

REVIEWED

By Mike Buchanan at 3:42 pm, Mar 15, 2024

**ENSOLUM**

July 25, 2023

New Mexico Oil Conservation Division
New Mexico Energy, Mineral, and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

**Subject: 2023 Second Quarter – Solar SVE System Update
Trunk S
Harvest Four Corners, LLC
Incident Number NCS1931842879
Remediation Permit Number 3RP-1014
Rio Arriba County, New Mexico**

Review of the 2023
2nd Quarter--Solar
SVE System Update
Trunk S: Content
Satisfactory
1. Continue to conduct
site visits as planned in
report.
2. Collect air samples
as prescribed in report
using method 8260B,
8015, and 2261.
3. Conduct O&M as
scheduled and submit
quarterly reports on the
same schedule as
previously submitted.

To Whom it May Concern:

Ensolum, LLC (Ensolum), on behalf of Harvest Four Corners, LLC (Harvest), presents the following *2023 Second Quarter – Solar SVE System Update* report summarizing the soil vapor extraction (SVE) system performance at the Trunk S (Site), located in Unit I of Section 7, Township 25 North, Range 03 West, in Rio Arriba County, New Mexico (Figure 1).

BACKGROUND

The solar SVE system was installed in late 2019, with full time system operation beginning on July 16, 2020, to remediate subsurface impacts following a release on June 25, 2019. The release occurred at the Harvest Trunk S natural gas pipeline located in Rio Arriba County, New Mexico (Figure 1) and consisted of ≥ 25 barrels (bbls) of condensate and 278.5 MCF of natural gas sourced from a subsurface pipeline leak. Harvest reported the release to the New Mexico Oil Conservation Division (NMOCD) on a release Notification and Corrective Action Form C-141 on September 20, 2019, and the event was assigned Incident Number NCS1931842879. Approximately 2,000 cubic yards (yd³) of impacted soil were excavated and transported off site for disposal. Due to the extent of the release, the excavation was unsuccessful at removing all impacted soils and the excavation was backfilled with the stockpiled soils after repairing the pipeline leak. A solar SVE system was installed to remediate remaining impacts resulting from the release. Reports summarizing remediation system operation for the previous quarters of system operation have been submitted to the NMOCD.

SOLAR SVE SYSTEM OPERATION AND MONITORING

The solar SVE system is comprised of five SVE wells (SB-1 through SB-5) and a VariSun Mobile Solar SVE unit consisting of a 4.6 horsepower vacuum blower capable of extracting 190 cubic feet per minute (cfm) at 50 inches of water column (IWC) vacuum. Each SVE well has a dedicated leg with an adjustable valve and vacuum gauge to control the individual flow rates and vacuum prior to manifolding together before the liquid knockout tank and blower. Harvest utilized a solar-powered SVE system due to the remote location and the lack of electrical grid power at the site. The direct-drive blower motor is connected to the solar panels via a motor controller that automatically starts the system as sunlight is available and throttles the blower up as sun power increases throughout the day to maximize efficiency. Seasonally, there are approximately 10 hours in the winter and 12 hours in the summer of available solar power in Farmington, New Mexico. The complete solar SVE system is constructed as one unit designed for utilization at off-

grid locations and operates autonomously. The layout of the solar SVE system is depicted on Figure 2.

Between full time startup of the solar SVE system on July 16, 2020, and the last quarterly site visit on June 21, 2023, there have been 1,071 days of operation, with an estimated 12,500 total hours of nominal daylight available for solar SVE system operations. Since installation, the system had an actual runtime of 12,779 hours, for an overall uptime of 102.2 percent (%) of the available runtime hours based on the average available nominal daylight hours (National Renewable Energy Laboratory (NREL)). A photographic log of the runtime hours meter readings is included as Appendix A. Below is a table showing SVE system runtime in comparison with nominal available daylight hours per month.

