AE Order Number Banner

Report Description

This report shows an AE Order Number in Barcode format for purposes of scanning. The Barcode format is Code 39.

App Number: pENV00003RP364

3RP - 364

WILLIAMS FOUR CORNERS, LLC

10/22/2018

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Remedial Quarterly Progress Report

Florance Gas Com J16A, 3RP-3564

Florance Gas Com J16A, 3RP-364
San Juan County, New Mexico

CS
8/28/18

Project 155624

July 25, 2018

Prepared for:

Williams

Williams Four Corners LLC

Prepared by:

APTIM Environmental & Infrastructure, Inc.

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Greenwood Village, CO 80111
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98

Smith, Cory, EMNRD

From: Smith, Cory, EMNRD
Sent: Tuesday, August 28, 2018 7:51 AM
To: 'Galer, Aaron'
Cc: Fields, Vanessa, EMNRD
Subject: RE: [EXTERNAL] RE: Williams Florance Gas Com J #16A - Project Update

Aaron,

I have reviewed the SVE report there is no additional conditions required at this time.

Please keep operating under all previous conditions of approval. I will get the report scanned into 3RP-364 as soon as possible.

Thanks,

Cory Smith
Environmental Specialist
Oil Conservation Division
Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410
(505)334-6178 ext 115
cory.smith@state.nm.us

From: Smith, Cory, EMNRD
Sent: Tuesday, August 7, 2018 7:07 AM
To: 'Galer, Aaron' <Aaron.Galer@Williams.com>
Cc: Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us>
Subject: RE: [EXTERNAL] RE: Williams Florance Gas Com J #16A - Project Update

Aaron,

Thank you for the update, I would like to witness the drilling of the borehole north of BH-29 I believe. When you get close and a better time let me know.

Thanks,

Cory Smith
Environmental Specialist
Oil Conservation Division
Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410
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cory.smith@state.nm.us

APTIM

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1.0 REMEDIAL PROGRESS

Under the January 26, 2018 conditions of approval from the New Mexico Oil Conservation Division (OCD), the final system design was completed, equipment procured, system installed, and remediation initiated. The OCD conditions of approval pertaining to the remediation system include:

- Williams will follow their proposed remediation plan time line with the installation of SVE equipment and must start SVE and DPE operations no later than April 27, 2018.
- Williams will maintain a SVE runtime greater than or equal to 90% per quarter.
- Williams will collect an initial gas sample for laboratory analysis shortly after the startup of SVE Operations and then a quarterly sample thereafter. The gas sample will be analyzed for EPA Method 8260 Full List and include carbon dioxide and oxygen. The gas sample port needs to be installed prior to the inlet of the vacuum pump but, after the convergence of all SVE wells.
- Williams will submit to OCD District III a quarterly update report detailing remediation operations the report will include at a minimum.
    - Summary of remediation activity for the quarter.
    - SVE run time
    - SVE mass removal and product recovery
    - DPE volume removal and product recovery
    - Amount of Liquids captured from the concrete trap/Secondary Seep tank.
    - Gas sample Analysis
- OCD may request additional active remediation on any monitor well with ground water contaminates above WQCC standards at a later date.

1.1 SYSTEM INSTALLATION

System installation activities were initiated on April 9 and completed on April 27, 2018. The final configuration of the system is presented on **Figure 1**.

The multi-phase extraction (MPE) system was designed and constructed with the following components:

- Total fluids are recovered under vacuum through 21 MPE wells at the site with each well plumbed to the common remedial system. The vacuum and flow for the individual wells and operating zone are managed at the controls building.
- The system operates on four zones, each operated in distinct time intervals. The number of wells in each zone was selected to maximize vapor recovery while maintaining sufficient vacuum to achieving fluids recovery.

- Extracted vapor/liquids from each well are directed to a common header system located in the Control Building. Once through the Controls Building, the combined fluids are separated at the vapor/liquids separator located in the MPE System building prior to the vacuum pump. Vapor samples are collected upstream of the vapor/liquids separator. Vapors continue through one of two vacuum pumps and are discharged to the atmosphere.

- Extracted liquids are directed from the vapor/liquids separator to a holding tank for off-site disposal.

1.2 SYSTEM STARTUP

On April 27, 2018, system operation was initiated. Initial operations included utilizing Zone 1 for extraction. From May 2 through 4, 2018, each zone was brought on-line separately and ran for approximately 10 hours to check the performance at individual wells, controls, and the vacuum system and construction. Zone 1 was placed in operation following the system performance check.

1.3 MPE REMEDIAL MONITORING

Routine monitoring and maintenance activities have been performed on a weekly basis since the system startup:

- As presented on **Table 1**, operational run-time has exceeded 98% since startup.
- At startup, a gas sample was collected during operations of Zone 1. A gas sample has been collected from each zone of operations following each zone change which occurs approximately every 1 to 2 weeks. **Table 2** presents the initial and subsequent gas sample data.
- **Table 3** presents the calculated mass removal through the vapor phase of the remedial activity. Approximately 600 pounds of hydrocarbon have been removed via vapor extraction from the subsurface.
- **Table 4** present the volume of fluids recovered and subsequently taken offsite for disposal. As of July 6, 2018, approximately 25,550 gallons of impacted groundwater had been recovered. This includes approximately 43.6 gallons of light non-aqueous phase liquid (LNAPL) hydrocarbons.
- **Table 5** presents the operational vacuums and flow from within the well field. These data demonstrate strong remedial influence at distance from the operational zone.

The distribution of benzene, toluene, ethylbenzene, and xylenes (BTEX) and observed LNAPL in the groundwater during the first quarter of operations are illustrated in **Figure 2**.

1.4 CONCRETE TRAP/SECONDARY SEEP MONITORING

Flow at the trap and secondary seep structures are monitored during the scheduled O&M site visits and during the June 2018 groundwater monitoring event. No discharge was observed at these structures during the quarter of monitoring from April through July 2018; therefore, no recovered water management was necessary and no samples were collected for laboratory analysis.

2.0 PLANNED ACTIVITIES FOR THE NEXT QUARTER

During the next quarter, the following activities are scheduled:

- Installation of the additional delineation wells
- Groundwater monitoring
- System monitoring
- Quarterly reporting

2.1 ADDITIONAL DELINEATION WELLS

It is expected that following the appropriate permitting and land approvals, the additional groundwater monitoring wells to complete delineation will be installed, developed, and sampled in the third quarter.

2.2 GROUNDWATER MONITORING

Routine inspections will continue on the MPE system operations through the next quarter. During this period, the fluid levels in individual wells will be gauged on a weekly basis as part of the normal scheduled O&M inspections. The gauging data will be used to evaluate the mobility and thickness of LNAPL and hydraulic control.

The next quarterly groundwater monitoring event is scheduled for September 2018. Groundwater monitoring consists of a combination of gauging the fluid levels in the individual wells and sample collection for laboratory analysis. Gauging the fluid levels in the individual well is conducted to determine the presence and thickness of LNAPL and the top of groundwater elevations. This data in combination with the groundwater analytical data will be used to evaluate the changes in the occurrence and quantity of LNAPL observed across the Site, to evaluate the potential groundwater flow direction, and to evaluate the impact of the MPE system on the groundwater flow and mass removal.

2.3 PERFORMANCE MONITORING

The performance monitoring of the MPE system is evaluated using four criteria. These include Up Time, VOC mass removal in vapor phase, LNAPL removal, and the reduction in benzene concentrations in the groundwater. Air emissions are monitored for compliance purposes. Based on field data, the treatment zone is changed between the four zones in an effort to maximize VOC vapor recovery.

Operational information is collected to evaluate the operations of the system and the effectiveness in recovering hydrocarbons. This data includes, but is not limited to, air flow and vacuum at each MPE well, VOC concentrations using a photoionization detector (PID), gauging liquid levels in individual wells for LNAPL thickness and top of water, and gauging the LNAPL thickness in the holding tank. An air sample is collected for analytical testing from the influent line to the MPE system, upstream of the vapor/liquid separator. This data is used to calculate vapor phase mass recovery, liquid phase LNAPL recovery, and volume of liquids recovered.

2.4 QUARTERLY PROGRESS REPORTING

A quarterly report will be submitted to the OCD summarizing the performance of the system for the previous quarter. At a minimum, the quarterly report will include the following information:

- Summary of the remedial activities
- System rum time
- Mass removal in vapor phase
- LNAPL removal
- Total volume of liquids recovered
- Vapor and liquid analytical data

The next quarterly report summarizing the performance of the system for the previous quarter will be submitted to the OCD within 30 days of the quarters end.

An annual performance report will be submitted to Santa Fe 3RP-364 in lieu of the forth quarterly report. The annual report will summarize the system performance over the previous 12 months of operations. The anticipated submittal date for this report is July of 2019.

Figures

Legend

- Monitor Well
- Remediation Well
- E Box Cathodic Protection Cables
- E Electrical Dropdown Anchor Point
- FE Farmington Electric Dropdown
- T Telephone Pole
- Fence
- Underground Line
- Gate
- MPE Piping for Monitor Wells
- MPE Piping for Remediation Wells
- Responsibility Demarcation Line
- Control Building (8'x10')
- MPE System (8'x20')
- Frac Tank (8.5'x46')

0 20 40 80
Feet

N

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FIGURE NUMBER 1

FLORANCE GC J 16A REMEDIAL LAYOUT

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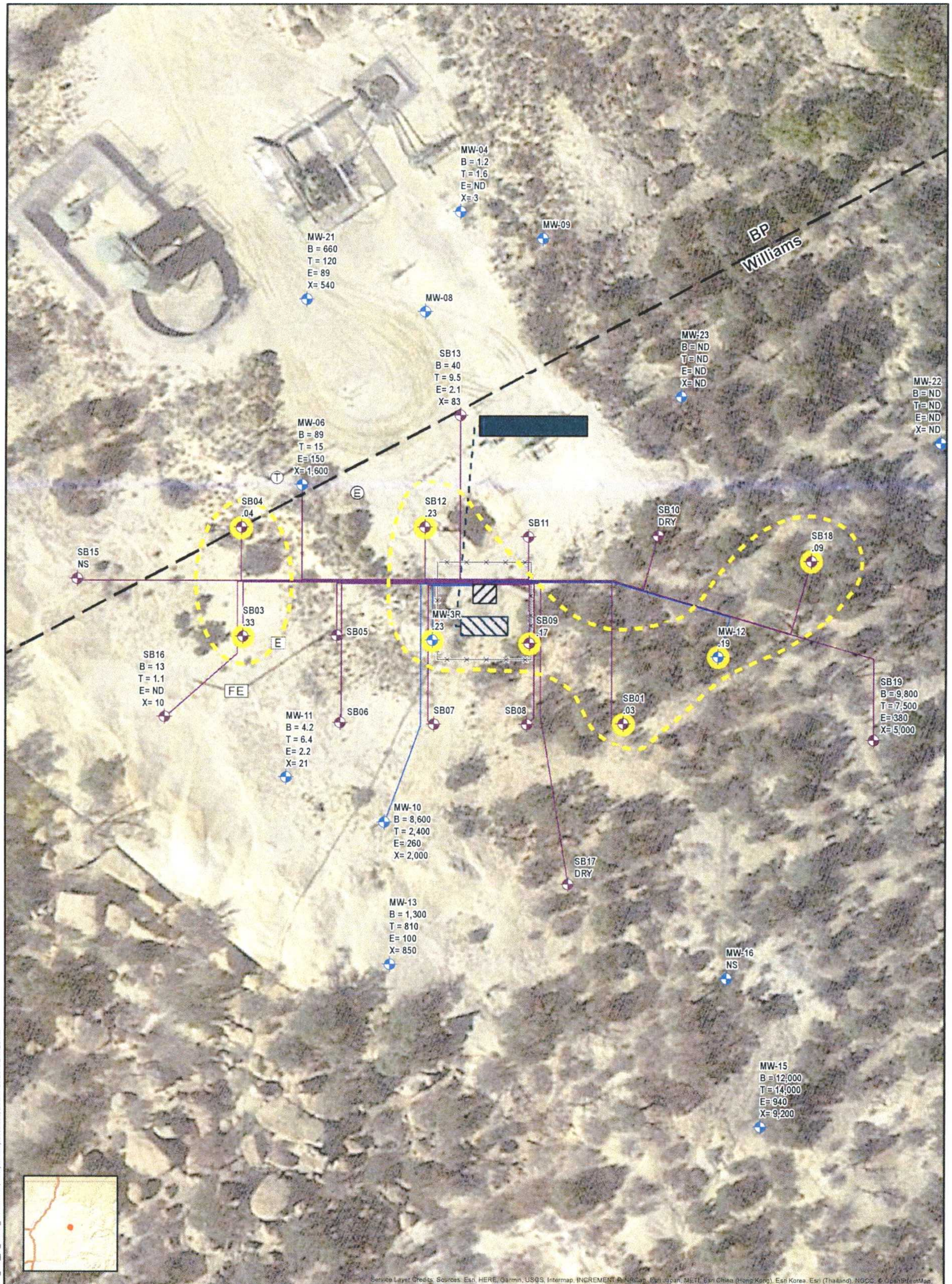
G:\Williams\Florance\GIS_Documents\Project_Maps\wflorance_154624_031_mpe_system_design.mxd Analyst: colby.decoteau Date: 2/27/2019 9:56:50 AM



Legend

- Monitor Well
- Remediation Well
- Ⓔ E Box Cathodic Protection Cables
- E Electrical Dropdown Anchor Point
- FE Farmington Electric Dropdown
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- Fence
- Underground Line
- Gate
- MPE Piping for Monitor Wells
- MPE Piping for Remediation Wells
- Responsibility Demarcation Line
- Control Building (8'x10')
- MPE System (8'x20')
- Frac Tank (8.5'x46')
- LNAPL Thickness, feet
- Approximate Limit of LNAPL

B – Benzene, ug/L
T – Toluene, ug/L
E – Ethylbenzene, ug/L
X – Xylenes, ug/L

0 20 40 80
Feet

N

WILLIAMS FOUR CORNERS LLC

FIGURE NUMBER 2

FLORANCE GC J 16A
GROUNDWATER
MONITORING RESULTS
JUNE 2018

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G:\Williams\Florance\GIS_Documents\Project_Maps\wflorance_155624_002_gw_results_June18.mxd; Analyst: colby.decoteau; Date: 7/26/2018 2:11:23 PM

Tables

Table 1
Florance Gas Compressor J16A
3RP-3564
System Operational Run-Time

Date/time	Hour meter reading	Planned / Accepted Down Time (hours)	Cumu. Run Time %	Quarterly Run Time %	Notes
5/1/18 0:00	0				
5/4/18 9:00	42		START UP		
5/17/18 12:45	356		99.4%	99.4%	
5/18/18 13:25	381		99.6%	99.6%	
5/18/18 19:00	386		99.4%	99.4%	
5/22/18 10:00	473		99.5%	99.5%	
5/25/18 9:00	544		99.6%	99.6%	
5/25/18 12:00	547		99.6%	99.6%	Blower oil changed
6/1/18 14:30	717		99.6%	99.6%	
6/8/18 12:40	882		99.6%	99.6%	
6/15/18 10:15	1,047		99.6%	99.6%	
6/20/18 11:52	1,159		98.8%	98.8%	Shut down for sampling
6/22/18 16:06	1,159	52.2	98.8%	98.8%	Online after sampling
6/29/18 11:10	1,312		98.2%	98.2%	
7/6/18 11:25	1,481		98.4%	98.4%	

Table 2
Florance Gas Compressor J16A
3RP-3564
Effluent Air VOC Data

Collection Date:	5/2/2018	5/25/2018	6/6/2018	6/8/2018	6/15/2018	6/22/2018	6/29/2018	7/6/2018
Collection Time:	13:00	14:30	13:30	16:48	15:45		14:35	15:00
Zone	1	2	3	4	1		2	3
Benzene	110	86	27	150	36	No sample collected; site GW was sampled last week and system was offline for half the week. No zone change due to no time to collect readings.	47	11
Toluene	110	220	67	670	160		83	41
Ethylbenzene	1.5	22	5.2	54	14		14	3.9
1,2,4-trimethylbenzene	<1	16	3	47	6.9		---	<2.5
1,3,5-trimethylbenzene	<1	14	2.8	36	6.4		---	<2.5
Chloromethane	<1	<1	<2.5	3.7	<5		---	<2.5
Isoproplybenzene	<1	3.8	<2.5	9.1	<5		---	<2.5
n-Proplybenzene	<1	3.2	<2.5	8	<5		---	<2.5
Xylenes	9.8	250	64	660	140		120	36
Total VOCs (mg/m^3):	231.3	615	169	1637.8	363.3		264	91.9
PID Reading (ppmv)	---	---	---	1803	820		1500	916

Note: 1 mg/m^3 = 1 ug/L

Table 3
Florance Gas Compressor J16A
3RP-3564
Mass Removal Vapor Phase

Date/time	Total Quantity of Hydrocarbon Removed					598.9 lb		112.4 Gal 2.7 bbl			
	Influent BTEX (mg/m3)	Zone Online (Start)	Air Flow Rate (scfm) pre-dilution	Time Period (hr:min:sec)	Time Period (minutes)	Mass Removed (lbs)		Gal Removed (@0.63892g /cm3)	Mass Removal Rate (lb/day)	Mass Removal Rate (ton/yr)	
5/1/18 0:00	-	4	0								
5/2/18 0:00	231	1	100	24:00:00	1440	2.1		0.4	2.1	0.4	
5/25/18 14:30	615	2	259.5	566:30:00	33990	110.2		20.7	4.7	0.8	
6/6/18 13:30	169	3*	189.2	287:00:00	17220	171.3		32.1	14.3	2.6	
6/8/18 16:40	1,638	4	169.5	51:10:00	3070	6.1		1.1	2.9	0.5	
6/15/18 15:45	363	1**	203.5	167:05:00	10025	173.4		32.5	24.9	4.5	
6/29/18 14:35	264	2	259.5	334:50:00	20090	92.6		17.4	6.6	1.2	
7/6/18 15:00	92	3	260.0	168:25:00	10105	43.1		8.1	6.1	1.1	

*Zone started and data collected 06/01/18; sample collected and transported but holiday schedule prevented it from arrived at lab within hold time.
**Groundwater sampling conducted; zone change, sampling, and data collection delayed a week

Table 4
Florance Gas Compressor J16A
3RP-3564
Fluid Recovery

Date/time	Hour meter reading	Total Quantity of Groundwater Removed											25,060 Gal 597 bbl
		Tank Height		Gallons in tank	Gallons Recovered this Period	LNAPL Thickness (ft)	LNAPL Volume (gallons)	Gallons Removed From Tank (Off-Site T&D)	Time Period (hr:min:sec)	Time Period (minutes)	Recovery Rate (gpm)		
		(ft)	(in)								(gpm)	(gal/day)	
5/1/18 0:00	0	-	-	0	---	---	---	---	---	---	---	---	
5/4/18 9:00	42	1	5	1190	1190	---	---	0	42:00:00	2520	0.47	680	
5/17/18 12:45	356	4	11	4130	2940	---	---	0	315:45:00	18945	0.16	223	
5/18/18 13:25	381	5	2	4340	210	---	---	0	24:40:00	1480	0.14	204	
5/18/18 19:00	389	5	6	4620	280	---	---	0	5:35:00	335	0.84	1204	
5/25/18 9:00	544	14	7	12250	7630	---	---	0	158:00:00	9480	0.80	1159	
5/25/18 17:00	551	7	3	6090	---	---	---	6720	8:00:00	480	---	---	2 loads removed
6/1/18 10:00	713	8	6	7140	1050	---	---	0	161:00:00	9660	0.11	157	
6/1/18 14:30	717	1	2	980		---	---	6720	4:30:00	270			2 loads removed
6/8/18 12:40	882	3	11	3290	2310	---	---	0	166:10:00	9970	0.23	334	
6/11/18 12:00		---	---	---	---	---	---	3360	---	---	---	---	1 load removed
6/15/18 10:15	1,047	-	7	490	---	---	---	2100	165:35:00	9935	---	---	1 load removed
6/22/18 15:00	1,159	5	4	4480	3990	---	---	0	172:45:00	10365	0.38	554	
6/29/18 11:10	1,312	10	9	9030	4550	0.03	25.38	0	164:10:00	9850	0.46	665	
7/6/18 11:25	1,481	11	10	9940	910	0.02	16.92	0	168:15:00	10095	0.09	130	

