



January 29, 2021

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

Via electronic mail: [cory.smith@state.nm.us](mailto:cory.smith@state.nm.us)

**RE: Q4 2020 Periodic Progress Report  
Trunk S Release (December 2020)  
3RP-1014; Incident #NCS1931842879  
Unit I, Section 7, T25N, R3W  
Rio Arriba County, New Mexico**

Dear Mr. Smith:

Animas Environmental Services, LLC (AES) has prepared this Q4 2020 Periodic Progress Report for a release which was discovered June 25, 2019, at the Harvest Four Corners (Harvest) Trunk S natural gas pipeline, located in Rio Arriba County, New Mexico. A topographic site location map is included as Figure 1, and an aerial site map is presented on Figure 2. This report covers site activities from October to December 2020.

### *1.0 Soil Vapor Extraction (SVE) System*

Harvest Midstream purchased a Varisolar Soil Vapor Extraction (SVE) system in late 2019. The SVE system is constructed of 2-inch Schedule 40 PVC above ground conveyance pipe and fittings. Rotometers are installed on each leg of the manifold to accompany dedicated vacuum gauges and sample ports. A combined vapor stream sample port is located between the influent vapor manifold and the moisture separator, upstream of the blower. Additionally, a sample port was installed on the exhaust stack, downstream of the two granular carbon vessels to facilitate monitoring of emissions concentrations. Full time system operation began on July 16, 2020.

### *2.0 SVE System O&M*

On October 14, 2020, AES personnel were onsite to collect system flow, vacuum, vapor data and to monitor granular activated carbon (GAC) efficiency. The system was running at a field-measured flow rate of 80 actual cubic feet per minute (acfm) and an average vacuum of -19.2 inches of water (in-H<sub>2</sub>O). Influent and effluent vapor concentrations were measured using a calibrated Mini Rae 300 organic vapor meter

624 E. Comanche St., Farmington, NM 87401  
PO Box 8, Farmington NM 87499  
505-564-2281  
[www.animasenvironmental.com](http://www.animasenvironmental.com)

Cory Smith NMOCD  
Harvest Trunk S Release (3RP-1014; Incident #1931842879)  
January 29, 2021; Page 2 of 4

(OVM). A sample of each vapor stream was collected in a Tedlar bag using a small vacuum pump. The influent vapor concentration was measured at 1,357 parts per million volumetric (ppmv), and the effluent concentration was 1,393 ppmv, prompting AES to change out the GAC.

Additionally, a quarterly sample of the influent vapor stream was collected for laboratory analysis. Two one-liter Tedlar bags were collected for analysis for volatile organic compounds (VOCs) by U.S. Environmental Protection Agency (EPA) Method 8260B (full list), gasoline-range organics (GRO) by EPA Method 8015, and oxygen and carbon dioxide by Gas Processors Association (GPA) Method 2261. Field and analytical data are included in Table 1.

On November 23, 2020, AES personnel were onsite to collect system flow, vacuum, vapor data and to monitor GAC efficiency. The system was running at a measured flow rate of 46 acfm and an average vacuum of 15.0 in-H<sub>2</sub>O. Influent and effluent vapor concentrations were measured using a calibrated Mini Rae 300 OVM. A sample of each vapor stream was collected in a Tedlar bag using a small vacuum pump. The influent vapor concentration was measured at 2,033 ppmv, and the effluent concentration was 1,130 ppmv, prompting another GAC change out.

Based on telemetry and field readings through November 23, 2020, total cumulative flow, converted to standard cubic feet per minute (scfm), was 3,472,740 cubic feet (ft<sup>3</sup>), and total petroleum mass removal between July 16 and November 23 was estimated to be **14,492 lbs of VOCs**. Average measured vacuum was -1.2 in-Hg. System operating parameters and mass removal estimates are detailed in Table 1, and Graph 1 shows cumulative actual flow through November 23, 2020.

Note that the December 2020 O&M visit was delayed until January 2021 because of inclement weather, and that event will be reported in the next quarterly report.

### **3.0 Ongoing SVE System Monitoring and Sampling**

Harvest and AES will maintain SVE runtime greater than or equal to 90 percent per quarter based on available sunlight hours. A soil gas sample for laboratory analysis will be collected quarterly and analyzed for:

- Total petroleum hydrocarbons (TPH) GRO per EPA Method 8015;
- Volatile organics per EPA Method 8260 (full list); and
- Carbon dioxide and oxygen per GPA 2261.

Cory Smith NMOCD  
Harvest Trunk S Release (3RP-1014; Incident #1931842879)  
January 29, 2021; Page 3 of 4

Harvest and AES will submit a quarterly progress report detailing remediation operations to NMOCD. The report will include at a minimum:

- Summary of remediation activity for the quarter;
- SVE run time, SVE operating parameters, and petroleum hydrocarbon mass removal;
- Gas sample analytical data; and
- Documentation of replacement of GAC canisters.

#### 4.0 Schedule

AES will continue to conduct monthly O&M visits, quarterly vapor field and laboratory analytical sampling, and monitoring and replacing GAC drums as needed. Reports will be submitted on a quarterly basis.

If you have any questions about site conditions, SVE operations, or this report, please do not hesitate to contact Eddie Hubbert or Elizabeth McNally at (505) 564-2281.

Sincerely,



Edward Hubbert  
Project Manager



Elizabeth McNally, P.E.

#### Attachments:

Table 1. SVE Field Operating Parameters

Figure 1. Topographic Site Location Map

Figure 2. Aerial Site Map with SVE Unit and SVE Well Layout

Graph 1. SVE Cumulative Actual Flow over Time (acfm)

Laboratory Analytical Reports –

October 14, 2020 Vapor Sampling (Hall No. 2010744)