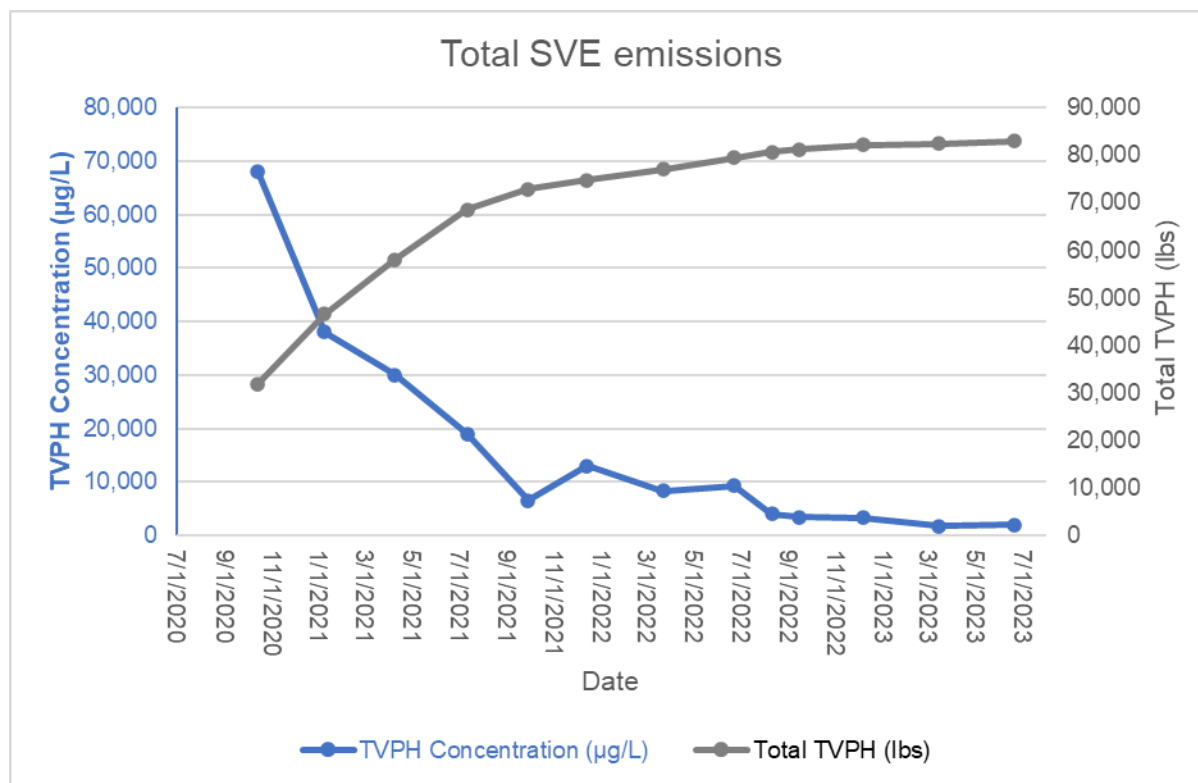
Time Period	Start up July 16, 2020 to March 15, 2023	March 16, 2023, to March 31, 2023	April 1, 2023 to April 30, 2023	May 1, 2023 to May 31, 2023	June 1, 2023, to June 21, 2023
Days	973	16	30	31	21
Avg. Nominal Daylight Hours	11.58	11	12	13	14
Available Runtime Hours	11,267	176	360	403	294

Total Available Daylight Runtime Hours	12,500
Actual Runtime Hours	12,779
Cumulative % Runtime	102.2%
Quarterly Available Daylight Runtime Hours	1,233
Quarterly Runtime Hours	1,251
Quarterly % Runtime	101.5%

AIR EMISSIONS MONITORING

An initial air sample was collected on July 16, 2020, from the influent side of the blower on the SVE system. Subsequent air samples were collected quarterly with the most recent sample collected on June 21, 2023 (Table 1). Samples were collected in 1-liter Tedlar® bags via a high vacuum air sampler and submitted to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico, for analyses of volatile organic compounds (VOCs) using United States Environmental Protection Agency (EPA) Method 8260B, total volatile petroleum hydrocarbons (TVPH) using EPA Method 8015, and oxygen and carbon dioxide by Gas Processors Association Method 2261. The laboratory analytical report from the June 2023 vapor sampling event is included as Appendix B.

Estimated air emissions were calculated using air sample data collected to-date (Table 2). The impacted mass source removal via the solar SVE system to-date is estimated to be 82,916 pounds (lbs) of TVPH. Since system startup petroleum hydrocarbon emissions have steadily declined as shown in the chart below.



The mass removal rate has steadily decreased over time, and the June 2023 TVPH emissions rate remained the same as Q1 of 2023 at approximately 0.38 pounds per hour (lb/hr) or approximately 3.80 pounds per day (lb/day).

PLAN FOR NEXT QUARTER OF OPERATION

During the upcoming third quarter 2023 operations, Ensolum will continue to visit the Site monthly to ensure a minimum of 90% runtime efficiency continues and that any maintenance issues are addressed in a timely manner. An air sample will be collected in the third quarter and analyzed for VOCs using EPA Method 8260B, TVPH using EPA Method 8015, and oxygen and carbon dioxide by Gas Processors Association Method 2261. An updated quarterly report with sample results, runtime, and mass source removal will be submitted under separate cover.

Quarterly air sampling and reporting will continue until the mass removal rate declines to an asymptotic level and indicates that hydrocarbon impacts have been reduced at the Site to the maximum extent practicable. At that time, Ensolum will conduct additional soil sampling to investigate potential residual impacts and request closure if concentrations of benzene, toluene, ethylbenzene, xylenes (BTEX) and TVPH are below the applicable standards defined in the New Mexico Administrative Code (NMAC) 19.15.29.12.

If the final delineation samples indicate hydrocarbon impact has been reduced to below NMAC 19.15.29.12 Table 1 Closure Criteria, Ensolum will present the confirmation laboratory analysis data in a report and request closure of the release. Should the results indicate that analytes in the soil exceed the Table 1 Closure Criteria, Ensolum will either make operational adjustments and restart the SVE system based on the results of the investigation or develop an alternative remedial approach to reach Site closure.

Ensolum appreciates the opportunity to provide this report to the NMOCD. If you have any questions or comments regarding this update, do not hesitate to contact Danny Burns at (303)

Harvest Four Corners, LLC
2023 Second Quarter – Solar SVE System Update
Trunk S

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601-1420 or via email at dburns@ensolum.com or Monica Smith at (505) 632-4625 or at msmith@harvestmidstream.com.

