 1912472

Dear Vernon Marcum:

Hall Environmental Analysis Laboratory received 5 sample(s) on 12/10/2019 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,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written in a cursive style.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1912472

Date Reported: 12/18/2019

CLIENT: MARATHON

Client Sample ID: North Carbon Canister

Project: Carbon Canister

Collection Date: 12/5/2019 8:00:00 AM

Lab ID: 1912472-001

Matrix: AQUEOUS

Received Date: 12/10/2019 10:55:00 AM

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	12/12/2019 9:47:32 AM	49286
Surr: DNOP	105	0	70-130		%Rec	1	12/12/2019 9:47:32 AM	49286
EPA METHOD 300.0: ANIONS								
Analyst: CAS								
Fluoride	27	0.23	1.0	*	mg/L	10	12/12/2019 12:19:27 P	R65153
Chloride	140	25	50		mg/L	100	12/12/2019 12:45:09 P	R65153
Bromide	ND	0.50	1.0		mg/L	10	12/12/2019 12:19:27 P	R65153
Phosphorus, Orthophosphate (As P)	ND	2.5	5.0	H	mg/L	10	12/12/2019 12:19:27 P	R65153
Sulfate	630	25	50	*	mg/L	100	12/12/2019 12:45:09 P	R65153
Nitrate+Nitrite as N	ND	0.24	2.0		mg/L	10	12/12/2019 12:58:02 P	R65153
EPA METHOD 200.7: METALS								
Analyst: bcv								
Calcium	98	0.062	1.0		mg/L	1	12/12/2019 9:14:02 AM	49281
Magnesium	25	0.050	1.0		mg/L	1	12/12/2019 9:14:02 AM	49281
Potassium	57	0.16	1.0		mg/L	1	12/12/2019 9:14:02 AM	49281
Sodium	250	4.7	10		mg/L	10	12/12/2019 9:15:57 AM	49281
EPA METHOD 8260: VOLATILES SHORT LIST								
Analyst: JMR								
Benzene	ND	3.3	10		µg/L	20	12/13/2019 3:47:35 PM	SL6518
Toluene	ND	7.0	20		µg/L	20	12/13/2019 3:47:35 PM	SL6518
Ethylbenzene	ND	2.6	20		µg/L	20	12/13/2019 3:47:35 PM	SL6518
Methyl tert-butyl ether (MTBE)	ND	9.1	20		µg/L	20	12/13/2019 3:47:35 PM	SL6518
Xylenes, Total	ND	9.1	30		µg/L	20	12/13/2019 3:47:35 PM	SL6518
Surr: 1,2-Dichloroethane-d4	113	0	70-130		%Rec	20	12/13/2019 3:47:35 PM	SL6518
Surr: 4-Bromofluorobenzene	102	0	70-130		%Rec	20	12/13/2019 3:47:35 PM	SL6518
Surr: Dibromofluoromethane	112	0	70-130		%Rec	20	12/13/2019 3:47:35 PM	SL6518
Surr: Toluene-d8	110	0	70-130		%Rec	20	12/13/2019 3:47:35 PM	SL6518
SM2510B: SPECIFIC CONDUCTANCE								
Analyst: JRR								
Conductivity	4000	5.0	5.0		µmhos/c	1	12/12/2019 10:47:48 A	R65144
SM4500-H+B / 9040C: PH								
Analyst: JRR								
pH	8.04			H	pH units	1	12/12/2019 10:47:48 A	R65144

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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1912472