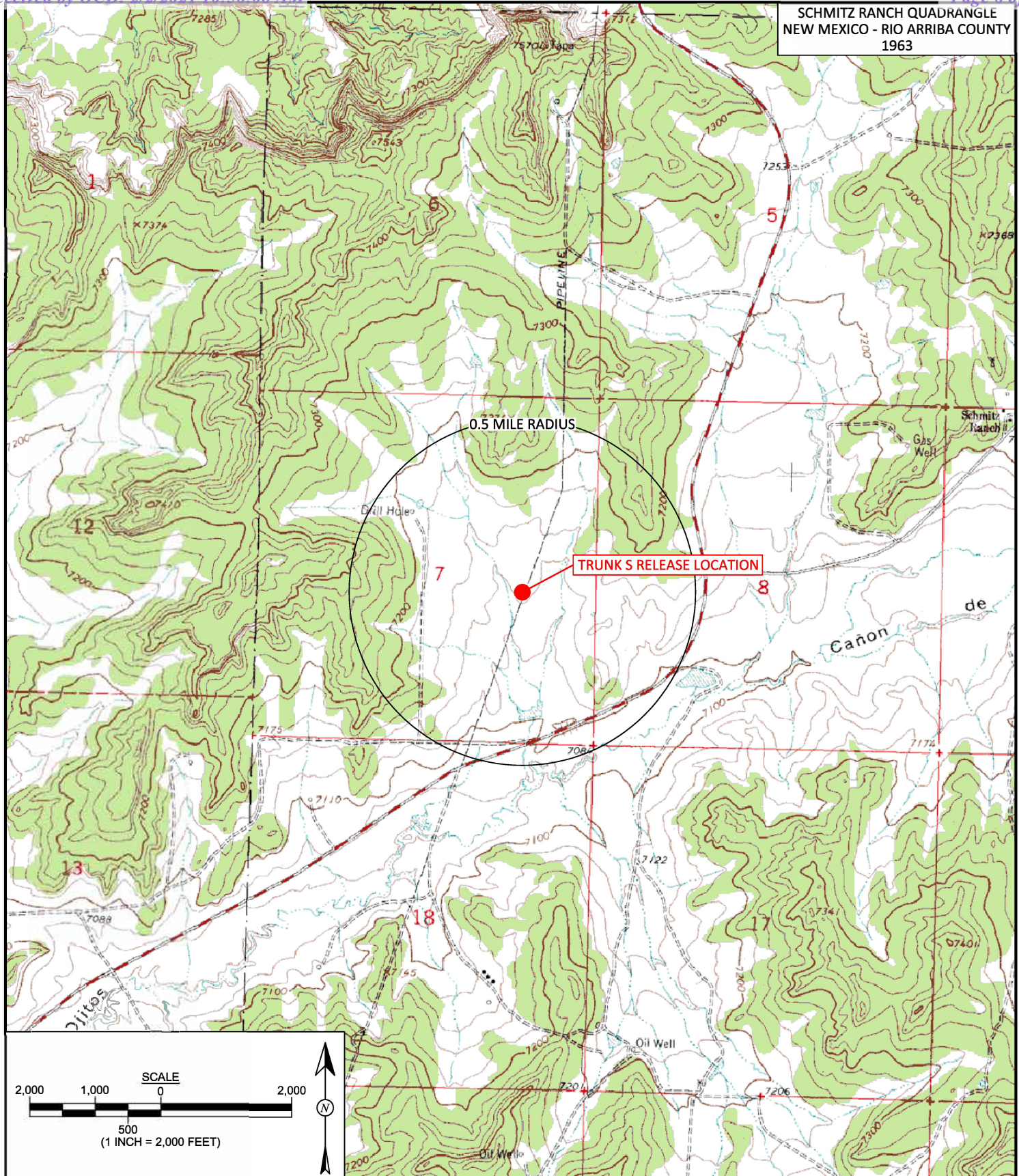
Cory Smith NMOCD  
Harvest Trunk S Release (3RP-1014; Incident #1931842879)  
January 29, 2021; Page 4 of 4

Cc:  
Kijun Hong  
Harvest Midstream Company  
Electronic Mail: [khong@harvestmidstream.com](mailto:khong@harvestmidstream.com)

TABLE 1  
SVE FIELD OPERATING PARAMETERS and  
MASS REMOVAL  
Harvest Trunk S  
Release 3RP-1014, Incident #NCS1931842879

Date	Operating Days	Operating Hours Reading	PID-OVM (ppmv)	Inlet Vacuum (in. Hg)	Inlet Vacuum (in. H <sub>2</sub> O)	Inlet Temp. (°F)	Outlet Temp. (°F)	Actual Flow Rate (acfm)	Std Flow Rate (scfm)	Total Actual Flow (ft3)**	Total Standard Flow (ft3)	VOCs (GRO) (ug/L)	VOCs (GRO) Removed (lbs/ Δt)	lbs removed/ std ft3
16-Jul-20	0	322	4,268	-0.883	-12	NM	NM	120	88		--	200,000	--	--
3-Sep-20	49	963	1,100	-1.177	-16	NM	NM	119	86	1,708,260	1,230,720	54,357	9,745	0.0079
30-Sep-20	76	1,298	1,200	-1.177	-16	NM	153	120	87	1,148,815	824,100	59,000	2,908	0.0035
14-Oct-20	90	1,450	1,357	-1.471	-20	NM	NM	122	86	655,450	465,120	68,000	1,839	0.0040
23-Nov-20	130	1,847	2,033	-1.250	-17	54	62	124	92	1,332,025	952,800	NM	--	--
Notes:								Cumulative Flow		4,844,550	3,472,740		14,492	

1. PID - photoionization detector; OVM - organic vapor meter
2. ppmv - parts per million by volume (v/v; equivalent to mL/L or mL/m<sup>3</sup>)
3. acfm - measured cubic feet per minute (volumetric flow, calculated based on flow velocity and pipe diameter)
4. total flow - vapor flow between system readings (ΔT)
5. °F - degrees Fahrenheit
6. Site elevation - 7,140 ft amsl
7. \*\*flow readings from telemetry data
8. NM = not measured