*Concentrations averaged between samples

Table 5
Florance Gas Compressor J16A
3RP-3564
MPE System Operations

			Initial	Startup	Startup	Startup	Startup																	
Well ID		Unit	5/1/2018	5/2/2018	5/3/2018	5/3/2018	5/4/2018	5/17/2018	5/17/2018	5/18/2018	5/25/2018	5/25/2018	6/1/2018	6/1/2018	6/8/2018	6/8/2018	6/15/2018	6/15/2018	6/22/2018	6/29/2018	6/29/2018	7/6/2018	7/6/2018
Active Zone			N/A	1	2	3	4	4	4	1	1	2	2	3	3	4	4	1	1	1	2	2	3
Flow Temperature		°F		65				65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65
MW-06	WH Vac (Online)	inHg								18.5	12							21.5	14.0	14			
Zone 1	WH Vac (Offline)	inH2O				0.0		0.0	0.0			0.0	0.5	1.4	1.8	0.1	0.0				0.3	0.0	0.0
	Mani Vac	inHg		18						17.5	18							No Data	18.0	18			
	PID	ppm	43					5	13	2	402	351.9	43	28.4	53.4	34.0		96.0		90			
	Flow	scfm		30						12	10							0	0	30			
SB-04	WH Vac (Online)	inHg								16.0	14							16.0	14.5	14			
Zone 1	WH Vac (Offline)	inH2O				3.6		72	74			0.4	0.3	4.0	2.5	2.4	3.0				0.3	0.0	5.2
	Mani Vac	inHg		18						18.0	18							18.0	18.0	18			
	PID	ppm	173					9	20	1	672	606	131	94	68.4	42.0		1038		978			
	Flow	scfm		35						46	15							58	70	64			
SB-11	WH Vac (Online)	inHg						16.0	19.5	16.5	15							18.5	16.5	15			
Zone 1	WH Vac (Offline)	inH2O		6.6	9.4							9.6	10.0	6.1	1.7	15.0	9.8				10.2	13.2	6.7
	Mani Vac	inHg						16.0	16.0	17.0	16.5							17.0	17.0	17			
	PID	ppm	2.0					1755	1635	0	1349	561	208	194	212.0	121.0		984		964			
	Flow	scfm						62	60	65	66							68	70	72			
SB-12	WH Vac (Online)	inHg								17.5	15							17.5	16.0	15.5			
Zone 1	WH Vac (Offline)	inH2O			3.0	3.5	8.2	9.7	9.4			2.0	3.4	2.3	1.10	5.8	8.3				3.0	2.8	3.0
	Mani Vac	inHg		18						17.5	17.5							17.5	17.5	18			
	PID	ppm	399					1120	46	1	1210	725.8	66	105	126.0	53.0		998		1008			
	Flow	scfm		65						70	80							70	72	58			
SB-13	WH Vac (Online)	inHg								16.5	16.5							17.5	17.0	17			
Zone 1	WH Vac (Offline)	inH2O			2.2		11.7	3.9	3.3			2.8	3.6	2.3	0.00	3.0	4.2				3.7	5.4	3.8
	Mani Vac	inHg		18						17.0	17							17.5	16.0	17.5			
	PID	ppm	439					9	24	11	661	495.7	58	61	59.0	26.0		576		537			
	Flow	scfm		40						35	50							40	44	40			
MW-12	WH Vac (Online)	inHg										12.5	10.0								14.5	10.0	
Zone 2	WH Vac (Offline)	inH2O					16.1	13.1	12.3	4.4	2.9			8.9	1.3	7.6	13.1	8.3		8.1			7.0
	Mani Vac	inHg			16							15.5	16.5								16.5	16.75	
	PID	ppm	4.4					47	93	3	53.6	683.7	424	425	261.0	155.0					936	764	
	Flow	scfm			60							62	66								74	64	
SB-01	WH Vac (Online)	inHg										16.25	15.0								17	17	
Zone 2	WH Vac (Offline)	inH2O					29.8	25.1	24.1	6.1	5.4			7.8	2.5	25.4	27.9	9.6		9.7			7.5
	Mani Vac	inHg			16							15.75	16.5								16.5	17	
	PID	ppm	48.3					1282	1295	3	64.4	909	1340	150	145.0	132.0					1299	1246	
	Flow	scfm			50							58	72								68	78	
SB-10	WH Vac (Online)	inHg										16.5	12.0								16	13	
Zone 2	WH Vac (Offline)	inH2O						24.6	24.0	17.3	9.6			7.0	0.9	7.9	12.9	11.2		11.2			8.0
	Mani Vac	inHg			16							15.75	16.5								16.5	17	
	PID	ppm	1.2					365	181	21	79	599.5	657	239	62.8	46.2					703	384	
	Flow	scfm			40							42	50								54	56	
SB-18	WH Vac (Online)	inHg										18.5	12.0								18	18	
Zone 2	WH Vac (Offline)	inH2O						75.3	68.9	3.0	0.3			0.5	0.2	5.2	0.0	0.0		0.0			0.3
	Mani Vac	inHg			16							16.50	17.5								17.5	17.5	
	PID	ppm	21.2					27	29	2	436	898	130	50	227	108.0					147	110	
	Flow	scfm			45							52	22								20	10	

Table 5
Florance Gas Compressor J16A
3RP-3564
MPE System Operations

Well ID		Unit	Initial 5/1/2018	Startup 5/2/2018	Startup 5/3/2018	Startup 5/3/2018	Startup 5/4/2018	5/17/2018	5/17/2018	5/18/2018	5/25/2018	5/25/2018	6/1/2018	6/1/2018	6/8/2018	6/8/2018	6/15/2018	6/15/2018	6/22/2018	6/29/2018	6/29/2018	7/6/2018	7/6/2018
Active Zone			N/A	1	2	3	4	4	4	1	1	2	2	3	3	4	4	1	1	1	2	2	3
Flow Temperature		°F		65				65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65
SB-19	WH Vac (Online)	inHg										16.0	15.5								16.5	15.0	
Zone 2	WH Vac (Offline)	inH2O					0.9	11.9	0.0	0.0	0.0			4.5	6.1	15.5	0.0	0.0		0.0			0.0
	Mani Vac	inHg			16							15.50	16.5								16.5	16.75	
	PID	ppm	618.4					1210	1227	8	623	683	815	516	777	259.0					787	626	
	Flow	scfm			68							74	76								78	78	
MW-10	WH Vac (Online)	inHg												17.0	13.0								26
Zone 3	WH Vac (Offline)	inH2O					0.0	0.0	0.0	0.0	0.7	0.0	1.1			10.8	0.2	0.0		0.0	1.0	0	
	Mani Vac	inHg				16.5								18.0	17.0								17.5
	PID	ppm	9.9					104	107	87	139	190	86	11.6	263	253.0							30.4
	Flow	scfm				10								14	stuck								10
SB-03	WH Vac (Online)	inHg												19.5	19.0								19
Zone 3	WH Vac (Offline)	inH2O		2.7			2.8	1.6	2.0	2.7	4.9	0.5	0.7			3.8	4.5	5.0		5.2	0.5	0.9	
	Mani Vac	inHg				16.5								17.0	16.75								17
	PID	ppm	2.7					249	85	1	164	225	52	468	1260	973							1317
	Flow	scfm				35.0								40	40.0								52
SB-06	WH Vac (Online)	inHg												19.0	17.5								17.5
Zone 3	WH Vac (Offline)	inH2O					14.2	9.4	9.4	2.7	2.8	3.5	4.9			16.9	17.1	No Data		6.3	5.0	4.8	
	Mani Vac	inHg				16.5								17.0	17.5								17
	PID	ppm	2.9					103	48	88	72.6	47.8	30	175	911	614							157
	Flow	scfm				65.0								70	60.0								78
SB-15	WH Vac (Online)	inHg												14.5	15.5								14.5
Zone 3	WH Vac (Offline)	inH2O					0.4	0.0	0.0	0.3	1.0	0.0	0.0			1.0	0.4	1.1		1.1	0.0	0.0	
	Mani Vac	inHg				16.5								16.5	16.75								17
	PID	ppm	28					36	52	31	445.0	351.6	79	11.8	99.4	44.8							73.3
	Flow	scfm				50.0								52	68.0								70
SB-16	WH Vac (Online)	inHg												19.0	18.5								19
Zone 3	WH Vac (Offline)	inH2O					0.1	0.0	0.0	0.0	0.7	0.0	0.1			1.6	1.2	1.1		1.1	0.0	0.2	
	Mani Vac	inHg				16.5								17.5	18.0								17.5
	PID	ppm	5.1					12	102	53	205.6	182	67	9.6	199.0	28.6							254
	Flow	scfm				70.0								76	75.0								78
MW-3R	WH Vac (Online)	inHg						15.3	15.5							13.0	15.0						
Zone 4	WH Vac (Offline)	inH2O		2.9		8.0				8.7	8.9	10.8	13.7	7.0	4.2			11.3		11.5	13.7	13.4	7.4
	Mani Vac	inHg					16.0	16.8	16.8							15.0	16.0						
	PID	ppm	512.6					1995	1938	6	103	100.5	33	13.5	55.3	1711	2141						
	Flow	scfm					55.0	52	52							100	85						
SB-05	WH Vac (Online)	inHg														14.5	0.0						
Zone 4	WH Vac (Offline)	inH2O		2.0			11.8	8.6	8.8	4.8	5.6	2.5	3.5	5.9	4.3			6.4		6.6	3.0	3.6	6.7
	Mani Vac	inHg				16.5										15.0	15.5						
	PID	ppm	23					102	171	143	165	371	48	26.3	75.0	1371	2194						
	Flow	scfm				50.0										52	0						
SB-07	WH Vac (Online)	inHg						13	15							15.5	13.0						
Zone 4	WH Vac (Offline)	inH2O			7.0	5.8				0.6	8.2	6.3	8.9	7.4	5.5			53.3		No Data	9.0	10.6	9.2
	Mani Vac	inHg					16.0	15.5	15.5							15.0	15.5						
	PID	ppm	4.6					192	118	0	105.8	98.6	33	16.8	5.6	1232	1522						
	Flow	scfm					60.0	60	60							74	72						

Table 5
Florance Gas Compressor J16A
3RP-3564
MPE System Operations

			Initial	Startup	Startup	Startup	Startup																
Well ID		Unit	5/1/2018	5/2/2018	5/3/2018	5/3/2018	5/4/2018	5/17/2018	5/17/2018	5/18/2018	5/25/2018	5/25/2018	6/1/2018	6/1/2018	6/8/2018	6/8/2018	6/15/2018	6/15/2018	6/22/2018	6/29/2018	6/29/2018	7/6/2018	7/6/2018
Active Zone			N/A	1	2	3	4	4	4	1	1	2	2	3	3	4	4	1	1	1	2	2	3
Flow Temperature		°F		65				65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65
SB-08	WH Vac (Online)	inHg						15.5	19.5							16.5	16.0						
Zone 4	WH Vac (Offline)	inH2O			18.0	7.1				4.6	6.2	15.2	18.6	7.1	3.9			9.0		9.3	18.4	17.8	4.5
	Mani Vac	inHg					16.0	17.5	17.3							15.5	16.5						
	PID	ppm	2.4					1060	1145	21	82.3	80.4	22	120	132.0	702	722						
	Flow	scfm					60.0	74								76	66						
SB-09	WH Vac (Online)	inHg						14.5	17.0							15.0	15.0						
Zone 4	WH Vac (Offline)	inH2O			18.0	6.8				10.4	12.0	12.7	18.2	7.6	3.3			15.0		15.0	18.8	17.7	8.9
	Mani Vac	inHg					16.0	17.3	16.8							15.75	16.5						
	PID	ppm	1.7					2449	2252	302	110.0	104.8	42	87	157.0	1585	2017						
	Flow	scfm					60.0	80	64							64	82						
SB-17	WH Vac (Online)	inHg														17.00	14.0						
Zone 4	WH Vac (Offline)	inH2O			3.5	0.8	6.6	4.9	5.2	1.1	0.9	3.1	4.4	2.1	0.80			0.8		0.7	4.3	3.7	2.1
	Mani Vac	inHg														15.50	16.0						
	PID	ppm	1.8					4	8	1	73.2	66.6	31	49	36.70	142.00	272						
	Flow	scfm														38	40						
Well Field																							
	Flow	scfm		170	263	280	235	328	236	228	221	288	286	252	243	404	345	236	256	264	294	286	288
MS Inlet	Inlet Vac	In HG																					
(fka Total)	Pitot Vac	inH2O																					
***	Pitot Diff	inH2O																					
	Flow	scfm							212.4	198.2	204.3	259.5	172.3	195.4	195.2	207.3	166.2	162.2	208.0	259.5	260.0	260.0	259.0
Dilution	Inlet Vac	In HG																					
Flow	Pitot Vac	inH2O																					
***	Pitot Diff	inH2O																					
	Flow	scfm		0																			
% Error Extracted Flow ***		%							10%	13%	8%	10%	40%	22%	20%	49%	52%	31%	19%	2%	12%	9%	10%
Dilution Flow		scfm		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Flow		scfm		170.0	263.0	280.0	235.0	328.0	236.0	228.0	221.0	288.0	286.0	252.0	243.0	404.0	345.0	236.0	256.0	264.0	294.0	286.0	288.0
% Dilution		%		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
% Extracted Air		%		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

*** The flow sensor at the MS Inlet and for the dilution flow do not account for the density of the air or the water entrained, and are anticipated to read low

Appendix A

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

June 07, 2018

Aaron Galer
Williams Four Corners
188 CR 4900
Bloomfield, NM 87413
TEL: (505) 632-4442
FAX

RE: Florance GCJ 16A OrderNo.: 1805E67

Dear Aaron Galer:

Hall Environmental Analysis Laboratory received 1 sample(s) on 5/26/2018 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.

CLIENT: Williams Four Corners
Project: Florance GCJ 16A
Lab ID: 1805E67-001 **Matrix:** AIR

Client Sample ID: Zone 02 Stack B-702
Collection Date: 5/25/2018 2:30:00 PM
Received Date: 5/26/2018 7:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	86	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
Toluene	220	5.0		µg/L	50	5/31/2018 1:06:41 PM	A51652
Ethylbenzene	22	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
1,2,4-Trimethylbenzene	16	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
1,3,5-Trimethylbenzene	14	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
Naphthalene	ND	2.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
1-Methylnaphthalene	ND	4.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
2-Methylnaphthalene	ND	4.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
Acetone	ND	10		µg/L	10	5/31/2018 12:08:00 PM	A51652
Bromobenzene	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
Bromodichloromethane	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
Bromoform	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
Bromomethane	ND	2.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
2-Butanone	ND	10		µg/L	10	5/31/2018 12:08:00 PM	A51652
Carbon disulfide	ND	10		µg/L	10	5/31/2018 12:08:00 PM	A51652
Carbon tetrachloride	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
Chlorobenzene	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
Chloroethane	ND	2.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
Chloroform	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
Chloromethane	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
2-Chlorotoluene	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
4-Chlorotoluene	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
cis-1,2-DCE	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
cis-1,3-Dichloropropene	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
Dibromochloromethane	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
Dibromomethane	ND	2.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
1,2-Dichlorobenzene	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
1,3-Dichlorobenzene	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
1,4-Dichlorobenzene	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
Dichlorodifluoromethane	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
1,1-Dichloroethane	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
1,1-Dichloroethene	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
1,2-Dichloropropane	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
1,3-Dichloropropane	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
2,2-Dichloropropane	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Florance GCJ 16A
Lab ID: 1805E67-001 **Matrix:** AIR

Client Sample ID: Zone 02 Stack B-702
Collection Date: 5/25/2018 2:30:00 PM
Received Date: 5/26/2018 7:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,1-Dichloropropene	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
Hexachlorobutadiene	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
2-Hexanone	ND	10		µg/L	10	5/31/2018 12:08:00 PM	A51652
Isopropylbenzene	3.8	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
4-Isopropyltoluene	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
4-Methyl-2-pentanone	ND	10		µg/L	10	5/31/2018 12:08:00 PM	A51652
Methylene chloride	ND	3.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
n-Butylbenzene	ND	3.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
n-Propylbenzene	3.2	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
sec-Butylbenzene	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
Styrene	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
tert-Butylbenzene	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
Tetrachloroethene (PCE)	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
trans-1,2-DCE	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
trans-1,3-Dichloropropene	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
1,2,3-Trichlorobenzene	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
1,2,4-Trichlorobenzene	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
1,1,1-Trichloroethane	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
1,1,2-Trichloroethane	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
Trichloroethene (TCE)	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
Trichlorofluoromethane	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
1,2,3-Trichloropropane	ND	2.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
Vinyl chloride	ND	1.0		µg/L	10	5/31/2018 12:08:00 PM	A51652
Xylenes, Total	250	1.5		µg/L	10	5/31/2018 12:08:00 PM	A51652
Surr: Dibromofluoromethane	98.2	70-130		%Rec	10	5/31/2018 12:08:00 PM	A51652
Surr: 1,2-Dichloroethane-d4	206	70-130	S	%Rec	10	5/31/2018 12:08:00 PM	A51652
Surr: Toluene-d8	109	70-130		%Rec	10	5/31/2018 12:08:00 PM	A51652
Surr: 4-Bromofluorobenzene	119	70-130		%Rec	10	5/31/2018 12:08:00 PM	A51652

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client:	Hall Environmental		
Project:	Not Indicated	**Report Date:**	06/07/18
Client Sample ID:	1805E67-001A; Zone 02 Stack B-702	**Collection Date:**	05/25/18 14:30
Location:		**Date Received:**	06/04/18
Lab ID:	G18060032-001	**Sampled By:**	Not Provided

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
NATURAL GAS CHROMATOGRAPHIC ANALYSIS REPORT					
Oxygen	20.666	Mol %		GPA 2261	06/07/18 11:08 / djb
Nitrogen	77.430	Mol %		GPA 2261	06/07/18 11:08 / djb
Carbon Dioxide	1.706	Mol %		GPA 2261	06/07/18 11:08 / djb
Hydrogen Sulfide	< 0.001	Mol %		GPA 2261	06/07/18 11:08 / djb
Methane	< 0.001	Mol %		GPA 2261	06/07/18 11:08 / djb
Ethane	< 0.001	Mol %		GPA 2261	06/07/18 11:08 / djb
Propane	< 0.001	Mol %		GPA 2261	06/07/18 11:08 / djb
Isobutane	0.015	Mol %		GPA 2261	06/07/18 11:08 / djb
n-Butane	0.001	Mol %		GPA 2261	06/07/18 11:08 / djb
Isopentane	0.007	Mol %		GPA 2261	06/07/18 11:08 / djb
n-Pentane	0.008	Mol %		GPA 2261	06/07/18 11:08 / djb
Hexanes plus	0.167	Mol %		GPA 2261	06/07/18 11:08 / djb
GPM @ STD COND/1000 CU.FT., MOISTURE FREE GAS					
GPM Ethane	< 0.0003	gal/MCF		GPA 2261	06/07/18 11:08 / djb
GPM Propane	< 0.0003	gal/MCF		GPA 2261	06/07/18 11:08 / djb
GPM Isobutane	0.0050	gal/MCF		GPA 2261	06/07/18 11:08 / djb
GPM n-Butane	< 0.0003	gal/MCF		GPA 2261	06/07/18 11:08 / djb
GPM Isopentane	0.0030	gal/MCF		GPA 2261	06/07/18 11:08 / djb
GPM n-Pentane	0.0030	gal/MCF		GPA 2261	06/07/18 11:08 / djb
GPM Hexanes plus	0.0720	gal/MCF		GPA 2261	06/07/18 11:08 / djb
GPM Pentanes plus	0.0780	gal/MCF		GPA 2261	06/07/18 11:08 / djb
GPM Total	0.0830	gal/MCF		GPA 2261	06/07/18 11:08 / djb
CALCULATED PROPERTIES					
Calculation Pressure Base	14.730	psia		GPA 2261	06/07/18 11:08 / djb
Calculation Temperature Base	60	°F		GPA 2261	06/07/18 11:08 / djb
Compressibility Factor, Z	1.0000	unitless		GPA 2261	06/07/18 11:08 / djb
Molecular Weight	29.23	unitless		GPA 2261	06/07/18 11:08 / djb
Pseudo-critical Pressure, psia	553	psia		GPA 2261	06/07/18 11:08 / djb
Pseudo-critical Temperature, deg R	245	deg R		GPA 2261	06/07/18 11:08 / djb
Specific Gravity (air=1.000)	1.012	unitless		GPA 2261	06/07/18 11:08 / djb
Gross BTU per cu ft @ std cond, dry	9.73	BTU/cu ft		GPA 2261	06/07/18 11:08 / djb
Gross BTU per cu ft @ std cond, wet	9.56	BTU/cu ft		GPA 2261	06/07/18 11:08 / djb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 06/07/18
Work Order: G18060032

