

February 1, 2024

Mr. Matt Williams St. Clair County Landfill Manager - Smiths Creek Landfill 6779 Smiths Creek Rd Smiths Creek, Michigan, 48074

Submitted Via Email to: mwilliams@stclaircounty.org

### Subject: Data Summary Report for the Smiths Creek Landfill in Smiths Creek, Michigan

Dear Mr. Williams:

Tetra Tech, Inc. (Tetra Tech) is submitting the Smiths Creek Landfill Data Summary Report, for your review and comment. This Data Summary Report summarizes hydrogen sulfide air monitoring at the site and surrounding areas conducted from January 2 to January 12, 2024. If you have any questions regarding this report, please email me at Lori.Kozel@tetratech.com.

Sincerely,

how a. Kozel

Lori Kozel Project Manager

Enclosure

### DATA SUMMARY REPORT SMITHS CREEK LANDFILL SMITHS CREEK, ST. CLAIR COUNTY, MICHIGAN

Prepared for: ST. CLAIR COUNTY 200 Grand River Ave. Suite 203 Port Huron, MI 48060

Submitted by: Tetra Tech, Inc. 25213 Dequindre Road Madison Heights, MI 48071



February 01, 2024

Prepared by

perulta

Todd Grossmann Field Team Lead

Approved by

how a. Kozel

Lori Kozel Project Manager

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Smiths Creek Landfill Data Summary Report February 1, 2024

# 1.0 INTRODUCTION

Tetra Tech, Inc. (Tetra Tech) was tasked by the County of St. Clair to prepare a Data Summary Report summarizing hydrogen sulfide (H<sub>2</sub>S) air monitoring activities conducted at the Smiths Creek Landfill (the site) located in Smiths Creek, St. Clair County, Michigan from January 2 to January 12, 2024. The landfill is located at 6779 Smiths Creek Rd in Smiths Creek, St. Clair County, Michigan (the site) (Appendix A, Figure 1).

The goals of air monitoring were to: (1) assess whether airborne contaminants may be migrating from the site to nearby areas; and (2) evaluate concentrations of hydrogen sulfide ( $H_2S$ ) at the perimeter of the property and in the adjacent community. This data collection was in response to odor complaints received by the landfill from the adjacent community.

Section 2.0 of this report discusses the general background of site operations and general information about the site. Section 3.0 discusses field activities conducted on site. Section 4.0 summarizes activities performed at the site and presents conclusions. Section 5.0 lists sources referenced throughout this report.

Figures are provided in Appendix A, tables are shown in Appendix B, and a photographic documentation log is provided in Appendix C.

### 2.0 BACKGROUND

The Smith Creek Landfill site is located at 6779 Smiths Creek Road in Smiths Creek, St. Clair County, Michigan (Appendix A, Figure 1). The site occupies one Parcel, number 74-25-032-1006-000. Geographic coordinates at the approximate center of the site are latitude 42.909017 degrees north and longitude -82.595451 degrees west. The site is bounded north by a railroad and Smiths Creek Road; east by a wooded area and a lake, followed by a Monastery and Sturdevant Road; south by residences, followed by wooded area; and west by wooded areas, followed by commercial and residential properties (Appendix A, Figure 2).

The Smiths Creek Landfill is a municipal solid waste landfill consisting of 265.4 acres. Over the past few months, the landfill has received odor complaints from the nearby community. The landfill has been in communication with Michigan Department of Environment, Great Lakes and Energy (EGLE) regarding the complaints and has tasked Tetra Tech with conducting  $H_2S$  monitoring both on and off-site.

In December 2023, Tetra Tech was contacted to conduct air monitoring activities. Prior to site activities, Tetra Tech drafted a site-specific Health and Safety Plan (Tetra Tech 2023a) and an Air Monitoring Plan (Tetra Tech 2023b). Air monitoring began January 2, 2024 and continued until January 12, 2024.

### **3.0 FIELD ACTIVITIES**

Tetra Tech mobilized to the site on January 2, 2024, and each day thereafter until January 12, to conduct air monitoring for H<sub>2</sub>S. Tetra Tech conducted activities on the site and in the surrounding areas as determined in the Air Monitoring Plan (Tetra Tech 2023b). Wind direction, wind speed, temperature, relative humidity, and barometric pressure were all recorded during the entire monitoring period using a AIO 2 Sonic Weather Sensor. The station can measure winds from all directions from 0-168 miles per hour, temperature from negative 40 degrees Fahrenheit to 140 degrees Fahrenheit, humidity from 0% to 100% and pressure from 600 to 1100 Hectopascal (hPa).