animas  
environmental  
services

Farmington, NM • Durango, CO  
animasenvironmental.com

**DRAWN BY:**  
C. Lameman

**DATE DRAWN:**  
July 22, 2019

**REVISIONS BY:**  
C. Lameman

**DATE REVISED:**  
July 22, 2019

**CHECKED BY:**  
E. McNally

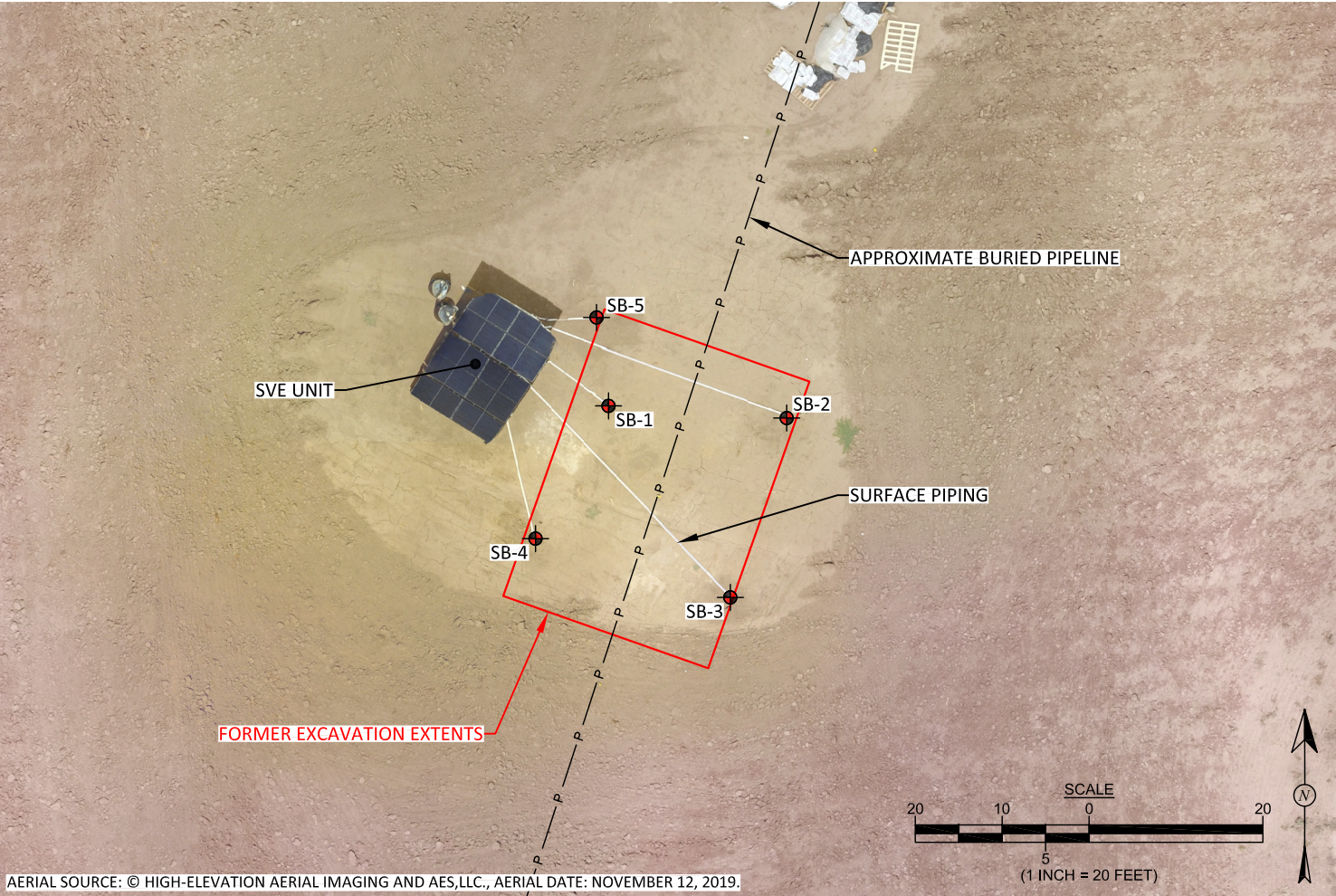
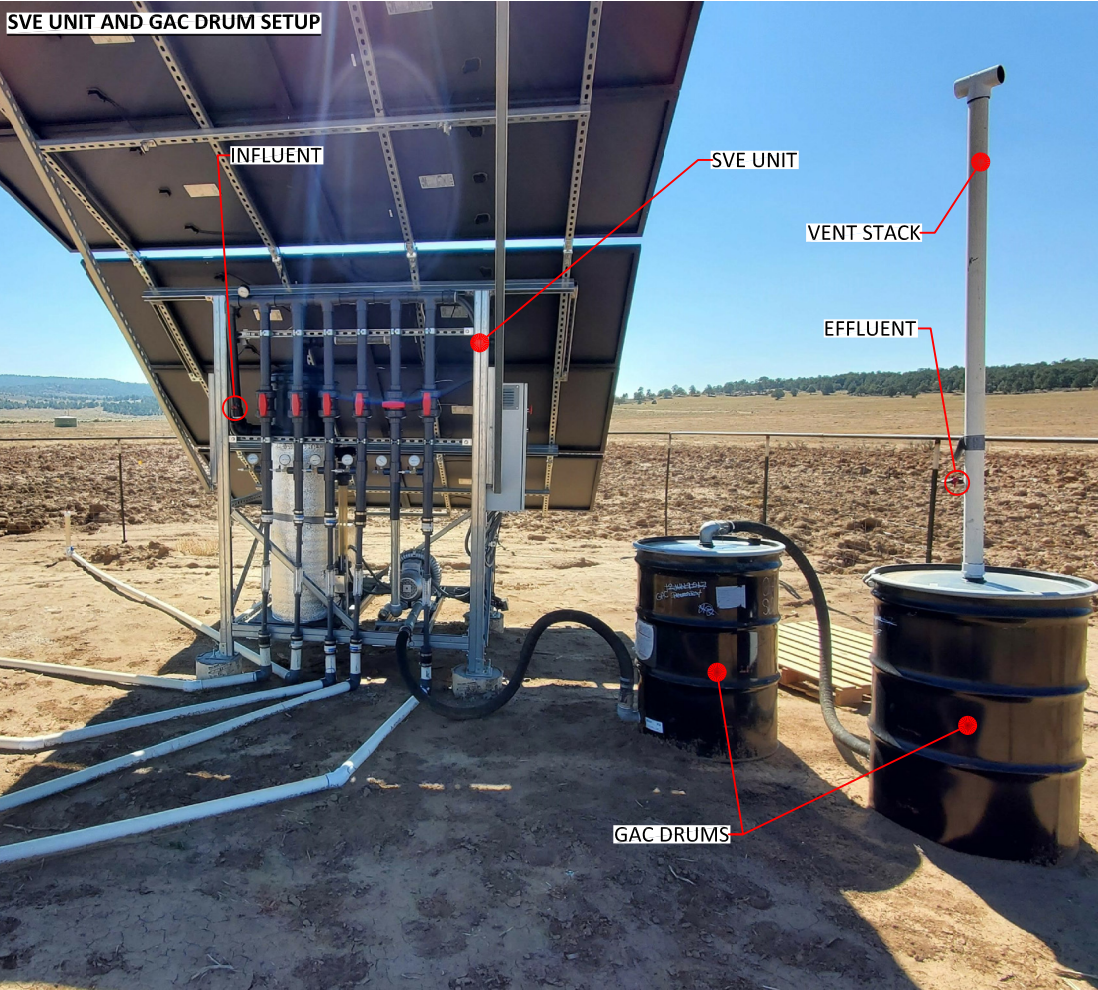
**DATE CHECKED:**  
July 22, 2019

**APPROVED BY:**  
E. McNally

**DATE APPROVED:**  
July 22, 2019

## FIGURE 1

**TOPOGRAPHIC SITE LOCATION MAP**  
HARVEST MIDSTREAM  
TRUNK S RELEASE LOCATION  
NE¼ SE¼, SEC. 7, T25N, R3W  
RIO ARRIBA COUNTY, NEW MEXICO  
N36.41180, -107.18085



