

REVIEWED

By Nelson Velez at 11:02 am, Feb 28, 2023



ENSOLUM

1. Continue with O & M schedule.
2. Submit next quarterly report by May 1, 2023.

January 13, 2023

New Mexico Oil Conservation Division

New Mexico Energy, Minerals, and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Re: Fourth Quarter 2022 – Solar SVE System Update

Bell Federal GC B#1
San Juan County, New Mexico
Hilcorp Energy Company
NMOCD Incident Number: NCS1729355513

To Whom it May Concern:

Ensolum, LLC (Ensolum), on behalf of Hilcorp Energy Company (Hilcorp), presents this *Fourth Quarter 2022 – Solar SVE System Update* report summarizing the solar soil vapor extraction (SVE) system performance at the Bell Federal GC B#1 natural gas production well (Site), located in Section 11, Township 30 North, Range 13 West in San Juan County, New Mexico (Figure 1). The SVE system has operated since January 16, 2018 to remediate subsurface soil impacts originating from a release of approximately 58 barrels (bbls) of natural gas condensate caused by an act of vandalism. This report summarizes Site activities performed in October, November, and December of 2022 to the New Mexico Oil Conservation Division (NMOCD).

SVE SYSTEM SPECIFICATIONS

Currently, a solar SVE system is operating at the Site, which consists of a 1/3-horsepower blower capable of producing 22 cubic feet per minute (cfm) flow at a vacuum of 29 inches of water column (IWC); three solar panels, with a total of 915 watts of maximum power output; and charged by four 12-volt deep cycle batteries that subsequently power the SVE blower. The system operation is controlled by a timer adjusted throughout the year based on available nominal daylight hours (generally 9 hours per day during the winter and 14 hours per day during the summer). Four SVE wells (SVE01 through SVE04) are currently present at the Site as depicted on Figure 2.

FOURTH QUARTER 2022 ACTIVITIES

During the fourth quarter of 2022, Ensolum and Hilcorp personnel performed bi-weekly operation and maintenance (O&M) visits to verify the system was operating as designed and to perform any required maintenance. During Site visits, the system timer and the angle of the solar panels were adjusted to account for seasonal variations and maximize system efficiency. Field notes collected during O&M visits are presented in Appendix A.

During the fourth quarter of 2022, operating SVE wells were rotated so vacuum on the vadose zone within two wells at a time to induce air flow in the impacted zones at the Site. Between September 21 and December 7, 2022, approximately 824 total hours of nominal daylight were available for the solar SVE system to operate. Available nominal daylight hours are based on estimates by the National Oceanic and Atmospheric Administration's (NOAA's) National Weather Service (NWS) for the Site location. Between these dates, the actual runtime for the system was 1,129.7 hours, equating to a fourth quarter 2022 runtime efficiency of 137.1 percent (%). For solar SVE systems, runtime efficiency can be greater than 100% when the solar panels charge the system's batteries during daylight hours and continue to run the SVE blower for a longer duration of time than the nominal daylight hours available at the Site due to excess energy stored in the batteries. Table 1 presents the SVE system runtime compared to nominal available daylight hours per month. Appendix B presents photographs of the runtime meter for calculating the fourth quarter runtime efficiency.

A fourth quarter 2022 emissions sample was collected on December 7, 2022 from a sample port located between the SVE piping manifold and the SVE blower using a high vacuum air sampler. Prior to collection, the emission sample was field screened with a photoionization detector (PID) for organic vapor monitoring (OVM). The emission sample was collected directly into two 1-Liter Tedlar® bags and analyzed by Hall Environmental Analysis Laboratory for analysis of total volatile petroleum hydrocarbons (TVPH – also known as total petroleum hydrocarbons – gasoline range organics (TPH-GRO)) by Environmental Protection Agency (EPA) Method 8015D and volatile organic compounds (VOCs) following EPA Method 8260B, as well as fixed gas analysis of oxygen and carbon dioxide following American Society for Testing and Materials (ASTM) Method D-1946. Table 2 presents a summary of analytical data collected during this sampling event and historical sampling events, with the full laboratory analytical report included in Appendix C. Air sample data and measured stack flow rates are used to estimate total mass recovered and total emissions generated by the SVE system (Table 3). Based on these estimates, 42,174 pounds (21 tons) of TVPH have been removed by the system to date.

RECOMMENDATIONS

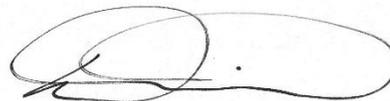
Bi-weekly O&M visits will continue to be performed by Ensolum and/or Hilcorp personnel to verify the SVE system is operating within normal working ranges (i.e., temperature, pressure, and vacuum). Deviations from regular operations will be noted on field logs and included in the following quarterly report. Hilcorp will continue operating the SVE system until asymptotic conditions are observed. At that time, an evaluation of residual petroleum hydrocarbons will be assessed and further recommendations for remedial actions, if any, will be provided to NMOCD.

We appreciate the opportunity to provide this report to the NMOCD. If you should have any questions or comments regarding this report, please contact the undersigned.

Sincerely,
Ensolum, LLC

A handwritten signature in black ink, appearing to read "Shyde".

Stuart Hyde, LG
Senior Geologist
(970) 903-1607
shyde@ensolum.com

A handwritten signature in black ink, appearing to read "Daniel R. Moir".

Daniel R. Moir, PG
Senior Managing Geologist
(303) 887-2946
dmoir@ensolum.com

Attachments:

