

4Q 2019

SVE

Report

From: [Smith, Cory, EMNRD](#)
To: [Jennifer Deal](#)
Cc: [Devin Hencmann](#); "Daniel Burns"
Subject: RE: Hilcorp - Bell Federal GC B#1 - 2019 4th Qtr SVE Report
Date: Monday, March 2, 2020 3:39:00 PM
Attachments: [image002.png](#)
[image003.png](#)
[image004.png](#)

Jennifer,

OCD has reviewed the Q4 2019 SVE report and has approved it with the following new Conditions of approval

- - HEC will continue to collect a gas sample as previous required however, the gas sample will be analyzed for EPA Method 8260 Full List and include **Carbon dioxide** and **Oxygen**.

The quarterly report will be scanned into the online incident# file If you have any questions please give me a call.

Thank you,

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: Daniel Burns <dburns@ltenv.com>
Sent: Tuesday, February 4, 2020 12:00 PM
To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Cc: Jennifer Deal <jdeal@hilcorp.com>; Devin Hencmann <dhencmann@ltenv.com>
Subject: [EXT] Hilcorp - Bell Federal GC B#1 - 2019 4th Qtr SVE Report

Cory,

On behalf of Hilcorp Energy Company, please see the SVE report for the Bell Federal GC B#1 regarding remediation activities during the 4th quarter of 2019.

Thank you,

Danny Burns
Project Geologist
701.570.4727 *cell*
970.385.1096 *office*
848 East Second Avenue Durango, CO 81301

January 29, 2020

Mr. Cory Smith
New Mexico Oil Conservation Division
1000 Rio Brazos Road
Aztec, NM 87410

New Conditions of Approval Added
See Attached Email, RCVD 2/4/2020

Reviewed 3/2/2020

**RE: Quarterly Solar SVE System Update
Hilcorp Energy Company
Bell Federal GC B #1
San Juan County, New Mexico
API # 30-045-09772
Incident # NCS1729355513
San Juan County, New Mexico**



Dear Mr. Smith:

LT Environmental, Inc. (LTE), on behalf of Hilcorp Energy Company (Hilcorp), presents the following quarterly summary report discussing the solar soil vapor extraction (SVE) system performance at the Bell Federal GC B #1 natural gas production well (Site).

The solar SVE system was installed on January 16, 2018, to remediate subsurface soil impacts following an act of vandalism, resulting in the release of approximately 58 barrels (bbl) of condensate. SVE installation, soil sampling, and delineation activities are summarized in earlier reports submitted to the New Mexico Oil Conservation Division (NMOCD) on February 28, 2018, May 3, 2018, April 12, 2019, and July 29, 2019.

The solar SVE system consists of a 1/3 horsepower blower capable of producing 22 cubic feet per minute (cfm) at 29 inches of water column vacuum. The blower is powered by four 12-volt deep cycle batteries that are charged throughout the day via three solar panels with a nominal maximum power output of 915 watts. The blower runs off a timer that is scheduled to maximize runtime that coincides with the seasonally available solar recharge, typically 10 hours in the winter and 12 hours in the summer for Farmington, New Mexico. Between startup, January 16, 2018, and the last site visit on December 16, 2019, there have been 699 days of operation, with an estimated 8,154 total hours of available nominal daylight in which the solar SVE system should be in operation. Of the available runtime of 8,154 hours since installation, the system has an actual runtime of 7,943 hours, for an overall 97.4 percent (%) runtime efficiency. Below is a table of SVE runtime in comparison with nominal available daylight hours, per month, according to the National Oceanic and Atmospheric Administration's National Weather Service.