Tetra Tech set up four perimeter stationary Safeguard Analytics Model SA-XES equipped with the Model SA1 Highly Sensitive Hydrogen Sulfide Smart Sensor for H<sub>2</sub>S monitoring on-site as well as a AIO 2 Sonic weather station. The air monitoring stations were set up to best cover wind direction and the four cardinal directions on site and the weather station was set up in an open area free of obstructions (Appendix A, Figure 2). The SA-XES was used in conjunction with a telemetry system (Field Data Solutions CONNECT) to record and monitor contaminate levels in ambient air from 100 parts per billion (ppb) to 100 parts per million (ppm). The SA-XES units were all calibrated with H<sub>2</sub>S before being deployed at the site. These stations continuously monitored, 24 hours a day and every 15 seconds, for the duration of the monitoring event. The units were checked daily to ensure they were properly working thru the Field Data Solutions CONNECT platform.

Tetra Tech used a Jerome J605 Hydrogen Sulfide Analyzer for mobile monitoring each day. Ten monitoring locations outside of site were selected to be monitored once daily for the duration of the monitoring event (Appendix A, Figure 2). On occasions where an odor was detected, a spot check with the Jerome was done. The Jerome was also used on site for spot checks and for confirmation checks at the stationary monitoring locations. The Jerome was put through a regeneration procedure and zero calibrated before use in the field each day.

Tetra Tech documented all field activities in a logbook and collected photographic documentation while on site. The photographic documentation log is included in Appendix C.

## 4.0 SUMMARY AND CONCLUSIONS

On January 2<sup>nd</sup> through January 12<sup>th</sup>, 2024, Tetra Tech conducted air monitoring activities at the Smiths Creek Landfill site, which included stationary and mobile air monitoring.

### 4.1 AIR MONITORING SUMMARY

On January 2, 2024, Tetra Tech deployed four stationary Safeguard Analytics Model SA-XES equipped with the Model SA1 Highly Sensitive Hydrogen Sulfide Smart Sensor at each perimeter air monitoring station to assess hydrogen sulfide contaminants in real time. These monitors ran continuously until January 12, 2024. The SA-XES was used in conjunction with a telemetry system (Field Data Solutions CONNECT) to record and monitor contaminate levels in ambient air from 100 ppb to 100 ppm. Tetra Tech received notifications any time H<sub>2</sub>S was detected on a sensor at 100 ppb or greater.

Over the course of the monitoring event H<sub>2</sub>S was detected at 100 ppb or greater by at least one of the SA-XES sensors on four days; January 5<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup>, and 11<sup>th</sup>. Only two of the stations detected 100 ppb or greater of H<sub>2</sub>S over the duration, SCL-H2S 2 and SCL-H2S 3. Both stations were located on the southern perimeter of the site, with SCL-H2S 2 being in the southwest and SCL-H2S 3 being in the southeast.

A summary of detections above 100 ppb can be found in Appendix B, Table 1 and 2. The tables show the time and date of each detection compared to the wind direction and speed at the time of detection. SCL-H2S 2 had a total of 279 detections equal to or greater than 100 ppb over the course of monitoring with a maximum reading of 594 ppb. SCL-H2S 3 had a total of 46 detections equal to or greater than 100 ppb with a maximum reading of 180 ppb.

When detections occurred at SCL-H2S 2, winds were predominantly from the northeast. When detections occurred at SCL-H2S 3, winds were predominately from the northwest. Wind speed during all detections was low, and the maximum speed was 3.9 miles per hour when a detection was recorded. The maximum readings at SCL-H2S 2 and SCL-H2S 3 occurred during recorded wind speeds of 1.0 mph and 2.9 mph respectively. All detections along with daily weather conditions can be found in Appendix A, Figure 3. Using the graph and chart, daily wind speed and direction can be compared to detections of  $H_2S$  on a specific day.