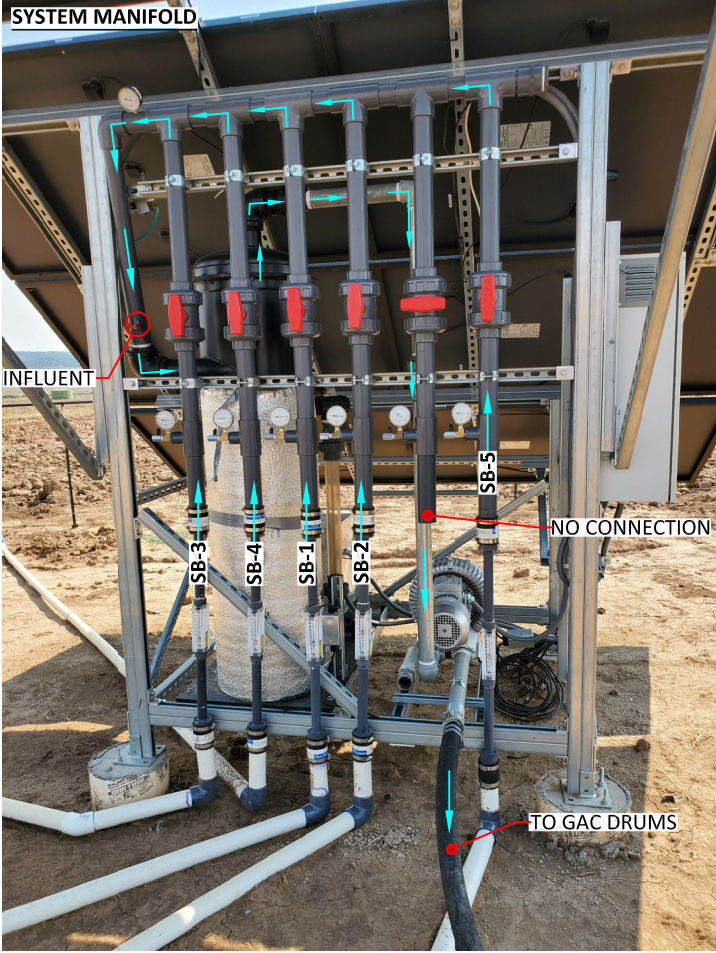
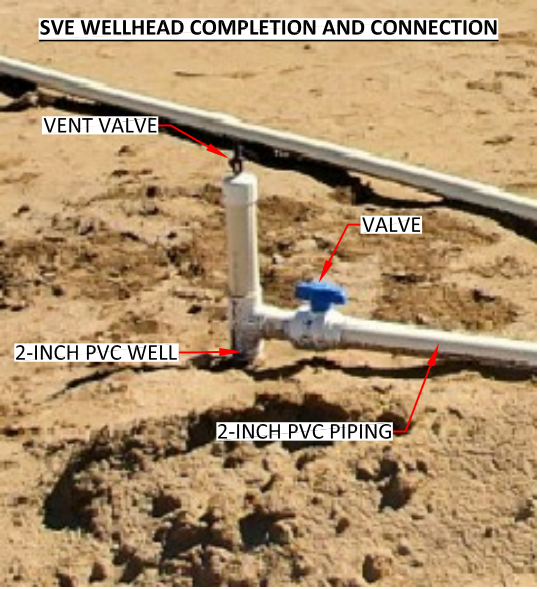
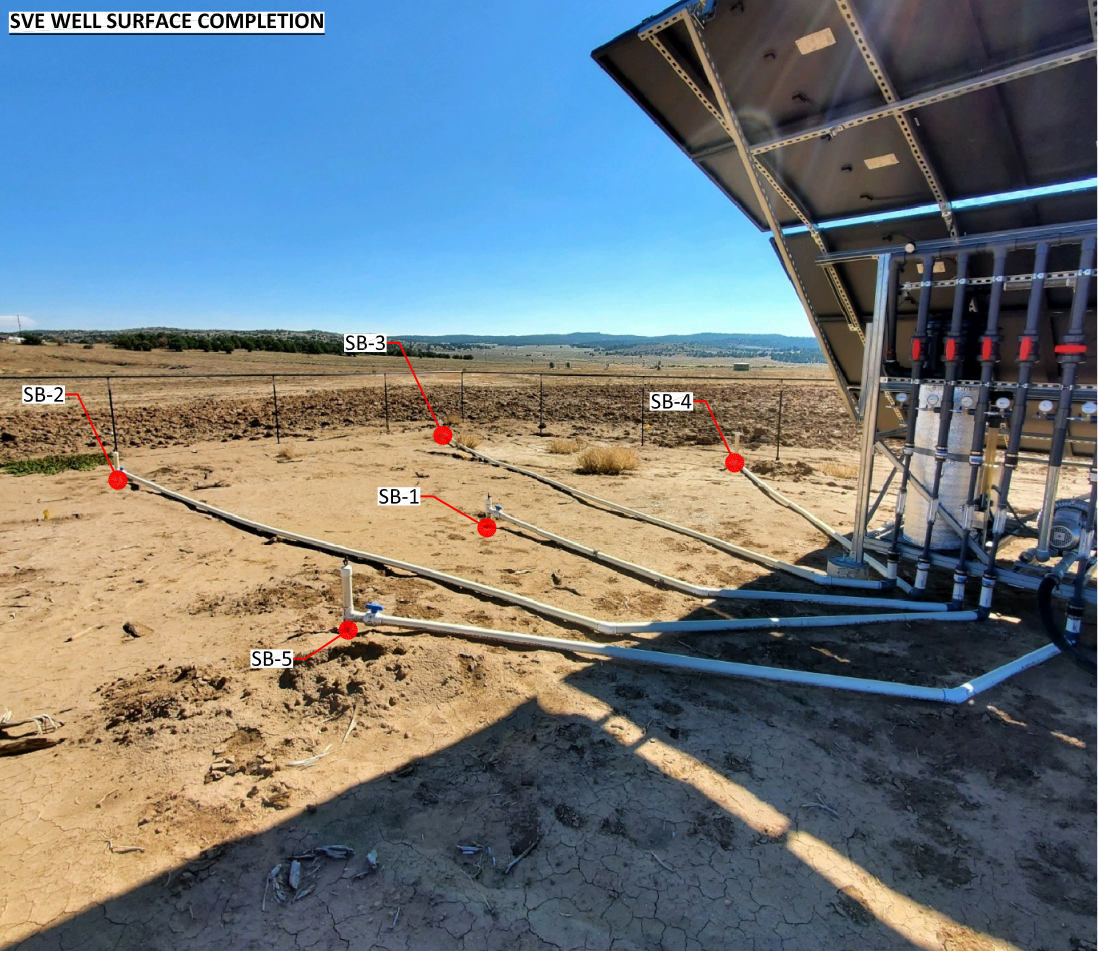
**FIGURE 2**