Time Period	January 16, 2018 to September 25, 2019	September 26, 2019 to September 30, 2019	October 2019	November 2019	December 1, 2019 to December 16, 2019
Days	616	5	31	31	16
Avg. Nominal Daylight Hrs	12	12	11	10	9
Available Runtime Hrs.	7,299	60	341	310	144
Total Available Daylight Runtime Hours					8,154
Actual Runtime Hours					7,943
% Runtime					97.4%

An initial air sample was collected on January 24, 2018, from the solar SVE system discharge exhaust stack. Subsequent air samples have been collected quarterly (Table 1) with the last sample collected on December 16, 2019. No air sample was collected during the second quarter of 2018, due to a change in operator from XTO Energy to Hilcorp, and no air sample was collected during the fourth quarter 2018 due to additional delineation in January 2019.

Samples were collected in Tedlar® bags and submitted to Hall Environmental Analysis Laboratory of Albuquerque, New Mexico for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) by United States Environmental Protection Agency (US EPA) Method 8021, and total volatile petroleum hydrocarbons (TVPH) via US EPA Method 8015. Laboratory analytical results are attached as Table 1. Overall benzene concentrations have decreased since the solar SVE system installation from 280 micrograms per liter (µg/L) to 130 µg/L and TVPH concentrations have decreased from 30,000 µg/L to 22,000 µg/L.

Since the solar SVE system installation, a total of approximately 54.7 gallons of liquid phase separated hydrocarbons (PSH) have been recovered from the SVE wells and liquid-vapor separator tank. Based on the air sample data collected to date, the estimated mass air emissions were calculated using an average of the air samples (Table 2). The impacted mass source removal via the solar SVE system to date is an estimated 6,016 pounds (lbs.) of TVPH. Including the PSH and vapor phase hydrocarbons, an estimated total of 1,025 gallons or 24.4 bbl of PSH and air equivalent condensate has been recovered to date.

During the upcoming 1st quarter 2020 of operations, Site visits will resume on a bi-weekly basis by Hilcorp and LTE personnel to ensure 90% runtime efficiency continues and that any maintenance issues are addressed. The average nominal daylight hours will increase through the 1st quarter, so the blower operation hours will be adjusted accordingly. An air sample will be collected in the 1st quarter and analyzed for BTEX by US EPA Method 8021 and TVPH by US EPA Method 8015. An updated quarterly report with sample results, runtime, and mass source removal will be submitted under separate cover.





LTE appreciates the opportunity to provide this report to the NMOCD. If you have any questions or comments regarding this work plan, do not hesitate to contact me at (970) 385-1096 or via email at dburns@ltenv.com or Jennifer Deal at (505) 324-5128 or at jdeal@hilcorp.com.

Sincerely,

LT ENVIRONMENTAL, INC.

A handwritten signature in blue ink, appearing to read 'D. Burns', written over a light blue grid background.

Danny Burns
Project Geologist

A handwritten signature in black ink, reading 'Ashley L. Ager', written over a light blue grid background.

Ashley Ager, M.S., P.G.
Senior Geologist

cc: Jennifer Deal, Hilcorp Energy Company



**TABLE 1
AIR SAMPLE ANALYTICAL RESULTS**

**BELL FEDERAL GC B#1
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY**

Sample ID	Sample Date	Vapor (ppm)	Benzene (µg/L)	Toluene (µ/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	TVPH (µg/L)
Bell Fed GC B#1 SVE	1/24/2018	1,435	280	200	5.0	38	30,000
Stack Exhaust 01	8/17/2018	1,873	160	380	21	320	18,000
SVE Effluent	3/22/2019	1,607	490	920	24	480	NA
Influent 6/18	6/18/2019	1,026	72	270	27	290	NA
Bell Fed 9/25	9/25/2019	1,762	220	480	21	440	35,000
Influent 12/16	12/16/2019	1,902	130	840	21	220	22,000
	Percent change	33%	-54%	320%	320%	479%	-27%

NOTES:

µg/L - micrograms per liter

NA - not analyzed

ppm - parts per million

TVPH- total volatile petroleum hydrocarbons

Italics denote that the laboratory method detection limit was used for calculations for a non-detected result