Sincerely,

ENSOLUM, LLC



Reece Hanson
Staff Geologist



Danny Burns
Senior Geologist

APPENDICES

Figure 1 – Site Location Map

Figure 2 – SVE System Layout

Table 1 – Soil Vapor Extraction System Laboratory Analytical Results

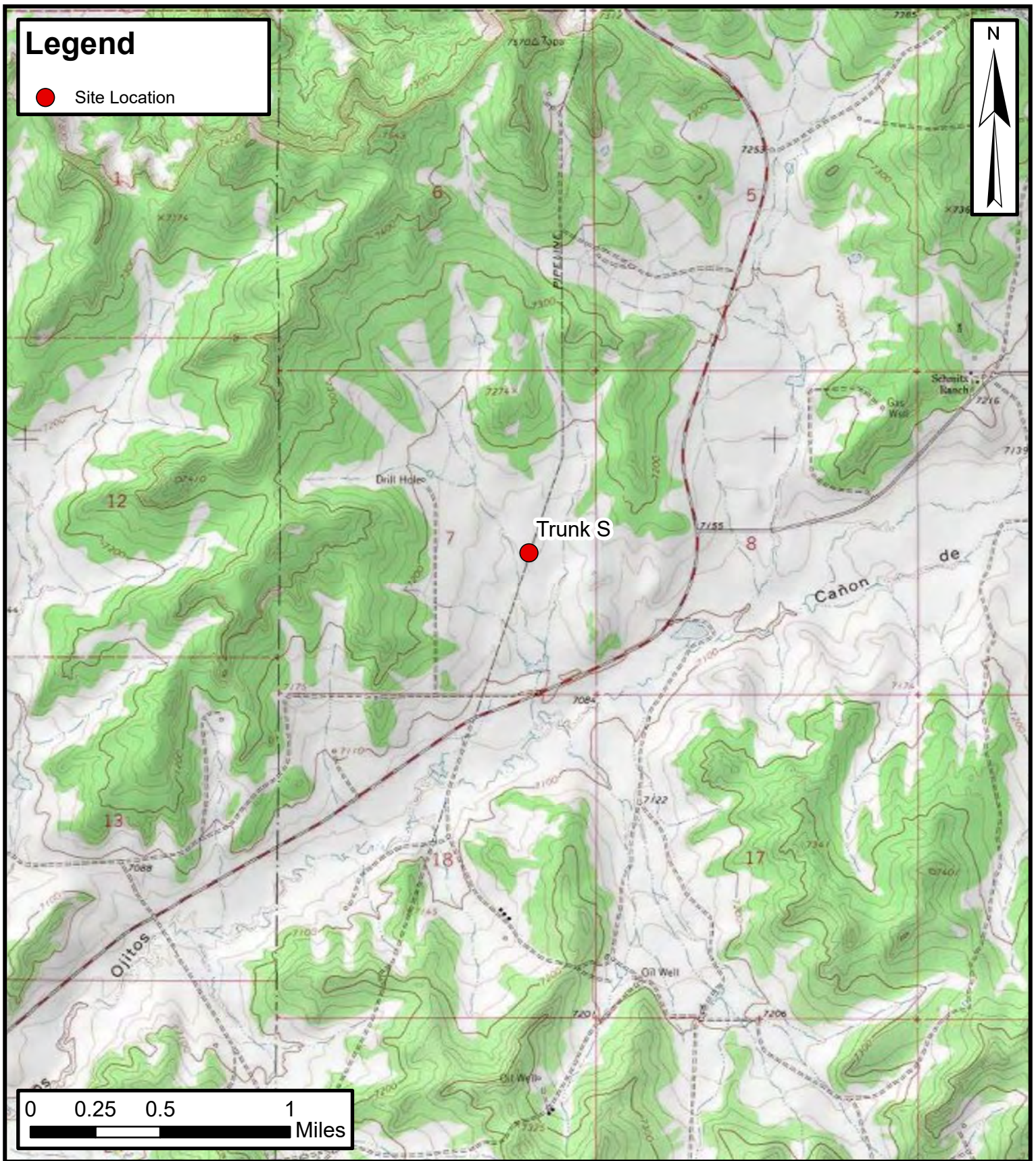
Table 2 – Soil Vapor Extraction System Mass Removal and Emissions