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261								Analytical Run: R243655	
Lab ID: ICV-1806071006	Initial Calibration Verification Standard							06/07/18 10:06	
Oxygen	0.395	Mol %	0.001	82	75	110			
Nitrogen	5.043	Mol %	0.001	100	90	110			
Carbon Dioxide	4.916	Mol %	0.001	99	90	110			
Hydrogen Sulfide	0.128	Mol %	0.001	127	100	136			
Methane	73.023	Mol %	0.001	100	90	110			
Ethane	5.022	Mol %	0.001	101	90	110			
Propane	5.138	Mol %	0.001	101	90	110			
Isobutane	2.029	Mol %	0.001	100	90	110			
n-Butane	2.007	Mol %	0.001	99	90	110			
Isopentane	1.001	Mol %	0.001	100	90	110			
n-Pentane	0.992	Mol %	0.001	99	90	110			
Hexanes plus	0.306	Mol %	0.001	101	90	110			
Lab ID: CCV-1806071032	Continuing Calibration Verification Standard							06/07/18 10:33	
Oxygen	0.581	Mol %	0.001	97	90	110			
Nitrogen	1.293	Mol %	0.001	92	85	110			
Carbon Dioxide	0.974	Mol %	0.001	97	90	110			
Hydrogen Sulfide	0.027	Mol %	0.001	108	70	130			
Methane	93.544	Mol %	0.001	100	90	110			
Ethane	1.026	Mol %	0.001	102	90	110			
Propane	1.009	Mol %	0.001	101	90	110			
Isobutane	0.503	Mol %	0.001	100	90	110			
n-Butane	0.490	Mol %	0.001	98	90	110			
Isopentane	0.201	Mol %	0.001	100	90	110			
n-Pentane	0.198	Mol %	0.001	99	90	110			
Hexanes plus	0.154	Mol %	0.001	102	90	110			
Lab ID: CCV-1806071123	Continuing Calibration Verification Standard							06/07/18 11:24	
Oxygen	0.588	Mol %	0.001	98	90	110			
Nitrogen	1.312	Mol %	0.001	93	85	110			
Carbon Dioxide	0.972	Mol %	0.001	97	90	110			
Hydrogen Sulfide	0.028	Mol %	0.001	112	70	130			
Methane	93.525	Mol %	0.001	100	90	110			
Ethane	1.023	Mol %	0.001	102	90	110			
Propane	1.006	Mol %	0.001	101	90	110			
Isobutane	0.503	Mol %	0.001	100	90	110			
n-Butane	0.491	Mol %	0.001	98	90	110			
Isopentane	0.201	Mol %	0.001	100	90	110			
n-Pentane	0.197	Mol %	0.001	98	90	110			
Hexanes plus	0.154	Mol %	0.001	102	90	110			
Method: GPA 2261								Batch: R243655	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

ENERGY LABORATORIES
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Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 06/07/18
Work Order: G18060032

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261								Batch: R243655	
Lab ID: G18060032-001ADUP	Sample Duplicate				Run: Varian GC_180607A			06/07/18 11:12	
Oxygen	20.666	Mol %	0.001				0.0	10	
Nitrogen	77.425	Mol %	0.001				0.0	10	
Carbon Dioxide	1.708	Mol %	0.001				0.1	10	
Hydrogen Sulfide	< 0.001	Mol %	0.001					10	
Methane	< 0.001	Mol %	0.001					10	
Ethane	< 0.001	Mol %	0.001					10	
Propane	< 0.001	Mol %	0.001					10	
Isobutane	0.016	Mol %	0.001				6.5	10	
n-Butane	0.001	Mol %	0.001				0.0	10	
Isopentane	0.007	Mol %	0.001				0.0	10	
n-Pentane	0.009	Mol %	0.001				12	10	R
Hexanes plus	0.168	Mol %	0.001				0.6	10	

Qualifiers:

RL - Analyte reporting limit.
R - RPD exceeds advisory limit.
ND - Not detected at the reporting limit.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1805E67**

07-Jun-18

Client: Williams Four Corners

Project: Florance GCJ 16A

Sample ID **1805e67-001a dup** SampType: **DUP** TestCode: **EPA Method 8260B: Volatiles**

Client ID: **Zone 02 Stack B-70** Batch ID: **A51652** RunNo: **51652**

Prep Date: Analysis Date: **5/31/2018** SeqNo: **1684373** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	83	1.0						3.23	20	
Toluene	220	1.0						3.14	20	E
Ethylbenzene	24	1.0						7.23	20	
Methyl tert-butyl ether (MTBE)	ND	1.0						0	20	
1,2,4-Trimethylbenzene	17	1.0						7.96	20	
1,3,5-Trimethylbenzene	15	1.0						7.03	20	
1,2-Dichloroethane (EDC)	ND	1.0						0	20	
1,2-Dibromoethane (EDB)	ND	1.0						0	20	
Naphthalene	ND	2.0						0	20	
1-Methylnaphthalene	ND	4.0						0	20	
2-Methylnaphthalene	ND	4.0						0	20	
Acetone	ND	10						0	20	
Bromobenzene	ND	1.0						0	20	
Bromodichloromethane	ND	1.0						0	20	
Bromoform	ND	1.0						0	20	
Bromomethane	ND	2.0						0	20	
2-Butanone	ND	10						0	20	
Carbon disulfide	ND	10						0	20	
Carbon tetrachloride	ND	1.0						0	20	
Chlorobenzene	ND	1.0						0	20	
Chloroethane	ND	2.0						0	20	
Chloroform	ND	1.0						0	20	
Chloromethane	ND	1.0						0	20	
2-Chlorotoluene	ND	1.0						0	20	
4-Chlorotoluene	ND	1.0						0	20	
cis-1,2-DCE	ND	1.0						0	20	
cis-1,3-Dichloropropene	ND	1.0						0	20	
1,2-Dibromo-3-chloropropane	ND	2.0						0	20	
Dibromochloromethane	ND	1.0						0	20	
Dibromomethane	ND	2.0						0	20	
1,2-Dichlorobenzene	ND	1.0						0	20	
1,3-Dichlorobenzene	ND	1.0						0	20	
1,4-Dichlorobenzene	ND	1.0						0	20	
Dichlorodifluoromethane	ND	1.0						0	20	
1,1-Dichloroethane	ND	1.0						0	20	
1,1-Dichloroethene	ND	1.0						0	20	
1,2-Dichloropropane	ND	1.0						0	20	
1,3-Dichloropropane	ND	1.0						0	20	
2,2-Dichloropropane	ND	1.0						0	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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1805E67**

07-Jun-18

Client: Williams Four Corners

Project: Florance GCJ 16A

Sample ID **1805e67-001a dup** SampType: **DUP** TestCode: **EPA Method 8260B: Volatiles**

Client ID: **Zone 02 Stack B-70** Batch ID: **A51652** RunNo: **51652**

Prep Date: Analysis Date: **5/31/2018** SeqNo: **1684373** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	1.0						0	20	
Hexachlorobutadiene	ND	1.0						0	20	
2-Hexanone	ND	10						0	20	
Isopropylbenzene	4.1	1.0						6.10	20	
4-Isopropyltoluene	ND	1.0						0	20	
4-Methyl-2-pentanone	ND	10						0	20	
Methylene chloride	ND	3.0						0	20	
n-Butylbenzene	ND	3.0						0	20	
n-Propylbenzene	3.4	1.0						6.91	20	
sec-Butylbenzene	1.0	1.0						200	20	R
Styrene	ND	1.0						0	20	
tert-Butylbenzene	ND	1.0						0	20	
1,1,1,2-Tetrachloroethane	ND	1.0						0	20	
1,1,2,2-Tetrachloroethane	ND	1.0						0	20	
Tetrachloroethene (PCE)	ND	1.0						0	20	
trans-1,2-DCE	ND	1.0						0	20	
trans-1,3-Dichloropropene	ND	1.0						0	20	
1,2,3-Trichlorobenzene	ND	1.0						0	20	
1,2,4-Trichlorobenzene	ND	1.0						0	20	
1,1,1-Trichloroethane	ND	1.0						0	20	
1,1,2-Trichloroethane	ND	1.0						0	20	
Trichloroethene (TCE)	ND	1.0						0	20	
Trichlorofluoromethane	ND	1.0						0	20	
1,2,3-Trichloropropane	ND	2.0						0	20	
Vinyl chloride	ND	1.0						0	20	
Xylenes, Total	260	1.5						5.65	20	
Surr: Dibromofluoromethane	9.6		10.00		96.0	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	21		10.00		215	70	130	0	0	S
Surr: Toluene-d8	11		10.00		108	70	130	0	0	
Surr: 4-Bromofluorobenzene	11		10.00		111	70	130	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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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: WILLIAMS FOUR CORN Work Order Number: 1805E67 RcptNo: 1

Received By: John Caldwell 5/26/2018 7:50:00 AM

Completed By: Anne Thorne 5/29/2018 9:09:53 AM

Reviewed By: JC 5-29-18

Labelled by: AT 05/29/18

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
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: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

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:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.1	Good	Yes			

Chain-of-Custody Record

Client: Williams Four Corners

Mailing Address: 17755 Arroyo Dr. Bloomfield, NM 87413

Phone #:

email or Fax#: aaron.galer@willbams.com

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other

☒ EDD (Type) PDF

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: Florance GCJ 16A

Project #:

Project Manager: Williams - Aaron Galer

Sampler: Danny Burns

On Ice: ☒ Yes ☐ No

Sample Temperature: 5.2 - 0.1 = 5.1

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 1805667	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA) VOCs Full list	8270 (Semi-VOA)	Carbon Dioxide	Oxygen			Air Bubbles (Y or N)
5-25	14:30	Air	Zone 02 Stack B-702	Tedlar	None	001										X		X	X			

Date: 5-25 Time: 15:25 Relinquished by: Received by: Date Time 5/25/18 1525

Date: 5/25/18 Time: 1810 Relinquished by: Received by: Date Time 5-26-18 07:50

Remarks: cc: dburns@ltenv.com
jason.ramsay@aptim.com

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

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

June 26, 2018

Danny Burns
Williams Four Corners
188 CR 4900
Bloomfield, NM 87413
TEL: (505) 632-4442
FAX

RE: Florance GCJ 16A OrderNo.: 1806A37

Dear Danny Burns:

Hall Environmental Analysis Laboratory received 1 sample(s) on 6/16/2018 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.

CLIENT: Williams Four Corners
Project: Florance GCJ 16A
Lab ID: 1806A37-001 **Matrix:** AIR

Client Sample ID: Zone 01 Influent
Collection Date: 6/15/2018 3:45:00 PM
Received Date: 6/16/2018 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	36	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
Toluene	160	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
Ethylbenzene	14	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
Methyl tert-butyl ether (MTBE)	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
1,2,4-Trimethylbenzene	6.9	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
1,3,5-Trimethylbenzene	6.4	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
1,2-Dichloroethane (EDC)	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
1,2-Dibromoethane (EDB)	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
Naphthalene	ND	10		µg/L	50	6/20/2018 10:31:33 AM	C52119
1-Methylnaphthalene	ND	20		µg/L	50	6/20/2018 10:31:33 AM	C52119
2-Methylnaphthalene	ND	20		µg/L	50	6/20/2018 10:31:33 AM	C52119
Acetone	ND	50		µg/L	50	6/20/2018 10:31:33 AM	C52119
Bromobenzene	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
Bromodichloromethane	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
Bromoform	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
Bromomethane	ND	10		µg/L	50	6/20/2018 10:31:33 AM	C52119
2-Butanone	ND	50		µg/L	50	6/20/2018 10:31:33 AM	C52119
Carbon disulfide	ND	50		µg/L	50	6/20/2018 10:31:33 AM	C52119
Carbon tetrachloride	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
Chlorobenzene	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
Chloroethane	ND	10		µg/L	50	6/20/2018 10:31:33 AM	C52119
Chloroform	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
Chloromethane	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
2-Chlorotoluene	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
4-Chlorotoluene	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
cis-1,2-DCE	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
cis-1,3-Dichloropropene	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
1,2-Dibromo-3-chloropropane	ND	10		µg/L	50	6/20/2018 10:31:33 AM	C52119
Dibromochloromethane	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
Dibromomethane	ND	10		µg/L	50	6/20/2018 10:31:33 AM	C52119
1,2-Dichlorobenzene	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
1,3-Dichlorobenzene	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
1,4-Dichlorobenzene	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
Dichlorodifluoromethane	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
1,1-Dichloroethane	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
1,1-Dichloroethene	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
1,2-Dichloropropane	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
1,3-Dichloropropane	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
2,2-Dichloropropane	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Florance GCJ 16A
Lab ID: 1806A37-001 **Matrix:** AIR

Client Sample ID: Zone 01 Influent
Collection Date: 6/15/2018 3:45:00 PM
Received Date: 6/16/2018 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,1-Dichloropropene	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
Hexachlorobutadiene	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
2-Hexanone	ND	50		µg/L	50	6/20/2018 10:31:33 AM	C52119
Isopropylbenzene	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
4-Isopropyltoluene	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
4-Methyl-2-pentanone	ND	50		µg/L	50	6/20/2018 10:31:33 AM	C52119
Methylene chloride	ND	15		µg/L	50	6/20/2018 10:31:33 AM	C52119
n-Butylbenzene	ND	15		µg/L	50	6/20/2018 10:31:33 AM	C52119
n-Propylbenzene	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
sec-Butylbenzene	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
Styrene	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
tert-Butylbenzene	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
1,1,1,2-Tetrachloroethane	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
1,1,2,2-Tetrachloroethane	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
Tetrachloroethene (PCE)	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
trans-1,2-DCE	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
trans-1,3-Dichloropropene	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
1,2,3-Trichlorobenzene	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
1,2,4-Trichlorobenzene	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
1,1,1-Trichloroethane	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
1,1,2-Trichloroethane	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
Trichloroethene (TCE)	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
Trichlorofluoromethane	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
1,2,3-Trichloropropane	ND	10		µg/L	50	6/20/2018 10:31:33 AM	C52119
Vinyl chloride	ND	5.0		µg/L	50	6/20/2018 10:31:33 AM	C52119
Xylenes, Total	140	7.5		µg/L	50	6/20/2018 10:31:33 AM	C52119
Surr: Dibromofluoromethane	83.1	70-130		%Rec	50	6/20/2018 10:31:33 AM	C52119
Surr: 1,2-Dichloroethane-d4	89.8	70-130		%Rec	50	6/20/2018 10:31:33 AM	C52119
Surr: Toluene-d8	106	70-130		%Rec	50	6/20/2018 10:31:33 AM	C52119
Surr: 4-Bromofluorobenzene	109	70-130		%Rec	50	6/20/2018 10:31:33 AM	C52119

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated
Client Sample ID: 1806A37-001B; Zone 01 Influent
Location:
Lab ID: G18060371-001

Report Date: 06/25/18
Collection Date: 06/15/18 15:45
Date Received: 06/19/18
Sampled By: Not Provided

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
NATURAL GAS CHROMATOGRAPHIC ANALYSIS REPORT					
Oxygen	18.242	Mol %		GPA 2261	06/25/18 14:15 / djb
Nitrogen	79.299	Mol %		GPA 2261	06/25/18 14:15 / djb
Carbon Dioxide	2.354	Mol %		GPA 2261	06/25/18 14:15 / djb
Hydrogen Sulfide	< 0.001	Mol %		GPA 2261	06/25/18 14:15 / djb
Methane	< 0.001	Mol %		GPA 2261	06/25/18 14:15 / djb
Ethane	< 0.001	Mol %		GPA 2261	06/25/18 14:15 / djb
Propane	< 0.001	Mol %		GPA 2261	06/25/18 14:15 / djb
Isobutane	< 0.001	Mol %		GPA 2261	06/25/18 14:15 / djb
n-Butane	< 0.001	Mol %		GPA 2261	06/25/18 14:15 / djb
Isopentane	0.003	Mol %		GPA 2261	06/25/18 14:15 / djb
n-Pentane	0.004	Mol %		GPA 2261	06/25/18 14:15 / djb
Hexanes plus	0.098	Mol %		GPA 2261	06/25/18 14:15 / djb
GPM @ STD COND/1000 CU.FT., MOISTURE FREE GAS					
GPM Ethane	< 0.0003	gal/MCF		GPA 2261	06/25/18 14:15 / djb
GPM Propane	< 0.0003	gal/MCF		GPA 2261	06/25/18 14:15 / djb
GPM Isobutane	< 0.0003	gal/MCF		GPA 2261	06/25/18 14:15 / djb
GPM n-Butane	< 0.0003	gal/MCF		GPA 2261	06/25/18 14:15 / djb
GPM Isopentane	0.0010	gal/MCF		GPA 2261	06/25/18 14:15 / djb
GPM n-Pentane	0.0010	gal/MCF		GPA 2261	06/25/18 14:15 / djb
GPM Hexanes plus	0.0420	gal/MCF		GPA 2261	06/25/18 14:15 / djb
GPM Pentanes plus	0.0450	gal/MCF		GPA 2261	06/25/18 14:15 / djb
GPM Total	0.0450	gal/MCF		GPA 2261	06/25/18 14:15 / djb
CALCULATED PROPERTIES					
Calculation Pressure Base	14.730	psia		GPA 2261	06/25/18 14:15 / djb
Calculation Temperature Base	60	°F		GPA 2261	06/25/18 14:15 / djb
Compressibility Factor, Z	1.0000	unitless		GPA 2261	06/25/18 14:15 / djb
Molecular Weight	29.18	unitless		GPA 2261	06/25/18 14:15 / djb
Pseudo-critical Pressure, psia	551	psia		GPA 2261	06/25/18 14:15 / djb
Pseudo-critical Temperature, deg R	245	deg R		GPA 2261	06/25/18 14:15 / djb
Specific Gravity (air=1.000)	1.011	unitless		GPA 2261	06/25/18 14:15 / djb
Gross BTU per cu ft @ std cond, dry	5.28	BTU/cu ft		GPA 2261	06/25/18 14:15 / djb
Gross BTU per cu ft @ std cond, wet	5.19	BTU/cu ft		GPA 2261	06/25/18 14:15 / djb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 06/25/18
Work Order: G18060371