**TABLE 2
SOIL VAPOR EXTRACTION SYSTEM RECOVERY & EMISSIONS SUMMARY**

**BELL FEDERAL GC B#1
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY**

Sample Information and Lab Analysis

Date	Total Flow (cf)	Delta Flow (cf)	PID (ppm)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	TVPH (µg/L)
1/24/2018	164,400	164,400	1,435	280	200	5	38	30,000
8/17/2018	2,059,584	1,895,184	1,873	160	380	21	320	18,000
3/22/2019	6,554,304	4,494,720	1,607	490	920	24	480	NA
6/18/2019	12,009,024	5,454,720	1,026	72	270	27	290	NA
9/25/2019	17,848,704	5,839,680	1,762	220	480	21	440	35,000
12/16/2019	25,473,984	7,625,280	1,902	130	840	21	220	22,000
Average			1,601	225	515	20	298	26,250

Vapor Extraction Calculations

Date	Flow Rate (cfm)	Benzene (lb/hr)	Toluene (lb/hr)	Ethyl-benzene (lb/hr)	Total Xylenes (lb/hr)	TVPH (lb/hr)	
1/24/2018	40	0.0419	0.0299	0.0007	0.0057	4.4921	
8/17/2018	12	0.0072	0.0171	0.0009	0.0144	0.8086	
3/22/2019	16	0.0293	0.0551	0.0014	0.0287	NA	
6/18/2019	16	0.0043	0.0162	0.0016	0.0174	NA	
9/25/2019	14	0.0115	0.0252	0.0011	0.0231	1.8343	
12/16/2019	16	0.0078	0.0503	0.0013	0.0132	1.3177	
Average		19	0.0170	0.0323	0.0012	0.0171	2.1131

Pounds Extracted Over Total Operating Time

Date	Total Operational Hours	Delta Hours	Benzene (lbs)	Toluene (lbs)	Ethyl-benzene (lbs)	Total Xylenes (lbs)	TVPH (lbs)	TVPH (tons)
1/24/2018	68.5	68.5	2.9	2.1	0.1	0.4	307.7	0.2
8/17/2018	2,632	2,563.7	18.4	43.8	2.4	36.9	2,072.9	1.0
3/22/2019	4,682	2,049.8	60.2	112.9	2.9	58.9	NA	NA
6/26/2019	5,682	1,000.0	4.3	16.2	1.6	17.4	NA	NA
9/25/2019	6,952	1,270.0	14.6	31.9	1.4	29.3	2,329.5	1.2
12/16/2019	7,943	991.0	7.7	49.9	1.2	13.1	1,305.8	0.7
Avg. Mass Extracted To Date			18.0	42.8	1.6	26.0	1,504.0	0.8
Total Extracted to Date (Linear Decay)			108.1	256.7	9.7	155.9	6,016.0	3.0

NOTES

cf - cubic feet

cfm - cubic feet per minute

lbs - pounds

lb/hr - pounds per hour

µg/L - microgram per liter

NA - not analyzed

PID - photoionization detector

ppm - parts per million

TVPH - total volatile petroleum hydrocarbons

Italics denote that the laboratory method detection limit was used for calculations for a non-detected result





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

December 23, 2019

Devin Hencmann
HILCORP ENERGY
PO Box 4700
Farmington, NM 87499
TEL: (505) 564-0733
FAX

RE: Bell Federal

OrderNo.: 1912982

Dear Devin Hencmann:

Hall Environmental Analysis Laboratory received 1 sample(s) on 12/19/2019 for the analyses presented in the following report.

