2Q

2020

SVE Report

From: Stuart Hyde
To: Smith, Cory, EMNRD
Cc: Devin Hencmann; Clara Cardoza
Subject: [EXT] Incident #NVF1602039091 - OH Randel #5 Q2 2020 Report
Date: Monday, August 3, 2020 12:07:41 PM
Attachments: image012.png
image013.png
image014.png
2020 2nd QTR SVE Report_Combined.pdf

Cory,

Please find attached the second quarter 2020 report for the OH Randel #5 Site. As you can see from the report, the SVE blower broke during the second quarter. We are currently working with Hilcorp to fix/replace the blower and get the system up and running.

Please feel free to call or email with any questions or comments. Thanks.

A proud member of WSP

Stuart Hyde, LG
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LT Environmental, Inc.
848 East Second Avenue
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970.385.1096

July 31, 2020

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

RE: Quarter 2 2020 - Quarterly SVE System Update
Hilcorp Energy Company
OH Randel #5
San Juan County, New Mexico
API # 30-045-05964
Incident # NVF1602039091

Dear Mr. Smith:

LT Environmental, Inc. (LTE), on behalf of Hilcorp Energy Company (Hilcorp), presents the following quarterly summary report discussing the soil vapor extraction (SVE) system performance at the OH Randel #5 natural gas production well (Site). This report is being submitted as part of the proposed timeline of remediation events in the *Pilot Test Results* submitted to the New Mexico Oil Conservation Division (NMOCD) on August 6, 2019.

An SVE system was originally installed by the former operator, XTO Energy, Inc., in 2016. Based on prior delineation events and the pilot test, an additional five SVE wells were installed on August 23, 2019 by the current operator, Hilcorp. SVE well configuration and screen intervals are presented in Figure 1. The SVE system consists of a two horsepower Atlantic AB-301 regenerative blower capable of producing 110 cubic feet per minute (cfm) at 72 inches of water column vacuum. The blower is connected to an adjustable manifold that allows control over which SVE wells are currently active. The active SVE wells are rotated during bi-weekly site visits to maximize vacuum and SVE system coverage of the impacted plume. The SVE system was shut down and unable to restart during a site visit on July 8, 2019. A new blower was installed on October 3, 2019, to replace the damaged blower.

Between re-startup, October 3, 2019, and the last site visit on June 24, 2020, there have been 264 days of operation, with 4,723 hours of operation, resulting in the system operating for 75 percent of available run-time. The blower became inoperable sometime between site visits conducted on April 30, 2020 and May 15, 2020. Because the blower was inoperable, an air sample could not be collected during the second quarter of 2020. Air samples collected during previous quarters were analyzed for 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 for previous events are summarized in Table 1.

In addition, total emissions from the system have been calculated using air-sample data and measured stack flow rates (Table 2). The impacted mass source removal via the SVE system to date is an estimated 584,580 pounds of TVPH. For the second quarter 2020, data was extrapolated from PID measurements taken on April 30, 2020 to estimate total emissions that included operating time in April 2020.

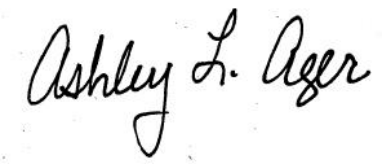
Replacement blower motor options are currently being evaluated to increase blower lifetime and efficiency to limit maintenance and operational downtime.

During the upcoming 3rd quarter of operations, Site visits will resume on a bi-weekly basis by Hilcorp to continue rotating the active SVE wells, maximize runtime efficiency and conduct any required system maintenance. An air sample will be collected in the 3rd quarter and analyzed for BTEX by EPA Method 8021 and TVPH by EPA Method 8015 if a replacement blower is installed in time. In addition, the annual sampling event will be conducted in the 3rd quarter and will include analysis for the full list of volatile organic compounds (VOCs) by EPA Method 8260 and oxygen/carbon dioxide by American Society for Testing and Materials (ASTM) Method D1946. 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 Clara Cardoza at (505) 793-2784 or at ccardoza@hilcorp.com.

Sincerely,

LT ENVIRONMENTAL, INC.