Tetra Tech used a Jerome J605 Hydrogen Sulfide Analyzer for mobile monitoring each day. The Jerome J605 can measure hydrogen sulfide from 3 parts per billion (ppb) to 10 ppm. Ten locations were selected to monitor off-site each day, these locations were selected to cover all directions around the site. Mobile monitoring was conducted each day from January 2-12, 2024, except for on the 7<sup>th</sup> and 9<sup>th</sup> because of

weather conditions (heavy precipitation). The time of daily monitoring varied to cover the morning, midday, afternoon, and evening. Tetra Tech did not see any detections in any of the ten locations when mobile monitoring over the course of the event. Starting on January 6<sup>th</sup>, Tetra Tech was tasked to also monitor at 6695 Smiths Creek Road. Tetra Tech monitored that location and no detections were observed. A summary of detections can be found in Appendix B, Table 3.

The Jerome J605 was periodically used to do confirmation checks at each of the 4 stationary monitoring locations. On January 5, 2024, at SCL-H2S 4 the Jerome had a reading of 2.53 ppb, and an odor was noticed at the time of the reading. Spot checks with the Jerome were also conducted whenever an odor was present on site. On January 6, 2024, in the southwestern portion of the site, northeast of SCL-H2S 2, an odor was present, and a reading of 10.29 ppb was collected. On January 12, 2024 in the same location as on January 6, 2024 (Appendix C, Photos 9 and 10), an odor was present and a reading of 6.7 ppb was detected.

## 4.2 CONCLUSIONS

Air monitoring activities were conducted on and off site from January 2<sup>nd</sup> through January 12<sup>th</sup>, 2024. Monitoring included four stationary locations and ten mobile locations visited daily. On January 7, 2024, and January 9, 2024, mobile locations were not visited due to weather conditions (heavy precipitation).

Over the course of the monitoring event, the two stationary  $H_2S$  monitors (SCL-H2S 2 and SCL-H2S 3) on the southern perimeter of the site detected  $H_2S$  above 100 ppb on four different days. The two northern monitors did not have any detections above 100 ppb. When detections were seen in the southwest station, winds were predominantly from the northeast; and when the southeast station had detections, winds were predominantly from the northeast; Detections only occurred when wind speed was light, with a maximum speed of 3.9 miles per hour. Over the course of the monitoring event, no  $H_2S$  detections were observed off-site. For the days where detections were documented on site but not off-site, it is possible that the winds dispersed  $H_2S$  to a low enough level where it could not be detected in off-site locations. Given the right conditions, it is possible  $H_2S$  odors could leave the site in high enough concentrations that are detectable off-site.

### 5.0 **REFERENCES**

- Tetra Tech. 2023a. Level 2 Health and Safety Plan. Smiths Creek Landfill. Smiths Creek, St. Clair County, Michigan. Revision 0. December 20.
- Tetra Tech. 2023b. Air Monitoring Plan. Smiths Creek Landfill. Smiths Creek, St. Clair County, Michigan. Revision 0. December

# APPENDIX A FIGURES

Figure 1 – Site Location Map Figure 2 – Site Layout Map Figure 3 – Air Monitoring Summary



Date Saved: 12/20/2023

Coordinate System: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Datum: North American 1983 Units: Foot US



Coordinate System: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Datum: North American 1983 Units: Foot US

Date Saved: 1/17/2024

### Figure 3 - Air Monitoring Summary H2S Detections and Corresponding Wind Data Smiths Creek, St. Clair County, Michigan



Date	Wind Direction (angle)	Wind Speed (mph)	Temperature (F)	Rel Humidity (%)	Baro Pressure (mBar)
1/2/2024	226	8.1	31.8	72.0	993.0
1/3/2024	265	4.1	32.3	87.9	991.5
1/4/2024	310	6.5	25.3	62.9	1000.7
1/5/2024	209	4.5	28.4	69.6	999.7
1/6/2024	88	3.3	30.9	76.0	987.5
1/7/2024	275	3.9	32.2	85.2	986.8
1/8/2024	210	2.0	34.7	77.7	1001.5
1/9/2024	118	6.0	37.5	90.9	973.3
1/10/2024	277	7.7	34.3	81.3	969.4
1/11/2024	238	3.6	33.5	88.1	984.4
1/12/2024	100	2.2	31.9	90.5	992.3

# APPENDIX B TABLES

 $\label{eq:2.1} Table 1-H_2S \mbox{ Detections Above Method Detection Limit - Location H2S 2} Table 2-H_2S \mbox{ Detections Above Method Detection Limit - Location H2S 3} Table 3 - Mobile Monitoring Summary}$ 