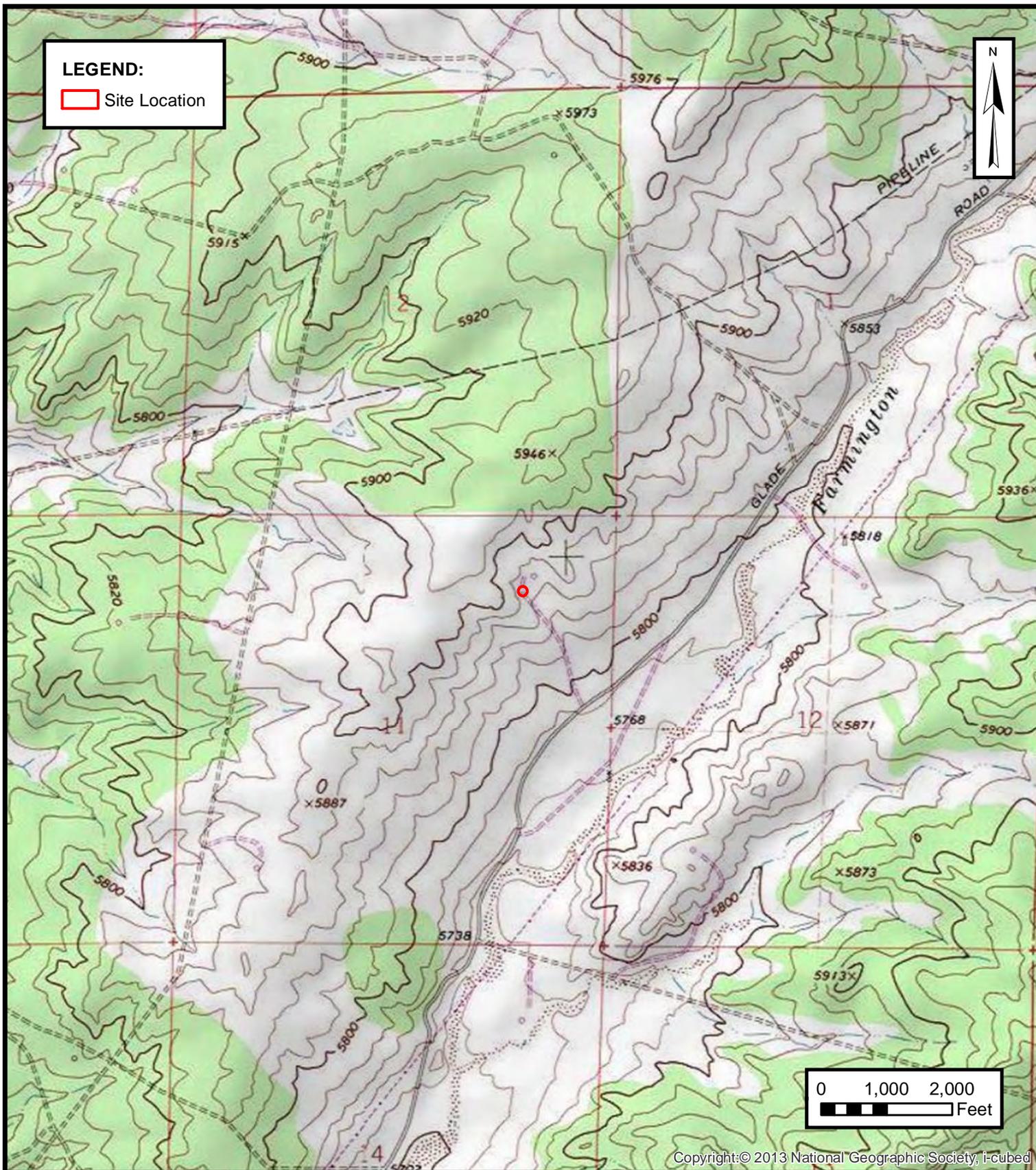
- Figure 1 Site Location
- Figure 2 SVE System Configuration

- Table 1 Soil Vapor Extraction System Runtime Calculations
- Table 2 Soil Vapor Extraction System Emissions Analytical Results
- Table 3 Soil Vapor Extraction System Mass Removal and Emissions

- Appendix A Field Notes
- Appendix B Project Photographs
- Appendix C Laboratory Analytical Reports



FIGURES



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ENSOLUM
Environmental & Hydrogeologic Consultants

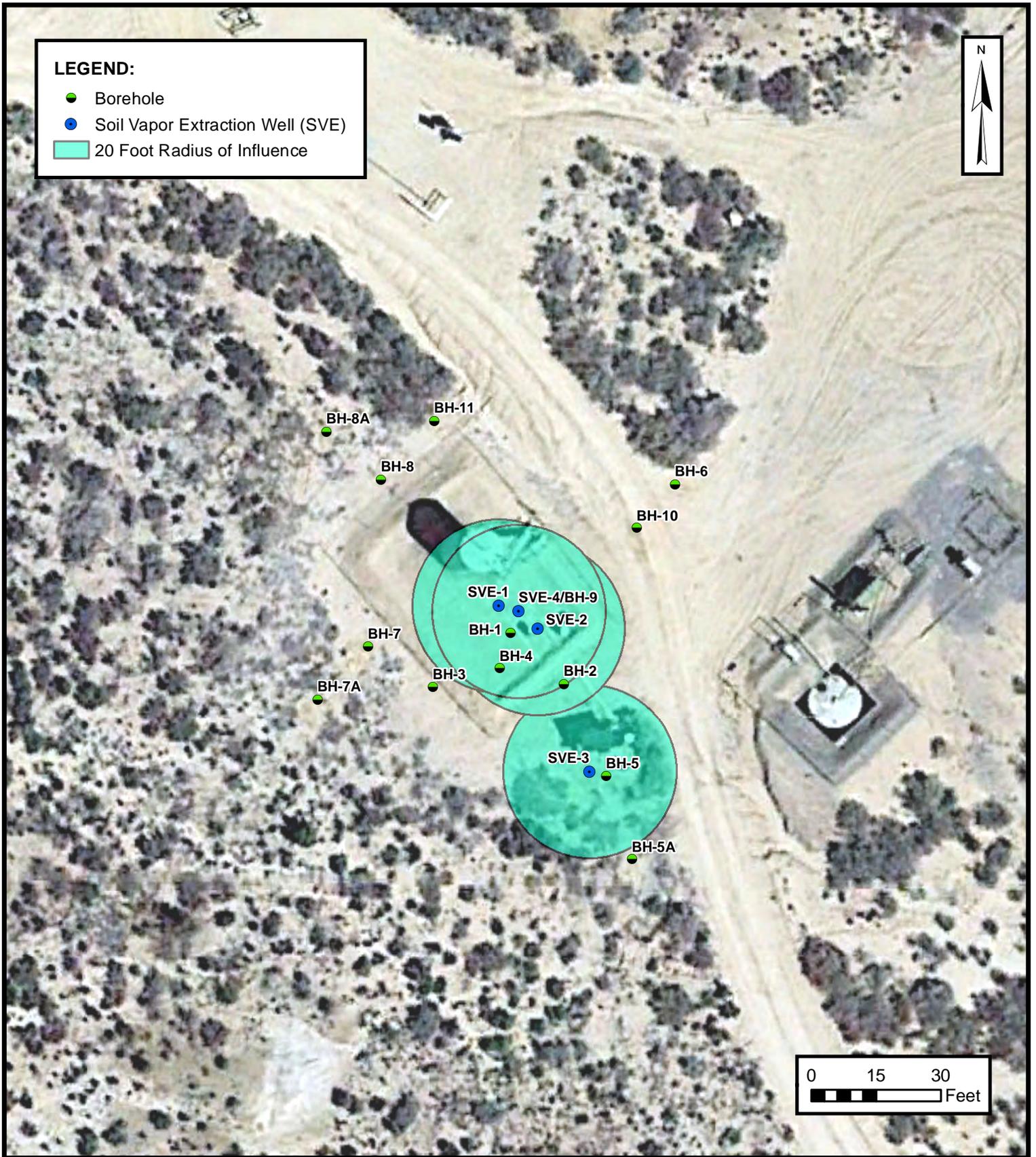
SITE LOCATION

HILCORP ENERGY COMPANY
 BELL FEDERAL GC B#1
 San Juan County, New Mexico
 36.832426° N, 108.167760° W