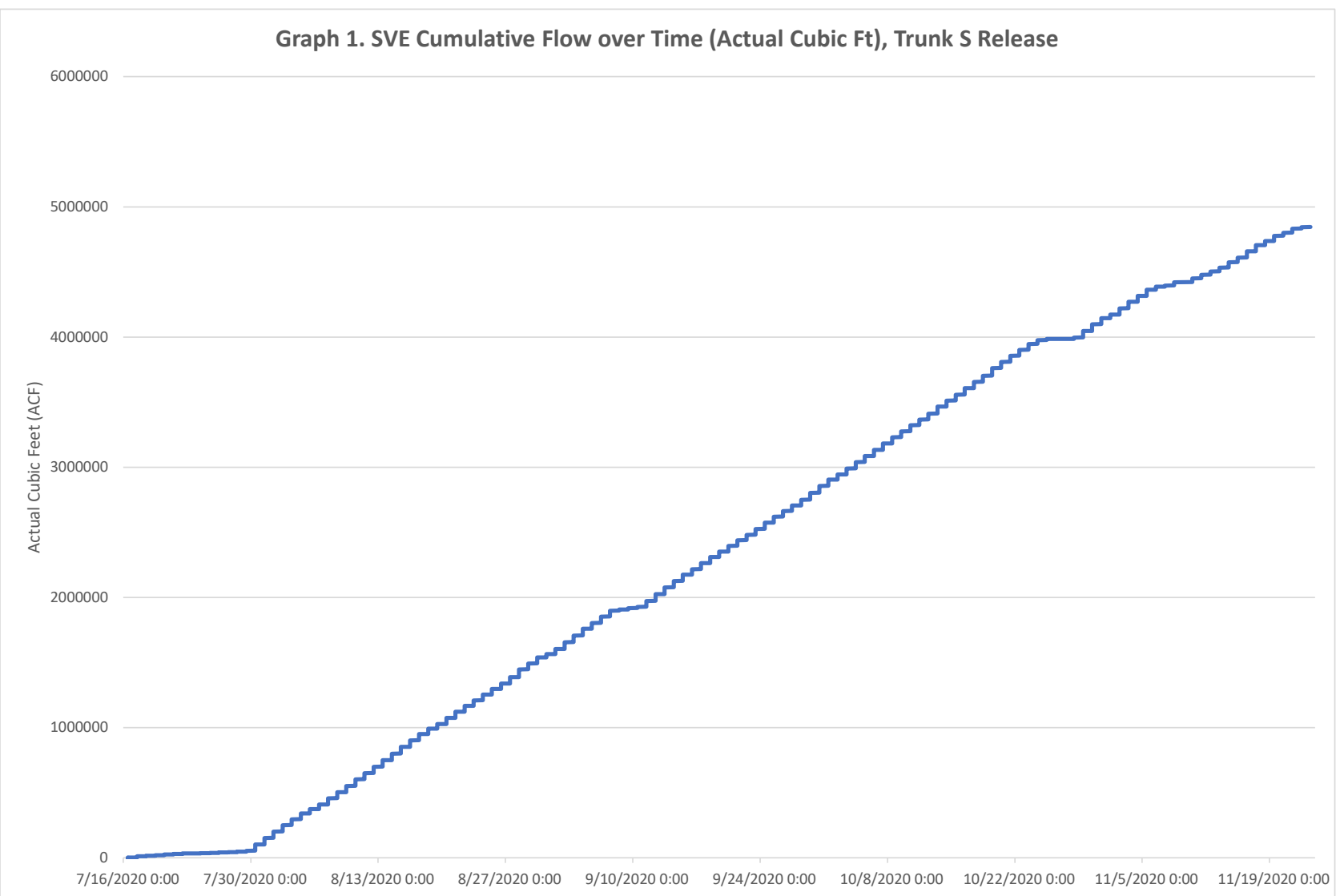
**SVE UNIT AND SVE WELL LAYOUT**  
HARVEST MIDSTREAM  
TRUNK S RELEASE LOCATION  
INCIDENT NUMBER: NCS1931842879  
RELEASE ID: 373888  
NE¼ SE¼, SEC. 7, T25N, R3W  
RIO ARriba COUNTY, NEW MEXICO  
N36.41180, W107.18085

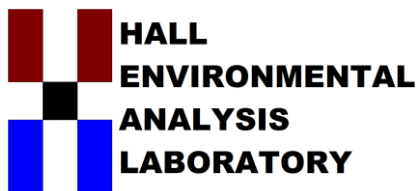


<b>DRAWN BY:</b> C. Lameman	<b>DATE DRAWN:</b> August 3, 2020
<b>REVISIONS BY:</b> C. Lameman	<b>DATE REVISED:</b> October 22, 2020
<b>CHECKED BY:</b> E. McNally	<b>DATE CHECKED:</b> October 22, 2020
<b>APPROVED BY:</b> E. McNally	<b>DATE APPROVED:</b> October 22, 2020

**LEGEND**  
SOIL VAPOR EXTRACTION WELL







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

October 26, 2020

Eddie Hubbert  
Animas Environmental Services  
624 E. Comanche  
Farmington, NM 87401  
TEL: (505) 564-2281  
FAX: (505) 324-2022

RE: Trunk S

OrderNo.: 2010744

Dear Eddie Hubbert:

Hall Environmental Analysis Laboratory received 1 sample(s) on 10/14/2020 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](http://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 horizontal line.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

## Analytical Report

Lab Order 2010744

Date Reported: 10/26/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Animas Environmental Services

Client Sample ID: SVE Influent

Project: Trunk S

Collection Date: 10/14/2020 1:30:00 PM

Lab ID: 2010744-001

Matrix: AIR

Received Date: 10/14/2020 4:03:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: NSB
Gasoline Range Organics (GRO)	68000	500		µg/L	100	10/19/2020 9:46:10 AM	G72758
Surr: BFB	228	28.9-257		%Rec	100	10/19/2020 9:46:10 AM	G72758
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: DJF
Benzene	150	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
Toluene	460	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
Ethylbenzene	15	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
1,2,4-Trimethylbenzene	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
1,3,5-Trimethylbenzene	13	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
1,2-Dichloroethane (EDC)	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
1,2-Dibromoethane (EDB)	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
Naphthalene	ND	20		µg/L	100	10/19/2020 2:33:42 PM	R72885
1-Methylnaphthalene	ND	40		µg/L	100	10/19/2020 2:33:42 PM	R72885
2-Methylnaphthalene	ND	40		µg/L	100	10/19/2020 2:33:42 PM	R72885
Acetone	ND	100		µg/L	100	10/19/2020 2:33:42 PM	R72885
Bromobenzene	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
Bromodichloromethane	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
Bromoform	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
Bromomethane	ND	20		µg/L	100	10/19/2020 2:33:42 PM	R72885
2-Butanone	ND	100		µg/L	100	10/19/2020 2:33:42 PM	R72885
Carbon disulfide	ND	100		µg/L	100	10/19/2020 2:33:42 PM	R72885
Carbon tetrachloride	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
Chlorobenzene	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
Chloroethane	ND	20		µg/L	100	10/19/2020 2:33:42 PM	R72885
Chloroform	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
Chloromethane	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
2-Chlorotoluene	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
4-Chlorotoluene	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
cis-1,2-DCE	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
cis-1,3-Dichloropropene	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
1,2-Dibromo-3-chloropropane	ND	20		µg/L	100	10/19/2020 2:33:42 PM	R72885
Dibromochloromethane	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
Dibromomethane	ND	20		µg/L	100	10/19/2020 2:33:42 PM	R72885
1,2-Dichlorobenzene	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
1,3-Dichlorobenzene	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
1,4-Dichlorobenzene	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
Dichlorodifluoromethane	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
1,1-Dichloroethane	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
1,1-Dichloroethene	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885