SCL - H2S 2

#### Table 1 - H2S Detections Above Method Detection Limit - Location HS2 2 Smiths Creek Landfill Smiths Creek, St Clair County, Michigan Air Monitoring 1/2/24 (17:00) through 1/12/24 (09:00)



Deployment Label	Date	Time	H2S (ppb)	Wind Direction	Wind Speed (mph)	Notes
CL - H2S 2	1/5/2024	21:49:49	349	SE	1.5	Detection > MDL
CL - H2S 2	1/5/2024	21:50:04	594	E	1.0	Detection > MDL
CL - H2S 2	1/5/2024	21:50:19	470	E	1.0	Detection > MDL
CL - H2S 2	1/5/2024	21:50:35	379	E	1.0	Detection > MDL
CL - H2S 2	1/5/2024	21:50:49	289	E	1.0	Detection > MDL
CL - H2S 2	1/5/2024	21:51:05	226	N	1.0	Detection > MDL
CL - H2S 2	1/5/2024	21:51:19	151	N	1.0	Detection > MDL
CL - H2S 2	1/5/2024	21:51:35	147	N	1.0	Detection > MDL
CL - H2S 2	1/5/2024	21:51:49	123	N	1.0	Detection > MDL
	1/5/2024	21.52.04	126	N	1.8	Detection > MDL
CL - H2S 2	1/5/2024	21.52.19	104	N	1.0	Detection > MDL
CL - H2S 2	1/5/2024	21.52.34	100	N	1.0	Detection > MDL
CL - H2S 2	1/5/2024	21:52:43	124	N	1.0	Detection > MDI
CL - H2S 2	1/5/2024	21:53:49	144	N	1.9	Detection > MDL
CL - H2S 2	1/5/2024	21:54:05	117	NNW	1.3	Detection > MDL
CL - H2S 2	1/5/2024	21:54:19	124	NNW	1.3	Detection > MDL
CL - H2S 2	1/5/2024	21:54:34	134	NNW	1.3	Detection > MDL
CL - H2S 2	1/5/2024	21:54:49	158	NNW	1.3	Detection > MDL
CL - H2S 2	1/5/2024	21:55:04	152	NNW	1.2	Detection > MDL
CL - H2S 2	1/5/2024	21:55:19	151	NNW	1.2	Detection > MDL
CL - H2S 2	1/6/2024	15:15:51	106	NE	3.2	Detection > MDL
CL - H2S 2	1/6/2024	15:20:35	106	NNE	2.1	Detection > MDL
CL - H2S 2	1/6/2024	15:24:20	113	NE	2.6	Detection > MDL
CL - H2S 2	1/6/2024	15:24:35	105	NE	2.6	Detection > MDL
CL - H2S 2	1/6/2024	15:24:50	120	NE	2.6	Detection > MDL
CL - H2S 2	1/6/2024	15:25:05	111	N	2.3	Detection > MDL
CL - H2S 2	1/6/2024	15:25:35	108	N	2.3	Detection > MDL
CL - H2S 2	1/6/2024	15:33:35	106	NE	3.3	Detection > MDL
CL - H2S 2	1/6/2024	15:49:36	104	NE	2.5	Detection > MDL
	1/6/2024	16:00:05	109	ININE	2.7	Detection > MDL
CL - H25 2	1/6/2024	16:00:35	101	NNE	2.7	Detection > MDL
CL - H2S 2	1/6/2024	16:01:00	104	NNE	2.9	Detection > MDL
CL - H2S 2	1/6/2024	16:01:35	102	NNE	2.9	Detection > MDL
CL - H2S 2	1/6/2024	16:04:50	109	NNE	3.9	Detection > MDL
CL - H2S 2	1/6/2024	16:08:05	127	NNE	3.8	Detection > MDL
CL - H2S 2	1/6/2024	16:08:21	124	NNE	3.8	Detection > MDL
CL - H2S 2	1/6/2024	16:08:35	117	NNE	3.8	Detection > MDL
CL - H2S 2	1/6/2024	16:08:50	111	NNE	3.8	Detection > MDL
CL - H2S 2	1/6/2024	16:09:35	100	NNE	3.0	Detection > MDL
CL - H2S 2	1/6/2024	16:10:05	110	NE	1.8	Detection > MDL
CL - H2S 2	1/6/2024	16:10:20	105	NE	1.8	Detection > MDL
CL - H2S 2	1/6/2024	16:11:20	100	ENE	2.2	Detection > MDL
CL - H2S 2	1/6/2024	16:17:20	107	NNE	1.8	Detection > MDL
CL - H2S 2	1/6/2024	16:30:20	108	NNE	1.6	Detection > MDL
CL - H2S 2	1/6/2024	16:30:35	120	NNE	1.6	Detection > MDL
CL - H2S 2	1/6/2024	16:36:20	104	NE	3.0	Detection > MDL
CL - H2S 2	1/6/2024	16:37:05	103	NNE	1.1	Detection > MDL
	1/6/2024	16:37:35	101	ININE	1.1	Detection > MDL
CL - H2S 2	1/6/2024	16:51:20	105	NNE	2.3	Detection > MDL
CL - H2S 2	1/6/2024	16:51:35	122	NNE	2.0	Detection > MDI
CL - H2S 2	1/6/2024	16:51:50	122	NNE	2.9	Detection > MDL
CL - H2S 2	1/6/2024	16:52:05	105	NE	1.8	Detection > MDL
CL - H2S 2	1/6/2024	16:52:20	115	NE	1.8	Detection > MDL
CL - H2S 2	1/6/2024	16:52:35	105	NE	1.8	Detection > MDL
CL - H2S 2	1/6/2024	16:53:35	101	NE	2.3	Detection > MDL
CL - H2S 2	1/6/2024	16:54:05	101	ENE	3.4	Detection > MDL
CL - H2S 2	1/6/2024	16:54:50	104	ENE	3.4	Detection > MDL
CL - H2S 2	1/6/2024	16:55:06	108	NNE	1.9	Detection > MDL
CL - H2S 2	1/6/2024	16:55:20	114	NNE	1.9	Detection > MDL
CL - H2S 2	1/6/2024	16:55:35	115	NNE	1.9	Detection > MDL
CL - H2S 2	1/6/2024	16:58:50	105	NE	2.3	Detection > MDL
CL - H2S 2	1/6/2024	17:03:50	100	NNE	2.1	Detection > MDL