Appendix A – Photographic Log

Appendix B – Laboratory Analytical Report



FIGURES



Site Location Map

Trunk S

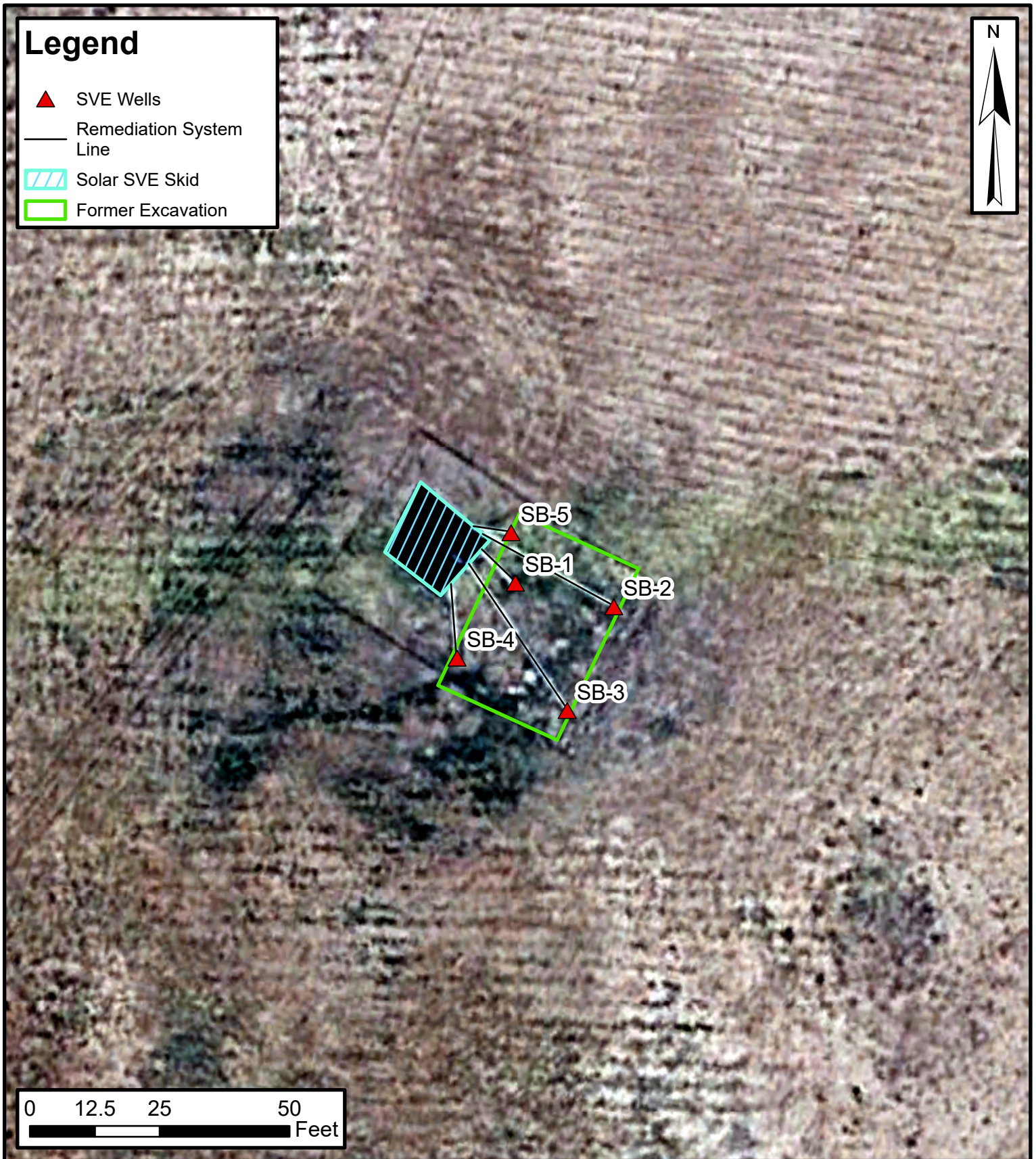
Harvest Four Corners, LLC

36.41189°, -107.18085°

Rio Arriba County, New Mexico

FIGURE

1



SVE System Layout

Trunk S

Harvest Four Corners, LLC

36.41189°, -107.18085°
Rio Arriba County, New Mexico

FIGURE

2



TABLES



TABLE 1
SOIL VAPOR EXTRACTION SYSTEM LABORATORY ANALYTICAL RESULTS

Trunk S
Harvest Four Corners, LLC
Rio Arriba County, New Mexico

Original System Analytical Results

Date	PID (ppm)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	TVPH/GRO (µg/L)	Oxygen (Mol %)	Carbon Dioxide (Mol %)
7/16/2020*	4,268	1,700	1,570	29.4	517.9	NA	20.20	0.67
9/3/2020*	1,100	45	220	22	230	NA	NA	NA
9/30/2020*	1,200	49	480	86	770	NA	NA	NA
10/14/2020*	1,357	150	460	15	270	68,000	20.94	0.93
1/8/2021*	786	76	310	9.1	150	38,000	20.81	0.88
4/9/2021*	898	50	160	8.2	140	30,000	21.54	0.49
7/12/2021*	859	33	150	12	210	19,000	21.47	0.49
9/29/2020*	561	15	77	5.3	85	6,500	21.57	0.54
12/14/2021*	NM	22	140	10	170	13,000	21.83	0.40
3/23/2022*	545	17	90	7.9	130	8,300	21.95	0.35
6/23/2022	605	6.5	42	3.5	49	9,300	21.39	0.45
8/11/2022	789	6.4	48	5.5	78	4,000	NA	NA
9/15/2022	487	5.7	37	4.6	59	3,400	20.91	0.66
12/7/2022	457	3.8	38	5.2	67	3,300	21.35	0.63
3/15/2023	370	2.7	24	2.4	32	1,800	21.34	0.53
6/21/2023	418	2.2	15	2.3	27	2,000	21.04	0.54

Notes:

* - data collected by Animas Environmental

GRO: gasoline range organics

µg/L: micrograms per liter

Mol%: mole percent

NM: not measured

NA: not analyzed

PID: photoionization detector

ppm: parts per million

TVPH: total volatile petroleum hydrocarbons



TABLE 2
SOIL VAPOR EXTRACTION SYSTEM MASS REMOVAL AND EMISSIONS
Trunk S
Harvest Four Corners, LLC
Rio Arriba County, New Mexico

Laboratory Analysis

Date	PID (ppm)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	TVPH (µg/L)
7/16/2020	4,268	1,700	1,570	29.4	517.9	NS
9/3/2020	1,100	45	220	22	230	NS
9/30/2020	1,200	49	480	86	770	NS
10/14/2020	1,357	150	460	15	270	68,000
1/8/2021	786	76	310	9.1	150	38,000
4/9/2021	898	50	160	8.2	140	30,000
7/12/2021	859	33	150	12	210	19,000
9/29/2021	561	15	77	5.3	85	6,500
12/14/2021	553	22	140	10	170	13,000
3/23/2022	545	17	90	7.9	130	8,300
6/23/2022	605	6.5	42	3.5	49	9,300
8/11/2022	789	6.4	48	5.5	78	4,000
9/15/2022	487	5.7	37	4.6	59	3,400
12/7/2022	457	3.8	38	5.2	67	3,300
3/15/2023	370	2.7	24	2.4	32	1,800
6/21/2023	418	2.2	15	2.3	27	2,000
Average	953	137	241	14	187	15,892