Date Reported: 12/18/2019

CLIENT: MARATHON

Client Sample ID: North Carbon Canister

Project: Carbon Canister

Collection Date: 12/6/2019 7:30:00 AM

Lab ID: 1912472-002

Matrix: AQUEOUS

Received Date: 12/10/2019 10:55:00 AM

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	12/12/2019 10:59:54 A	49286
Surr: DNOP	120	0	70-130		%Rec	1	12/12/2019 10:59:54 A	49286
EPA METHOD 300.0: ANIONS								
Analyst: CAS								
Fluoride	38	0.23	1.0	*	mg/L	10	12/12/2019 1:23:46 PM	R65153
Chloride	210	25	50		mg/L	100	12/12/2019 1:49:31 PM	R65153
Bromide	5.6	0.50	1.0		mg/L	10	12/12/2019 1:23:46 PM	R65153
Phosphorus, Orthophosphate (As P)	ND	2.5	5.0	H	mg/L	10	12/12/2019 1:23:46 PM	R65153
Sulfate	620	25	50	*	mg/L	100	12/12/2019 1:49:31 PM	R65153
Nitrate+Nitrite as N	ND	0.24	2.0		mg/L	10	12/12/2019 2:02:23 PM	R65153
EPA METHOD 200.7: METALS								
Analyst: bcv								
Calcium	56	0.062	1.0		mg/L	1	12/12/2019 9:18:07 AM	49281
Magnesium	14	0.050	1.0		mg/L	1	12/12/2019 9:18:07 AM	49281
Potassium	59	0.16	1.0		mg/L	1	12/12/2019 9:18:07 AM	49281
Sodium	340	4.7	10		mg/L	10	12/12/2019 9:19:55 AM	49281
EPA METHOD 8260: VOLATILES SHORT LIST								
Analyst: JMR								
Benzene	ND	3.3	10		µg/L	20	12/13/2019 4:16:17 PM	SL6518
Toluene	ND	7.0	20		µg/L	20	12/13/2019 4:16:17 PM	SL6518
Ethylbenzene	ND	2.6	20		µg/L	20	12/13/2019 4:16:17 PM	SL6518
Methyl tert-butyl ether (MTBE)	ND	9.1	20		µg/L	20	12/13/2019 4:16:17 PM	SL6518
Xylenes, Total	ND	9.1	30		µg/L	20	12/13/2019 4:16:17 PM	SL6518
Surr: 1,2-Dichloroethane-d4	109	0	70-130		%Rec	20	12/13/2019 4:16:17 PM	SL6518
Surr: 4-Bromofluorobenzene	100	0	70-130		%Rec	20	12/13/2019 4:16:17 PM	SL6518
Surr: Dibromofluoromethane	112	0	70-130		%Rec	20	12/13/2019 4:16:17 PM	SL6518
Surr: Toluene-d8	111	0	70-130		%Rec	20	12/13/2019 4:16:17 PM	SL6518
SM2510B: SPECIFIC CONDUCTANCE								
Analyst: JRR								
Conductivity	4100	5.0	5.0		µmhos/c	1	12/12/2019 10:55:49 A	R65144
SM4500-H+B / 9040C: PH								
Analyst: JRR								
pH	7.27			H	pH units	1	12/12/2019 10:55:49 A	R65144

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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1912472