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261									Analytical Run: R244052
Lab ID: ICV-1806250708	Initial Calibration Verification Standard								06/25/18 07:08
Oxygen	0.396	Mol %	0.001	83	75	110			
Nitrogen	5.048	Mol %	0.001	100	90	110			
Carbon Dioxide	4.905	Mol %	0.001	99	90	110			
Hydrogen Sulfide	0.126	Mol %	0.001	125	100	136			
Methane	73.080	Mol %	0.001	100	90	110			
Ethane	5.014	Mol %	0.001	101	90	110			
Propane	5.132	Mol %	0.001	101	90	110			
Isobutane	2.018	Mol %	0.001	100	90	110			
n-Butane	1.996	Mol %	0.001	99	90	110			
Isopentane	0.995	Mol %	0.001	100	90	110			
n-Pentane	0.985	Mol %	0.001	99	90	110			
Hexanes plus	0.305	Mol %	0.001	101	90	110			
Lab ID: CCV-1806251136	Continuing Calibration Verification Standard								06/25/18 11:37
Oxygen	0.596	Mol %	0.001	99	90	110			
Nitrogen	1.340	Mol %	0.001	95	85	110			
Carbon Dioxide	0.968	Mol %	0.001	97	90	110			
Hydrogen Sulfide	0.026	Mol %	0.001	104	70	130			
Methane	93.497	Mol %	0.001	100	90	110			
Ethane	1.022	Mol %	0.001	102	90	110			
Propane	1.005	Mol %	0.001	100	90	110			
Isobutane	0.502	Mol %	0.001	100	90	110			
n-Butane	0.491	Mol %	0.001	98	90	110			
Isopentane	0.201	Mol %	0.001	100	90	110			
n-Pentane	0.197	Mol %	0.001	98	90	110			
Hexanes plus	0.155	Mol %	0.001	102	90	110			
Lab ID: CCV-1806251540	Continuing Calibration Verification Standard								06/25/18 15:41
Oxygen	0.572	Mol %	0.001	95	90	110			
Nitrogen	1.262	Mol %	0.001	90	85	110			
Carbon Dioxide	0.969	Mol %	0.001	97	90	110			
Hydrogen Sulfide	0.026	Mol %	0.001	104	70	130			
Methane	93.584	Mol %	0.001	100	90	110			
Ethane	1.035	Mol %	0.001	103	90	110			
Propane	1.009	Mol %	0.001	101	90	110			
Isobutane	0.502	Mol %	0.001	100	90	110			
n-Butane	0.490	Mol %	0.001	98	90	110			
Isopentane	0.200	Mol %	0.001	100	90	110			
n-Pentane	0.197	Mol %	0.001	98	90	110			
Hexanes plus	0.154	Mol %	0.001	102	90	110			
Method: GPA 2261									Batch: R244052

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 06/25/18
Work Order: G18060371

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261								Batch: R244052	
Lab ID: G18060371-001ADUP	Sample Duplicate				Run: Varian GC_180625A			06/25/18 14:22	
Oxygen	18.225	Mol %	0.001				0.1	10	
Nitrogen	79.302	Mol %	0.001				0.0	10	
Carbon Dioxide	2.366	Mol %	0.001				0.5	10	
Hydrogen Sulfide	< 0.001	Mol %	0.001					10	
Methane	< 0.001	Mol %	0.001					10	
Ethane	< 0.001	Mol %	0.001					10	
Propane	< 0.001	Mol %	0.001					10	
Isobutane	< 0.001	Mol %	0.001					10	
n-Butane	< 0.001	Mol %	0.001					10	
Isopentane	0.003	Mol %	0.001				0.0	10	
n-Pentane	0.004	Mol %	0.001				0.0	10	
Hexanes plus	0.100	Mol %	0.001				2.0	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806A37**

26-Jun-18

Client: Williams Four Corners

Project: Florance GCJ 16A

Sample ID **1806a37-001a dup** SampType: **DUP** TestCode: **EPA Method 8260B: Volatiles**

Client ID: **Zone 01 Influent** Batch ID: **C52119** RunNo: **52119**

Prep Date: Analysis Date: **6/20/2018** SeqNo: **1706081** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	38	5.0						7.69	20	
Toluene	170	5.0						4.51	20	
Ethylbenzene	15	5.0						3.96	20	
Methyl tert-butyl ether (MTBE)	ND	5.0						0	20	
1,2,4-Trimethylbenzene	7.7	5.0						10.3	20	
1,3,5-Trimethylbenzene	7.1	5.0						10.0	20	
1,2-Dichloroethane (EDC)	ND	5.0						0	20	
1,2-Dibromoethane (EDB)	ND	5.0						0	20	
Naphthalene	ND	10						0	20	
1-Methylnaphthalene	ND	20						0	20	
2-Methylnaphthalene	ND	20						0	20	
Acetone	ND	50						0	20	
Bromobenzene	ND	5.0						0	20	
Bromodichloromethane	ND	5.0						0	20	
Bromoform	ND	5.0						0	20	
Bromomethane	ND	10						0	20	
2-Butanone	ND	50						0	20	
Carbon disulfide	ND	50						0	20	
Carbon tetrachloride	ND	5.0						0	20	
Chlorobenzene	ND	5.0						0	20	
Chloroethane	ND	10						0	20	
Chloroform	ND	5.0						0	20	
Chloromethane	ND	5.0						0	20	
2-Chlorotoluene	ND	5.0						0	20	
4-Chlorotoluene	ND	5.0						0	20	
cis-1,2-DCE	ND	5.0						0	20	
cis-1,3-Dichloropropene	ND	5.0						0	20	
1,2-Dibromo-3-chloropropane	ND	10						0	20	
Dibromochloromethane	ND	5.0						0	20	
Dibromomethane	ND	10						0	20	
1,2-Dichlorobenzene	ND	5.0						0	20	
1,3-Dichlorobenzene	ND	5.0						0	20	
1,4-Dichlorobenzene	ND	5.0						0	20	
Dichlorodifluoromethane	ND	5.0						0	20	
1,1-Dichloroethane	ND	5.0						0	20	
1,1-Dichloroethene	ND	5.0						0	20	
1,2-Dichloropropane	ND	5.0						0	20	
1,3-Dichloropropane	ND	5.0						0	20	
2,2-Dichloropropane	ND	5.0						0	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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806A37**

26-Jun-18

Client: Williams Four Corners
Project: Florance GCJ 16A

Sample ID **1806a37-001a dup** SampType: **DUP** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **Zone 01 Influent** Batch ID: **C52119** RunNo: **52119**
Prep Date: Analysis Date: **6/20/2018** SeqNo: **1706081** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	5.0						0	20	
Hexachlorobutadiene	ND	5.0						0	20	
2-Hexanone	ND	50						0	20	
Isopropylbenzene	ND	5.0						0	20	
4-Isopropyltoluene	ND	5.0						0	20	
4-Methyl-2-pentanone	ND	50						0	20	
Methylene chloride	ND	15						0	20	
n-Butylbenzene	ND	15						0	20	
n-Propylbenzene	ND	5.0						0	20	
sec-Butylbenzene	ND	5.0						0	20	
Styrene	ND	5.0						0	20	
tert-Butylbenzene	ND	5.0						0	20	
1,1,1,2-Tetrachloroethane	ND	5.0						0	20	
1,1,2,2-Tetrachloroethane	ND	5.0						0	20	
Tetrachloroethene (PCE)	ND	5.0						0	20	
trans-1,2-DCE	ND	5.0						0	20	
trans-1,3-Dichloropropene	ND	5.0						0	20	
1,2,3-Trichlorobenzene	ND	5.0						0	20	
1,2,4-Trichlorobenzene	ND	5.0						0	20	
1,1,1-Trichloroethane	ND	5.0						0	20	
1,1,2-Trichloroethane	ND	5.0						0	20	
Trichloroethene (TCE)	ND	5.0						0	20	
Trichlorofluoromethane	ND	5.0						0	20	
1,2,3-Trichloropropane	ND	10						0	20	
Vinyl chloride	ND	5.0						0	20	
Xylenes, Total	150	7.5						5.50	20	
Surr: Dibromofluoromethane	42		50.00		83.4	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	45		50.00		90.4	70	130	0	0	
Surr: Toluene-d8	52		50.00		105	70	130	0	0	
Surr: 4-Bromofluorobenzene	55		50.00		110	70	130	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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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: WILLIAMS FOUR CORN Work Order Number: 1806A37 RcptNo: 1

Received By: Isaiah Ortiz 6/16/2018 9:45:00 AM IO

Completed By: Ashley Gallegos 6/17/2018 12:30:16 PM AG

Reviewed By: JO 6/18/18 labeled by: ENM 6/18/18

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☐	No ☐	NA ☑
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
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 ☐	Checked by:

ENM 6/18/18

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:

17. **Cooler Information**

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

Chain-of-Custody Record

Client: Williams Four Corners

Mailing Address:

Phone #:

email or Fax#: aaron.galer@williams.com

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: Florance GCJ 16A

Project #:

Project Manager: D Burns – LTE

Sampler: Danny Burns
On Ice: ~~☐~~ Yes ☐ No
Sample Temperature: NA

HEAL No. 1806A37

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
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.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA) Full list	8270 (Semi-VOA)	Carbon Dioxide	Oxygen			Air Bubbles (Y or N)
6-15	1545	Air	Zone 01 Influent	2-Tedlar	None	-001										X		X	X			

Analysis Request

Date: 6-15-18 Time: 17:05 Relinquished by:

Received by: Date: 6/15/18 Time: 1705

Date: 6/15/18 Time: 1840 Relinquished by:

Received by: Courier Date: 6/16/18 Time: 945

Remarks: dburns@ltenv.com only
CC: jason.ramsay@aptim.com

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

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

May 17, 2018

Aaron Galer
Williams Four Corners
188 CR 4900
Bloomfield, NM 87413
TEL: (505) 632-4442
FAX

RE: Florance NM OrderNo.: 1805322

Dear Aaron Galer:

Hall Environmental Analysis Laboratory received 1 sample(s) on 5/4/2018 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 #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Florance NM
Lab ID: 1805322-001 **Matrix:** AIR

Client Sample ID: Influent
Collection Date: 5/2/2018 1:00:00 PM
Received Date: 5/4/2018 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	110	2.0		µg/L	20	5/7/2018 2:59:00 PM	R51091
Toluene	110	2.0		µg/L	20	5/7/2018 2:59:00 PM	R51091
Ethylbenzene	1.5	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
1,2,4-Trimethylbenzene	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
1,3,5-Trimethylbenzene	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
Naphthalene	ND	2.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
1-Methylnaphthalene	ND	4.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
2-Methylnaphthalene	ND	4.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
Acetone	ND	10		µg/L	10	5/7/2018 2:11:00 PM	R51091
Bromobenzene	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
Bromodichloromethane	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
Bromoform	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
Bromomethane	ND	2.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
2-Butanone	ND	10		µg/L	10	5/7/2018 2:11:00 PM	R51091
Carbon disulfide	ND	10		µg/L	10	5/7/2018 2:11:00 PM	R51091
Carbon tetrachloride	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
Chlorobenzene	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
Chloroethane	ND	2.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
Chloroform	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
Chloromethane	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
2-Chlorotoluene	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
4-Chlorotoluene	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
cis-1,2-DCE	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
cis-1,3-Dichloropropene	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
Dibromochloromethane	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
Dibromomethane	ND	2.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
1,2-Dichlorobenzene	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
1,3-Dichlorobenzene	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
1,4-Dichlorobenzene	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
Dichlorodifluoromethane	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
1,1-Dichloroethane	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
1,1-Dichloroethene	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
1,2-Dichloropropane	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
1,3-Dichloropropane	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
2,2-Dichloropropane	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Florance NM
Lab ID: 1805322-001 **Matrix:** AIR

Client Sample ID: Influent
Collection Date: 5/2/2018 1:00:00 PM
Received Date: 5/4/2018 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
1,1-Dichloropropene	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
Hexachlorobutadiene	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
2-Hexanone	ND	10		µg/L	10	5/7/2018 2:11:00 PM	R51091
Isopropylbenzene	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
4-Isopropyltoluene	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
4-Methyl-2-pentanone	ND	10		µg/L	10	5/7/2018 2:11:00 PM	R51091
Methylene chloride	ND	3.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
n-Butylbenzene	ND	3.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
n-Propylbenzene	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
sec-Butylbenzene	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
Styrene	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
tert-Butylbenzene	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
Tetrachloroethene (PCE)	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
trans-1,2-DCE	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
trans-1,3-Dichloropropene	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
1,2,3-Trichlorobenzene	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
1,2,4-Trichlorobenzene	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
1,1,1-Trichloroethane	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
1,1,2-Trichloroethane	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
Trichloroethene (TCE)	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
Trichlorofluoromethane	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
1,2,3-Trichloropropane	ND	2.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
Vinyl chloride	ND	1.0		µg/L	10	5/7/2018 2:11:00 PM	R51091
Xylenes, Total	9.8	1.5		µg/L	10	5/7/2018 2:11:00 PM	R51091
Surr: Dibromofluoromethane	112	70-130		%Rec	10	5/7/2018 2:11:00 PM	R51091
Surr: 1,2-Dichloroethane-d4	98.4	70-130		%Rec	10	5/7/2018 2:11:00 PM	R51091
Surr: Toluene-d8	117	70-130		%Rec	10	5/7/2018 2:11:00 PM	R51091
Surr: 4-Bromofluorobenzene	112	70-130		%Rec	10	5/7/2018 2:11:00 PM	R51091

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client:	Hall Environmental		
Project:	Not Indicated	**Report Date:**	05/17/18
Client Sample ID:	1805322-001A; Influent	**Collection Date:**	05/02/18 13:00
Location:		**Date Received:**	05/08/18
Lab ID:	G18050178-001	**Sampled By:**	Not Provided

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
NATURAL GAS CHROMATOGRAPHIC ANALYSIS REPORT					
Oxygen	13.012	Mol %		GPA 2261	05/16/18 13:36 / blb
Nitrogen	81.964	Mol %		GPA 2261	05/16/18 13:36 / blb
Carbon Dioxide	4.027	Mol %		GPA 2261	05/16/18 13:36 / blb
Hydrogen Sulfide	< 0.001	Mol %		GPA 2261	05/16/18 13:36 / blb
Methane	0.432	Mol %		GPA 2261	05/16/18 13:36 / blb
Ethane	< 0.001	Mol %		GPA 2261	05/16/18 13:36 / blb
Propane	< 0.001	Mol %		GPA 2261	05/16/18 13:36 / blb
Isobutane	0.004	Mol %		GPA 2261	05/16/18 13:36 / blb
n-Butane	0.018	Mol %		GPA 2261	05/16/18 13:36 / blb
Isopentane	0.071	Mol %		GPA 2261	05/16/18 13:36 / blb
n-Pentane	0.066	Mol %		GPA 2261	05/16/18 13:36 / blb
Hexanes plus	0.406	Mol %		GPA 2261	05/16/18 13:36 / blb
GPM @ STD COND/1000 CU.FT., MOISTURE FREE GAS					
GPM Ethane	< 0.0003	gal/MCF		GPA 2261	05/16/18 13:36 / blb
GPM Propane	< 0.0003	gal/MCF		GPA 2261	05/16/18 13:36 / blb
GPM Isobutane	0.0010	gal/MCF		GPA 2261	05/16/18 13:36 / blb
GPM n-Butane	0.0060	gal/MCF		GPA 2261	05/16/18 13:36 / blb
GPM Isopentane	0.0260	gal/MCF		GPA 2261	05/16/18 13:36 / blb
GPM n-Pentane	0.0240	gal/MCF		GPA 2261	05/16/18 13:36 / blb
GPM Hexanes plus	0.1770	gal/MCF		GPA 2261	05/16/18 13:36 / blb
GPM Pentanes plus	0.2270	gal/MCF		GPA 2261	05/16/18 13:36 / blb
GPM Total	0.2340	gal/MCF		GPA 2261	05/16/18 13:36 / blb
CALCULATED PROPERTIES					
Calculation Pressure Base	14.730	psia		GPA 2261	05/16/18 13:36 / blb
Calculation Temperature Base	60	°F		GPA 2261	05/16/18 13:36 / blb
Compressibility Factor, Z	0.99900	unitless		GPA 2261	05/16/18 13:36 / blb
Molecular Weight	29.45	unitless		GPA 2261	05/16/18 13:36 / blb
Pseudo-critical Pressure, psia	549	psia		GPA 2261	05/16/18 13:36 / blb
Pseudo-critical Temperature, deg R	252	deg R		GPA 2261	05/16/18 13:36 / blb
Specific Gravity (air=1.000)	1.020	unitless		GPA 2261	05/16/18 13:36 / blb
Gross BTU per cu ft @ std cond, dry	31.49	BTU/cu ft		GPA 2261	05/16/18 13:36 / blb
Gross BTU per cu ft @ std cond, wet	30.94	BTU/cu ft		GPA 2261	05/16/18 13:36 / blb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 05/17/18
Work Order: G18050178

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261									Analytical Run: R243221
Lab ID: ICV-1805161313	Initial Calibration Verification Standard								05/16/18 13:14
Oxygen	0.399	Mol %	0.001	83	75	110			
Nitrogen	5.059	Mol %	0.001	100	90	110			
Carbon Dioxide	4.909	Mol %	0.001	99	90	110			
Hydrogen Sulfide	0.127	Mol %	0.001	126	100	136			
Methane	73.061	Mol %	0.001	100	90	110			
Ethane	5.007	Mol %	0.001	101	90	110			
Propane	5.124	Mol %	0.001	100	90	110			
Isobutane	2.022	Mol %	0.001	100	90	110			
n-Butane	1.999	Mol %	0.001	99	90	110			
Isopentane	0.998	Mol %	0.001	100	90	110			
n-Pentane	0.988	Mol %	0.001	99	90	110			
Hexanes plus	0.307	Mol %	0.001	101	90	110			
Lab ID: CCV-1805161319	Continuing Calibration Verification Standard								05/16/18 13:20
Oxygen	0.592	Mol %	0.001	98	90	110			
Nitrogen	1.326	Mol %	0.001	94	85	110			
Carbon Dioxide	0.971	Mol %	0.001	97	90	110			
Hydrogen Sulfide	0.025	Mol %	0.001	100	70	130			
Methane	93.494	Mol %	0.001	100	90	110			
Ethane	1.025	Mol %	0.001	102	90	110			
Propane	1.010	Mol %	0.001	101	90	110			
Isobutane	0.505	Mol %	0.001	101	90	110			
n-Butane	0.494	Mol %	0.001	99	90	110			
Isopentane	0.202	Mol %	0.001	101	90	110			
n-Pentane	0.200	Mol %	0.001	100	90	110			
Hexanes plus	0.156	Mol %	0.001	103	90	110			
Lab ID: CCV-1805161620	Continuing Calibration Verification Standard								05/16/18 16:20
Oxygen	0.582	Mol %	0.001	97	90	110			
Nitrogen	1.282	Mol %	0.001	91	85	110			
Carbon Dioxide	0.967	Mol %	0.001	96	90	110			
Hydrogen Sulfide	0.025	Mol %	0.001	100	70	130			
Methane	93.580	Mol %	0.001	100	90	110			
Ethane	1.019	Mol %	0.001	101	90	110			
Propane	1.003	Mol %	0.001	100	90	110			
Isobutane	0.502	Mol %	0.001	100	90	110			
n-Butane	0.489	Mol %	0.001	98	90	110			
Isopentane	0.201	Mol %	0.001	100	90	110			
n-Pentane	0.197	Mol %	0.001	98	90	110			
Hexanes plus	0.153	Mol %	0.001	101	90	110			
Method: GPA 2261									Batch: R243221

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 05/17/18
Work Order: G18050178