TABLE 2
SOIL VAPOR EXTRACTION SYSTEM MASS REMOVAL AND EMISSIONS

Trunk S
Harvest Four Corners, LLC
Rio Arriba County, New Mexico

Average 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)
7/16/2020	88	1,700,160	1,700,160	0.56	0.52	0.010	0.17	--
9/3/2020	86	5,007,720	3,307,560	0.28	0.29	0.008	0.12	--
9/30/2020	87	6,756,420	1,748,700	0.02	0.11	0.018	0.16	--
10/14/2020	86	7,540,740	784,320	0.03	0.15	0.016	0.17	22.00
1/8/2021	94	12,193,740	4,653,000	0.04	0.14	0.004	0.07	17.84
4/9/2021	92	17,553,660	5,359,920	0.02	0.08	0.003	0.05	11.83
7/12/2021	85	24,127,560	6,573,900	0.01	0.05	0.003	0.06	8.11
9/29/2021	92	29,730,360	5,602,800	0.01	0.04	0.003	0.05	4.22
12/14/2021	42	31,650,600	1,920,240	0.00	0.02	0.001	0.02	2.44
3/23/2022	74	36,077,280	4,426,680	0.01	0.03	0.002	0.04	2.31
6/23/2022	47.6	39,581,592	3,504,312	0.00	0.01	0.001	0.02	2.00
8/11/2022	93	43,331,352	3,749,760	0.00	0.02	0.002	0.02	1.75
9/15/2022	97	45,892,152	2,560,800	0.00	0.02	0.002	0.02	1.31
12/7/2022	44	48,584,952	2,692,800	0.00	0.01	0.001	0.01	0.88
3/15/2023	36	50,798,952	2,214,000	0.00	0.00	0.001	0.01	0.38
6/21/2023	71	55,425,312	4,626,360	0.00	0.01	0.001	0.01	0.38
Average				0.06	0.09	0.00	0.06	5.80



TABLE 2
SOIL VAPOR EXTRACTION SYSTEM MASS REMOVAL AND EMISSIONS
Trunk S
Harvest Four Corners, LLC
Rio Arriba County, New Mexico

Flow and Laboratory Analysis

Date	Total SVE System Hours	Delta Hours	Benzene (pounds)	Toluene (pounds)	Ethylbenzene (pounds)	Total Xylenes (pounds)	TVPH (pounds)	TVPH (tons)
7/16/2020	322	322	180	166	3	55	--	--
9/3/2020	963	641	180	185	5	77	--	--
9/30/2020	1,298	335	5	38	6	55	--	--
10/14/2020	1,450	152	5	23	2	25	31,899	15.9
1/8/2021	2,275	825	33	112	3	61	14,718	7.4
4/9/2021	3,246	971	21	79	3	48	11,483	5.7
7/12/2021	4,535	1,289	17	64	4	72	10,453	5.2
9/29/2021	5,550	1,015	8	40	3	52	4,284	2.1
12/14/2021	6,312	762	2	13	1	15	1,862	0.9
3/23/2022	7,309	997	5	32	2	41	2,303	1.2
6/23/2022	8,536	1,227	3	14	1	20	2,455	1.2
8/11/2022	9,208	672	2	11	1	15	1,175	0.6
9/15/2022	9,648	440	1	7	1	11	578	0.3
12/7/2022	10,668	1,020	1	6	1	11	901	0.5
3/15/2023	11,693	1,025	0	4	1	7	391	0.2
6/21/2023	12,779	1,086	1	6	1	9	413	0.2
Total Mass Recovery to Date			464	798	39	572	82,916	41

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

VOC : volatile organic compounds

VOC Mass Removed (lbs) = Influent VOCs (mg/m³) * Air Flow Rates (cfm) * (1 m³/35.3147 ft³) * (1 lb/453,592 mg) * Time Period (min)