Danny Burns
Project Geologist

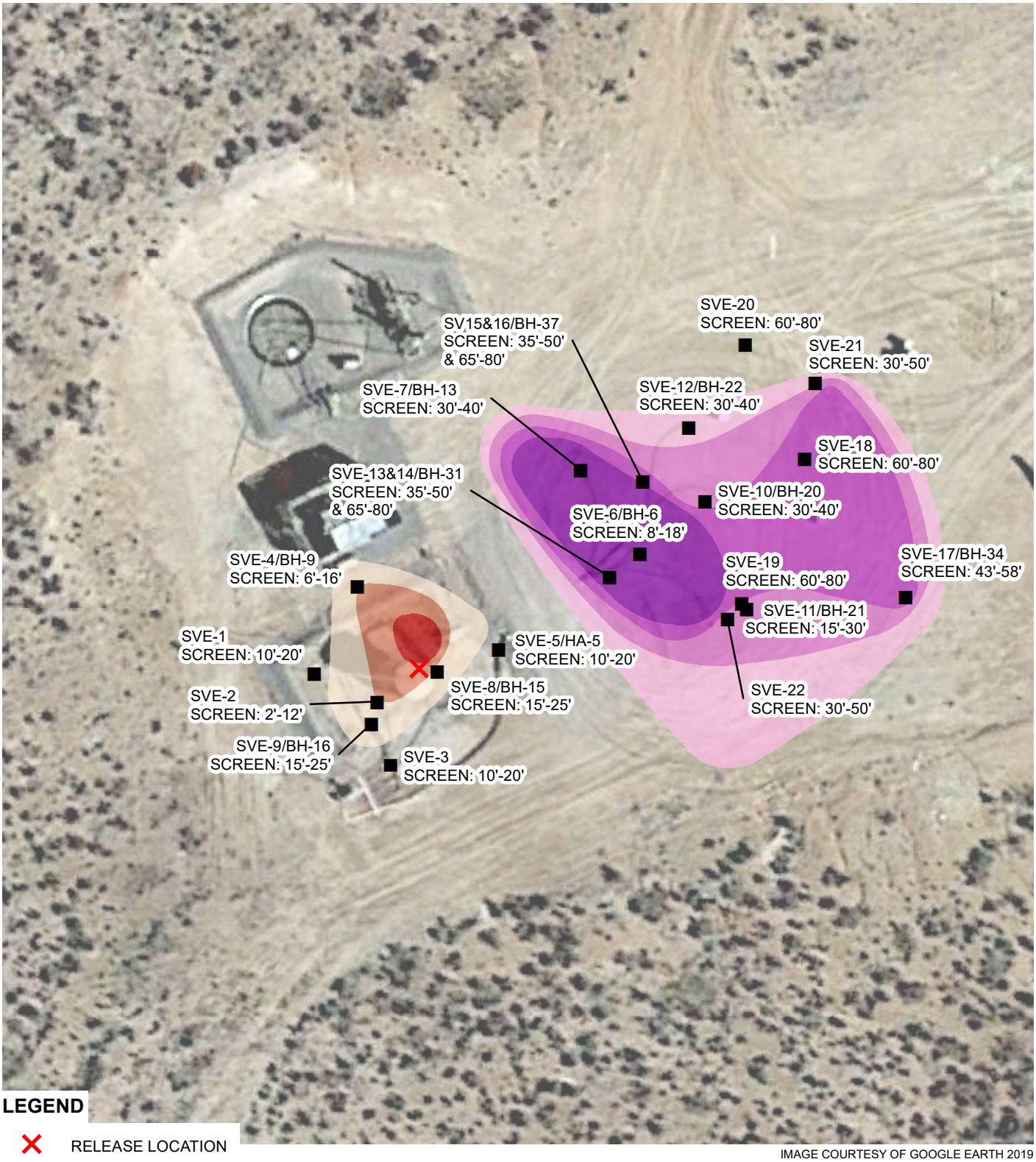
Ashley Ager, M.S., P.G.
Senior Geologist

cc: Clara Cardoza, Hilcorp Energy Company

A proud member of WSP

Attachments:

Figure 1 – Site Location Map
Table 1 – Air Sample Results Summary
Table 2 – Soil Vapor Extraction System Recovery & Emissions Summary



LEGEND

RELEASE LOCATION

SOIL VAPOR EXTRACTION (SVE) WELL

INFERRED BTEX ISOCONCENTRATION (PARTS PER MILLION)