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261									Batch: R243221
Lab ID: G18050178-001ADUP	Sample Duplicate				Run: Varian GC_180516A			05/16/18 13:41	
Oxygen	13.034	Mol %	0.001				0.2	10	
Nitrogen	81.938	Mol %	0.001				0.0	10	
Carbon Dioxide	4.021	Mol %	0.001				0.1	10	
Hydrogen Sulfide	< 0.001	Mol %	0.001					10	
Methane	0.430	Mol %	0.001				0.5	10	
Ethane	< 0.001	Mol %	0.001					10	
Propane	< 0.001	Mol %	0.001					10	
Isobutane	0.004	Mol %	0.001				0.0	10	
n-Butane	0.018	Mol %	0.001				0.0	10	
Isopentane	0.071	Mol %	0.001				0.0	10	
n-Pentane	0.066	Mol %	0.001				0.0	10	
Hexanes plus	0.418	Mol %	0.001				2.9	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1805322**

17-May-18

Client: Williams Four Corners

Project: Florance NM

Sample ID **1805322-001adup**	SampType: **DUP**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **Influent**	Batch ID: **R51091**	RunNo: **51091**
Prep Date:	Analysis Date: **5/7/2018**	SeqNo: **1659467** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	110	1.0						7.10	20	E
Toluene	120	1.0						3.11	20	E
Ethylbenzene	1.5	1.0						2.50	20	
Methyl tert-butyl ether (MTBE)	ND	1.0						0	20	
1,2,4-Trimethylbenzene	ND	1.0						0	20	
1,3,5-Trimethylbenzene	ND	1.0						0	20	
1,2-Dichloroethane (EDC)	ND	1.0						0	20	
1,2-Dibromoethane (EDB)	ND	1.0						0	20	
Naphthalene	ND	2.0						0	20	
1-Methylnaphthalene	ND	4.0						0	20	
2-Methylnaphthalene	ND	4.0						0	20	
Acetone	ND	10						0	20	
Bromobenzene	ND	1.0						0	20	
Bromodichloromethane	ND	1.0						0	20	
Bromoform	ND	1.0						0	20	
Bromomethane	ND	2.0						0	20	
2-Butanone	ND	10						0	20	
Carbon disulfide	ND	10						0	20	
Carbon tetrachloride	ND	1.0						0	20	
Chlorobenzene	ND	1.0						0	20	
Chloroethane	ND	2.0						0	20	
Chloroform	ND	1.0						0	20	
Chloromethane	ND	1.0						0	20	
2-Chlorotoluene	ND	1.0						0	20	
4-Chlorotoluene	ND	1.0						0	20	
cis-1,2-DCE	ND	1.0						0	20	
cis-1,3-Dichloropropene	ND	1.0						0	20	
1,2-Dibromo-3-chloropropane	ND	2.0						0	20	
Dibromochloromethane	ND	1.0						0	20	
Dibromomethane	ND	2.0						0	20	
1,2-Dichlorobenzene	ND	1.0						0	20	
1,3-Dichlorobenzene	ND	1.0						0	20	
1,4-Dichlorobenzene	ND	1.0						0	20	
Dichlorodifluoromethane	ND	1.0						0	20	
1,1-Dichloroethane	ND	1.0						0	20	
1,1-Dichloroethene	ND	1.0						0	20	
1,2-Dichloropropane	ND	1.0						0	20	
1,3-Dichloropropane	ND	1.0						0	20	
2,2-Dichloropropane	ND	1.0						0	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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1805322**

17-May-18

Client: Williams Four Corners

Project: Florance NM

Sample ID **1805322-001adup** SampType: **DUP** TestCode: **EPA Method 8260B: Volatiles**

Client ID: **Influent** Batch ID: **R51091** RunNo: **51091**

Prep Date: Analysis Date: **5/7/2018** SeqNo: **1659467** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	1.0						0	20	
Hexachlorobutadiene	ND	1.0						0	20	
2-Hexanone	ND	10						0	20	
Isopropylbenzene	ND	1.0						0	20	
4-Isopropyltoluene	ND	1.0						0	20	
4-Methyl-2-pentanone	ND	10						0	20	
Methylene chloride	ND	3.0						0	20	
n-Butylbenzene	ND	3.0						0	20	
n-Propylbenzene	ND	1.0						0	20	
sec-Butylbenzene	ND	1.0						0	20	
Styrene	ND	1.0						0	20	
tert-Butylbenzene	ND	1.0						0	20	
1,1,1,2-Tetrachloroethane	ND	1.0						0	20	
1,1,2,2-Tetrachloroethane	ND	1.0						0	20	
Tetrachloroethene (PCE)	ND	1.0						0	20	
trans-1,2-DCE	ND	1.0						0	20	
trans-1,3-Dichloropropene	ND	1.0						0	20	
1,2,3-Trichlorobenzene	ND	1.0						0	20	
1,2,4-Trichlorobenzene	ND	1.0						0	20	
1,1,1-Trichloroethane	ND	1.0						0	20	
1,1,2-Trichloroethane	ND	1.0						0	20	
Trichloroethene (TCE)	ND	1.0						0	20	
Trichlorofluoromethane	ND	1.0						0	20	
1,2,3-Trichloropropane	ND	2.0						0	20	
Vinyl chloride	ND	1.0						0	20	
Xylenes, Total	9.5	1.5						2.74	20	
Surr: Dibromofluoromethane	11		10.00		111	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	10		10.00		100	70	130	0	0	
Surr: Toluene-d8	12		10.00		119	70	130	0	0	
Surr: 4-Bromofluorobenzene	11		10.00		111	70	130	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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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: WILLIAMS FOUR CORN Work Order Number: 1805322 RcptNo: 1

Received By: Isaiah Ortiz 5/4/2018 9:45:00 AM IO

Completed By: Ashley Gallegos 5/4/2018 2:34:36 PM AG

Reviewed By: ENM 5/7/18 Labeled by: IMO

Chain of Custody

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

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. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐ # of preserved bottles checked for pH: ____ (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐ Adjusted? ____
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 ☐ Checked by: ____

ENM 5/7/18

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:

17. Cooler Information

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

Chain-of-Custody Record

Client: Aaron Gale-Williams

Mailing Address: 295 CHIPETA Way SLC, UT 84108

Phone #: 801-244-1219

email or Fax#: aaron.gale@williams.com

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: Florance, NM

Project #: 155624

Project Manager: DAVE WAY

Sampler: CK

On Ice: ☐ Yes ☒ No

# of Coolers: 1 26.6

Cooler Temp(including CF):

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 1805329
5/3/18	1300	AIR	Influent	Tedlar Bag 1	N/A	-001

Analysis Request

BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA) Full list	8270 (Semi-VOA)	Total Coliform (Present/Absent)	Carbon dioxide	Oxygen
							X			X	X

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
5/3/18	0745	Charlie Kelly	I. Gt	UPS	5/4/18	945
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks:

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

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

June 19, 2018

Aaron Galer
Williams Four Corners
188 CR 4900
Bloomfield, NM 87413
TEL: (505) 632-4442
FAX

RE: Florance GCJ 16A OrderNo.: 1806346

Dear Aaron Galer:

Hall Environmental Analysis Laboratory received 1 sample(s) on 6/7/2018 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.

CLIENT: Williams Four Corners
Project: Florance GCJ 16A
Lab ID: 1806346-001 **Matrix:** AIR

Client Sample ID: Zone 03 Stack B-702
Collection Date: 6/6/2018 1:30:00 PM
Received Date: 6/7/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	27	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
Toluene	67	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
Ethylbenzene	5.2	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
1,2,4-Trimethylbenzene	3.0	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
1,3,5-Trimethylbenzene	2.8	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
1,2-Dichloroethane (EDC)	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
1,2-Dibromoethane (EDB)	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
Naphthalene	ND	5.0		µg/L	25	6/12/2018 12:57:21 PM	W51916
1-Methylnaphthalene	ND	10		µg/L	25	6/12/2018 12:57:21 PM	W51916
2-Methylnaphthalene	ND	10		µg/L	25	6/12/2018 12:57:21 PM	W51916
Acetone	ND	25		µg/L	25	6/12/2018 12:57:21 PM	W51916
Bromobenzene	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
Bromodichloromethane	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
Bromoform	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
Bromomethane	ND	5.0		µg/L	25	6/12/2018 12:57:21 PM	W51916
2-Butanone	ND	25		µg/L	25	6/12/2018 12:57:21 PM	W51916
Carbon disulfide	ND	25		µg/L	25	6/12/2018 12:57:21 PM	W51916
Carbon tetrachloride	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
Chlorobenzene	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
Chloroethane	ND	5.0		µg/L	25	6/12/2018 12:57:21 PM	W51916
Chloroform	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
Chloromethane	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
2-Chlorotoluene	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
4-Chlorotoluene	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
cis-1,2-DCE	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
cis-1,3-Dichloropropene	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
1,2-Dibromo-3-chloropropane	ND	5.0		µg/L	25	6/12/2018 12:57:21 PM	W51916
Dibromochloromethane	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
Dibromomethane	ND	5.0		µg/L	25	6/12/2018 12:57:21 PM	W51916
1,2-Dichlorobenzene	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
1,3-Dichlorobenzene	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
1,4-Dichlorobenzene	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
Dichlorodifluoromethane	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
1,1-Dichloroethane	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
1,1-Dichloroethene	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
1,2-Dichloropropane	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
1,3-Dichloropropane	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
2,2-Dichloropropane	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Florance GCJ 16A
Lab ID: 1806346-001 **Matrix:** AIR

Client Sample ID: Zone 03 Stack B-702
Collection Date: 6/6/2018 1:30:00 PM
Received Date: 6/7/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,1-Dichloropropene	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
Hexachlorobutadiene	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
2-Hexanone	ND	25		µg/L	25	6/12/2018 12:57:21 PM	W51916
Isopropylbenzene	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
4-Isopropyltoluene	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
4-Methyl-2-pentanone	ND	25		µg/L	25	6/12/2018 12:57:21 PM	W51916
Methylene chloride	ND	7.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
n-Butylbenzene	ND	7.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
n-Propylbenzene	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
sec-Butylbenzene	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
Styrene	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
tert-Butylbenzene	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
1,1,1,2-Tetrachloroethane	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
1,1,2,2-Tetrachloroethane	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
Tetrachloroethene (PCE)	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
trans-1,2-DCE	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
trans-1,3-Dichloropropene	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
1,2,3-Trichlorobenzene	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
1,2,4-Trichlorobenzene	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
1,1,1-Trichloroethane	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
1,1,2-Trichloroethane	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
Trichloroethene (TCE)	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
Trichlorofluoromethane	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
1,2,3-Trichloropropane	ND	5.0		µg/L	25	6/12/2018 12:57:21 PM	W51916
Vinyl chloride	ND	2.5		µg/L	25	6/12/2018 12:57:21 PM	W51916
Xylenes, Total	64	3.8		µg/L	25	6/12/2018 12:57:21 PM	W51916
Surr: Dibromofluoromethane	104	70-130		%Rec	25	6/12/2018 12:57:21 PM	W51916
Surr: 1,2-Dichloroethane-d4	112	70-130		%Rec	25	6/12/2018 12:57:21 PM	W51916
Surr: Toluene-d8	104	70-130		%Rec	25	6/12/2018 12:57:21 PM	W51916
Surr: 4-Bromofluorobenzene	118	70-130		%Rec	25	6/12/2018 12:57:21 PM	W51916

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated
Client Sample ID: 1806346-001A; Zone 03 Stack B-702
Location:
Lab ID: G18060314-001

Report Date: 06/19/18
Collection Date: 06/06/18 13:30
Date Received: 06/13/18
Sampled By: Not Provided

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
NATURAL GAS CHROMATOGRAPHIC ANALYSIS REPORT					
Oxygen	21.949	Mol %		GPA 2261	06/17/18 11:30 / blb
Nitrogen	77.622	Mol %		GPA 2261	06/17/18 11:30 / blb
Carbon Dioxide	0.331	Mol %		GPA 2261	06/17/18 11:30 / blb
Hydrogen Sulfide	< 0.001	Mol %		GPA 2261	06/17/18 11:30 / blb
Methane	< 0.001	Mol %		GPA 2261	06/17/18 11:30 / blb
Ethane	< 0.001	Mol %		GPA 2261	06/17/18 11:30 / blb
Propane	< 0.001	Mol %		GPA 2261	06/17/18 11:30 / blb
Isobutane	0.011	Mol %		GPA 2261	06/17/18 11:30 / blb
n-Butane	< 0.001	Mol %		GPA 2261	06/17/18 11:30 / blb
Isopentane	0.002	Mol %		GPA 2261	06/17/18 11:30 / blb
n-Pentane	0.002	Mol %		GPA 2261	06/17/18 11:30 / blb
Hexanes plus	0.083	Mol %		GPA 2261	06/17/18 11:30 / blb
GPM @ STD COND/1000 CU.FT., MOISTURE FREE GAS					
GPM Ethane	< 0.0003	gal/MCF		GPA 2261	06/17/18 11:30 / blb
GPM Propane	< 0.0003	gal/MCF		GPA 2261	06/17/18 11:30 / blb
GPM Isobutane	0.0040	gal/MCF		GPA 2261	06/17/18 11:30 / blb
GPM n-Butane	< 0.0003	gal/MCF		GPA 2261	06/17/18 11:30 / blb
GPM Isopentane	0.0010	gal/MCF		GPA 2261	06/17/18 11:30 / blb
GPM n-Pentane	0.0010	gal/MCF		GPA 2261	06/17/18 11:30 / blb
GPM Hexanes plus	0.0360	gal/MCF		GPA 2261	06/17/18 11:30 / blb
GPM Pentanes plus	0.0370	gal/MCF		GPA 2261	06/17/18 11:30 / blb
GPM Total	0.0410	gal/MCF		GPA 2261	06/17/18 11:30 / blb
CALCULATED PROPERTIES					
Calculation Pressure Base	14.730	psia		GPA 2261	06/17/18 11:30 / blb
Calculation Temperature Base	60	°F		GPA 2261	06/17/18 11:30 / blb
Compressibility Factor, Z	1.0000	unitless		GPA 2261	06/17/18 11:30 / blb
Molecular Weight	29.00	unitless		GPA 2261	06/17/18 11:30 / blb
Pseudo-critical Pressure, psia	548	psia		GPA 2261	06/17/18 11:30 / blb
Pseudo-critical Temperature, deg R	241	deg R		GPA 2261	06/17/18 11:30 / blb
Specific Gravity (air=1.000)	1.004	unitless		GPA 2261	06/17/18 11:30 / blb
Gross BTU per cu ft @ std cond, dry	4.77	BTU/cu ft		GPA 2261	06/17/18 11:30 / blb
Gross BTU per cu ft @ std cond, wet	4.69	BTU/cu ft		GPA 2261	06/17/18 11:30 / blb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 06/19/18
Work Order: G18060314

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261								Analytical Run: R243876	
Lab ID: ICV-1806171038	Initial Calibration Verification Standard							06/17/18 10:39	
Oxygen	0.399	Mol %	0.001	83	75	110			
Nitrogen	5.063	Mol %	0.001	100	90	110			
Carbon Dioxide	4.904	Mol %	0.001	99	90	110			
Hydrogen Sulfide	0.127	Mol %	0.001	126	100	136			
Methane	73.048	Mol %	0.001	100	90	110			
Ethane	5.020	Mol %	0.001	101	90	110			
Propane	5.135	Mol %	0.001	101	90	110			
Isobutane	2.020	Mol %	0.001	100	90	110			
n-Butane	1.996	Mol %	0.001	99	90	110			
Isopentane	0.996	Mol %	0.001	100	90	110			
n-Pentane	0.986	Mol %	0.001	99	90	110			
Hexanes plus	0.306	Mol %	0.001	101	90	110			
Lab ID: CCV-1806171055	Continuing Calibration Verification Standard							06/17/18 10:55	
Oxygen	0.592	Mol %	0.001	98	90	110			
Nitrogen	1.312	Mol %	0.001	93	85	110			
Carbon Dioxide	0.969	Mol %	0.001	97	90	110			
Hydrogen Sulfide	0.024	Mol %	0.001	96	70	130			
Methane	93.532	Mol %	0.001	100	90	110			
Ethane	1.023	Mol %	0.001	102	90	110			
Propane	1.006	Mol %	0.001	101	90	110			
Isobutane	0.503	Mol %	0.001	100	90	110			
n-Butane	0.490	Mol %	0.001	98	90	110			
Isopentane	0.200	Mol %	0.001	100	90	110			
n-Pentane	0.197	Mol %	0.001	98	90	110			
Hexanes plus	0.152	Mol %	0.001	100	90	110			
Lab ID: CCV-1806181424	Continuing Calibration Verification Standard							06/18/18 14:24	
Oxygen	0.610	Mol %	0.001	101	90	110			
Nitrogen	1.368	Mol %	0.001	97	85	110			
Carbon Dioxide	0.971	Mol %	0.001	97	90	110			
Hydrogen Sulfide	0.028	Mol %	0.001	112	70	130			
Methane	93.440	Mol %	0.001	100	90	110			
Ethane	1.025	Mol %	0.001	102	90	110			
Propane	1.009	Mol %	0.001	101	90	110			
Isobutane	0.504	Mol %	0.001	101	90	110			
n-Butane	0.492	Mol %	0.001	98	90	110			
Isopentane	0.201	Mol %	0.001	100	90	110			
n-Pentane	0.198	Mol %	0.001	99	90	110			
Hexanes plus	0.154	Mol %	0.001	102	90	110			
Method: GPA 2261								Batch: R243876	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 06/19/18
Work Order: G18060314

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261									Batch: R243876
Lab ID: G18060314-001ADUP	Sample Duplicate				Run: VARIAN GC_180617A			06/17/18 11:35	
Oxygen	21.951	Mol %	0.001				0.0	10	
Nitrogen	77.621	Mol %	0.001				0.0	10	
Carbon Dioxide	0.331	Mol %	0.001				0.0	10	
Hydrogen Sulfide	< 0.001	Mol %	0.001					10	
Methane	< 0.001	Mol %	0.001					10	
Ethane	< 0.001	Mol %	0.001					10	
Propane	< 0.001	Mol %	0.001					10	
Isobutane	0.011	Mol %	0.001				0.0	10	
n-Butane	< 0.001	Mol %	0.001					10	
Isopentane	0.002	Mol %	0.001				0.0	10	
n-Pentane	0.002	Mol %	0.001				0.0	10	
Hexanes plus	0.082	Mol %	0.001				1.2	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806346**

20-Jun-18

Client: Williams Four Corners

Project: Florance GCJ 16A

Sample ID **1806346-001a dup** SampType: **DUP** TestCode: **EPA Method 8260B: Volatiles**

Client ID: **Zone 03 Stack B-70** Batch ID: **W51916** RunNo: **51916**

Prep Date: Analysis Date: **6/12/2018** SeqNo: **1696665** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	33	2.5						19.0	20	
Toluene	80	2.5						17.8	20	
Ethylbenzene	6.2	2.5						18.7	20	
Methyl tert-butyl ether (MTBE)	ND	2.5						0	20	
1,2,4-Trimethylbenzene	3.7	2.5						22.0	20	R
1,3,5-Trimethylbenzene	3.3	2.5						14.9	20	
1,2-Dichloroethane (EDC)	ND	2.5						0	20	
1,2-Dibromoethane (EDB)	ND	2.5						0	20	
Naphthalene	ND	5.0						0	20	
1-Methylnaphthalene	ND	10						0	20	
2-Methylnaphthalene	ND	10						0	20	
Acetone	ND	25						0	20	
Bromobenzene	ND	2.5						0	20	
Bromodichloromethane	ND	2.5						0	20	
Bromoform	ND	2.5						0	20	
Bromomethane	ND	5.0						0	20	
2-Butanone	ND	25						0	20	
Carbon disulfide	ND	25						0	20	
Carbon tetrachloride	ND	2.5						0	20	
Chlorobenzene	ND	2.5						0	20	
Chloroethane	ND	5.0						0	20	
Chloroform	ND	2.5						0	20	
Chloromethane	ND	2.5						0	20	
2-Chlorotoluene	ND	2.5						0	20	
4-Chlorotoluene	ND	2.5						0	20	
cis-1,2-DCE	ND	2.5						0	20	
cis-1,3-Dichloropropene	ND	2.5						0	20	
1,2-Dibromo-3-chloropropane	ND	5.0						0	20	
Dibromochloromethane	ND	2.5						0	20	
Dibromomethane	ND	5.0						0	20	
1,2-Dichlorobenzene	ND	2.5						0	20	
1,3-Dichlorobenzene	ND	2.5						0	20	
1,4-Dichlorobenzene	ND	2.5						0	20	
Dichlorodifluoromethane	ND	2.5						0	20	
1,1-Dichloroethane	ND	2.5						0	20	
1,1-Dichloroethene	ND	2.5						0	20	
1,2-Dichloropropane	ND	2.5						0	20	
1,3-Dichloropropane	ND	2.5						0	20	
2,2-Dichloropropane	ND	2.5						0	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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806346**