APPENDIX A

Photographic Log



Photographic Log
Trunk S
Harvest Four
Corners, LLC
Rio Arriba County,
New Mexico

Photo #1
SVE Hours Reading 4/25/2023





ENSOLUM

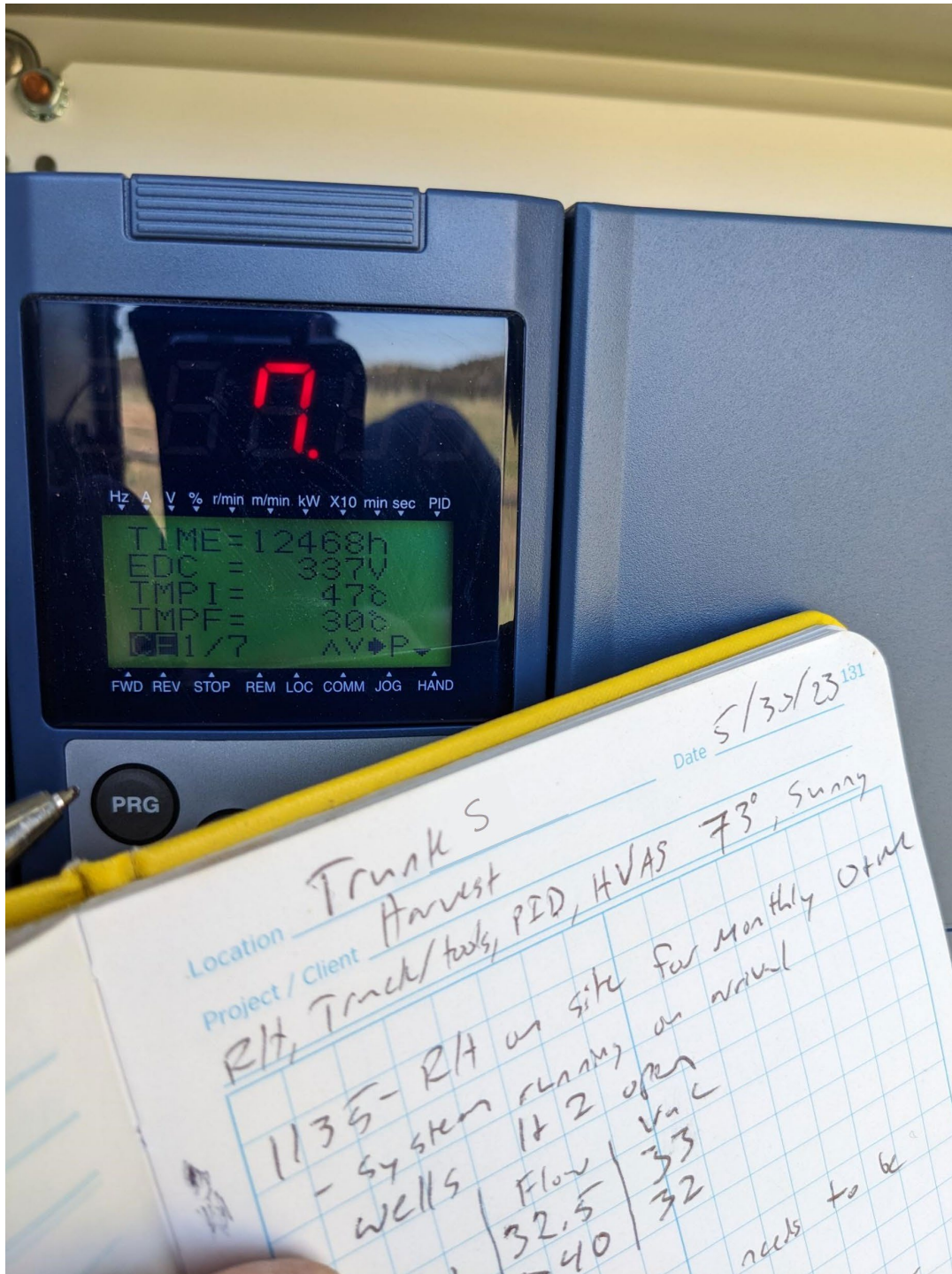
Environmental, Engineering and
Hydrogeologic Consultants

Photographic Log

Trunk S

Harvest Four
Corners, LLC
Rio Arriba County,
New Mexico

Photo #2
SVE Hours Reading 5/30/2023





Photographic Log
Trunk S
Harvest Four
Corners, LLC
Rio Arriba County,
New Mexico

Photo #3
SVE Hours Reading 6/21/2023





APPENDIX B

Laboratory Analytical Report



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

July 11, 2023

Monica Smith

Harvest

1755 Arroyo Dr.

Bloomfield, NM 87413

TEL: (505) 632-4475

FAX

RE: Trunks

OrderNo.: 2306E08

Dear Monica Smith:

Hall Environmental Analysis Laboratory received 1 sample(s) on 6/28/2023 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

Analytical Report

Lab Order 2306E08

Date Reported: 7/11/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Harvest

Client Sample ID: Influent

Project: Trunks

Collection Date: 6/21/2023 12:05:00 PM

Lab ID: 2306E08-001

Matrix: AIR

Received Date: 6/28/2023 6:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE							Analyst: JJP
Gasoline Range Organics (GRO)	2000	250		µg/L	50	6/30/2023 2:31:35 PM	GA97857
Surr: BFB	129	15-412		%Rec	50	6/30/2023 2:31:35 PM	GA97857
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Benzene	2.2	2.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
Toluene	15	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
Ethylbenzene	2.3	2.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
Methyl tert-butyl ether (MTBE)	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
1,2,4-Trimethylbenzene	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
1,3,5-Trimethylbenzene	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
1,2-Dichloroethane (EDC)	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
1,2-Dibromoethane (EDB)	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
Naphthalene	ND	10		µg/L	50	7/5/2023 3:06:18 PM	R97954
1-Methylnaphthalene	ND	20		µg/L	50	7/5/2023 3:06:18 PM	R97954
2-Methylnaphthalene	ND	20		µg/L	50	7/5/2023 3:06:18 PM	R97954
Acetone	ND	50		µg/L	50	7/5/2023 3:06:18 PM	R97954
Bromobenzene	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
Bromodichloromethane	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
Bromoform	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
Bromomethane	ND	10		µg/L	50	7/5/2023 3:06:18 PM	R97954
2-Butanone	ND	50		µg/L	50	7/5/2023 3:06:18 PM	R97954
Carbon disulfide	ND	50		µg/L	50	7/5/2023 3:06:18 PM	R97954
Carbon tetrachloride	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
Chlorobenzene	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
Chloroethane	ND	10		µg/L	50	7/5/2023 3:06:18 PM	R97954
Chloroform	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
Chloromethane	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
2-Chlorotoluene	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
4-Chlorotoluene	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
cis-1,2-DCE	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
cis-1,3-Dichloropropene	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
1,2-Dibromo-3-chloropropane	ND	10		µg/L	50	7/5/2023 3:06:18 PM	R97954
Dibromochloromethane	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
Dibromomethane	ND	10		µg/L	50	7/5/2023 3:06:18 PM	R97954
1,2-Dichlorobenzene	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
1,3-Dichlorobenzene	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
1,4-Dichlorobenzene	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
Dichlorodifluoromethane	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
1,1-Dichloroethane	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
1,1-Dichloroethene	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954