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

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

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

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a light blue horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: Influent 12/16

Project: Bell Federal

Collection Date: 12/16/2019 1:20:00 PM

Lab ID: 1912982-001

Matrix: AIR

Received Date: 12/19/2019 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	22000	250		µg/L	50	12/20/2019 9:33:37 AM
Surr: BFB	134	53-256		%Rec	50	12/20/2019 9:33:37 AM
EPA METHOD 8260B: VOLATILES						Analyst: DJF
Benzene	130	5.0		µg/L	50	12/20/2019 10:34:41 AM
Toluene	840	10		µg/L	100	12/20/2019 12:02:56 PM
Ethylbenzene	21	5.0		µg/L	50	12/20/2019 10:34:41 AM
Methyl tert-butyl ether (MTBE)	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
1,2,4-Trimethylbenzene	9.8	5.0		µg/L	50	12/20/2019 10:34:41 AM
1,3,5-Trimethylbenzene	7.8	5.0		µg/L	50	12/20/2019 10:34:41 AM
1,2-Dichloroethane (EDC)	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
1,2-Dibromoethane (EDB)	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
Naphthalene	ND	10		µg/L	50	12/20/2019 10:34:41 AM
1-Methylnaphthalene	ND	20		µg/L	50	12/20/2019 10:34:41 AM
2-Methylnaphthalene	ND	20		µg/L	50	12/20/2019 10:34:41 AM
Acetone	ND	50		µg/L	50	12/20/2019 10:34:41 AM
Bromobenzene	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
Bromodichloromethane	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
Bromoform	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
Bromomethane	ND	10		µg/L	50	12/20/2019 10:34:41 AM
2-Butanone	ND	50		µg/L	50	12/20/2019 10:34:41 AM
Carbon disulfide	ND	50		µg/L	50	12/20/2019 10:34:41 AM
Carbon tetrachloride	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
Chlorobenzene	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
Chloroethane	ND	10		µg/L	50	12/20/2019 10:34:41 AM
Chloroform	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
Chloromethane	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
2-Chlorotoluene	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
4-Chlorotoluene	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
cis-1,2-DCE	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
cis-1,3-Dichloropropene	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
1,2-Dibromo-3-chloropropane	ND	10		µg/L	50	12/20/2019 10:34:41 AM
Dibromochloromethane	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
Dibromomethane	ND	10		µg/L	50	12/20/2019 10:34:41 AM
1,2-Dichlorobenzene	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
1,3-Dichlorobenzene	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
1,4-Dichlorobenzene	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
Dichlorodifluoromethane	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
1,1-Dichloroethane	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
1,1-Dichloroethene	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM

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

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1912982

Date Reported: 12/23/2019

CLIENT: HILCORP ENERGY

Client Sample ID: Influent 12/16

Project: Bell Federal

Collection Date: 12/16/2019 1:20:00 PM

Lab ID: 1912982-001

Matrix: AIR

Received Date: 12/19/2019 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: DJF
1,2-Dichloropropane	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
1,3-Dichloropropane	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
2,2-Dichloropropane	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
1,1-Dichloropropene	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
Hexachlorobutadiene	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
2-Hexanone	ND	50		µg/L	50	12/20/2019 10:34:41 AM
Isopropylbenzene	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
4-Isopropyltoluene	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
4-Methyl-2-pentanone	ND	50		µg/L	50	12/20/2019 10:34:41 AM
Methylene chloride	ND	15		µg/L	50	12/20/2019 10:34:41 AM
n-Butylbenzene	ND	15		µg/L	50	12/20/2019 10:34:41 AM
n-Propylbenzene	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
sec-Butylbenzene	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
Styrene	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
tert-Butylbenzene	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
1,1,1,2-Tetrachloroethane	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
1,1,2,2-Tetrachloroethane	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
Tetrachloroethene (PCE)	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
trans-1,2-DCE	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
trans-1,3-Dichloropropene	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
1,2,3-Trichlorobenzene	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
1,2,4-Trichlorobenzene	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
1,1,1-Trichloroethane	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
1,1,2-Trichloroethane	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
Trichloroethene (TCE)	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
Trichlorofluoromethane	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
1,2,3-Trichloropropane	ND	10		µg/L	50	12/20/2019 10:34:41 AM
Vinyl chloride	ND	5.0		µg/L	50	12/20/2019 10:34:41 AM
Xylenes, Total	220	7.5		µg/L	50	12/20/2019 10:34:41 AM
Surr: Dibromofluoromethane	93.2	66.1-127		%Rec	50	12/20/2019 10:34:41 AM
Surr: 1,2-Dichloroethane-d4	72.5	70-130		%Rec	50	12/20/2019 10:34:41 AM
Surr: Toluene-d8	107	70-130		%Rec	50	12/20/2019 10:34:41 AM
Surr: 4-Bromofluorobenzene	98.7	70-130		%Rec	50	12/20/2019 10:34:41 AM