20-Jun-18

Client: Williams Four Corners

Project: Florance GCJ 16A

Sample ID **1806346-001a dup** SampType: **DUP** TestCode: **EPA Method 8260B: Volatiles**

Client ID: **Zone 03 Stack B-70** Batch ID: **W51916** RunNo: **51916**

Prep Date: Analysis Date: **6/12/2018** SeqNo: **1696665** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	2.5						0	20	
Hexachlorobutadiene	ND	2.5						0	20	
2-Hexanone	ND	25						0	20	
Isopropylbenzene	ND	2.5						0	20	
4-Isopropyltoluene	ND	2.5						0	20	
4-Methyl-2-pentanone	ND	25						0	20	
Methylene chloride	ND	7.5						0	20	
n-Butylbenzene	ND	7.5						0	20	
n-Propylbenzene	ND	2.5						0	20	
sec-Butylbenzene	ND	2.5						0	20	
Styrene	ND	2.5						0	20	
tert-Butylbenzene	ND	2.5						0	20	
1,1,1,2-Tetrachloroethane	ND	2.5						0	20	
1,1,2,2-Tetrachloroethane	ND	2.5						0	20	
Tetrachloroethene (PCE)	ND	2.5						0	20	
trans-1,2-DCE	ND	2.5						0	20	
trans-1,3-Dichloropropene	ND	2.5						0	20	
1,2,3-Trichlorobenzene	ND	2.5						0	20	
1,2,4-Trichlorobenzene	ND	2.5						0	20	
1,1,1-Trichloroethane	ND	2.5						0	20	
1,1,2-Trichloroethane	ND	2.5						0	20	
Trichloroethene (TCE)	ND	2.5						0	20	
Trichlorofluoromethane	ND	2.5						0	20	
1,2,3-Trichloropropane	ND	5.0						0	20	
Vinyl chloride	ND	2.5						0	20	
Xylenes, Total	80	3.8						22.5	20	R
Surr: Dibromofluoromethane	25		25.00		99.6	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	26		25.00		103	70	130	0	0	
Surr: Toluene-d8	25		25.00		102	70	130	0	0	
Surr: 4-Bromofluorobenzene	28		25.00		111	70	130	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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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: WILLIAMS FOUR CORN Work Order Number: 1806346 RcptNo: 1

Received By: Anne Thorne 6/7/2018 7:00:00 AM

Completed By: Anne Thorne 6/7/2018 10:37:33 AM

Reviewed By: AT 06/07/18

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☐	No ☐	NA ☑
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
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: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

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:

17. **Cooler Information**

Chain-of-Custody Record

Client: Williams Four Corners

Mailing Address: 17755 Arroyo Dr.
Bloomfield, NM 87413

Phone #:

email or Fax#: aaron.galer@Williams.com

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____
☐ EDD (Type) PDF

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name:
Florance GCJ 16A

Project #:

Project Manager:
Williams - Aaron Galer

Sampler: Danny Burns
On Ice: ☒ Yes ☐ No
Sample Temperature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
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. 1601346	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA) VOCs full list	8270 (Semi-VOA)	(Carbon Dioxide	Oxygen			Air Bubbles (Y or N)
6-6-18	13:30	Air	Zone 03 stack B-702	Tedlar	None	-201										X		X	X			

Analysis Request

Date: 6-6-18 Time: 16:55 Relinquished by: [signature] Received by: [signature] Date Time: 6/6/18 1655

Date: 6/6/18 Time: 1902 Relinquished by: [signature] Received by: [signature] Date Time: 06/07/18 0700

Remarks:
cc: dburns@ltenv.com
jason.ramsay@aptim.com

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

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

June 19, 2018

Aaron Galer
Williams Four Corners
188 CR 4900
Bloomfield, NM 87413
TEL: (505) 632-4442
FAX

RE: Florance GCJ 16A OrderNo.: 1806557

Dear Aaron Galer:

Hall Environmental Analysis Laboratory received 1 sample(s) on 6/9/2018 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.

CLIENT: Williams Four Corners
Project: Florance GCJ 16A
Lab ID: 1806557-001 **Matrix:** AIR

Client Sample ID: Zone 04 Stack B-701
Collection Date: 6/8/2018 4:40:00 PM
Received Date: 6/9/2018 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	150	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
Toluene	670	10		µg/L	100	6/12/2018 2:26:13 PM	W51916
Ethylbenzene	54	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
1,2,4-Trimethylbenzene	47	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
1,3,5-Trimethylbenzene	36	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
1,2-Dichloroethane (EDC)	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
1,2-Dibromoethane (EDB)	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
Naphthalene	ND	5.0		µg/L	25	6/12/2018 1:26:46 PM	W51916
1-Methylnaphthalene	ND	10		µg/L	25	6/12/2018 1:26:46 PM	W51916
2-Methylnaphthalene	ND	10		µg/L	25	6/12/2018 1:26:46 PM	W51916
Acetone	ND	25		µg/L	25	6/12/2018 1:26:46 PM	W51916
Bromobenzene	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
Bromodichloromethane	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
Bromoform	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
Bromomethane	ND	5.0		µg/L	25	6/12/2018 1:26:46 PM	W51916
2-Butanone	ND	25		µg/L	25	6/12/2018 1:26:46 PM	W51916
Carbon disulfide	ND	25		µg/L	25	6/12/2018 1:26:46 PM	W51916
Carbon tetrachloride	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
Chlorobenzene	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
Chloroethane	ND	5.0		µg/L	25	6/12/2018 1:26:46 PM	W51916
Chloroform	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
Chloromethane	3.7	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
2-Chlorotoluene	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
4-Chlorotoluene	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
cis-1,2-DCE	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
cis-1,3-Dichloropropene	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
1,2-Dibromo-3-chloropropane	ND	5.0		µg/L	25	6/12/2018 1:26:46 PM	W51916
Dibromochloromethane	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
Dibromomethane	ND	5.0		µg/L	25	6/12/2018 1:26:46 PM	W51916
1,2-Dichlorobenzene	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
1,3-Dichlorobenzene	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
1,4-Dichlorobenzene	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
Dichlorodifluoromethane	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
1,1-Dichloroethane	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
1,1-Dichloroethene	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
1,2-Dichloropropane	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
1,3-Dichloropropane	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
2,2-Dichloropropane	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Florance GCJ 16A
Lab ID: 1806557-001 **Matrix:** AIR

Client Sample ID: Zone 04 Stack B-701
Collection Date: 6/8/2018 4:40:00 PM
Received Date: 6/9/2018 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,1-Dichloropropene	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
Hexachlorobutadiene	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
2-Hexanone	ND	25		µg/L	25	6/12/2018 1:26:46 PM	W51916
Isopropylbenzene	9.1	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
4-Isopropyltoluene	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
4-Methyl-2-pentanone	ND	25		µg/L	25	6/12/2018 1:26:46 PM	W51916
Methylene chloride	ND	7.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
n-Butylbenzene	ND	7.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
n-Propylbenzene	8.0	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
sec-Butylbenzene	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
Styrene	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
tert-Butylbenzene	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
1,1,1,2-Tetrachloroethane	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
1,1,2,2-Tetrachloroethane	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
Tetrachloroethene (PCE)	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
trans-1,2-DCE	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
trans-1,3-Dichloropropene	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
1,2,3-Trichlorobenzene	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
1,2,4-Trichlorobenzene	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
1,1,1-Trichloroethane	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
1,1,2-Trichloroethane	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
Trichloroethene (TCE)	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
Trichlorofluoromethane	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
1,2,3-Trichloropropane	ND	5.0		µg/L	25	6/12/2018 1:26:46 PM	W51916
Vinyl chloride	ND	2.5		µg/L	25	6/12/2018 1:26:46 PM	W51916
Xylenes, Total	660	15		µg/L	100	6/12/2018 2:26:13 PM	W51916
Surr: Dibromofluoromethane	105	70-130		%Rec	25	6/12/2018 1:26:46 PM	W51916
Surr: 1,2-Dichloroethane-d4	187	70-130	S	%Rec	25	6/12/2018 1:26:46 PM	W51916
Surr: Toluene-d8	104	70-130		%Rec	25	6/12/2018 1:26:46 PM	W51916
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	25	6/12/2018 1:26:46 PM	W51916

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated
Client Sample ID: 1806557-001B; Zone 04 Stack B-701
Location:
Lab ID: G18060313-001

Report Date: 06/19/18
Collection Date: 06/08/18 16:40
Date Received: 06/13/18
Sampled By: Not Provided

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
NATURAL GAS CHROMATOGRAPHIC ANALYSIS REPORT					
Oxygen	19.290	Mol %		GPA 2261	06/17/18 11:14 / blb
Nitrogen	78.958	Mol %		GPA 2261	06/17/18 11:14 / blb
Carbon Dioxide	1.378	Mol %		GPA 2261	06/17/18 11:14 / blb
Hydrogen Sulfide	< 0.001	Mol %		GPA 2261	06/17/18 11:14 / blb
Methane	< 0.001	Mol %		GPA 2261	06/17/18 11:14 / blb
Ethane	< 0.001	Mol %		GPA 2261	06/17/18 11:14 / blb
Propane	< 0.001	Mol %		GPA 2261	06/17/18 11:14 / blb
Isobutane	< 0.001	Mol %		GPA 2261	06/17/18 11:14 / blb
n-Butane	0.001	Mol %		GPA 2261	06/17/18 11:14 / blb
Isopentane	0.007	Mol %		GPA 2261	06/17/18 11:14 / blb
n-Pentane	0.009	Mol %		GPA 2261	06/17/18 11:14 / blb
Hexanes plus	0.357	Mol %		GPA 2261	06/17/18 11:14 / blb
GPM STD COND/1000 CU.FT., MOISTURE FREE GAS					
GPM Ethane	< 0.0003	gal/MCF		GPA 2261	06/17/18 11:14 / blb
GPM Propane	< 0.0003	gal/MCF		GPA 2261	06/17/18 11:14 / blb
GPM Isobutane	< 0.0003	gal/MCF		GPA 2261	06/17/18 11:14 / blb
GPM n-Butane	< 0.0003	gal/MCF		GPA 2261	06/17/18 11:14 / blb
GPM Isopentane	0.0020	gal/MCF		GPA 2261	06/17/18 11:14 / blb
GPM n-Pentane	0.0030	gal/MCF		GPA 2261	06/17/18 11:14 / blb
GPM Hexanes plus	0.1550	gal/MCF		GPA 2261	06/17/18 11:14 / blb
GPM Pentanes plus	0.1610	gal/MCF		GPA 2261	06/17/18 11:14 / blb
GPM Total	0.1610	gal/MCF		GPA 2261	06/17/18 11:14 / blb
CALCULATED PROPERTIES					
Calculation Pressure Base	14.730	psia		GPA 2261	06/17/18 11:14 / blb
Calculation Temperature Base	60	°F		GPA 2261	06/17/18 11:14 / blb
Compressibility Factor, Z	1.0000	unitless		GPA 2261	06/17/18 11:14 / blb
Molecular Weight	29.24	unitless		GPA 2261	06/17/18 11:14 / blb
Pseudo-critical Pressure, psia	548	psia		GPA 2261	06/17/18 11:14 / blb
Pseudo-critical Temperature, deg R	245	deg R		GPA 2261	06/17/18 11:14 / blb
Specific Gravity (air=1.000)	1.013	unitless		GPA 2261	06/17/18 11:14 / blb
Gross BTU per cu ft @ std cond, dry	19.02	BTU/cu ft		GPA 2261	06/17/18 11:14 / blb
Gross BTU per cu ft @ std cond, wet	18.68	BTU/cu ft		GPA 2261	06/17/18 11:14 / blb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 06/19/18
Work Order: G18060313

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261									Analytical Run: R243876
Lab ID: ICV-1806171038	Initial Calibration Verification Standard								06/17/18 10:39
Oxygen	0.399	Mol %	0.001	83	75	110			
Nitrogen	5.063	Mol %	0.001	100	90	110			
Carbon Dioxide	4.904	Mol %	0.001	99	90	110			
Hydrogen Sulfide	0.127	Mol %	0.001	126	100	136			
Methane	73.048	Mol %	0.001	100	90	110			
Ethane	5.020	Mol %	0.001	101	90	110			
Propane	5.135	Mol %	0.001	101	90	110			
Isobutane	2.020	Mol %	0.001	100	90	110			
n-Butane	1.996	Mol %	0.001	99	90	110			
Isopentane	0.996	Mol %	0.001	100	90	110			
n-Pentane	0.986	Mol %	0.001	99	90	110			
Hexanes plus	0.306	Mol %	0.001	101	90	110			
Lab ID: CCV-1806171055	Continuing Calibration Verification Standard								06/17/18 10:55
Oxygen	0.592	Mol %	0.001	98	90	110			
Nitrogen	1.312	Mol %	0.001	93	85	110			
Carbon Dioxide	0.969	Mol %	0.001	97	90	110			
Hydrogen Sulfide	0.024	Mol %	0.001	96	70	130			
Methane	93.532	Mol %	0.001	100	90	110			
Ethane	1.023	Mol %	0.001	102	90	110			
Propane	1.006	Mol %	0.001	101	90	110			
Isobutane	0.503	Mol %	0.001	100	90	110			
n-Butane	0.490	Mol %	0.001	98	90	110			
Isopentane	0.200	Mol %	0.001	100	90	110			
n-Pentane	0.197	Mol %	0.001	98	90	110			
Hexanes plus	0.152	Mol %	0.001	100	90	110			
Lab ID: CCV-1806181424	Continuing Calibration Verification Standard								06/18/18 14:24
Oxygen	0.610	Mol %	0.001	101	90	110			
Nitrogen	1.368	Mol %	0.001	97	85	110			
Carbon Dioxide	0.971	Mol %	0.001	97	90	110			
Hydrogen Sulfide	0.028	Mol %	0.001	112	70	130			
Methane	93.440	Mol %	0.001	100	90	110			
Ethane	1.025	Mol %	0.001	102	90	110			
Propane	1.009	Mol %	0.001	101	90	110			
Isobutane	0.504	Mol %	0.001	101	90	110			
n-Butane	0.492	Mol %	0.001	98	90	110			
Isopentane	0.201	Mol %	0.001	100	90	110			
n-Pentane	0.198	Mol %	0.001	99	90	110			
Hexanes plus	0.154	Mol %	0.001	102	90	110			
Method: GPA 2261									Batch: R243876

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 06/19/18
Work Order: G18060313

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261									Batch: R243876
Lab ID: G18060313-001ADUP	Sample Duplicate				Run: VARIAN GC_180617A				06/17/18 11:24
Oxygen	19.272	Mol %	0.001				0.1	10	
Nitrogen	78.944	Mol %	0.001				0.0	10	
Carbon Dioxide	1.386	Mol %	0.001				0.6	10	
Hydrogen Sulfide	< 0.001	Mol %	0.001					10	
Methane	< 0.001	Mol %	0.001					10	
Ethane	< 0.001	Mol %	0.001					10	
Propane	< 0.001	Mol %	0.001					10	
Isobutane	< 0.001	Mol %	0.001					10	
n-Butane	0.001	Mol %	0.001				0.0	10	
Isopentane	0.007	Mol %	0.001				0.0	10	
n-Pentane	0.009	Mol %	0.001				0.0	10	
Hexanes plus	0.381	Mol %	0.001				6.5	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the 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: WILLIAMS FOUR CORN Work Order Number: 1806557 RcptNo: 1

Received By: Ashley Gallegos 6/9/2018 9:00:00 AM

Completed By: Anne Thorne 6/11/2018 7:55:38 AM

Reviewed By: IO 6/11/18

Labeled by AT 06/11/18

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☐	No ☐	NA ☑
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
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: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

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:

17. Cooler Information

Chain-of-Custody Record

Client: Williams Four Corners

Mailing Address: 17755 Arroyo Dr. Bloomfield NM

Phone #:

email or Fax#: aaron.galer@williams.com

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other

☒ EDD (Type) PDF

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: Florance GCJ 16A

Project #:

Project Manager: Williams - Aaron Galer
LTE - Danny Burns

Sampler: D. Burns

On Ice: ☑ Yes ☐ No

Sample Temperature: 3.6 0.3(CF) = 3.3

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. 1806557	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA) VOCs Full List	8270 (Semi-VOA)	Carbon Dioxide	Oxygen			Air Bubbles (Y or N)
6-8-18	16:40	Air	Zone 04 Stack B-701	Tedlar(2)	None	201										X		X	X			

Date:	Time:	Relinquished by:	Received by:	Date	Time
6-8-18	17:38			6/8/18	1738
6/8/18	1844			06/09/18	0900

Remarks:
cc: dburns@ltenv.com
only jason.ramsay@ltenv.com
aaron.galer@williams.com

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

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

July 13, 2018

Aaron Galer
Williams Four Corners
188 CR 4900
Bloomfield, NM 87413
TEL: (505) 632-4442
FAX

RE: Florance GCJ 16A OrderNo.: 1807061

Dear Aaron Galer:

Hall Environmental Analysis Laboratory received 2 sample(s) on 6/30/2018 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

Analytical Report
Lab Order **1807061**
Date Reported: **7/13/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Florance GCJ 16A
Lab ID: 1807061-001 **Matrix:** GROUNDWA

Client Sample ID: PR Tank
Collection Date: 6/29/2018 12:45:00 PM
Received Date: 6/30/2018 10:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **AG**	
Gasoline Range Organics (GRO)	1.1	0.50		mg/L	10	7/3/2018 6:15:43 PM	C52450
Surr: BFB	96.8	70-130		%Rec	10	7/3/2018 6:15:43 PM	C52450
EPA METHOD 8015M/D: DIESEL RANGE						Analyst: **TOM**	
Diesel Range Organics (DRO)	120	5.0		mg/L	5	7/9/2018 4:38:09 PM	39026
Motor Oil Range Organics (MRO)	59	25		mg/L	5	7/9/2018 4:38:09 PM	39026
Surr: DNOP	186	76.7-135	S	%Rec	5	7/9/2018 4:38:09 PM	39026
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **AG**	
Benzene	17	10		µg/L	10	7/3/2018 6:15:43 PM	D52450
Toluene	44	10		µg/L	10	7/3/2018 6:15:43 PM	D52450
Ethylbenzene	ND	10		µg/L	10	7/3/2018 6:15:43 PM	D52450
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	10	7/3/2018 6:15:43 PM	D52450
Xylenes, Total	96	15		µg/L	10	7/3/2018 6:15:43 PM	D52450
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	10	7/3/2018 6:15:43 PM	D52450
Surr: Toluene-d8	101	70-130		%Rec	10	7/3/2018 6:15:43 PM	D52450

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Florance GCJ 16A
Lab ID: 1807061-002 **Matrix:** AIR