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 1 of 2

Analytical Report

Lab Order 2306E08

Date Reported: 7/11/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Harvest

Client Sample ID: Influent

Project: Trunks

Collection Date: 6/21/2023 12:05:00 PM

Lab ID: 2306E08-001

Matrix: AIR

Received Date: 6/28/2023 6:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
1,2-Dichloropropane	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
1,3-Dichloropropane	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
2,2-Dichloropropane	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
1,1-Dichloropropene	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
Hexachlorobutadiene	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
2-Hexanone	ND	50		µg/L	50	7/5/2023 3:06:18 PM	R97954
Isopropylbenzene	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
4-Isopropyltoluene	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
4-Methyl-2-pentanone	ND	50		µg/L	50	7/5/2023 3:06:18 PM	R97954
Methylene chloride	ND	15		µg/L	50	7/5/2023 3:06:18 PM	R97954
n-Butylbenzene	ND	15		µg/L	50	7/5/2023 3:06:18 PM	R97954
n-Propylbenzene	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
sec-Butylbenzene	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
Styrene	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
tert-Butylbenzene	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
1,1,1,2-Tetrachloroethane	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
1,1,2,2-Tetrachloroethane	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
Tetrachloroethene (PCE)	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
trans-1,2-DCE	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
trans-1,3-Dichloropropene	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
1,2,3-Trichlorobenzene	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
1,2,4-Trichlorobenzene	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
1,1,1-Trichloroethane	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
1,1,2-Trichloroethane	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
Trichloroethene (TCE)	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
Trichlorofluoromethane	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
1,2,3-Trichloropropane	ND	10		µg/L	50	7/5/2023 3:06:18 PM	R97954
Vinyl chloride	ND	5.0		µg/L	50	7/5/2023 3:06:18 PM	R97954
Xylenes, Total	27	7.5		µg/L	50	7/5/2023 3:06:18 PM	R97954
Surr: Dibromofluoromethane	124	70-130		%Rec	50	7/5/2023 3:06:18 PM	R97954
Surr: 1,2-Dichloroethane-d4	126	70-130		%Rec	50	7/5/2023 3:06:18 PM	R97954
Surr: Toluene-d8	100	70-130		%Rec	50	7/5/2023 3:06:18 PM	R97954
Surr: 4-Bromofluorobenzene	96.9	70-130		%Rec	50	7/5/2023 3:06:18 PM	R97954

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



ANALYTICAL SUMMARY REPORT

July 06, 2023

Hall Environmental

4901 Hawkins St NE Ste D

Albuquerque, NM 87109-4372

Work Order: B23062509

Quote ID: B15626

Project Name: Not Indicated

Energy Laboratories Inc Billings MT received the following 1 sample for Hall Environmental on 6/29/2023 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B23062509-001	2306E08-001B, Influent	06/21/23 12:05	06/29/23	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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www.energylab.com

Billings, MT 406.252.6325 • Casper, WY 307.235.0515
Gillette, WY 307.686.7175 • Helena, MT 406.442.0711

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: B23062509-001
Client Sample ID: 2306E08-001B, Influent

Report Date: 07/06/23
Collection Date: 06/21/23 12:05
Date Received: 06/29/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
GAS CHROMATOGRAPHY ANALYSIS REPORT							
Oxygen	21.04	Mol %		0.01		GPA 2261-95	06/30/23 10:52 / jrj
Nitrogen	78.34	Mol %		0.01		GPA 2261-95	06/30/23 10:52 / jrj
Carbon Dioxide	0.54	Mol %		0.01		GPA 2261-95	06/30/23 10:52 / jrj
Hydrogen Sulfide	<0.01	Mol %		0.01		GPA 2261-95	06/30/23 10:52 / jrj
Methane	<0.01	Mol %		0.01		GPA 2261-95	06/30/23 10:52 / jrj
Ethane	<0.01	Mol %		0.01		GPA 2261-95	06/30/23 10:52 / jrj
Propane	<0.01	Mol %		0.01		GPA 2261-95	06/30/23 10:52 / jrj
Isobutane	<0.01	Mol %		0.01		GPA 2261-95	06/30/23 10:52 / jrj
n-Butane	<0.01	Mol %		0.01		GPA 2261-95	06/30/23 10:52 / jrj
Isopentane	<0.01	Mol %		0.01		GPA 2261-95	06/30/23 10:52 / jrj
n-Pentane	<0.01	Mol %		0.01		GPA 2261-95	06/30/23 10:52 / jrj
Hexanes plus	0.08	Mol %		0.01		GPA 2261-95	06/30/23 10:52 / jrj
Propane	< 0.001	gpm		0.001		GPA 2261-95	06/30/23 10:52 / jrj
Isobutane	< 0.001	gpm		0.001		GPA 2261-95	06/30/23 10:52 / jrj
n-Butane	< 0.001	gpm		0.001		GPA 2261-95	06/30/23 10:52 / jrj
Isopentane	< 0.001	gpm		0.001		GPA 2261-95	06/30/23 10:52 / jrj
n-Pentane	< 0.001	gpm		0.001		GPA 2261-95	06/30/23 10:52 / jrj
Hexanes plus	0.034	gpm		0.001		GPA 2261-95	06/30/23 10:52 / jrj
GPM Total	0.034	gpm		0.001		GPA 2261-95	06/30/23 10:52 / jrj
GPM Pentanes plus	0.034	gpm		0.001		GPA 2261-95	06/30/23 10:52 / jrj