Date Reported: 12/18/2019

CLIENT: MARATHON

Client Sample ID: North Carbon Canister

Project: Carbon Canister

Collection Date: 12/7/2019 7:30:00 AM

Lab ID: 1912472-003

Matrix: AQUEOUS

Received Date: 12/10/2019 10:55:00 AM

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	12/12/2019 11:24:04 A	49286
Surr: DNOP	108	0	70-130		%Rec	1	12/12/2019 11:24:04 A	49286
EPA METHOD 300.0: ANIONS								
Analyst: CAS								
Fluoride	15	0.23	1.0	*	mg/L	10	12/12/2019 2:53:51 PM	R65153
Chloride	170	25	50		mg/L	100	12/12/2019 3:32:36 PM	R65153
Bromide	ND	0.50	1.0		mg/L	10	12/12/2019 2:53:51 PM	R65153
Phosphorus, Orthophosphate (As P)	ND	2.5	5.0	H	mg/L	10	12/12/2019 2:53:51 PM	R65153
Sulfate	490	25	50	*	mg/L	100	12/12/2019 3:32:36 PM	R65153
Nitrate+Nitrite as N	ND	0.24	2.0		mg/L	10	12/12/2019 3:45:36 PM	R65153
EPA METHOD 200.7: METALS								
Analyst: bcv								
Calcium	50	0.062	1.0		mg/L	1	12/12/2019 9:28:22 AM	49281
Magnesium	11	0.050	1.0		mg/L	1	12/12/2019 9:28:22 AM	49281
Potassium	33	0.16	1.0		mg/L	1	12/12/2019 9:28:22 AM	49281
Sodium	300	4.7	10		mg/L	10	12/12/2019 9:30:12 AM	49281
EPA METHOD 8260: VOLATILES SHORT LIST								
Analyst: JMR								
Benzene	ND	3.3	10		µg/L	20	12/13/2019 4:44:52 PM	SL6518
Toluene	ND	7.0	20		µg/L	20	12/13/2019 4:44:52 PM	SL6518
Ethylbenzene	ND	2.6	20		µg/L	20	12/13/2019 4:44:52 PM	SL6518
Methyl tert-butyl ether (MTBE)	ND	9.1	20		µg/L	20	12/13/2019 4:44:52 PM	SL6518
Xylenes, Total	ND	9.1	30		µg/L	20	12/13/2019 4:44:52 PM	SL6518
Surr: 1,2-Dichloroethane-d4	112	0	70-130		%Rec	20	12/13/2019 4:44:52 PM	SL6518
Surr: 4-Bromofluorobenzene	104	0	70-130		%Rec	20	12/13/2019 4:44:52 PM	SL6518
Surr: Dibromofluoromethane	109	0	70-130		%Rec	20	12/13/2019 4:44:52 PM	SL6518
Surr: Toluene-d8	108	0	70-130		%Rec	20	12/13/2019 4:44:52 PM	SL6518
SM2510B: SPECIFIC CONDUCTANCE								
Analyst: JRR								
Conductivity	3300	5.0	5.0		µmhos/c	1	12/12/2019 10:59:49 A	R65144
SM4500-H+B / 9040C: PH								
Analyst: JRR								
pH	7.38			H	pH units	1	12/12/2019 10:59:49 A	R65144

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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1912472

Date Reported: 12/18/2019

CLIENT: MARATHON

Client Sample ID: North Carbon Canister

Project: Carbon Canister

Collection Date: 12/8/2019 7:30:00 AM

Lab ID: 1912472-004

Matrix: AQUEOUS

Received Date: 12/10/2019 10:55:00 AM

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	12/12/2019 11:48:21 A	49286
Surr: DNOP	108	0	70-130		%Rec	1	12/12/2019 11:48:21 A	49286
EPA METHOD 300.0: ANIONS								
Analyst: CAS								
Fluoride	10	0.23	1.0	*	mg/L	10	12/12/2019 4:11:21 PM	R65153
Chloride	170	2.5	5.0		mg/L	10	12/12/2019 4:11:21 PM	R65153
Bromide	ND	0.50	1.0		mg/L	10	12/12/2019 4:11:21 PM	R65153
Phosphorus, Orthophosphate (As P)	ND	2.5	5.0	H	mg/L	10	12/12/2019 4:11:21 PM	R65153
Sulfate	400	25	50	*	mg/L	100	12/12/2019 4:37:04 PM	R65153
Nitrate+Nitrite as N	ND	0.24	2.0		mg/L	10	12/12/2019 4:49:56 PM	R65153
EPA METHOD 200.7: METALS								
Analyst: bcv								
Calcium	54	0.062	1.0		mg/L	1	12/12/2019 9:32:23 AM	49281
Magnesium	10	0.050	1.0		mg/L	1	12/12/2019 9:32:23 AM	49281
Potassium	27	0.16	1.0		mg/L	1	12/12/2019 9:32:23 AM	49281
Sodium	260	4.7	10		mg/L	10	12/12/2019 9:34:17 AM	49281
EPA METHOD 8260: VOLATILES SHORT LIST								
Analyst: JMR								
Benzene	ND	3.3	10		µg/L	20	12/13/2019 5:13:23 PM	SL6518
Toluene	ND	7.0	20		µg/L	20	12/13/2019 5:13:23 PM	SL6518
Ethylbenzene	ND	2.6	20		µg/L	20	12/13/2019 5:13:23 PM	SL6518
Methyl tert-butyl ether (MTBE)	ND	9.1	20		µg/L	20	12/13/2019 5:13:23 PM	SL6518
Xylenes, Total	ND	9.1	30		µg/L	20	12/13/2019 5:13:23 PM	SL6518
Surr: 1,2-Dichloroethane-d4	113	0	70-130		%Rec	20	12/13/2019 5:13:23 PM	SL6518
Surr: 4-Bromofluorobenzene	103	0	70-130		%Rec	20	12/13/2019 5:13:23 PM	SL6518
Surr: Dibromofluoromethane	110	0	70-130		%Rec	20	12/13/2019 5:13:23 PM	SL6518
Surr: Toluene-d8	108	0	70-130		%Rec	20	12/13/2019 5:13:23 PM	SL6518
SM2510B: SPECIFIC CONDUCTANCE								
Analyst: JRR								
Conductivity	3000	5.0	5.0		µmhos/c	1	12/12/2019 11:03:50 A	R65144
SM4500-H+B / 9040C: PH								
Analyst: JRR								
pH	7.03			H	pH units	1	12/12/2019 11:03:50 A	R65144