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

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1912982

23-Dec-19

Client: HILCORP ENERGY

Project: Bell Federal

Sample ID: 1912982-001adup	SampType: DUP	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: Influent 12/16	Batch ID: G65336	RunNo: 65336								
Prep Date:	Analysis Date: 12/20/2019	SeqNo: 2244501			Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23000	250						4.26	20	
Surr: BFB	140000		100000		135	53	256	0	0	

Qualifiers:

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 D Sample Diluted Due to Matrix
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 ND Not Detected at the Reporting Limit
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 P Sample pH Not In Range
 RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1912982

23-Dec-19

Client: HILCORP ENERGY

Project: Bell Federal

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sample ID: 1912982-001a dup	SampType: DUP	TestCode: EPA Method 8260B: Volatiles								
Client ID: Influent 12/16	Batch ID: W65339	RunNo: 65339								
Prep Date:	Analysis Date: 12/20/2019	SeqNo: 2244602 Units: µg/L								
Benzene	130	5.0						2.59	20	
Toluene	780	5.0						3.91	20	E
Ethylbenzene	22	5.0						3.98	20	
Methyl tert-butyl ether (MTBE)	ND	5.0						0	20	
1,2,4-Trimethylbenzene	10	5.0						3.77	20	
1,3,5-Trimethylbenzene	8.0	5.0						2.64	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.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
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J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1912982

23-Dec-19

Client: HILCORP ENERGY

Project: Bell Federal

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sample ID: 1912982-001a dup	SampType: DUP		TestCode: EPA Method 8260B: Volatiles							
Client ID: Influent 12/16	Batch ID: W65339		RunNo: 65339							
Prep Date:	Analysis Date: 12/20/2019		SeqNo: 2244602 Units: µg/L							
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	230	7.5						3.94	20	
Surr: Dibromofluoromethane	45		50.00		89.8	66.1	127	0	0	
Surr: 1,2-Dichloroethane-d4	36		50.00		71.7	70	130	0	0	
Surr: Toluene-d8	53		50.00		106	70	130	0	0	
Surr: 4-Bromofluorobenzene	47		50.00		93.3	70	130	0	0	

Qualifiers:

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

Sample Log-In Check List

Client Name: HILCORP ENERGY FAR Work Order Number: 1912982 RcptNo: 1

Received By: Daniel Marquez 12/19/2019 8:00:00 AM *DM*
 Completed By: Desiree Dominguez 12/19/2019 9:25:40 AM *DD*
 Reviewed By: **DAD** 12/19/19

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples? Yes No NA
 4. Were all samples received at a temperature of >0° C to 6.0°C Yes No NA
 5. Sample(s) in proper container(s)? Yes No
 6. Sufficient sample volume for indicated test(s)? Yes No
 7. Are samples (except VOA and ONG) properly preserved? Yes No
 8. Was preservative added to bottles? Yes No NA
 9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes No NA
 10. Were any sample containers received broken? Yes No
 11. Does paperwork match bottle labels? Yes No
 (Note discrepancies on chain of custody)
 12. Are matrices correctly identified on Chain of Custody? Yes No
 13. Is it clear what analyses were requested? Yes No
 14. Were all holding times able to be met? Yes No
 (If no, notify customer for authorization.)

of preserved bottles checked for pH: _____
 (<2 or >12 unless noted)
 Adjusted? _____
 Checked by: **ENM 12/19/19**

Special Handling (if applicable)

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

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> 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			