PROJECT NUMBER: 07A1988001

FIGURE

1



SVE SYSTEM CONFIGURATION

HILCORP ENERGY COMPANY
BELL FEDERAL GC B#1
San Juan County, New Mexico
36.832426° N, 108.167760° W

PROJECT NUMBER: 07A1988001

FIGURE
2



TABLES



TABLE 1
SOIL VAPOR EXTRACTION SYSTEM RUNTIME CALCULATIONS
 Hilcorp Energy Company - Bell Federal GC B#1
 San Juan County, New Mexico
 Ensolum Project No. 07A1988001

Date	Total Operational Hours	Delta Hours
9/21/2022	17,186.4	---
12/7/2022	18,316.1	1,129.7

Time Period	September 21 to September 30, 2022	October 1 to October 31, 2022	November 1 to November 30, 2022	December 1 to December 7, 2022
Days	10	31	30	7
Avg. Nominal Daylight Hours	12	11	10	9
Available Runtime Hours	120	341	300	63

Quarterly Available Daylight Runtime Hours **824**
Quarterly Runtime Hours **1,129.7**
Quarterly % Runtime **137.1%**

Month	Days	Nominal Daylight Hours	Total Month Hours
January	31	10	310
February	28	10	280
March	31	11	341
April	30	12	360
May	31	13	403
June	30	14	420
July	31	14	434
August	31	13	403
September	30	12	360
October	31	11	341
November	30	10	300
December	31	9	279



TABLE 2
SOIL VAPOR EXTRACTION SYSTEM EMISSIONS ANALYTICAL RESULTS
 Hilcorp Energy Company - Bell Federal GC B#1
 San Juan County, New Mexico

Ensolum Project No. 07A1988001

Date	Inlet PID (ppm)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	TVPH/GRO (µg/L)	Oxygen (%)	Carbon Dioxide (%)
1/24/2018	1,435	280	200	<5.0	38.0	30,000	--	--
8/17/2018	1,873	160	380	21.0	320	18,000	--	--
3/22/2019	1,607	490	920	24.0	480	NA	--	--
6/18/2019	1,026	72.0	270	27.0	290	NA	--	--
9/25/2019	1,762	220	480	21.0	440	35,000	--	--
12/16/2019	1,902	130	840	21.0	220	22,000	--	--
3/10/2020	1,171	120	380	19.0	330	31,000	--	--
6/25/2020	978.0	180	430	25.0	480	45,000	--	--
9/16/2020	1,766	186	433	18.0	497	32,100	18.2%	3.29%
12/8/2020	1,741	114	292	10.6	324	16,000	17.3%	4.45%
3/23/2021	1,252	45	86.3	2.3	95.4	7,930	20.2%	<0.500%
6/10/2021	165.8	8.5	20	<0.50	20.0	5,700	17.3%	2.21%
9/8/2021	NM	130	240	5.9	150	33,000	--	--
12/15/2021	1,374	95	160	11.0	220	24,098	16.3%	3.32%
3/16/2022	1,096	53	120	<0.50	82	26,000	16.8%	3.01%
6/16/2022	708	24	69	<5.0	38	13,000	21.0%	0.82%
9/8/2022	545	50.2	129	4.99	612	10,500	17.7%	2.80%
12/7/2022	675	52	74	<5.00	35	13,000	17.0%	3.68%

Notes:

GRO: gasoline range hydrocarbons

µg/L: microgram per liter

PID: photoionization detector

ppm: parts per million

TVPH: total volatile petroleum hydrocarbons

=: percent

--: not sampled

<0.037: indicates result less than the stated laboratory reporting limit (RL)



TABLE 3
SOIL VAPOR EXTRACTION SYSTEM MASS REMOVAL AND EMISSIONS
 Hilcorp Energy Company - Bell Federal GC B#1
 San Juan County, New Mexico
 Ensolum Project No. 07A1988001

Flow and Laboratory Analysis

Date	Inlet PID (ppm)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	TVPH (µg/L)
1/24/2018	1,435	280	200	5.0	38	30,000
8/17/2018	1,873	160	380	21	320	18,000
3/22/2019	1,607	490	920	24	480	--
6/18/2019	1,026	72	270	27	290	--
9/25/2019	1,762	220	480	21	440	35,000
12/16/2019	1,902	130	840	21	220	22,000
3/10/2020	1,171	120	380	19	330	31,000
6/25/2020	978	180	430	25	480	45,000
9/16/2020	1,766	186	433	18	497	32,100
12/8/2020	1,741	114	292	11	324	16,000
3/23/2021	1,252	45	86	2	95	7,930
6/10/2021	166	9	20	0.50	20	5,700
9/8/2021	--	130	240	6	150	33,000
12/15/2021	1,374	95	160	11	220	24,098
3/16/2022	1,096	53	120	0.50	82	26,000
6/16/2022	708	24	69	5.00	38	13,000
9/8/2022	545	50	129	4.99	612	10,500
12/7/2022	675	52	74	5.00	35	13,000
Average	1,240	134	307	13	260	22,646

Vapor Extraction Summary

Date	Flow Rate (cfm)	Total System Flow (cf)	Delta Flow (cf)	Benzene (lb/hr)	Toluene (lb/hr)	Ethylbenzene (lb/hr)	Total Xylenes (lb/hr)	TVPH (lb/hr)
1/24/2018	40	164,400	164,400	0.042	0.030	0.001	0.0057	4.5
8/17/2018	33	5,240,130	5,075,730	0.027	0.036	0.0016	0.022	3.0
3/22/2019	32	9,176,130	3,936,000	0.039	0.078	0.0027	0.048	--
6/18/2019	32	11,096,130	1,920,000	0.034	0.071	0.0031	0.046	--
9/25/2019	33	13,610,730	2,514,600	0.018	0.046	0.0030	0.045	3.3
12/16/2019	32	15,513,450	1,902,720	0.021	0.079	0.0025	0.039	3.4
3/10/2020	29	17,246,490	1,733,040	0.014	0.066	0.0022	0.030	2.9
6/25/2020	29	19,123,950	1,877,460	0.016	0.044	0.0024	0.044	4.1
9/16/2020	31	20,825,850	1,701,900	0.021	0.050	0.0025	0.057	4.5
12/8/2020	30	22,049,850	1,224,000	0.017	0.041	0.0016	0.046	2.7
3/23/2021	30	23,122,650	1,072,800	0.0089	0.021	0.00073	0.024	1.3
6/10/2021	33	23,514,690	392,040	0.0033	0.0066	0.00017	0.0071	0.84
9/8/2021	33	23,831,490	316,800	0.0085	0.0160	0.00039	0.010	2.4
12/15/2021	33	26,136,210	2,304,720	0.014	0.025	0.0010	0.023	3.5
3/16/2022	33	27,701,202	1,564,992	0.0091	0.017	0.00071	0.019	3.1
6/16/2022	25	29,520,102	1,818,900	0.0036	0.009	0.00026	0.0056	1.8
9/8/2022	31	31,835,244	2,315,142	0.0043	0.011	0.00058	0.038	1.4
12/7/2022	29	34,162,320	2,327,076	0.0055	0.011	0.00054	0.035	1.3
Average				0.017	0.037	0.0015	0.030	2.7