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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1912472

Date Reported: 12/18/2019

CLIENT: MARATHON

Client Sample ID: North Carbon Canister

Project: Carbon Canister

Collection Date: 12/9/2019 8:00:00 AM

Lab ID: 1912472-005

Matrix: AQUEOUS

Received Date: 12/10/2019 10:55:00 AM

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	12/12/2019 12:12:35 P	49286
Surr: DNOP	107	0	70-130		%Rec	1	12/12/2019 12:12:35 P	49286
EPA METHOD 300.0: ANIONS								
Analyst: CAS								
Fluoride	7.1	0.23	1.0	*	mg/L	10	12/12/2019 5:41:25 PM	R65153
Chloride	150	25	50		mg/L	100	12/12/2019 6:07:08 PM	R65153
Bromide	ND	0.50	1.0		mg/L	10	12/12/2019 5:41:25 PM	R65153
Phosphorus, Orthophosphate (As P)	ND	2.5	5.0	H	mg/L	10	12/12/2019 5:41:25 PM	R65153
Sulfate	450	2.5	5.0	*	mg/L	10	12/12/2019 5:41:25 PM	R65153
Nitrate+Nitrite as N	ND	0.24	2.0		mg/L	10	12/12/2019 6:20:00 PM	R65153
EPA METHOD 200.7: METALS								
Analyst: bcv								
Calcium	64	0.062	1.0		mg/L	1	12/12/2019 9:36:21 AM	49281
Magnesium	10	0.050	1.0		mg/L	1	12/12/2019 9:36:21 AM	49281
Potassium	22	0.16	1.0		mg/L	1	12/12/2019 9:36:21 AM	49281
Sodium	220	4.7	10		mg/L	10	12/12/2019 9:38:16 AM	49281
EPA METHOD 8260: VOLATILES SHORT LIST								
Analyst: JMR								
Benzene	ND	3.3	10		µg/L	20	12/13/2019 5:41:59 PM	SL6518
Toluene	ND	7.0	20		µg/L	20	12/13/2019 5:41:59 PM	SL6518
Ethylbenzene	ND	2.6	20		µg/L	20	12/13/2019 5:41:59 PM	SL6518
Methyl tert-butyl ether (MTBE)	ND	9.1	20		µg/L	20	12/13/2019 5:41:59 PM	SL6518
Xylenes, Total	ND	9.1	30		µg/L	20	12/13/2019 5:41:59 PM	SL6518
Surr: 1,2-Dichloroethane-d4	114	0	70-130		%Rec	20	12/13/2019 5:41:59 PM	SL6518
Surr: 4-Bromofluorobenzene	99.8	0	70-130		%Rec	20	12/13/2019 5:41:59 PM	SL6518
Surr: Dibromofluoromethane	115	0	70-130		%Rec	20	12/13/2019 5:41:59 PM	SL6518
Surr: Toluene-d8	107	0	70-130		%Rec	20	12/13/2019 5:41:59 PM	SL6518
SM2510B: SPECIFIC CONDUCTANCE								
Analyst: JRR								
Conductivity	2700	5.0	5.0		µmhos/c	1	12/12/2019 11:07:50 A	R65144
SM4500-H+B / 9040C: PH								
Analyst: JRR								
pH	6.69			H	pH units	1	12/12/2019 11:07:50 A	R65144

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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1912472