- 50.00 - 200.00
- 50.00 - 100.00
- 200.01 - 400.00
- 100.01 - 200.00
- 400.01 - 600.00
- 200.01 - 300.00
- > 600.00

IMAGE COURTESY OF GOOGLE EARTH 2019

0 30 60

Feet

N

FIGURE 1
SVE SYSTEM LAYOUT
OH RANDEL #5
NWNW SEC 10 T26N R11W
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

P:\Hilcorp\GIS\MXD\017818016_OH RANDEL #5\017818016_OH RANDEL #5_FIG01_SVE_LAYOUT_2020.mxd

TABLE 1
AIR SAMPLE RESULTS SUMMARY

OH RANDEL #5
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	TVPH (µg/L)	PID (ppm)
08/11/16	160	1,700	61	500	46,000	4,072
08/17/18	130	230	10	110	8,900	719
06/28/19	7,200	15,000	360	3,000	460,000	1,257
12/16/19	1,800	4,400	83	660	170,000	1,685
03/10/20	1,700	3,300	89	700	130,000	897
6/24/2020 (1)	NT	NT	NT	NT	NT	NT

Notes:
(1) - blower not operational for sampling in May and June 2020
µg/L - micrograms per Liter
PID - photoionization detector
ppm - parts per million
TVPH - total volatile petroleum hydrocarbons
NT - not tested

TABLE 2
SOIL VAPOR EXTRACTION SYSTEM RECOVERY & EMISSIONS SUMMARY

OH RANDEL #5
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

Sample Information and Lab Analysis

Date	Total Flow (cf)	Delta Flow (cf)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	TVPH (µg/L)	PID (ppm)
08/11/16	31,185	31,185	160	1,700	61	500	46,000	4,072
08/17/18	59,647,485	59,616,300	130	230	10	110	8,900	719
12/16/19	59,647,485	59,616,300	1,800	4,400	83	660	170,000	1,902
03/10/20	71,718,885	12,071,400	1,700	3,300	89	700	130,000	897
4/30/2020 (1)	68,858,085	9,210,600	2,440	4,737	128	1,005	186,592	1,853
06/24/20	Blower Not Operational (2)							
		Average	1,246	2,873	74	595	108,298	1,889

Vapor Extraction Calculations

Date	Flow Rate (cfm)	Benzene (lb/hr)	Toluene (lb/hr)	Ethylbenzene (lb/hr)	Xylenes (lb/hr)	TVPH (lb/hr)
08/11/16	105	0.1	0.7	0.02	0.2	18.1
08/17/18	100	0.1	0.4	0.01	0.1	10.3
12/16/19	110	0.4	1.0	0.02	0.2	36.8
03/10/20	110	0.7	1.6	0.04	0.3	61.7
4/30/2020 (1)	105	0.8	1.6	0.04	0.3	62.2
06/24/20	Blower Not Operational (2)					
Average	106	0.4	1.0	0.03	0.2	37.8

Pounds Extracted Over Operating Time

Date	Total Operational Hours	Delta Hours	Benzene (lbs)	Toluene (lbs)	Ethylbenzene (lbs)	Xylenes (lbs)	TVPH (lbs)	TVPH (tons)
08/11/16	Startup							
08/11/16	5.0	5.0	0.3	3.3	0.1	1.0	89.4	0.0
08/17/18	9,941	9,936	539	3,586	132	1,133	102,009	51
12/16/19	17,515	7,574	3,007	7,214	145	1,200	278,728	139
03/10/20	19,344	1,829	1,317	2,897	65	512	112,870	56
4/30/2020 (1)	20,806	1,462	1,188	2,307	62	489	90,884	45
06/24/20	Blower Not Operational (2)							
	Total Extracted to Date		6,051	16,007	404	3,335	584,580	292

NOTES:

(1) - data extrapolated from PID measurements
(2) - blower not operational for sampling in May and June 2020
cf - cubic feet
cfm - cubic feet per minute
µg/l - micrograms per liter
lb/hr - pounds per hour
System startup occurred on 8/11/16 at 10 AM with 0 hours on the blower engine.
Blower replaced on 10/3/2019 with 16,038 hours on the blower engine
lbs - pounds
PID - photo-ionization detector
ppm - part per million
TVPH - total volatile petroleum hydrocarbons