Flow and Laboratory Analysis

Date	Total SVE System Hours	Delta Hours	Benzene (pounds)	Toluene (pounds)	Ethylbenzene (pounds)	Total Xylenes (pounds)	TVPH (pounds)	TVPH (tons)
1/24/2018	69	69	2.9	2.0	0.051	0.39	307	0.15
8/17/2018	2,632	2,564	70	92	4.1	57	7,593	3.8
3/22/2019	4,682	2,050	80	159	5.5	98	--	--
6/18/2019	5,682	1,000	33.6	71	3.1	46	--	--
9/25/2019	6,952	1,270	23	59	3.8	57	4,154	2.1
12/16/2019	7,943	991	21	78	2.5	39	3,380	1.7
3/10/2020	8,939	996	14	66	2.2	30	2,863	1.4
6/25/2020	10,018	1,079	18	47	2.6	47	4,447	2.2
9/16/2020	10,933	915	19	46	2.3	52	4,090	2.0
12/8/2020	11,613	680	11.4	28	1.1	31	1,835	0.92
3/23/2021	12,209	596	5.3	12.6	0.43	14.0	800	0.40
6/10/2021	12,407	198	0.66	1.30	0.035	1.41	167	0.083
9/8/2021	12,567	160	1.4	2.6	0.06	1.7	382	0.19
12/15/2021	13,731	1,164	16	29	1.2	27	4,101	2.1
3/16/2022	14,521	790	7.2	14	0.561	14.7	2,444	1.2
6/16/2022	15,734	1,213	4.4	11	0.31	6.8	2,211	1.1
9/8/2022	16,979	1,245	5.4	14	0.72	46.9	1,696	0.8
12/7/2022	18,316	1,337	7.4	15	0.72	46.9	1,704	0.9
Total Mass Recovery to Date			339	747	31	617	42,174	21

Notes:
 cf: cubic feet
 cfm: cubic feet per minute
 µg/L: micrograms per liter
 lb/hr: pounds per hour
 --: not sampled
 PID: photoionization detector
 ppm: parts per million
 TVPH: total volatile petroleum hydrocarbons
 gray: laboratory reporting limit used for calculating emissions



APPENDIX A

Field Notes



BELL FEDERAL GC B1 SVE SYSTEM
BIWEEKLY O&M FORM

DATE: 10-7-22 O&M PERSONNEL: B Sinclair
TIME ONSITE: _____ TIME OFFSITE: _____

SVE SYSTEM - MONTHLY O&M			TIMER SETTINGS	
SVE ALARMS: _____			KO TANK HIGH LEVEL _____	
SVE SYSTEM	READING	TIME	Month	Timer Setting
Blower Hours (take photo)	17420.6	0830	January	8 AM to 7 PM
Pre K/O Vacuum (IWC)	18		February	8 AM to 7 PM
Thermal Anemometer Flow (fpm)	1357		March	8 AM to 8 PM
Thermal Anemometer Temp (C)	21.75		April	8 AM to 9 PM
Inlet PID	780		May	7 AM to 9 PM
Exhaust PID	512		June	6 AM to 9 PM
Solar Panel Angle			July	6 AM to 9 PM
K/O Tank Drum Level			August	7 AM to 9 PM
K/O Liquid Drained (gallons)			September	8 AM to 9 PM
Timer Setting			October	8 AM to 8 PM
Heat Trace (on/off)			November	9 AM to 8 PM
			December	8 AM to 6 PM

SVE SYSTEM - QUARTERLY SAMPLING	
SAMPLE ID: _____	SAMPLE TIME: _____
Analytes: TVPH (8015), VOCs (8260), Fixed Gas (CO/CO2/O2)	
OPERATING WELLS _____	

Change in Well Operation: _____

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	FLOW (CFM)	ADJUSTMENTS
SVE01				
SVE02		69.3		
SVE03		984		
SVE04				

PRODUCT RECOVERY				
LOCATION	DEPTH TO PRODUCT	DEPTH TO WATER	RECOVERED VOLUM	COMMENTS
SVE-1				
SVE-2RS				
SVE-4				
SVE-11S				
SVE-13S				
SVE-14S				

COMMENTS/OTHER MAINTENANCE:

BELL FEDERAL GC B1 SVE SYSTEM BIWEEKLY O&M FORM

DATE: 10-20
TIME ONSITE: _____

O&M PERSONNEL: B Sinclair
TIME OFFSITE: _____

SVE SYSTEM - MONTHLY O&M

SVE ALARMS: KO TANK HIGH LEVEL

SVE SYSTEM	READING	TIME	TIMER SETTINGS	
			Month	Timer Setting
Blower Hours (take photo)	17619.5	1255	January	8 AM to 7 PM
Pre K/O Vacuum (IWC)	19		February	8 AM to 7 PM
Thermal Anemometer Flow (fpm)	775		March	8 AM to 8 PM
Thermal Anemometer Temp (C)	32.05		April	8 AM to 9 PM
Inlet PID	820		May	7 AM to 9 PM
Exhaust PID	816		June	6 AM to 9 PM
Solar Panel Angle			July	6 AM to 9 PM
K/O Tank Drum Level			August	7 AM to 9 PM
K/O Liquid Drained (gallons)			September	8 AM to 9 PM
Timer Setting			October	8 AM to 8 PM
Heat Trace (on/off)			November	9 AM to 8 PM
			December	8 AM to 6 PM

SVE SYSTEM - QUARTERLY SAMPLING

SAMPLE ID: _____ SAMPLE TIME: _____
Analytes: TVPH (8015), VOCs (8260), Fixed Gas (CO/CO2/O2)

OPERATING WELLS

Change in Well Operation: _____

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	FLOW (CFM)	ADJUSTMENTS
SVE01				
SVE02		163		
SVE03		1372		
SVE04				