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

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

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

Page 1 of 4

## Analytical Report

Lab Order 2010744

Date Reported: 10/26/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Animas Environmental Services

Client Sample ID: SVE Influent

Project: Trunk S

Collection Date: 10/14/2020 1:30:00 PM

Lab ID: 2010744-001

Matrix: AIR

Received Date: 10/14/2020 4:03:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: DJF
1,2-Dichloropropane	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
1,3-Dichloropropane	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
2,2-Dichloropropane	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
1,1-Dichloropropene	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
Hexachlorobutadiene	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
2-Hexanone	ND	100		µg/L	100	10/19/2020 2:33:42 PM	R72885
Isopropylbenzene	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
4-Isopropyltoluene	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
4-Methyl-2-pentanone	ND	100		µg/L	100	10/19/2020 2:33:42 PM	R72885
Methylene chloride	ND	30		µg/L	100	10/19/2020 2:33:42 PM	R72885
n-Butylbenzene	ND	30		µg/L	100	10/19/2020 2:33:42 PM	R72885
n-Propylbenzene	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
sec-Butylbenzene	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
Styrene	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
tert-Butylbenzene	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
1,1,1,2-Tetrachloroethane	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
1,1,2,2-Tetrachloroethane	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
Tetrachloroethene (PCE)	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
trans-1,2-DCE	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
trans-1,3-Dichloropropene	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
1,2,3-Trichlorobenzene	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
1,2,4-Trichlorobenzene	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
1,1,1-Trichloroethane	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
1,1,2-Trichloroethane	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
Trichloroethene (TCE)	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
Trichlorofluoromethane	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
1,2,3-Trichloropropane	ND	20		µg/L	100	10/19/2020 2:33:42 PM	R72885
Vinyl chloride	ND	10		µg/L	100	10/19/2020 2:33:42 PM	R72885
Xylenes, Total	270	15		µg/L	100	10/19/2020 2:33:42 PM	R72885
Surr: Dibromofluoromethane	88.6	70-130		%Rec	100	10/19/2020 2:33:42 PM	R72885
Surr: 1,2-Dichloroethane-d4	83.6	70-130		%Rec	100	10/19/2020 2:33:42 PM	R72885
Surr: Toluene-d8	112	70-130		%Rec	100	10/19/2020 2:33:42 PM	R72885
Surr: 4-Bromofluorobenzene	109	70-130		%Rec	100	10/19/2020 2:33:42 PM	R72885

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	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 range due to dilution or matrix		

Page 2 of 4



Trust our People. Trust our Data.  
www.energylab.com

Billings, MT 800.735.4489 • Casper, WY 888.235.051  
Gillette, WY 866.686.7175 • Helena, MT 877.472.071

## ANALYTICAL SUMMARY REPORT

October 22, 2020

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

Work Order: G20100424  
Project Name: Not Indicated

Energy Laboratories Inc. Gillette WY received the following 1 sample for Hall Environmental on 10/20/2020 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
G20100424-001	2010744-001B; SVE Influent	10/14/20 13:30	10/20/20	Gas	Natural Gas Analysis - BTU Natural Gas Analysis - Compressibility Factor Natural Gas Analysis - GPM Natural Gas Analysis - Molecular Weight Natural Gas Analysis - Routine Natural Gas Analysis - Pressure Base Natural Gas Analysis - Psuedo- Critical Pressure Natural Gas Analysis - Psuedo- Critical Temperature Natural Gas Analysis - Specific Gravity Natural Gas Analysis - Temperature Base

The analyses presented in this report were performed by Energy Laboratories, Inc., 400 W. Boxelder Rd., Gillette, WY 82718, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative. 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 tests results, please contact your Project Manager.

Report Approved By:



Trust our People. Trust our Data.  
www.energylab.com

Billings, MT 800.735.4489 • Casper, WY 888.235.0515  
Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

## LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

**Client:** Hall Environmental  
**Project:** Not Indicated  
**Client Sample ID:** 2010744-001B; SVE Influent  
**Location:**  
**Lab ID:** G20100424-001

**Report Date:** 10/22/20  
**Collection Date:** 10/14/20 13:30  
**Date Received:** 10/20/20  
**Sampled By:** Not Provided

### Analyses

**Result Units Qualifier Method Analysis Date / By**

### NATURAL GAS CHROMATOGRAPHIC ANALYSIS REPORT

Oxygen	20.939 Mol %	GPA 2261	10/22/20 13:59 / djb
Nitrogen	77.484 Mol %	GPA 2261	10/22/20 13:59 / djb
Carbon Dioxide	0.928 Mol %	GPA 2261	10/22/20 13:59 / djb
Hydrogen Sulfide	< 0.001 Mol %	GPA 2261	10/22/20 13:59 / djb
Methane	< 0.001 Mol %	GPA 2261	10/22/20 13:59 / djb
Ethane	0.012 Mol %	GPA 2261	10/22/20 13:59 / djb
Propane	0.008 Mol %	GPA 2261	10/22/20 13:59 / djb
Isobutane	0.006 Mol %	GPA 2261	10/22/20 13:59 / djb
n-Butane	0.009 Mol %	GPA 2261	10/22/20 13:59 / djb
Isopentane	0.027 Mol %	GPA 2261	10/22/20 13:59 / djb
n-Pentane	0.028 Mol %	GPA 2261	10/22/20 13:59 / djb
Hexanes plus	0.559 Mol %	GPA 2261	10/22/20 13:59 / djb

### GPM @ STD COND/1000 CU.FT., MOISTURE FREE GAS

GPM Ethane	0.0030 gal/MCF	GPA 2261	10/22/20 13:59 / djb
GPM Propane	0.0020 gal/MCF	GPA 2261	10/22/20 13:59 / djb
GPM Isobutane	0.0020 gal/MCF	GPA 2261	10/22/20 13:59 / djb
GPM n-Butane	0.0030 gal/MCF	GPA 2261	10/22/20 13:59 / djb
GPM Isopentane	0.0100 gal/MCF	GPA 2261	10/22/20 13:59 / djb
GPM n-Pentane	0.0100 gal/MCF	GPA 2261	10/22/20 13:59 / djb
GPM Hexanes plus	0.2430 gal/MCF	GPA 2261	10/22/20 13:59 / djb
GPM Pentanes plus	0.2630 gal/MCF	GPA 2261	10/22/20 13:59 / djb
GPM Total	0.2730 gal/MCF	GPA 2261	10/22/20 13:59 / djb