CALCULATED PROPERTIES

Gross BTU per cu ft @ Std Cond. (HHV)	4		1		GPA 2261-95	06/30/23 10:52 / jrj
Net BTU per cu ft @ std cond. (LHV)	4		1		GPA 2261-95	06/30/23 10:52 / jrj
Pseudo-critical Pressure, psia	546		1		GPA 2261-95	06/30/23 10:52 / jrj
Pseudo-critical Temperature, deg R	241		1		GPA 2261-95	06/30/23 10:52 / jrj
Specific Gravity @ 60/60F	1.00		0.001		D3588-81	06/30/23 10:52 / jrj
Air, %	96.15		0.01		GPA 2261-95	06/30/23 10:52 / jrj

- The analysis was not corrected for air.

COMMENTS

- 06/30/23 10:52 / 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)



QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Hall Environmental

Work Order: B23062509

Report Date: 07/06/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261-95									Batch: R404747	
Lab ID: B23062510-001ADUP 12 Sample Duplicate									Run: GCNGA-B_230630A 06/30/23 12:12	
Oxygen		21.6	Mol %	0.01				0	20	
Nitrogen		77.8	Mol %	0.01				0	20	
Carbon Dioxide		0.38	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		0.25	Mol %	0.01				4.1	20	
Lab ID: LCS063023 11 Laboratory Control Sample									Run: GCNGA-B_230630A 06/30/23 12:48	
Oxygen		0.59	Mol %	0.01	118	70	130			
Nitrogen		6.05	Mol %	0.01	101	70	130			
Carbon Dioxide		1.00	Mol %	0.01	101	70	130			
Methane		74.4	Mol %	0.01	99	70	130			
Ethane		6.02	Mol %	0.01	100	70	130			
Propane		5.20	Mol %	0.01	105	70	130			
Isobutane		1.99	Mol %	0.01	99	70	130			
n-Butane		2.00	Mol %	0.01	100	70	130			
Isopentane		1.00	Mol %	0.01	100	70	130			
n-Pentane		1.01	Mol %	0.01	101	70	130			
Hexanes plus		0.79	Mol %	0.01	99	70	130			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



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Gillette, WY 307.686.7175 • Helena, MT 406.442.0711

Work Order Receipt Checklist

Hall Environmental

B23062509

Login completed by: Yvonna E. Smith

Date Received: 6/29/2023

Reviewed by: cindy

Received by: htm

Reviewed Date: 7/5/2023

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all shipping container(s)/cooler(s)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Not Applicable <input type="checkbox"/>
Container/Temp Blank temperature:	17.8°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input checked="" type="checkbox"/>

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



CHAIN OF CUSTODY RECORD

PAGE: 1 OF 1

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

SUB CONTRACTOR		Energy Labs -Billings		COMPANY	Energy Laboratories		PHONE	(406) 869-6253	FAX	(406) 252-6069	
ADDRESS		1120 South 27th Street									
CITY, STATE, ZIP		Billings, MT 59107									
ACCOUNT #											
ITEM		SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	ANALYTICAL COMMENTS				
1	2306E08-001B	Influent		TEDLAR	Air	6/21/2023 12:05:00 PM	1 Natural Gas Analysis 02, C02				
							B23002509				

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:	Time:	Received By:	Date:	Time:	REPORT TRANSMITTAL DESIRED:	
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	<input type="checkbox"/> HARD COPY (extra cost)	<input type="checkbox"/> FAX <input type="checkbox"/> EMAIL <input type="checkbox"/> ONLINE
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	FOR LAB USE ONLY	
TAT:			Standard			Temp of samples	Attempt to Cool ⁹⁹
			Next BD			Comments:	



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: Harvest

Work Order Number: 2306E08

RcptNo: 1

Received By: Tracy Casarrubias 6/28/2023 6:45:00 AM

Completed By: Tracy Casarrubias 6/28/2023 7:22:56 AM

Reviewed By: CMC 6/28/23

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 $>0^{\circ}\text{C}$ 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: ju 6/28/23

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: Mailing address and phone number are missing on COC- TMC 6/28/23

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 245472

CONDITIONS

Operator: Harvest Four Corners, LLC 1755 Arroyo Dr Bloomfield, NM 87413	OGRID: 373888
	Action Number: 245472
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
michael.buchanan	Review of the 2023 2nd Quarter--Solar SVE System Update Trunk S: Content Satisfactory 1. Continue to conduct site visits as planned in report. 2. Collect air samples as prescribed in report using method 8260B, 8015, and 2261. 3. Conduct O&M as scheduled and submit quarterly reports on the same schedule as previously submitted.	3/15/2024