PRODUCT RECOVERY

LOCATION	DEPTH TO PRODUCT	DEPTH TO WATER	RECOVERED VOLUM	COMMENTS
SVE-1				
SVE-2RS				
SVE-4				
SVE-11S				
SVE-13S				
SVE-14S				

COMMENTS/OTHER MAINTENANCE: _____

BELL FEDERAL GC BI SVE SYSTEM
BIWEEKLY O&M FORM

DATE: 11-3-22
TIME ONSITE: _____

O&M PERSONNEL: B Sinclair
TIME OFFSITE: _____

SVE SYSTEM - MONTHLY O&M

SVE ALARMS: _____ KO TANK HIGH LEVEL

SVE SYSTEM			TIMER SETTINGS	
			Month	Timer Setting
Blower Hours (take photo)	READING	TIME	January	8 AM to 7 PM
Pre K/O Vacuum (IWC)	178.26.6	1034	February	8 AM to 7 PM
Thermal Anemometer Flow (fpm)	19		March	8 AM to 8 PM
Thermal Anemometer Temp (C)	776		April	8 AM to 9 PM
Inlet PID	14.35		May	7 AM to 9 PM
Exhaust PID	916		June	6 AM to 9 PM
Solar Panel Angle	939		July	6 AM to 9 PM
K/O Tank Drum Level			August	7 AM to 9 PM
K/O Liquid Drained (gallons)			September	8 AM to 9 PM
Timer Setting			October	8 AM to 8 PM
Heat Trace (on/off)			November	9 AM to 8 PM
			December	8 AM to 6 PM

SVE SYSTEM - QUARTERLY SAMPLING

SAMPLE ID: _____ SAMPLE TIME: _____
 Analytes: TVPH (8015), VOCs (8260), Fixed Gas (CO/CO2/O2)
 OPERATING WELLS: _____

Change in Well Operation: _____

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	FLOW (CFM)	ADJUSTMENTS
SVE01				
SVE02		192		
SVE03		1276		
SVE04				

PRODUCT RECOVERY

LOCATION	DEPTH TO PRODUCT	DEPTH TO WATER	RECOVERED VOLUM	COMMENTS
SVE-1				
SVE-2RS				
SVE-4				
SVE-11S				
SVE-13S				
SVE-14S				

COMMENTS/OTHER MAINTENANCE:

SVE-2 0.5g of black fluid in well
 SVE-3 DTP: 43.66 DTW: ? issue getting tone
 bailed ~ 1.35g, replaced bailer, purple fluid
 rain & small hail today

SAUNDERS
www.saunders-usa.com

BELL FEDERAL GC B1 SVE SYSTEM
BIWEEKLY O&M FORM

DATE: 11-17-22 O&M PERSONNEL: B Sinclair
TIME ONSITE: _____ TIME OFFSITE: _____

SVE SYSTEM - MONTHLY O&M

SVE ALARMS: _____ KO TANK HIGH LEVEL _____

SVE SYSTEM			TIMER SETTINGS	
	READING	TIME	Month	Timer Setting
Blower Hours (take photo)	18038.7	1344	January	8 AM to 7 PM
Pre K/O Vacuum (IWC)	20		February	8 AM to 7 PM
Thermal Anemometer Flow (fpm)	518		March	8 AM to 8 PM
Thermal Anemometer Temp (C)	42.35		April	8 AM to 9 PM
Inlet PID	1029		May	7 AM to 9 PM
Exhaust PID	1097		June	6 AM to 9 PM
Solar Panel Angle			July	6 AM to 9 PM
K/O Tank Drum Level			August	7 AM to 9 PM
K/O Liquid Drained (gallons)			September	8 AM to 9 PM
Timer Setting			October	8 AM to 8 PM
Heat Trace (on/off)			November	9 AM to 8 PM
			December	8 AM to 6 PM

SVE SYSTEM - QUARTERLY SAMPLING

SAMPLE ID: _____ SAMPLE TIME: _____
Analytes: TVPH (8015), VOCs (8260), Fixed Gas (CO/CO2/O2)
OPERATING WELLS _____

Change in Well Operation: _____

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	FLOW (CFM)	ADJUSTMENTS
SVE01				
SVE02				
SVE03		692.1		
SVE04		1231		

PRODUCT RECOVERY

LOCATION	DEPTH TO PRODUCT	DEPTH TO WATER	RECOVERED VOLUM	COMMENTS
SVE-1				
SVE-2RS				
SVE-4				
SVE-11S				
SVE-13S				
SVE-14S				

COMMENTS/OTHER MAINTENANCE:

Location Scott 4M, Bell Federal Date 11/29-22

Project / Client

ZM, TRD; tools

cold, clear

Onsite at Scott @ 12:45

- SVE system offline
- drained ~25 gallons out of knockout tank, removal housing from motor to verify that it moves.

- removed large chunk of ice from horizontal filter, removed top of knockout tank to find shut-off float frozen in position. freed it up and system turned on

- drained SVE hoses into system

System @ 7838.3 hours

leaving @ 2:10

Onsite @ Bell Federal @ 2:50 to check

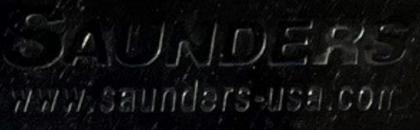
SVE timer

- adjusted time settings for December, 8am-6pm

- adjusted current fine of day

System @ 18243.0 hours

Offsite @ 3:05



BELL FEDERAL GC B1 SVE SYSTEM BIWEEKLY O&M FORM

DATE: 12-7 O&M PERSONNEL: B Sinclair
TIME ONSITE: _____ TIME OFFSITE: _____

SVE SYSTEM - MONTHLY O&M			TIMER SETTINGS	
SVE SYSTEM	READING	TIME	Month	Timer Setting
SVE ALARMS: <input type="checkbox"/> KO TANK HIGH LEVEL			January	8 AM to 7 PM
Blower Hours (take photo)	18316.1	0950	February	8 AM to 7 PM
Pre K/O Vacuum (IWC)	21		March	8 AM to 8 PM
Thermal Anemometer Flow (fpm)	463		April	8 AM to 9 PM
Thermal Anemometer Temp (C)	40.25		May	7 AM to 9 PM
Inlet PID	675.7		June	6 AM to 9 PM
Exhaust PID	764.4		July	6 AM to 9 PM
Solar Panel Angle			August	7 AM to 9 PM
K/O Tank Drum Level			September	8 AM to 9 PM
K/O Liquid Drained (gallons)			October	8 AM to 8 PM
Timer Setting			November	9 AM to 8 PM
Heat Trace (on/off)			December	8 AM to 6 PM