Client Sample ID: Stack 01
Collection Date: 6/29/2018 2:35:00 PM
Received Date: 6/30/2018 10:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	13000	120		µg/L	25	7/5/2018 11:03:23 AM	G52486
Surr: BFB	242	80.2-145	S	%Rec	25	7/5/2018 11:03:23 AM	G52486
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	1.2		µg/L	5	7/5/2018 9:53:16 AM	B52486
Benzene	47	0.50		µg/L	5	7/5/2018 9:53:16 AM	B52486
Toluene	83	2.5		µg/L	25	7/5/2018 11:03:23 AM	B52486
Ethylbenzene	14	0.50		µg/L	5	7/5/2018 9:53:16 AM	B52486
Xylenes, Total	120	1.0		µg/L	5	7/5/2018 9:53:16 AM	B52486
Surr: 4-Bromofluorobenzene	143	81.5-137	S	%Rec	5	7/5/2018 9:53:16 AM	B52486

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project:
Client Sample ID: 1807061-002A; Stack 01
Location:
Lab ID: G18070105-001

Report Date: 07/12/18
Collection Date: 06/29/18 14:35
Date Received: 07/06/18
Sampled By: Not Provided

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
NATURAL GAS CHROMATOGRAPHIC ANALYSIS REPORT					
Oxygen	21.292	Mol %		GPA 2261	07/12/18 13:09 / djb
Nitrogen	77.688	Mol %		GPA 2261	07/12/18 13:09 / djb
Carbon Dioxide	0.935	Mol %		GPA 2261	07/12/18 13:09 / djb
Hydrogen Sulfide	< 0.001	Mol %		GPA 2261	07/12/18 13:09 / djb
Methane	< 0.001	Mol %		GPA 2261	07/12/18 13:09 / djb
Ethane	< 0.001	Mol %		GPA 2261	07/12/18 13:09 / djb
Propane	< 0.001	Mol %		GPA 2261	07/12/18 13:09 / djb
Isobutane	< 0.001	Mol %		GPA 2261	07/12/18 13:09 / djb
n-Butane	0.001	Mol %		GPA 2261	07/12/18 13:09 / djb
Isopentane	0.004	Mol %		GPA 2261	07/12/18 13:09 / djb
n-Pentane	0.005	Mol %		GPA 2261	07/12/18 13:09 / djb
Hexanes plus	0.075	Mol %		GPA 2261	07/12/18 13:09 / djb
GPM @ STD COND/1000 CU.FT., MOISTURE FREE GAS					
GPM Ethane	< 0.0003	gal/MCF		GPA 2261	07/12/18 13:09 / djb
GPM Propane	< 0.0003	gal/MCF		GPA 2261	07/12/18 13:09 / djb
GPM Isobutane	< 0.0003	gal/MCF		GPA 2261	07/12/18 13:09 / djb
GPM n-Butane	< 0.0003	gal/MCF		GPA 2261	07/12/18 13:09 / djb
GPM Isopentane	0.0020	gal/MCF		GPA 2261	07/12/18 13:09 / djb
GPM n-Pentane	0.0020	gal/MCF		GPA 2261	07/12/18 13:09 / djb
GPM Hexanes plus	0.0330	gal/MCF		GPA 2261	07/12/18 13:09 / djb
GPM Pentanes plus	0.0360	gal/MCF		GPA 2261	07/12/18 13:09 / djb
GPM Total	0.0360	gal/MCF		GPA 2261	07/12/18 13:09 / djb
CALCULATED PROPERTIES					
Calculation Pressure Base	14.730	psia		GPA 2261	07/12/18 13:09 / djb
Calculation Temperature Base	60	°F		GPA 2261	07/12/18 13:09 / djb
Compressibility Factor, Z	1.0000	unitless		GPA 2261	07/12/18 13:09 / djb
Molecular Weight	29.06	unitless		GPA 2261	07/12/18 13:09 / djb
Pseudo-critical Pressure, psia	550	psia		GPA 2261	07/12/18 13:09 / djb
Pseudo-critical Temperature, deg R	242	deg R		GPA 2261	07/12/18 13:09 / djb
Specific Gravity (air=1.000)	1.006	unitless		GPA 2261	07/12/18 13:09 / djb
Gross BTU per cu ft @ std cond, dry	4.27	BTU/cu ft		GPA 2261	07/12/18 13:09 / djb
Gross BTU per cu ft @ std cond, wet	4.19	BTU/cu ft		GPA 2261	07/12/18 13:09 / djb

Report Definitions: RL - Analyte reporting limit. QCL - Quality control limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project:

Report Date: 07/12/18
Work Order: G18070105

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261								Analytical Run: R244441	
Lab ID: ICV-1807120948	Initial Calibration Verification Standard							07/12/18 09:49	
Oxygen	0.395	Mol %	0.001	82	75	110			
Nitrogen	5.022	Mol %	0.001	100	90	110			
Carbon Dioxide	4.922	Mol %	0.001	99	90	110			
Hydrogen Sulfide	0.129	Mol %	0.001	128	100	136			
Methane	73.047	Mol %	0.001	100	90	110			
Ethane	5.023	Mol %	0.001	101	90	110			
Propane	5.144	Mol %	0.001	101	90	110			
Isobutane	2.021	Mol %	0.001	100	90	110			
n-Butane	1.999	Mol %	0.001	99	90	110			
Isopentane	0.998	Mol %	0.001	100	90	110			
n-Pentane	0.991	Mol %	0.001	99	90	110			
Hexanes plus	0.309	Mol %	0.001	102	90	110			
Lab ID: CCV-1807120959	Continuing Calibration Verification Standard							07/12/18 10:00	
Oxygen	0.592	Mol %	0.001	98	90	110			
Nitrogen	1.313	Mol %	0.001	94	85	110			
Carbon Dioxide	0.968	Mol %	0.001	97	90	110			
Hydrogen Sulfide	0.026	Mol %	0.001	104	70	130			
Methane	93.511	Mol %	0.001	100	90	110			
Ethane	1.024	Mol %	0.001	102	90	110			
Propane	1.010	Mol %	0.001	101	90	110			
Isobutane	0.506	Mol %	0.001	101	90	110			
n-Butane	0.493	Mol %	0.001	99	90	110			
Isopentane	0.202	Mol %	0.001	101	90	110			
n-Pentane	0.199	Mol %	0.001	99	90	110			
Hexanes plus	0.156	Mol %	0.001	103	90	110			
Lab ID: CCV-1807121518	Continuing Calibration Verification Standard							07/12/18 15:19	
Oxygen	0.596	Mol %	0.001	99	90	110			
Nitrogen	1.324	Mol %	0.001	94	85	110			
Carbon Dioxide	0.969	Mol %	0.001	97	90	110			
Hydrogen Sulfide	0.027	Mol %	0.001	108	70	130			
Methane	93.494	Mol %	0.001	100	90	110			
Ethane	1.025	Mol %	0.001	102	90	110			
Propane	1.010	Mol %	0.001	101	90	110			
Isobutane	0.505	Mol %	0.001	101	90	110			
n-Butane	0.493	Mol %	0.001	99	90	110			
Isopentane	0.202	Mol %	0.001	101	90	110			
n-Pentane	0.199	Mol %	0.001	99	90	110			
Hexanes plus	0.156	Mol %	0.001	103	90	110			
Method: GPA 2261								Batch: R244441	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project:

Report Date: 07/12/18
Work Order: G18070105

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261								Batch: R244441	
Lab ID: G18070105-001ADUP	Sample Duplicate				Run: Varian GC_180712A			07/12/18 13:13	
Oxygen	21.291	Mol %	0.001				0.0	10	
Nitrogen	77.685	Mol %	0.001				0.0	10	
Carbon Dioxide	0.936	Mol %	0.001				0.1	10	
Hydrogen Sulfide	< 0.001	Mol %	0.001					10	
Methane	< 0.001	Mol %	0.001					10	
Ethane	< 0.001	Mol %	0.001					10	
Propane	< 0.001	Mol %	0.001					10	
Isobutane	< 0.001	Mol %	0.001					10	
n-Butane	0.001	Mol %	0.001				0.0	10	
Isopentane	0.004	Mol %	0.001				0.0	10	
n-Pentane	0.005	Mol %	0.001				0.0	10	
Hexanes plus	0.078	Mol %	0.001				3.9	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1807061**

13-Jul-18

Client: Williams Four Corners

Project: Florance GCJ 16A

Sample ID **100ng btex lcs**	SampType: **LCS4**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **BatchQC**	Batch ID: **D52450**	RunNo: **52450**
Prep Date:	Analysis Date: **7/3/2018**	SeqNo: **1720496** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	101	80	120			
Toluene	21	1.0	20.00	0	104	80	120			
Ethylbenzene	21	1.0	20.00	0	104	80	120			
Methyl tert-butyl ether (MTBE)	20	1.0	20.00	0	98.6	80	120			
Xylenes, Total	62	1.5	60.00	0	103	80	120			
Surr: 4-Bromofluorobenzene	10		10.00		99.6	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **PBW**	Batch ID: **D52450**	RunNo: **52450**
Prep Date:	Analysis Date: **7/3/2018**	SeqNo: **1720510** 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: 4-Bromofluorobenzene	11		10.00		114	70	130			
Surr: Toluene-d8	9.8		10.00		98.3	70	130			

Sample ID **1807061-001ams**	SampType: **MS4**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **PR Tank**	Batch ID: **D52450**	RunNo: **52450**
Prep Date:	Analysis Date: **7/3/2018**	SeqNo: **1720518** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	220	10	200.0	17.46	103	80	120			
Toluene	250	10	200.0	43.85	105	80	120			
Ethylbenzene	210	10	200.0	2.778	105	80	120			
Methyl tert-butyl ether (MTBE)	210	10	200.0	0	104	43.6	145			
Xylenes, Total	720	15	600.0	96.41	105	80	120			
Surr: 4-Bromofluorobenzene	99		100.0		99.0	70	130			
Surr: Toluene-d8	100		100.0		101	70	130			

Sample ID **1807061-001amsd**	SampType: **MSD4**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **PR Tank**	Batch ID: **D52450**	RunNo: **52450**
Prep Date:	Analysis Date: **7/3/2018**	SeqNo: **1720519** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	210	10	200.0	17.46	98.8	80	120	3.58	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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1807061**

13-Jul-18

Client: Williams Four Corners

Project: Florance GCJ 16A

Sample ID **1807061-001ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PR Tank**	Batch ID: **C52450**	RunNo: **52450**
Prep Date:	Analysis Date: **7/3/2018**	SeqNo: **1720486** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	6.2	0.50	5.000	1.120	102	63.4	130			
Surr: BFB	92		100.0		92.0	70	130			

Sample ID **1807061-001amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PR Tank**	Batch ID: **C52450**	RunNo: **52450**
Prep Date:	Analysis Date: **7/3/2018**	SeqNo: **1720487** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	6.0	0.50	5.000	1.120	97.8	63.4	130	3.08	20	
Surr: BFB	92		100.0		92.3	70	130	0	0	

Sample ID **2.5ug gro lcs**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **C52450**	RunNo: **52450**
Prep Date:	Analysis Date: **7/3/2018**	SeqNo: **1720488** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.57	0.050	0.5000	0	114	70	130			
Surr: BFB	9.6		10.00		96.3	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **C52450**	RunNo: **52450**
Prep Date:	Analysis Date: **7/3/2018**	SeqNo: **1720489** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	10		10.00		102	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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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: **WILLIAMS FOUR CORN** Work Order Number: **1807061** RcptNo: **1**

Received By: **Erin Melendrez** 6/30/2018 10:15:00 AM

Completed By: **Anne Thorne** 7/3/2018 7:47:48 AM

Reviewed By: 07/03/18

Labeled by: AT 07/03/18

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☑ No ☐ No VOA Vials ☐
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: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

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:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.9	Good	Not Present			

Chain-of-Custody Record

Client: Williams Four Corners
Aaron Gaier
Mailing Address:
Phone #: 801-244-1719
email or Fax#: aaron.gaier@williams.com
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☒ EDD (Type) PDF

Turn-Around Time:
☒ Standard ☐ Rush
Project Name: Florence GCJ #601
Project #:
Project Manager: Aaron Gaier - Williams, Danny Burns - LTE
Sampler: Eric Carroll
On Ice: ☒ Yes ☐ No
Sample Temperature: 3.9

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. 1807061	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	CO_2	O_2			Air Bubbles (Y or N)
6/29	1245	Gw	PR Tank	6 VOA + Amber	HCl None	001	X		X													
6/29	1435	Air	Stack 01	1 tedlar		002		X										X	X			

Date	Time	Relinquished by:	Received by:	Date	Time
6/29	1530		Christin Walls	6/29/18	1530
6/29/18	1852	Christin Walls	ENM 01308830	6/29/18	1015

Remarks:
Please cc: dburns@ltenv.com
jason.ramsay@aptim.com

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

Hall Environmental Analysis Laboratory
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July 25, 2018

Danny Burns
Williams Four Corners
188 CR 4900
Bloomfield, NM 87413
TEL:
FAX

RE: Florance GC J 16A OrderNo.: 1807338

Dear Danny Burns:

Hall Environmental Analysis Laboratory received 2 sample(s) on 7/10/2018 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

Analytical Report
Lab Order **1807338**
Date Reported: **7/25/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Florance GC J 16A
Lab ID: 1807338-001 **Matrix:** AIR

Client Sample ID: Zone 03 Influent
Collection Date: 7/6/2018 3:00:00 PM
Received Date: 7/10/2018 7:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	11	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
Toluene	41	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
Ethylbenzene	3.9	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
Methyl tert-butyl ether (MTBE)	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
1,2,4-Trimethylbenzene	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
1,3,5-Trimethylbenzene	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
1,2-Dichloroethane (EDC)	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
1,2-Dibromoethane (EDB)	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
Naphthalene	ND	5.0	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
1-Methylnaphthalene	ND	10	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
2-Methylnaphthalene	ND	10	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
Acetone	ND	25	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
Bromobenzene	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
Bromodichloromethane	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
Bromoform	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
Bromomethane	ND	5.0	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
2-Butanone	ND	25	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
Carbon disulfide	ND	25	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
Carbon tetrachloride	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
Chlorobenzene	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
Chloroethane	ND	5.0	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
Chloroform	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
Chloromethane	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
2-Chlorotoluene	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
4-Chlorotoluene	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
cis-1,2-DCE	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
cis-1,3-Dichloropropene	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
1,2-Dibromo-3-chloropropane	ND	5.0	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
Dibromochloromethane	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
Dibromomethane	ND	5.0	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
1,2-Dichlorobenzene	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
1,3-Dichlorobenzene	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
1,4-Dichlorobenzene	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
Dichlorodifluoromethane	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
1,1-Dichloroethane	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
1,1-Dichloroethene	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
1,2-Dichloropropane	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
1,3-Dichloropropane	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
2,2-Dichloropropane	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Florance GC J 16A
Lab ID: 1807338-001 **Matrix:** AIR

Client Sample ID: Zone 03 Influent
Collection Date: 7/6/2018 3:00:00 PM
Received Date: 7/10/2018 7:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,1-Dichloropropene	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
Hexachlorobutadiene	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
2-Hexanone	ND	25	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
Isopropylbenzene	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
4-Isopropyltoluene	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
4-Methyl-2-pentanone	ND	25	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
Methylene chloride	16	7.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
n-Butylbenzene	ND	7.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
n-Propylbenzene	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
sec-Butylbenzene	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
Styrene	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
tert-Butylbenzene	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
1,1,1,2-Tetrachloroethane	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
1,1,2,2-Tetrachloroethane	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
Tetrachloroethene (PCE)	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
trans-1,2-DCE	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
trans-1,3-Dichloropropene	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
1,2,3-Trichlorobenzene	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
1,2,4-Trichlorobenzene	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
1,1,1-Trichloroethane	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
1,1,2-Trichloroethane	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
Trichloroethene (TCE)	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
Trichlorofluoromethane	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
1,2,3-Trichloropropane	ND	5.0	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
Vinyl chloride	ND	2.5	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
Xylenes, Total	36	3.8	D	µg/L	25	7/11/2018 10:45:12 AM	W52633
Surr: Dibromofluoromethane	90.8	70-130	D	%Rec	25	7/11/2018 10:45:12 AM	W52633
Surr: 1,2-Dichloroethane-d4	88.7	70-130	D	%Rec	25	7/11/2018 10:45:12 AM	W52633
Surr: Toluene-d8	105	70-130	D	%Rec	25	7/11/2018 10:45:12 AM	W52633
Surr: 4-Bromofluorobenzene	118	70-130	D	%Rec	25	7/11/2018 10:45:12 AM	W52633

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

Qualifiers:

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D	Sample Diluted Due to Matrix	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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Florance GC J 16A
Lab ID: 1807338-002 **Matrix:** AQUEOUS

Client Sample ID: PR Tank
Collection Date: 7/6/2018 4:20:00 PM
Received Date: 7/10/2018 7:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **AG**	
Gasoline Range Organics (GRO)	1.4	0.50		mg/L	10	7/11/2018 12:04:19 PM	B52613
Surr: BFB	105	70-130		%Rec	10	7/11/2018 12:04:19 PM	B52613
EPA METHOD 8015M/D: DIESEL RANGE						Analyst: **lrm**	
Diesel Range Organics (DRO)	98	1.0		mg/L	1	7/13/2018 11:37:05 PM	39168
Motor Oil Range Organics (MRO)	49	5.0		mg/L	1	7/13/2018 11:37:05 PM	39168
Surr: DNOP	153	76.7-135	S	%Rec	1	7/13/2018 11:37:05 PM	39168
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	16	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
Toluene	34	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
Ethylbenzene	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
Methyl tert-butyl ether (MTBE)	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
1,2,4-Trimethylbenzene	9.7	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
1,3,5-Trimethylbenzene	8.8	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
1,2-Dichloroethane (EDC)	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
1,2-Dibromoethane (EDB)	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
Naphthalene	ND	10		µg/L	10	7/11/2018 5:29:00 PM	R52632
1-Methylnaphthalene	32	20		µg/L	10	7/11/2018 5:29:00 PM	R52632
2-Methylnaphthalene	26	20		µg/L	10	7/11/2018 5:29:00 PM	R52632
Acetone	70	50		µg/L	10	7/11/2018 5:29:00 PM	R52632
Bromobenzene	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
Bromodichloromethane	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
Bromoform	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
Bromomethane	ND	15		µg/L	10	7/11/2018 5:29:00 PM	R52632
2-Butanone	ND	50		µg/L	10	7/11/2018 5:29:00 PM	R52632
Carbon disulfide	ND	50		µg/L	10	7/11/2018 5:29:00 PM	R52632
Carbon Tetrachloride	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
Chlorobenzene	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
Chloroethane	ND	10		µg/L	10	7/11/2018 5:29:00 PM	R52632
Chloroform	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
Chloromethane	ND	15		µg/L	10	7/11/2018 5:29:00 PM	R52632
2-Chlorotoluene	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
4-Chlorotoluene	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
cis-1,2-DCE	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
cis-1,3-Dichloropropene	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
1,2-Dibromo-3-chloropropane	ND	10		µg/L	10	7/11/2018 5:29:00 PM	R52632
Dibromochloromethane	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
Dibromomethane	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
1,2-Dichlorobenzene	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632

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
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Florance GC J 16A
Lab ID: 1807338-002 **Matrix:** AQUEOUS