18-Dec-19

Client: MARATHON
Project: Carbon Canister

Sample ID: **MB-49281** SampType: **MBLK** TestCode: **EPA Method 200.7: Metals**
 Client ID: **PBW** Batch ID: **49281** RunNo: **65139**
 Prep Date: **12/11/2019** Analysis Date: **12/12/2019** SeqNo: **2235227** 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: **LLCS-49281** SampType: **LCSLL** TestCode: **EPA Method 200.7: Metals**
 Client ID: **BatchQC** Batch ID: **49281** RunNo: **65139**
 Prep Date: **12/11/2019** Analysis Date: **12/12/2019** SeqNo: **2235232** 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	102	50	150			J
Magnesium	0.52	1.0	0.5000	0	104	50	150			J
Potassium	0.48	1.0	0.5000	0	97.0	50	150			J
Sodium	0.44	1.0	0.5000	0	87.1	50	150			J

Sample ID: **LCS-49281** SampType: **LCS** TestCode: **EPA Method 200.7: Metals**
 Client ID: **LCSW** Batch ID: **49281** RunNo: **65139**
 Prep Date: **12/11/2019** Analysis Date: **12/12/2019** SeqNo: **2235234** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	49	1.0	50.00	0	98.4	85	115			
Magnesium	50	1.0	50.00	0	99.2	85	115			
Potassium	49	1.0	50.00	0	98.7	85	115			
Sodium	49	1.0	50.00	0	97.9	85	115			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative 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#: 1912472

18-Dec-19

Client: MARATHON
Project: Carbon Canister

Sample ID: MB	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch ID: R65153	RunNo: 65153								
Prep Date:	Analysis Date: 12/12/2019	SeqNo: 2235903 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-b	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSW	Batch ID: R65153	RunNo: 65153								
Prep Date:	Analysis Date: 12/12/2019	SeqNo: 2235906 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	102	90	110			
Chloride	4.8	0.50	5.000	0	96.5	90	110			
Bromide	2.4	0.10	2.500	0	96.5	90	110			
Phosphorus, Orthophosphate (As P)	4.7	0.50	5.000	0	94.5	90	110			
Sulfate	9.8	0.50	10.00	0	97.6	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	100	90	110			

Qualifiers:

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

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#: 1912472

18-Dec-19

Client: MARATHON
Project: Carbon Canister

Sample ID: 1912472-001BMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range								
Client ID: North Carbon Canis	Batch ID: 49286	RunNo: 65132								
Prep Date: 12/11/2019	Analysis Date: 12/12/2019	SeqNo: 2234926	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	6.0	1.0	5.000	0	119	68.1	137			
Surr: DNOP	0.54		0.5000		108	70	130			

Sample ID: 1912472-001BMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range								
Client ID: North Carbon Canis	Batch ID: 49286	RunNo: 65132								
Prep Date: 12/11/2019	Analysis Date: 12/12/2019	SeqNo: 2234927	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	6.0	1.0	5.000	0	120	68.1	137	0.301	20	
Surr: DNOP	0.53		0.5000		107	70	130	0	0	

Sample ID: LCS-49286	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range								
Client ID: LCSW	Batch ID: 49286	RunNo: 65132								
Prep Date: 12/11/2019	Analysis Date: 12/12/2019	SeqNo: 2234939	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	109	71.8	135			
Surr: DNOP	0.51		0.5000		102	70	130			

Sample ID: MB-49286	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range								
Client ID: PBW	Batch ID: 49286	RunNo: 65132								
Prep Date: 12/11/2019	Analysis Date: 12/12/2019	SeqNo: 2234940	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	1.0		1.000		104	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix
- 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#: 1912472

18-Dec-19

Client: MARATHON
Project: Carbon Canister

Sample ID: 100ng lcs	SampType: LCS	TestCode: EPA Method 8260: Volatiles Short List								
Client ID: LCSW	Batch ID: SL65186	RunNo: 65186								
Prep Date:	Analysis Date: 12/13/2019	SeqNo: 2237459			Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	96.3	70	130			
Toluene	19	1.0	20.00	0	96.2	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		112	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		99.9	70	130			
Surr: Dibromofluoromethane	11		10.00		113	70	130			
Surr: Toluene-d8	11		10.00		107	70	130			