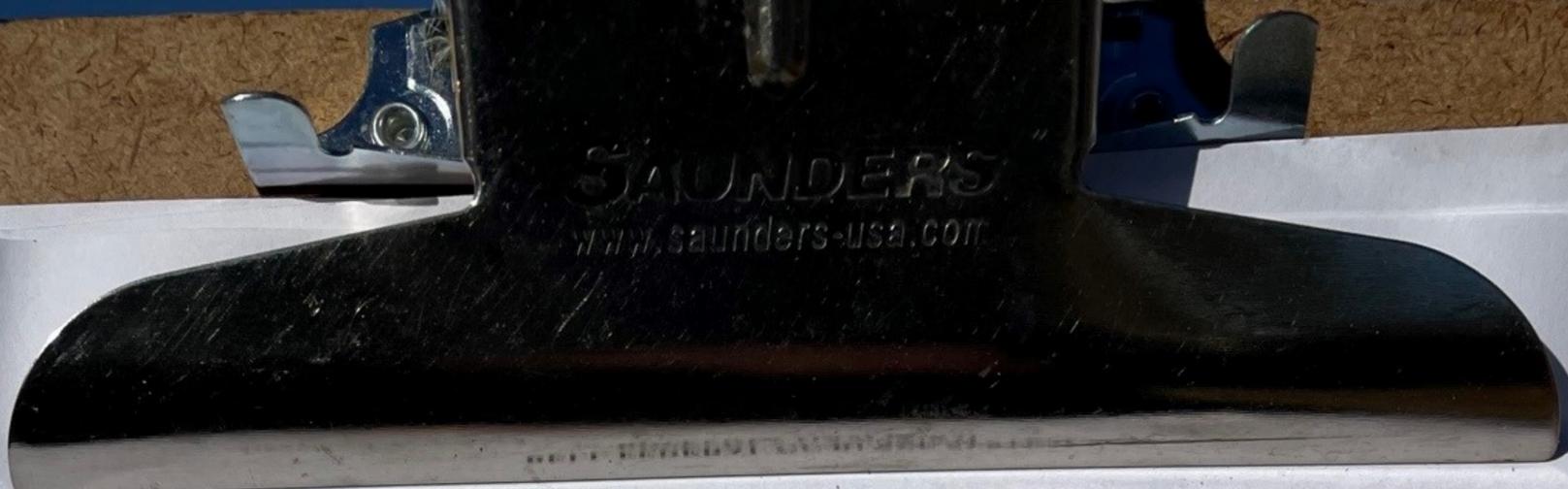
SVE SYSTEM - QUARTERLY SAMPLING	
SAMPLE ID: _____	SAMPLE TIME: _____
Analytes: TVPH (8015), VOCs (8260), Fixed Gas (CO/CO2/O2)	
OPERATING WELLS	

Change in Well Operation: _____

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	FLOW (CFM)	ADJUSTMENTS
SVE01				
SVE02				
SVE03		583		
SVE04		1187		

PRODUCT RECOVERY				
LOCATION	DEPTH TO PRODUCT	DEPTH TO WATER	RECOVERED VOLUM	COMMENTS
SVE-1				
SVE-2RS				
SVE-4				
SVE-11S				
SVE-13S				
SVE-14S				

COMMENTS/OTHER MAINTENANCE:
System off when I arrived, reset solar inverter.



BELL FEDERAL GC BI SVE SYSTEM BIWEEKLY O&M FORM

DATE: 12-24 O&M PERSONNEL: B Sinclair
TIME ONSITE: _____ TIME OFFSITE: _____

SVE SYSTEM - MONTHLY O&M

SVE ALARMS: _____ KO TANK HIGH LEVEL _____

TIMER SETTINGS

SVE SYSTEM			Month	Timer Setting
SVE SYSTEM	READING	TIME	Month	Timer Setting
Blower Hours (take photo)	18553.1	1426	January	8 AM to 7 PM
Pre K/O Vacuum (IWC)	22		February	8 AM to 7 PM
Thermal Anemometer Flow (fpm)	425		March	8 AM to 8 PM
Thermal Anemometer Temp (C)	39.85		April	8 AM to 9 PM
Inlet PID	830.7		May	7 AM to 9 PM
Exhaust PID	871.1		June	6 AM to 9 PM
Solar Panel Angle			July	6 AM to 9 PM
K/O Tank Drum Level			August	7 AM to 9 PM
K/O Liquid Drained (gallons)			September	8 AM to 9 PM
Timer Setting			October	8 AM to 8 PM
Heat Trace (on/off)			November	9 AM to 8 PM
			December	8 AM to 6 PM

SVE SYSTEM - QUARTERLY SAMPLING

SAMPLE ID: _____ SAMPLE TIME: _____
 Analytes: TVPH (8015), VOCs (8260), Fixed Gas (CO/CO2/O2)
 OPERATING WELLS _____

Change in Well Operation: _____

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	FLOW (CFM)	ADJUSTMENTS
SVE01				
SVE02				
SVE03		567		
SVE04		1137		

PRODUCT RECOVERY

LOCATION	DEPTH TO PRODUCT	DEPTH TO WATER	RECOVERED VOLUM	COMMENTS
SVE-1				
SVE-2RS				
SVE-4				
SVE-11S				
SVE-13S				
SVE-14S				

COMMENTS/OTHER MAINTENANCE: _____



APPENDIX B

Project Photographs

PROJECT PHOTOGRAPHS
Bell Federal GC B#1
San Juan County, New Mexico
Hilcorp Energy Company

<p>Photograph 1</p> <p>Runtime meter taken on September 21, 2022 at 1:47 PM Hours = 17,186.4</p>		<p>DIRECTION 36.83212°N ACCURACY 4 m 140 deg(T) 108.16895°W DATUM WGS84</p>  <p>Blower Hours Bell Federal GC 2022-09-21 B1 13:47:52-06:00</p>	
<p>Photograph 2</p> <p>Runtime meter taken on December 7, 2022 at 9:50 AM Hours = 18,316.1</p>		<p>DIRECTION 36.83218°N ACCURACY 5 m 157 deg(T) 108.16892°W DATUM WGS84</p>  <p>2022-12-07 09:50:28-07:00</p>	



APPENDIX C

Laboratory Analytical Reports



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

December 20, 2022

Mitch Killough
Hilcorp Energy
PO Box 61529
Houston, TX 77208-1529
TEL: (337) 276-7676
FAX:

RE: Bell Fed GC B1

OrderNo.: 2212575

Dear Mitch Killough:

Hall Environmental Analysis Laboratory received 1 sample(s) on 12/9/2022 for the analyses presented in the following report.