Client Sample ID: PR Tank
Collection Date: 7/6/2018 4:20:00 PM
Received Date: 7/10/2018 7:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
1,3-Dichlorobenzene	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
1,4-Dichlorobenzene	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
Dichlorodifluoromethane	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
1,1-Dichloroethane	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
1,1-Dichloroethene	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
1,2-Dichloropropane	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
1,3-Dichloropropane	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
2,2-Dichloropropane	ND	10		µg/L	10	7/11/2018 5:29:00 PM	R52632
1,1-Dichloropropene	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
Hexachlorobutadiene	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
2-Hexanone	ND	50		µg/L	10	7/11/2018 5:29:00 PM	R52632
Isopropylbenzene	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
4-Isopropyltoluene	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
4-Methyl-2-pentanone	ND	50		µg/L	10	7/11/2018 5:29:00 PM	R52632
Methylene Chloride	ND	15		µg/L	10	7/11/2018 5:29:00 PM	R52632
n-Butylbenzene	ND	15		µg/L	10	7/11/2018 5:29:00 PM	R52632
n-Propylbenzene	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
sec-Butylbenzene	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
Styrene	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
tert-Butylbenzene	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
1,1,1,2-Tetrachloroethane	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
1,1,2,2-Tetrachloroethane	ND	10		µg/L	10	7/11/2018 5:29:00 PM	R52632
Tetrachloroethene (PCE)	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
trans-1,2-DCE	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
trans-1,3-Dichloropropene	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
1,2,3-Trichlorobenzene	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
1,2,4-Trichlorobenzene	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
1,1,1-Trichloroethane	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
1,1,2-Trichloroethane	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
Trichloroethene (TCE)	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
Trichlorofluoromethane	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
1,2,3-Trichloropropane	ND	10		µg/L	10	7/11/2018 5:29:00 PM	R52632
Vinyl chloride	ND	5.0		µg/L	10	7/11/2018 5:29:00 PM	R52632
Xylenes, Total	70	7.5		µg/L	10	7/11/2018 5:29:00 PM	R52632
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	10	7/11/2018 5:29:00 PM	R52632
Surr: 4-Bromofluorobenzene	95.1	70-130		%Rec	10	7/11/2018 5:29:00 PM	R52632
Surr: Dibromofluoromethane	96.4	70-130		%Rec	10	7/11/2018 5:29:00 PM	R52632
Surr: Toluene-d8	95.1	70-130		%Rec	10	7/11/2018 5:29:00 PM	R52632

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

ENERGY LABORATORIES
Tel: 800 735 4489 Fax: 888 235 0515
866 686 7175 877 422 0711

LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated
Client Sample ID: 1807338-001B; Zone 03 Influent
Location:
Lab ID: G18070363-001

Report Date: 07/25/18
Collection Date: 07/06/18 15:00
Date Received: 07/17/18
Sampled By: Not Provided

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
NATURAL GAS CHROMATOGRAPHIC ANALYSIS REPORT					
Oxygen	22.387	Mol %		GPA 2261	07/25/18 07:12 / djb
Nitrogen	77.373	Mol %		GPA 2261	07/25/18 07:12 / djb
Carbon Dioxide	0.207	Mol %		GPA 2261	07/25/18 07:12 / djb
Hydrogen Sulfide	< 0.001	Mol %		GPA 2261	07/25/18 07:12 / djb
Methane	< 0.001	Mol %		GPA 2261	07/25/18 07:12 / djb
Ethane	< 0.001	Mol %		GPA 2261	07/25/18 07:12 / djb
Propane	< 0.001	Mol %		GPA 2261	07/25/18 07:12 / djb
Isobutane	< 0.001	Mol %		GPA 2261	07/25/18 07:12 / djb
n-Butane	< 0.001	Mol %		GPA 2261	07/25/18 07:12 / djb
Isopentane	0.002	Mol %		GPA 2261	07/25/18 07:12 / djb
n-Pentane	0.002	Mol %		GPA 2261	07/25/18 07:12 / djb
Hexanes plus	0.029	Mol %		GPA 2261	07/25/18 07:12 / djb
GPM @ STD COND/1000 CU.FT., MOISTURE FREE GAS					
GPM Ethane	< 0.0003	gal/MCF		GPA 2261	07/25/18 07:12 / djb
GPM Propane	< 0.0003	gal/MCF		GPA 2261	07/25/18 07:12 / djb
GPM Isobutane	< 0.0003	gal/MCF		GPA 2261	07/25/18 07:12 / djb
GPM n-Butane	< 0.0003	gal/MCF		GPA 2261	07/25/18 07:12 / djb
GPM Isopentane	0.0010	gal/MCF		GPA 2261	07/25/18 07:12 / djb
GPM n-Pentane	0.0010	gal/MCF		GPA 2261	07/25/18 07:12 / djb
GPM Hexanes plus	0.0130	gal/MCF		GPA 2261	07/25/18 07:12 / djb
GPM Pentanes plus	0.0140	gal/MCF		GPA 2261	07/25/18 07:12 / djb
GPM Total	0.0140	gal/MCF		GPA 2261	07/25/18 07:12 / djb
CALCULATED PROPERTIES					
Calculation Pressure Base	14.730	psia		GPA 2261	07/25/18 07:12 / djb
Calculation Temperature Base	60	°F		GPA 2261	07/25/18 07:12 / djb
Compressibility Factor, Z	1.0000	unitless		GPA 2261	07/25/18 07:12 / djb
Molecular Weight	28.96	unitless		GPA 2261	07/25/18 07:12 / djb
Pseudo-critical Pressure, psia	548	psia		GPA 2261	07/25/18 07:12 / djb
Pseudo-critical Temperature, deg R	240	deg R		GPA 2261	07/25/18 07:12 / djb
Specific Gravity (air=1.000)	1.003	unitless		GPA 2261	07/25/18 07:12 / djb
Gross BTU per cu ft @ std cond, dry	1.66	BTU/cu ft		GPA 2261	07/25/18 07:12 / djb
Gross BTU per cu ft @ std cond, wet	1.64	BTU/cu ft		GPA 2261	07/25/18 07:12 / djb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental **Report Date:** 07/25/18

Project: Not Indicated **Work Order:** G18070383

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261									Analytical Run: R244767
Lab ID: ICV-1807250640	Initial Calibration Verification Standard								07/25/18 06:41
Oxygen	0.397	Mol %	0.001	83	75	110			
Nitrogen	5.030	Mol %	0.001	100	90	110			
Carbon Dioxide	4.920	Mol %	0.001	99	90	110			
Hydrogen Sulfide	0.128	Mol %	0.001	127	100	136			
Methane	73.047	Mol %	0.001	100	90	110			
Ethane	5.020	Mol %	0.001	101	90	110			
Propane	5.139	Mol %	0.001	101	90	110			
Isobutane	2.023	Mol %	0.001	100	90	110			
n-Butane	2.000	Mol %	0.001	99	90	110			
Isopentane	0.997	Mol %	0.001	100	90	110			
n-Pentane	0.991	Mol %	0.001	99	90	110			
Hexanes plus	0.308	Mol %	0.001	102	90	110			
Lab ID: CCV-1807250649	Continuing Calibration Verification Standard								07/25/18 06:49
Oxygen	0.589	Mol %	0.001	98	90	110			
Nitrogen	1.309	Mol %	0.001	93	85	110			
Carbon Dioxide	0.969	Mol %	0.001	97	90	110			
Hydrogen Sulfide	0.025	Mol %	0.001	100	70	130			
Methane	93.516	Mol %	0.001	100	90	110			
Ethane	1.025	Mol %	0.001	102	90	110			
Propane	1.010	Mol %	0.001	101	90	110			
Isobutane	0.507	Mol %	0.001	101	90	110			
n-Butane	0.494	Mol %	0.001	99	90	110			
Isopentane	0.202	Mol %	0.001	101	90	110			
n-Pentane	0.199	Mol %	0.001	99	90	110			
Hexanes plus	0.155	Mol %	0.001	102	90	110			
Lab ID: CCV-1807250843	Continuing Calibration Verification Standard								07/25/18 08:43
Oxygen	0.588	Mol %	0.001	98	90	110			
Nitrogen	1.306	Mol %	0.001	93	85	110			
Carbon Dioxide	0.970	Mol %	0.001	97	90	110			
Hydrogen Sulfide	0.026	Mol %	0.001	104	70	130			
Methane	93.528	Mol %	0.001	100	90	110			
Ethane	1.024	Mol %	0.001	102	90	110			
Propane	1.009	Mol %	0.001	101	90	110			
Isobutane	0.504	Mol %	0.001	101	90	110			
n-Butane	0.491	Mol %	0.001	98	90	110			
Isopentane	0.201	Mol %	0.001	100	90	110			
n-Pentane	0.198	Mol %	0.001	99	90	110			
Hexanes plus	0.155	Mol %	0.001	102	90	110			

Method: **GPA 2261** Batch: R244767

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 07/25/18
Work Order: G18070363

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261								Batch: R244767	
Lab ID: G18070363-001ADUP	Sample Duplicate				Run: Varian GC_180725A			07/25/18 07:17	
Oxygen	22.389	Mol %	0.001				0.0	10	
Nitrogen	77.370	Mol %	0.001				0.0	10	
Carbon Dioxide	0.207	Mol %	0.001				0.0	10	
Hydrogen Sulfide	< 0.001	Mol %	0.001					10	
Methane	< 0.001	Mol %	0.001					10	
Ethane	< 0.001	Mol %	0.001					10	
Propane	< 0.001	Mol %	0.001					10	
Isobutane	< 0.001	Mol %	0.001					10	
n-Butane	< 0.001	Mol %	0.001					10	
Isopentane	0.002	Mol %	0.001				0.0	10	
n-Pentane	0.002	Mol %	0.001				0.0	10	
Hexanes plus	0.030	Mol %	0.001				3.4	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1807338**

25-Jul-18

Client: Williams Four Corners

Project: Florance GC J 16A

Sample ID **MB-39168**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **PBW**	Batch ID: **39168**	RunNo: **52681**
Prep Date: **7/12/2018**	Analysis Date: **7/13/2018**	SeqNo: **1730832** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	0.73		1.000		72.9	76.7	135			S

Sample ID **LCS-39168**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **LCSW**	Batch ID: **39168**	RunNo: **52681**
Prep Date: **7/12/2018**	Analysis Date: **7/13/2018**	SeqNo: **1730833** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.0	1.0	5.000	0	99.5	70	130			
Surr: DNOP	0.29		0.5000		57.8	76.7	135			S

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1807338**

25-Jul-18

Client: Williams Four Corners

Project: Florance GC J 16A

Sample ID **1807338-001a dup**	SampType: **DUP**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **Zone 03 Influent**	Batch ID: **W52633**	RunNo: **52633**
Prep Date:	Analysis Date: **7/11/2018**	SeqNo: **1727333** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	10	2.5						2.49	20	D
Toluene	37	2.5						9.06	20	D
Ethylbenzene	3.5	2.5						11.6	20	D
Methyl tert-butyl ether (MTBE)	ND	2.5						0	20	D
1,2,4-Trimethylbenzene	ND	2.5						0	20	D
1,3,5-Trimethylbenzene	ND	2.5						0	20	D
1,2-Dichloroethane (EDC)	ND	2.5						0	20	D
1,2-Dibromoethane (EDB)	ND	2.5						0	20	D
Naphthalene	ND	5.0						0	20	D
1-Methylnaphthalene	ND	10						0	20	D
2-Methylnaphthalene	ND	10						0	20	D
Acetone	ND	25						0	20	D
Bromobenzene	ND	2.5						0	20	D
Bromodichloromethane	ND	2.5						0	20	D
Bromoform	ND	2.5						0	20	D
Bromomethane	ND	5.0						0	20	D
2-Butanone	ND	25						0	20	D
Carbon disulfide	ND	25						0	20	D
Carbon tetrachloride	ND	2.5						0	20	D
Chlorobenzene	ND	2.5						0	20	D
Chloroethane	ND	5.0						0	20	D
Chloroform	ND	2.5						0	20	D
Chloromethane	ND	2.5						0	20	D
2-Chlorotoluene	ND	2.5						0	20	D
4-Chlorotoluene	ND	2.5						0	20	D
cis-1,2-DCE	ND	2.5						0	20	D
cis-1,3-Dichloropropene	ND	2.5						0	20	D
1,2-Dibromo-3-chloropropane	ND	5.0						0	20	D
Dibromochloromethane	ND	2.5						0	20	D
Dibromomethane	ND	5.0						0	20	D
1,2-Dichlorobenzene	ND	2.5						0	20	D
1,3-Dichlorobenzene	ND	2.5						0	20	D
1,4-Dichlorobenzene	ND	2.5						0	20	D
Dichlorodifluoromethane	ND	2.5						0	20	D
1,1-Dichloroethane	ND	2.5						0	20	D
1,1-Dichloroethene	ND	2.5						0	20	D
1,2-Dichloropropane	ND	2.5						0	20	D
1,3-Dichloropropane	ND	2.5						0	20	D
2,2-Dichloropropane	ND	2.5						0	20	D

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1807338**

25-Jul-18

Client: Williams Four Corners

Project: Florance GC J 16A

Sample ID **1807338-001a dup** SampType: **DUP** TestCode: **EPA Method 8260B: Volatiles**

Client ID: **Zone 03 Influent** Batch ID: **W52633** RunNo: **52633**

Prep Date: Analysis Date: **7/11/2018** SeqNo: **1727333** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	2.5						0	20	D
Hexachlorobutadiene	ND	2.5						0	20	D
2-Hexanone	ND	25						0	20	D
Isopropylbenzene	ND	2.5						0	20	D
4-Isopropyltoluene	ND	2.5						0	20	D
4-Methyl-2-pentanone	ND	25						0	20	D
Methylene chloride	16	7.5						1.73	20	D
n-Butylbenzene	ND	7.5						0	20	D
n-Propylbenzene	ND	2.5						0	20	D
sec-Butylbenzene	ND	2.5						0	20	D
Styrene	ND	2.5						0	20	D
tert-Butylbenzene	ND	2.5						0	20	D
1,1,1,2-Tetrachloroethane	ND	2.5						0	20	D
1,1,2,2-Tetrachloroethane	ND	2.5						0	20	D
Tetrachloroethene (PCE)	ND	2.5						0	20	D
trans-1,2-DCE	ND	2.5						0	20	D
trans-1,3-Dichloropropene	ND	2.5						0	20	D
1,2,3-Trichlorobenzene	ND	2.5						0	20	D
1,2,4-Trichlorobenzene	ND	2.5						0	20	D
1,1,1-Trichloroethane	ND	2.5						0	20	D
1,1,2-Trichloroethane	ND	2.5						0	20	D
Trichloroethene (TCE)	ND	2.5						0	20	D
Trichlorofluoromethane	ND	2.5						0	20	D
1,2,3-Trichloropropane	ND	5.0						0	20	D
Vinyl chloride	ND	2.5						0	20	D
Xylenes, Total	33	3.8						9.62	20	D
Surr: Dibromofluoromethane	22		25.00		88.8	70	130	0	0	D
Surr: 1,2-Dichloroethane-d4	21		25.00		85.0	70	130	0	0	D
Surr: Toluene-d8	27		25.00		107	70	130	0	0	D
Surr: 4-Bromofluorobenzene	30		25.00		119	70	130	0	0	D

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1807338**

25-Jul-18

Client: Williams Four Corners

Project: Florance GC J 16A

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R52632**	RunNo: **52632**
Prep Date:	Analysis Date: **7/11/2018**	SeqNo: **1727295** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	89.6	70	130			
Toluene	19	1.0	20.00	0	94.2	70	130			
Chlorobenzene	19	1.0	20.00	0	97.0	70	130			
1,1-Dichloroethene	19	1.0	20.00	0	93.2	70	130			
Trichloroethene (TCE)	17	1.0	20.00	0	87.1	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		97.8	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.6	70	130			
Surr: Toluene-d8	9.4		10.00		94.0	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R52632**	RunNo: **52632**
Prep Date:	Analysis Date: **7/11/2018**	SeqNo: **1727298** 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								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1807338**

25-Jul-18

Client: Williams Four Corners

Project: Florance GC J 16A

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R52632**	RunNo: **52632**
Prep Date:	Analysis Date: **7/11/2018**	SeqNo: **1727298** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1807338**

25-Jul-18

Client: Williams Four Corners

Project: Florance GC J 16A

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R52632**	RunNo: **52632**
Prep Date:	Analysis Date: **7/11/2018**	SeqNo: **1727298** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		100	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		94.9	70	130			
Surr: Dibromofluoromethane	9.6		10.00		95.8	70	130			
Surr: Toluene-d8	9.4		10.00		94.0	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **W52633**	RunNo: **52633**
Prep Date:	Analysis Date: **7/11/2018**	SeqNo: **1727330** 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								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								

Qualifiers:

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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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1807338**

25-Jul-18

Client: Williams Four Corners

Project: Florance GC J 16A

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **W52633**	RunNo: **52633**
Prep Date:	Analysis Date: **7/11/2018**	SeqNo: **1727330** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		103	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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1807338**

25-Jul-18

Client: Williams Four Corners

Project: Florance GC J 16A

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **W52633**	RunNo: **52633**
Prep Date:	Analysis Date: **7/11/2018**	SeqNo: **1727330** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	12		10.00		115	70	130			
Surr: Dibromofluoromethane	9.6		10.00		96.3	70	130			
Surr: Toluene-d8	9.8		10.00		97.5	70	130			

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **W52633**	RunNo: **52633**
Prep Date:	Analysis Date: **7/11/2018**	SeqNo: **1727331** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	105	70	130			
Toluene	20	1.0	20.00	0	102	70	130			
Chlorobenzene	20	1.0	20.00	0	101	70	130			
1,1-Dichloroethene	21	1.0	20.00	0	103	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	92.4	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		115	70	130			
Surr: Dibromofluoromethane	9.4		10.00		93.6	70	130			
Surr: Toluene-d8	10		10.00		101	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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1807338**

25-Jul-18

Client: Williams Four Corners

Project: Florance GC J 16A

Sample ID **2.5ug gro lcs**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **A52594**	RunNo: **52594**
Prep Date:	Analysis Date: **7/10/2018**	SeqNo: **1725906** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	8.9		10.00		89.2	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **A52594**	RunNo: **52594**
Prep Date:	Analysis Date: **7/10/2018**	SeqNo: **1725907** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	9.7		10.00		97.0	70	130			

Sample ID **2.5ug gro lcs**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **B52613**	RunNo: **52613**
Prep Date:	Analysis Date: **7/11/2018**	SeqNo: **1727284** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.56	0.050	0.5000	0	111	70	130			
Surr: BFB	9.4		10.00		94.2	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **B52613**	RunNo: **52613**
Prep Date:	Analysis Date: **7/11/2018**	SeqNo: **1727285** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.8		10.00		97.8	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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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: WILLIAMS FOUR CORN Work Order Number: 1807338 RcptNo: 1

Received By: **Isaiah Ortiz** 7/10/2018 7:25:00 AM IO

Completed By: **Isaiah Ortiz** 7/10/2018 7:58:55 AM IO

Reviewed By: IO 7/10/18

LB: ENM 7/10/18

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
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: _____ (<2 or >12 unless noted)

Adjusted? _____

ENM 7/10/18

Checked by: _____

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:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.3	Good	Yes			

Chain-of-Custody Record

Client: Williams Four Corners

Mailing Address: 17755 Arroyo Dr. Bloomfield, NM 87413

Phone #:

email or Fax#: aaron.galer@williams.com

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other

☒ EDD (Type) PDF

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: Florance GCJ 16A

Project #:

Project Manager: LT Environmental - Dburns@ltenv.com 701-570-4727

Sampler: Danny Burns

On Ice: ☐ Yes ☑ No

Sample Temperature: 0.3

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. 1807338	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA) Full List VOCs	8270 (Semi-VOA)	8260 VOCs Full list	Carbon Dioxide	Oxygen	Air Bubbles (Y or N)
7-6-18	15:00	Air	Zone 03 Influent	2-Tedlar	NA	-001												X	X	X	
	16:20	AQ	PR Tank	1-1L amber 6-40mL VOCs	HCl, cool	-002			X							X					

Date	Time	Relinquished by:	Received by:	Date	Time
7-9-18	1251			7/9/18	1251
7/9/18	1810		courier	7/10/18	725

Remarks: cc: dburns@ltenv.com jason.ramsay@aptim.com

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.