### CALCULATED PROPERTIES

Calculation Pressure Base	14.730 psia	GPA 2261	10/22/20 13:59 / djb
Calculation Temperature Base	60 °F	GPA 2261	10/22/20 13:59 / djb
Compressibility Factor, Z	1.0000 unitless	GPA 2261	10/22/20 13:59 / djb
Molecular Weight	29.38 unitless	GPA 2261	10/22/20 13:59 / djb
Pseudo-critical Pressure, psia	549 psia	GPA 2261	10/22/20 13:59 / djb
Pseudo-critical Temperature, deg R	246 deg R	GPA 2261	10/22/20 13:59 / djb
Specific Gravity (air=1.000)	1.018 unitless	GPA 2261	10/22/20 13:59 / djb
Gross BTU per cu ft @ std cond, dry	31.85 BTU/cu ft	GPA 2261	10/22/20 13:59 / djb
Gross BTU per cu ft @ std cond, wet	31.30 BTU/cu ft	GPA 2261	10/22/20 13:59 / djb

**Report** RL - Analyte Reporting Limit

**Definitions:** QCL - Quality Control Limit

MCL - Maximum Contaminant Level

ND - Not detected at the Reporting Limit (RL)



Trust our People. Trust our Data.  
www.energylab.com

Billings, MT 800.735.4489 • Casper, WY 888.235.0515  
Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

## QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental

Work Order: G20100424

Report Date: 10/22/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: GPA 2261</b>								Analytical Run: R260748		
<b>Lab ID: ICV-2010221252</b>	12 Initial Calibration Verification Standard								10/22/20 12:53	
Oxygen		0.391	Mol %	0.001	97	75	110			
Nitrogen		5.133	Mol %	0.001	102	90	110			
Carbon Dioxide		4.908	Mol %	0.001	99	90	110			
Hydrogen Sulfide		0.122	Mol %	0.001	123	100	136			
Methane		73.170	Mol %	0.001	100	90	110			
Ethane		5.005	Mol %	0.001	101	90	110			
Propane		5.006	Mol %	0.001	100	90	110			
Isobutane		1.995	Mol %	0.001	99	90	110			
n-Butane		1.976	Mol %	0.001	98	90	110			
Isopentane		0.988	Mol %	0.001	99	90	110			
n-Pentane		0.998	Mol %	0.001	100	90	110			
Hexanes plus		0.308	Mol %	0.001	102	90	110			
<b>Lab ID: CCV-2010221301</b>	12 Continuing Calibration Verification Standard								10/22/20 13:02	
Oxygen		0.633	Mol %	0.001	106	90	110			
Nitrogen		1.363	Mol %	0.001	97	85	110			
Carbon Dioxide		0.952	Mol %	0.001	95	90	110			
Hydrogen Sulfide		0.026	Mol %	0.001	104	70	130			
Methane		93.464	Mol %	0.001	100	90	110			
Ethane		1.013	Mol %	0.001	101	90	110			
Propane		1.010	Mol %	0.001	101	90	110			
Isobutane		0.493	Mol %	0.001	98	90	110			
n-Butane		0.493	Mol %	0.001	98	90	110			
Isopentane		0.198	Mol %	0.001	99	90	110			
n-Pentane		0.199	Mol %	0.001	100	90	110			
Hexanes plus		0.156	Mol %	0.001	104	90	110			
<b>Lab ID: CCV-2010221525</b>	12 Continuing Calibration Verification Standard								10/22/20 15:26	
Oxygen		0.641	Mol %	0.001	107	90	110			
Nitrogen		1.386	Mol %	0.001	99	85	110			
Carbon Dioxide		0.955	Mol %	0.001	96	90	110			
Hydrogen Sulfide		0.028	Mol %	0.001	112	70	130			
Methane		93.432	Mol %	0.001	100	90	110			
Ethane		1.012	Mol %	0.001	101	90	110			
Propane		1.009	Mol %	0.001	101	90	110			
Isobutane		0.493	Mol %	0.001	98	90	110			
n-Butane		0.493	Mol %	0.001	98	90	110			
Isopentane		0.198	Mol %	0.001	99	90	110			
n-Pentane		0.199	Mol %	0.001	100	90	110			
Hexanes plus		0.154	Mol %	0.001	103	90	110			
<b>Method: GPA 2261</b>								Batch: R260748		
<b>Lab ID: G20100424-001ADUP</b>	12 Sample Duplicate								Run: Varian GC_201022A	
Oxygen		20.930	Mol %	0.001				0.0	20	10/22/20 14:04
Nitrogen		77.450	Mol %	0.001				0.0	10	
Carbon Dioxide		0.928	Mol %	0.001				0.0	10	

### Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



Trust our People. Trust our Data.  
www.energylab.com

Billings, MT 800.735.4489 • Casper, WY 888.235.0515  
Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

## QA/QC Summary Report

Prepared by Gillette, WY Branch

**Client:** Hall Environmental

**Work Order:** G20100424

**Report Date:** 10/22/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> GPA 2261									Batch: R260748	
<b>Lab ID:</b> G20100424-001ADUP 12 Sample Duplicate									Run: Varian GC_201022A 10/22/20 14:04	
Hydrogen Sulfide		< 0.001	Mol %	0.001					10	
Methane		< 0.001	Mol %	0.001					10	
Ethane		0.012	Mol %	0.001				0.0	10	
Propane		0.008	Mol %	0.001				0.0	10	
Isobutane		0.006	Mol %	0.001				0.0	10	
n-Butane		0.009	Mol %	0.001				0.0	10	
Isopentane		0.027	Mol %	0.001				0.0	10	
n-Pentane		0.028	Mol %	0.001				0.0	10	
Hexanes plus		0.602	Mol %	0.001				7.4	10	

### Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



Trust our People. Trust our Data.  
www.energylab.com

Billings, MT 800.735.4489 • Casper, WY 888.235.0515  
Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

## Work Order Receipt Checklist

Hall Environmental

G20100424

Login completed by: Chantel S. Johnson

Date Received: 10/20/2020

Reviewed by: Misty Stephens

Received by: csj

Reviewed Date: 10/21/2020

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 type="checkbox"/>	Not Applicable <input checked="" type="checkbox"/>
Container/Temp Blank temperature:	°C		
Water - VOA vials have zero headspace?	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:

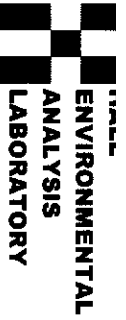
Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

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.

Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

### Contact and Corrective Action Comments:

None



## CHAIN OF CUSTODY RECORD

1 1 1

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

SUB CONTRACTOR: Energy Labs-Gillette		COMPANY: Energy Laboratories		PHONE: (866) 686-7175		FAX:	
ADDRESS: 400 W Boxelder Rd				ACCOUNT #:		EMAIL:	
CITY, STATE, ZIP: Gillette, WY 82718							
ITEM:	SAMPLE	CLIENT SAMPLE ID		BOTTLE TYPE		MATRIX	
1	2010744-001B	SVE Influent		TEDLAR		Air	
						COLLECTION DATE	10/14/2020 1:30:00 PM
						# CONTAINERS	1
ANALYTICAL COMMENTS							
Fixed Gases- O2 & CO2							

## 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: <b>EM</b>	Date: 10/15/2020	Time: 9:41 AM	Received By:	Date:	Time:	REPORT TRANSMITTAL DESIRED: <input type="checkbox"/> HARD COPY (extra cost) <input type="checkbox"/> FAX <input type="checkbox"/> EMAIL <input type="checkbox"/> ONLINE FOR LAB USE ONLY Temp of samples _____ °C    Attempt to Cool? _____ Comments: <b>Groundwater</b>
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	
TAT: <input checked="" type="checkbox"/> Standard <input type="checkbox"/> RUSH    Next BD <input type="checkbox"/> 2nd BD <input type="checkbox"/> 3rd BD <input type="checkbox"/>						

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2010744

26-Oct-20

Client: Animas Environmental Services

Project: Trunk S

Sample ID: <b>2010744-001A</b>	SampType: <b>DUP</b>			TestCode: <b>EPA Method 8260B: Volatiles</b>						
Client ID: <b>SVE Influent</b>	Batch ID: <b>R72885</b>			RunNo: <b>72885</b>						
Prep Date:	Analysis Date: <b>10/19/2020</b>			SeqNo: <b>2562124</b>		Units: <b>µg/L</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	190	10						19.4	20	
Toluene	540	10						16.9	20	
Ethylbenzene	18	10						19.6	20	
Methyl tert-butyl ether (MTBE)	ND	10						0	20	
1,2,4-Trimethylbenzene	11	10						26.0	20	R
1,3,5-Trimethylbenzene	16	10						20.9	20	R
1,2-Dichloroethane (EDC)	ND	10						0	20	
1,2-Dibromoethane (EDB)	ND	10						0	20	
Naphthalene	ND	20						0	20	
1-Methylnaphthalene	ND	40						0	20	
2-Methylnaphthalene	ND	40						0	20	
Acetone	ND	100						0	20	
Bromobenzene	ND	10						0	20	
Bromodichloromethane	ND	10						0	20	
Bromoform	ND	10						0	20	
Bromomethane	ND	20						0	20	
2-Butanone	ND	100						0	20	
Carbon disulfide	ND	100						0	20	
Carbon tetrachloride	ND	10						0	20	
Chlorobenzene	ND	10						0	20	
Chloroethane	ND	20						0	20	
Chloroform	ND	10						0	20	
Chloromethane	ND	10						0	20	
2-Chlorotoluene	ND	10						0	20	
4-Chlorotoluene	ND	10						0	20	
cis-1,2-DCE	ND	10						0	20	
cis-1,3-Dichloropropene	ND	10						0	20	
1,2-Dibromo-3-chloropropane	ND	20						0	20	
Dibromochloromethane	ND	10						0	20	
Dibromomethane	ND	20						0	20	
1,2-Dichlorobenzene	ND	10						0	20	
1,3-Dichlorobenzene	ND	10						0	20	
1,4-Dichlorobenzene	ND	10						0	20	
Dichlorodifluoromethane	ND	10						0	20	
1,1-Dichloroethane	ND	10						0	20	
1,1-Dichloroethene	ND	10						0	20	
1,2-Dichloropropane	ND	10						0	20	
1,3-Dichloropropane	ND	10						0	20	
2,2-Dichloropropane	ND	10						0	20	

### Qualifiers:

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

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

Page 3 of 4

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 2010744

26-Oct-20

**Client:** Animas Environmental Services**Project:** Trunk S

Sample ID: <b>2010744-001A</b>		SampType: <b>DUP</b>		TestCode: <b>EPA Method 8260B: Volatiles</b>						
Client ID: <b>SVE Influent</b>		Batch ID: <b>R72885</b>		RunNo: <b>72885</b>						
Prep Date:		Analysis Date: <b>10/19/2020</b>		SeqNo: <b>2562124</b>		Units: <b>µg/L</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	10						0	20	
Hexachlorobutadiene	ND	10						0	20	
2-Hexanone	ND	100						0	20	
Isopropylbenzene	ND	10						0	20	
4-Isopropyltoluene	ND	10						0	20	
4-Methyl-2-pentanone	ND	100						0	20	
Methylene chloride	ND	30						0	20	
n-Butylbenzene	ND	30						0	20	
n-Propylbenzene	ND	10						0	20	
sec-Butylbenzene	ND	10						0	20	
Styrene	ND	10						0	20	
tert-Butylbenzene	ND	10						0	20	
1,1,1,2-Tetrachloroethane	ND	10						0	20	
1,1,2,2-Tetrachloroethane	ND	10						0	20	
Tetrachloroethene (PCE)	ND	10						0	20	
trans-1,2-DCE	ND	10						0	20	
trans-1,3-Dichloropropene	ND	10						0	20	
1,2,3-Trichlorobenzene	ND	10						0	20	
1,2,4-Trichlorobenzene	ND	10						0	20	
1,1,1-Trichloroethane	ND	10						0	20	
1,1,2-Trichloroethane	ND	10						0	20	
Trichloroethene (TCE)	ND	10						0	20	
Trichlorofluoromethane	ND	10						0	20	
1,2,3-Trichloropropane	ND	20						0	20	
Vinyl chloride	ND	10						0	20	
Xylenes, Total	320	15						18.7	20	
Surr: Dibromofluoromethane	93		100.0		92.8	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	91		100.0		91.1	70	130	0	0	
Surr: Toluene-d8	110		100.0		111	70	130	0	0	
Surr: 4-Bromofluorobenzene	110		100.0		108	70	130	0	0	

**Qualifiers:**

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

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



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: **Animas Environmental Services**

Work Order Number: **2010744**

RcptNo: 1

Received By: **Cheyenne Cason** 10/14/2020 4:03:00 PM

Completed By: **Emily Mocho** 10/15/2020 9:35:26 AM

Reviewed By: **DAD** 10/15/20

### 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  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$ ? 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: JR 10/15/20

### 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:

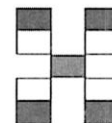
17. Cooler Information

Released to Imaging: 10/18/2022 2:10:51 PM

Date:	Time:	Relinquished by:
-------	-------	------------------

6721

Received by:	Via:	Date	Time



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

[www.hallenvironmental.com](http://www.hallenvironmental.com)

4901 Hawkins NE - Albuquerque, NM 87109

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

## Analysis Request

[illegible]

Remarks: Direct Bill to Harvest

**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 16649

**CONDITIONS**

Operator: Harvest Four Corners, LLC 1111 Travis Street Houston, TX 77002	OGRID: 373888
	Action Number: 16649
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

**CONDITIONS**

Created By	Condition	Condition Date
nvelez	Accepted for the record. See app ID 129947 for most updated status.	10/18/2022