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

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

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

Sincerely,

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

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order 2212575

Date Reported: 12/20/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Hilcorp Energy

Client Sample ID: SVE-1

Project: Bell Fed GC B1

Collection Date: 12/7/2022 10:00:00 AM

Lab ID: 2212575-001

Matrix: AIR

Received Date: 12/9/2022 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE							Analyst: CCM
Gasoline Range Organics (GRO)	13000	100		µg/L	20	12/15/2022 4:58:00 PM	R93346
Surr: BFB	93.6	70-130		%Rec	20	12/15/2022 4:58:00 PM	R93346
EPA METHOD 8260B: VOLATILES							Analyst: CCM
Benzene	52	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
Toluene	74	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
Ethylbenzene	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
Methyl tert-butyl ether (MTBE)	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
1,2,4-Trimethylbenzene	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
1,3,5-Trimethylbenzene	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
1,2-Dichloroethane (EDC)	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
1,2-Dibromoethane (EDB)	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
Naphthalene	ND	4.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
1-Methylnaphthalene	ND	8.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
2-Methylnaphthalene	ND	8.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
Acetone	ND	20		µg/L	20	12/15/2022 4:58:00 PM	R93346
Bromobenzene	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
Bromodichloromethane	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
Bromoform	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
Bromomethane	ND	4.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
2-Butanone	ND	20		µg/L	20	12/15/2022 4:58:00 PM	R93346
Carbon disulfide	ND	20		µg/L	20	12/15/2022 4:58:00 PM	R93346
Carbon tetrachloride	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
Chlorobenzene	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
Chloroethane	ND	4.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
Chloroform	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
Chloromethane	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
2-Chlorotoluene	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
4-Chlorotoluene	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
cis-1,2-DCE	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
cis-1,3-Dichloropropene	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
1,2-Dibromo-3-chloropropane	ND	4.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
Dibromochloromethane	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
Dibromomethane	ND	4.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
1,2-Dichlorobenzene	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
1,3-Dichlorobenzene	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
1,4-Dichlorobenzene	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
Dichlorodifluoromethane	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
1,1-Dichloroethane	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
1,1-Dichloroethene	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346

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 Above Quantitation Range/Estimated Value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of standard limits. If undiluted results may be estimated.	

Analytical Report

Lab Order 2212575

Date Reported: 12/20/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Hilcorp Energy

Client Sample ID: SVE-1

Project: Bell Fed GC B1

Collection Date: 12/7/2022 10:00:00 AM

Lab ID: 2212575-001

Matrix: AIR

Received Date: 12/9/2022 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: CCM
1,2-Dichloropropane	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
1,3-Dichloropropane	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
2,2-Dichloropropane	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
1,1-Dichloropropene	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
Hexachlorobutadiene	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
2-Hexanone	ND	20		µg/L	20	12/15/2022 4:58:00 PM	R93346
Isopropylbenzene	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
4-Isopropyltoluene	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
4-Methyl-2-pentanone	ND	20		µg/L	20	12/15/2022 4:58:00 PM	R93346
Methylene chloride	ND	6.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
n-Butylbenzene	ND	6.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
n-Propylbenzene	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
sec-Butylbenzene	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
Styrene	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
tert-Butylbenzene	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
1,1,1,2-Tetrachloroethane	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
Tetrachloroethene (PCE)	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
trans-1,2-DCE	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
trans-1,3-Dichloropropene	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
1,2,3-Trichlorobenzene	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
1,2,4-Trichlorobenzene	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
1,1,1-Trichloroethane	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
1,1,2-Trichloroethane	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
Trichloroethene (TCE)	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
Trichlorofluoromethane	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
1,2,3-Trichloropropane	ND	4.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
Vinyl chloride	ND	2.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
Xylenes, Total	35	3.0		µg/L	20	12/15/2022 4:58:00 PM	R93346
Surr: Dibromofluoromethane	87.2	70-130		%Rec	20	12/15/2022 4:58:00 PM	R93346
Surr: 1,2-Dichloroethane-d4	73.2	70-130		%Rec	20	12/15/2022 4:58:00 PM	R93346
Surr: Toluene-d8	109	70-130		%Rec	20	12/15/2022 4:58:00 PM	R93346
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	20	12/15/2022 4:58:00 PM	R93346

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	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 2 of 2



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ANALYTICAL SUMMARY REPORT

December 15, 2022

Hall Environmental
4901 Hawkins St NE Ste D
Albuquerque, NM 87109-4372

Work Order: B22120990 Quote ID: B15626

Project Name: Not Indicated

Energy Laboratories Inc Billings MT received the following 1 sample for Hall Environmental on 12/13/2022 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B22120990-001	2212575-001B, SVE-1	12/07/22 10:00	12/13/22	Air	Air Correction Calculations Appearance and Comments Calculated Properties GPM @ std cond./1000 cu. ft., moist. Free Natural Gas Analysis Specific Gravity @ 60/60

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:



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LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: B22120990-001
Client Sample ID: 2212575-001B, SVE-1

Report Date: 12/15/22
Collection Date: 12/07/22 10:00
Date Received: 12/13/22
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
GAS CHROMATOGRAPHY ANALYSIS REPORT							
Oxygen	16.98	Mol %		0.01		GPA 2261-95	12/14/22 12:23 / jrj
Nitrogen	79.34	Mol %		0.01		GPA 2261-95	12/14/22 12:23 / jrj
Carbon Dioxide	3.68	Mol %		0.01		GPA 2261-95	12/14/22 12:23 / jrj
Hydrogen Sulfide	<0.01	Mol %		0.01		GPA 2261-95	12/14/22 12:23 / jrj
Methane	<0.01	Mol %		0.01		GPA 2261-95	12/14/22 12:23 / jrj
Ethane	<0.01	Mol %		0.01		GPA 2261-95	12/14/22 12:23 / jrj
Propane	<0.01	Mol %		0.01		GPA 2261-95	12/14/22 12:23 / jrj
Isobutane	<0.01	Mol %		0.01		GPA 2261-95	12/14/22 12:23 / jrj
n-Butane	<0.01	Mol %		0.01		GPA 2261-95	12/14/22 12:23 / jrj
Isopentane	<0.01	Mol %		0.01		GPA 2261-95	12/14/22 12:23 / jrj
n-Pentane	<0.01	Mol %		0.01		GPA 2261-95	12/14/22 12:23 / jrj
Hexanes plus	<0.01	Mol %		0.01		GPA 2261-95	12/14/22 12:23 / jrj
Propane	< 0.001	gpm		0.001		GPA 2261-95	12/14/22 12:23 / jrj
Isobutane	< 0.001	gpm		0.001		GPA 2261-95	12/14/22 12:23 / jrj
n-Butane	< 0.001	gpm		0.001		GPA 2261-95	12/14/22 12:23 / jrj
Isopentane	< 0.001	gpm		0.001		GPA 2261-95	12/14/22 12:23 / jrj
n-Pentane	< 0.001	gpm		0.001		GPA 2261-95	12/14/22 12:23 / jrj
Hexanes plus	< 0.001	gpm		0.001		GPA 2261-95	12/14/22 12:23 / jrj
GPM Total	< 0.001	gpm		0.001		GPA 2261-95	12/14/22 12:23 / jrj
GPM Pentanes plus	< 0.001	gpm		0.001		GPA 2261-95	12/14/22 12:23 / jrj

