2Q 2020

SVE Report

From: Smith, Cory, EMNRD
To: "Jennifer Deal"
Cc: "Devin Hencmann"; "Eric Carroll"; "Daniel Burns"
Subject: RE: Bell Federal GC B 1
Date: Friday, August 14, 2020 9:57:00 AM

Jennifer,
Please in the 3Q reporting include the Analytics that were requested in the 4Q 2019 going forward.

I have gone ahead and processed the 1Q and 2Q of 2020 report.

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: Smith, Cory, EMNRD
Sent: Friday, August 14, 2020 9:43 AM
To: 'Jennifer Deal' <jdeal@hilcorp.com>
Cc: Devin Hencmann <dhencmann@ltenv.com>; Eric Carroll <ecarroll@ltenv.com>; Daniel Burns <dburns@ltenv.com>
Subject: RE: Bell Federal GC B 1

Hello All,

I am reviewing this report and it doesn't look like the requested analytics were added to the report.

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: Jennifer Deal <jdeal@hilcorp.com>
Sent: Thursday, August 13, 2020 3:52 PM
To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Cc: Devin Hencmann <dhencmann@ltenv.com>; Eric Carroll <ecarroll@ltenv.com>
Subject: [EXT] Bell Federal GC B 1

Cory,

Please see the SVE report for the Bell Federal GC B 1 regarding remediation activities during the 2nd quarter of 2020.
Incident #NCS1729355513.

Thank you,

Jennifer Deal
Environmental Specialist
Hilcorp Energy – L48 West
jdeal@hilcorp.com
382 Road 3100
Aztec, NM 87410
Office: (505) 324-5128
Cell: (505) 801-6517

A proud member of WSP

LT Environmental, Inc.
848 East Second Avenue
Durango, Colorado 81301
970.385.1096

July 31, 2020

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

RE: Quarter 2 2020 - Solar SVE System Update
Hilcorp Energy Company
Bell Federal GC B #1
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 of 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 that resulted in the release of approximately 58 barrels (bbl) of natural gas condensate. SVE installation, soil sampling, and delineation activities are summarized in earlier reports submitted to the New Mexico Oil Conservation Division (NMOCD) for each quarter of operation.

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 June 25, 2020, there have been 890 days of operation, with an estimated 10,738 total hours of available nominal daylight in which the solar SVE system could operate. Of the available runtime of 10,738 hours since installation, the system has an actual runtime of 10,018 hours, for an overall runtime efficiency of 93.3 percent (%). Below is a table summarizing 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 March 10, 2020	March 10, 2020 to March 31, 2020	April 1, 2020 to April 30, 2020	May 1, 2020 to May 31, 2020	June 1, 2020 to June 24, 2020
Days	784	21	30	31	24
Avg. Nominal Daylight Hrs	12	11	12	13	14
Available Runtime Hrs.	9,408	231	360	403	336
				Total Available Daylight Runtime Hours	10,738
				Actual Runtime Hours	10,018
				% Runtime	93.3%

An initial air sample was collected on January 24, 2018, from the solar SVE system inlet manifold. Subsequent air samples have been collected quarterly (Table 1) with the last sample collected on June 25, 2020. 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 in Albuquerque, New Mexico, for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) by United States Environmental Protection Agency (EPA) Method 8021, and total volatile petroleum hydrocarbons (TVPH) via EPA Method 8015. Laboratory analytical results are summarized in Table 1, with complete laboratory reports included as Attachment 1. Overall benzene concentrations have decreased from 280 micrograms per liter (µg/L) to 180 µg/L since the solar SVE system was installed.

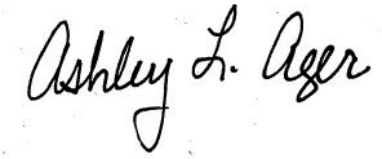
Since the solar SVE system installation, a total of approximately 56.9 gallons of liquid phase separated hydrocarbons (PSH) have been recovered from the SVE wells and liquid-vapor separator tank. Based on the air sample data collected to date, mass air emissions were estimated using air sample analytical results and exhaust flowrates (Table 2). The impacted mass source removal via the solar SVE system to date is an estimated 11,962 pounds of TVPH. Including the PSH and vapor phase hydrocarbons, an estimated total of 1,986 gallons or 47.3 bbl of PSH and air equivalent condensate has been recovered to date.

During the upcoming 3rd quarter 2020 of operations, Site visits will resume on a bi-weekly basis by Hilcorp personnel to ensure 90% runtime efficiency continues and that any maintenance issues are addressed. An air sample will be collected in the 3rd quarter and analyzed for BTEX by EPA Method 8021 and TVPH by 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 jdeal@hilcorp.com.