Sample ID: rb1	SampType: MBLK	TestCode: EPA Method 8260: Volatiles Short List								
Client ID: PBW	Batch ID: SL65186	RunNo: 65186								
Prep Date:	Analysis Date: 12/13/2019	SeqNo: 2237484			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	11		10.00		113	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		97.6	70	130			
Surr: Dibromofluoromethane	11		10.00		109	70	130			
Surr: Toluene-d8	11		10.00		107	70	130			

Qualifiers:

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

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#: 1912472

18-Dec-19

Client: MARATHON
Project: Carbon Canister

Sample ID: Ics-1 99.9uS eC	SampType: Ics	TestCode: SM2510B: Specific Conductance								
Client ID: LCSW	Batch ID: R65144	RunNo: 65144								
Prep Date:	Analysis Date: 12/12/2019	SeqNo: 2235503			Units: µmhos/cm					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	99	5.0	99.90	0	99.3	85	115			

Sample ID: 1912472-001c dup	SampType: dup	TestCode: SM2510B: Specific Conductance								
Client ID: North Carbon Canis	Batch ID: R65144	RunNo: 65144								
Prep Date:	Analysis Date: 12/12/2019	SeqNo: 2235505			Units: µmhos/cm					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	4100	5.0						0.183	20	

Qualifiers:

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

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#: 1912472

18-Dec-19

Client: MARATHON
Project: Carbon Canister

Sample ID: 1912472-001c dup	SampType: dup	TestCode: SM4500-H+B / 9040C: pH								
Client ID: North Carbon Canis	Batch ID: R65144	RunNo: 65144								
Prep Date:	Analysis Date: 12/12/2019	SeqNo: 2235525 Units: pH units								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	8.03									H

Qualifiers:

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

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

Sample Log-In Check List

Client Name: **MARATHON GALLUP**

Work Order Number: **1912472**

RcptNo: 1

Received By: **Yazmine Garduno** 12/10/2019 10:55:00 AM *Yazmine Garduno*
 Completed By: **Yazmine Garduno** 12/10/2019 12:29:45 PM *Yazmine Garduno*
 Reviewed By: **ENM** 12/10/19

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 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? Yes No
 (Note discrepancies on chain of custody)
 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? Yes No
 (If no, notify customer for authorization.)

of preserved bottles checked for pH: 10
 (2 or >12 unless noted)
 Adjusted? NO
 Checked by: DAD 12/10/19

Special Handling (if applicable)

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

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.6	Good				

Chain-of-Custody Record

Client: **MARATHON**
 Mailing Address: **Gallup Refinery**
 92 GIANT CROSSING RD, GALLUP, NM 87301

Turn-Around Time:
 Standard Rush:
 Project Name: **CARBON CANISTER**
 Project #: **WWTP - BWON**
 Project Manager: **VMARCUM@MARATHONPETROLEUM.COM**

Phone #: **505-722-3833** 505-863-0930
 email or Fax#: **505-722-3833**

QA/QC Package: Standard Level 4 (Full Validation)
 Accreditation: NELAP Other
 EDD (Type)

Sampler: **WWTP OPS / CJOHNSON**
 On Ice: Yes No
 Sample Temperature: **1.0 (0) - 1.0**

Container Type and # Preservative Type HEAL No. 1912472

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
12/5/19	0800	Aqueous	North Carbon Canister	MISC	MISC	-001
12/6/19	0730	Aqueous	North Carbon Canister	MISC	MISC	-002
12/7/19	0730	Aqueous	North Carbon Canister	MISC	MISC	-003
12/8/19	0730	Aqueous	North Carbon Canister	MISC	MISC	-004
12/9/19	0800	Aqueous	North Carbon Canister	MISC	MISC	-005
		Aqueous	Carbon Canister	MISC	MISC	
		Aqueous	Carbon Canister	MISC	MISC	
		Aqueous	Carbon Canister	MISC	MISC	
		Aqueous	Carbon Canister	MISC	MISC	

8260+MTBE (SHORT LIST)	X	SFTC COND: Ph	X	8015B (DRO)	X	CATIONS	X	ANIONS	X

Received by: *MM Carver* Date Time: **12/10/19 1055**

Date: **12/9/19** Time: **10:40** Relinquished by: *Collective*
 Date: Time: Relinquished by: Remarks:

Air Bubbles (Y or N)

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.



**HALL ENVIRONMENTAL
ANALYSIS LABORATORY**

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

Analysis Request