CALCULATED PROPERTIES

Gross BTU per cu ft @ Std Cond. (HHV)	ND			1		GPA 2261-95	12/14/22 12:23 / jrj
Net BTU per cu ft @ std cond. (LHV)	ND			1		GPA 2261-95	12/14/22 12:23 / jrj
Pseudo-critical Pressure, psia	554			1		GPA 2261-95	12/14/22 12:23 / jrj
Pseudo-critical Temperature, deg R	248			1		GPA 2261-95	12/14/22 12:23 / jrj
Specific Gravity @ 60/60F	1.01			0.001		D3588-81	12/14/22 12:23 / jrj
Air, %	77.60			0.01		GPA 2261-95	12/14/22 12:23 / jrj
- The analysis was not corrected for air.							

COMMENTS

-							12/14/22 12:23 / jrj
- BTU, GPM, and specific gravity are corrected for deviation from ideal gas behavior.							
- GPM = gallons of liquid at standard conditions per 1000 cu. ft. of moisture free gas @ standard conditions.							
- To convert BTU to a water-saturated basis @ standard conditions, multiply by 0.9825.							
- Standard conditions: 60 F & 14.73 psi on a dry basis.							

Report Definitions: RL - Analyte Reporting Limit
QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Hall Environmental

Work Order: B22120990

Report Date: 12/15/22

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261-95										
Lab ID: B22120988-001ADUP 12 Sample Duplicate										
Run: GCNGA-B_221214A										
Batch: R393749										
Oxygen		21.9	Mol %	0.01				0.0	20	
Nitrogen		78.0	Mol %	0.01				0	20	
Carbon Dioxide		0.05	Mol %	0.01				0.0	20	
Hydrogen Sulfide		<0.01	Mol %	0.01					20	
Methane		<0.01	Mol %	0.01					20	
Ethane		<0.01	Mol %	0.01					20	
Propane		<0.01	Mol %	0.01					20	
Isobutane		<0.01	Mol %	0.01					20	
n-Butane		<0.01	Mol %	0.01					20	
Isopentane		<0.01	Mol %	0.01					20	
n-Pentane		<0.01	Mol %	0.01					20	
Hexanes plus		<0.01	Mol %	0.01					20	
Lab ID: LCS121422 11 Laboratory Control Sample										
Run: GCNGA-B_221214A										
12/14/22 16:12										
Oxygen		0.59	Mol %	0.01	118	70	130			
Nitrogen		5.97	Mol %	0.01	99	70	130			
Carbon Dioxide		1.00	Mol %	0.01	101	70	130			
Methane		74.6	Mol %	0.01	100	70	130			
Ethane		6.04	Mol %	0.01	101	70	130			
Propane		5.01	Mol %	0.01	101	70	130			
Isobutane		2.00	Mol %	0.01	100	70	130			
n-Butane		1.99	Mol %	0.01	99	70	130			
Isopentane		1.01	Mol %	0.01	101	70	130			
n-Pentane		1.01	Mol %	0.01	101	70	130			
Hexanes plus		0.83	Mol %	0.01	104	70	130			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



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Work Order Receipt Checklist

Hall Environmental

B22120990

Login completed by: Leslie S. Cadreau

Date Received: 12/13/2022

Reviewed by:

Received by: slm1

Reviewed Date:

Carrier name: UPS

- Shipping container/cooler in good condition? Yes No Not Present
- Custody seals intact on all shipping container(s)/cooler(s)? Yes No Not Present
- Custody seals intact on all sample bottles? Yes No Not Present
- Chain of custody present? Yes No
- Chain of custody signed when relinquished and received? Yes No
- Chain of custody agrees with sample labels? Yes No
- Samples in proper container/bottle? Yes No
- Sample containers intact? Yes No
- Sufficient sample volume for indicated test? Yes No
- All samples received within holding time?
(Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.) Yes No
- Temp Blank received in all shipping container(s)/cooler(s)? Yes No Not Applicable
- Container/Temp Blank temperature: 13.2°C No Ice
- Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4"). Yes No No VOA vials submitted
- Water - pH acceptable upon receipt? Yes No Not Applicable

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

Contact and Corrective Action Comments:

None

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

PAGE: 1 OF 1

CHAIN OF CUSTODY RECORD



SUB CONTRACTOR: Energy Labs -Billings		COMPANY: Energy Laboratories	PHONE: (406) 869-6253	FAX: (406) 252-6069			
ADDRESS: 1120 South 27th Street		ACCOUNT #:	EMAIL:				
CITY, STATE, ZIP: Billings, MT 59107							
ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS <i>B22120990</i>
1	2212575-001B	SVE-1	TEDLAR	Air	12/7/2022 10:00:00 AM	1	

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: 12/9/2022	Time: 8:22 AM	Received By:	Date:	Time:	REPORT TRANSMITTAL DESIRED: <input type="checkbox"/> HARDCOPY (extra cost) <input type="checkbox"/> FAX <input type="checkbox"/> EMAIL <input type="checkbox"/> ONLINE
Relinquished By:	Date:	Time:	Received By: <i>Sandra Micaelsen</i>	Date:	Time:	FOR LAB USE ONLY Temp of samples _____ °C Attempt to Cool? _____ Comments: _____
Relinquished By:	Date:	Time:	Received By: <i>Sandra Micaelsen</i>	Date: 12-13-22	Time: 9:25am	
TAT:	Standard <input type="checkbox"/>	RUSH <input type="checkbox"/>	Next BD <input type="checkbox"/>	2nd BD <input type="checkbox"/>	3rd BD <input type="checkbox"/>	



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: Hilcorp Energy Work Order Number: 2212575 RcptNo: 1

Received By: Tracy Casarrubias 12/9/2022 7:35:00 AM
Completed By: Tracy Casarrubias 12/9/2022 8:18:40 AM
Reviewed By: *JH 12-9-22*

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. 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: *JH 12/9/22*

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			

District I
 1625 N. French Dr., Hobbs, NM 88240
 Phone:(575) 393-6161 Fax:(575) 393-0720
District II
 811 S. First St., Artesia, NM 88210
 Phone:(575) 748-1283 Fax:(575) 748-9720
District III
 1000 Rio Brazos Rd., Aztec, NM 87410
 Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
 1220 S. St Francis Dr., Santa Fe, NM 87505
 Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 176023

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 176023
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
nvelez	1. Continue with O & M schedule. 2. Submit next quarterly report by May 1, 2023.	2/28/2023