Sincerely,

LT ENVIRONMENTAL, INC.



Danny Burns
Project Geologist

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

cc: Jennifer Deal, Hilcorp Energy Company

ATTACHMENTS:

Table 1	Air Sample Analytical Results
Table 2	Soil Vapor Extraction System Recovery & Emissions Summary
Attachment 1	Analytical Laboratory Reports

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)	Ethyl-benzene (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
Bell Fed 3/10/20	3/10/2020	1,171	120	380	19	330	31,000
Influent 6/25	6/25/2020	978	180	430	25	480	45,000

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	23,688,384	11,679,360	1,902	130	840	21	220	22,000
3/10/2020	34,415,184	10,726,800	1,171	120	380	19	330	31,000
6/25/2020	46,436,784	12,021,600	978	180	430	25	480	45,000
		Average	1,469	207	488	20	325	30,167

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
3/10/2020	20	0.0090	0.0284	0.0014	0.0247	2.3209
6/25/2020	20	0.0135	0.0322	0.0019	0.0359	3.3690
Average	19	0.0156	0.0318	0.0013	0.0204	2.3571

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	69	2.9	2.1	0.1	0.4	308	0.2
8/17/2018	2,632	2,564	18.4	43.8	2.4	36.9	2,073	1.0
3/22/2019	4,682	2,050	60.2	112.9	2.9	58.9	NA	NA
6/26/2019	5,682	1,000	4.3	16.2	1.6	17.4	NA	NA
9/25/2019	6,952	1,270	14.6	31.9	1.4	29.3	2,330	1.2
12/16/2019	7,943	991	7.7	49.9	1.2	13.1	1,306	0.7
3/10/2020	8,939	996	8.9	28.3	1.4	24.6	2,312	1.2
6/25/2020	10,018	1,079	14.5	34.7	2.0	38.8	3,635	1.8
	Avg. Mass Extracted Per Period		16.5	40.0	1.6	27.4	1,993.8	1.0
	Total Mass Extracted to Date		131.6	319.8	13.1	219.3	11,962.8	6.0

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

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

July 01, 2020

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

RE: Bell Federal OrderNo.: 2006E42

Dear Danny Burns:

Hall Environmental Analysis Laboratory received 1 sample(s) on 6/27/2020 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2006E42**
Date Reported: **7/1/2020**

CLIENT: HILCORP ENERGY
Client Sample ID: Influent 6/25
Project: Bell Federal
Collection Date: 6/25/2020 10:00:00 AM
Lab ID: 2006E42-001 **Matrix:** AIR
Received Date: 6/27/2020 10:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	45000	500		µg/L	100	6/29/2020 9:54:30 AM	G69992
Surr: BFB	239	53-256		%Rec	100	6/29/2020 9:54:30 AM	G69992
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	25		µg/L	100	6/29/2020 9:54:30 AM	B69992
Benzene	180	10		µg/L	100	6/29/2020 9:54:30 AM	B69992
Toluene	430	10		µg/L	100	6/29/2020 9:54:30 AM	B69992
Ethylbenzene	25	10		µg/L	100	6/29/2020 9:54:30 AM	B69992
Xylenes, Total	480	20		µg/L	100	6/29/2020 9:54:30 AM	B69992
Surr: 4-Bromofluorobenzene	101	79.9-124		%Rec	100	6/29/2020 9:54:30 AM	B69992

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **HILCORP ENERGY** Work Order Number: **2006E42** RcptNo: **1**

Received By: **Desiree Dominguez** **6/27/2020 10:20:00 AM** DD

Completed By: **Desiree Dominguez** **6/27/2020 10:56:57 AM** DD

Reviewed By: Tom 6/27/2020 6/27/2020 Tom 6/24/2020 labelled by df 6/27/2020

Chain of Custody

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

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? (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	NA	Good	Not Present			

Chain-of-Custody Record

Client: Hilcorp

Clara Cardoza

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: Bell Federal

Project #:

Project Manager: Danny Burns

Sampler: E. Carroll

On Ice: ☒ Yes ☐ No

# of Coolers: 1 N/A DAD 6/27/20

Cooler Temp(including CF): ~~0.5-0.1=0.4~~ (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2006E47	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)	8270 (Semi-VOA)	Total Coliform (Present/Absent)						
6/25	1000	Air	Influent 6/25	Tedlar		-001	X	X														

Remarks:

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
6/26	1500	Eric Carroll	Christine Walker		6/26/2020	1500
		Christine Walker	DB	CDO	6/27/20	10:20

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.