Ν

Ν

NNE

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103

107

107

115

119

120

113

1/6/2024 17:08:20

1/6/2024 17:08:35

1/6/2024 17:11:20

1/6/2024 17:11:36

1/6/2024 17:11:50 1/6/2024 17:12:05

1/6/2024 17:12:20

2.0

2.0

1.6

1.6

1.6

2.2

2.2

Detection > MDL



#### Table 1 - H2S Detections Above Method Detection Limit - Location HS2 2 Smiths Creek Landfill Smiths Creek, St Clair County, Michigan Air Monitoring 1/2/24 (17:00) through 1/12/24 (09:00)



Deployment Label	Date	Time	H2S (ppb)	H2S (ppb) Wind Direction Wind Speed (mph)		Notes	
SCL-H2S2	1/6/2024	17:12:50	116	NE	2.2	Detection > MDL	
SCL - H2S 2	1/6/2024	17:13:05	116	NE	2.0	Detection > MDL	
SCL - H2S 2	1/6/2024	17:13:20	106	NE	2.0	Detection > MDL	
SCL - H2S 2	1/6/2024	17:13:36	108	NE	2.0	Detection > MDL	
SCL - H2S 2	1/6/2024	17:13:50	124	NE	2.0	Detection > MDL	
SCL - H2S 2	1/6/2024	17:14:35	102	ENE	2.0	Detection > MDL	
SCL - H2S 2	1/6/2024	17:17:50	102	NE	2.0	Detection > MDL	
SCL-H2S2	1/6/2024	17:21:06	109	NE	2.8	Detection > MDL	
SCL - H2S 2	1/6/2024	17:24:20	100	NE	2.4	Detection > MDL	
SCL - H2S 2	1/6/2024	17:24:50	117	NE	2.4	Detection > MDL	
SCL - H2S 2	1/6/2024	17:25:20	106	NE	2.2	Detection > MDL	
SCL - H2S 2	1/6/2024	17:25:36	102	NE	2.2	Detection > MDL	
SCL - H2S 2	1/6/2024	17:27:20	116	ENE	2.5	Detection > MDL	
SCL - H2S 2	1/6/2024	17:27:50	116	ENE	2.5	Detection > MDL	
SCL - H2S 2	1/6/2024	17:28:35	103	NE	2.7	Detection > MDL	
SCL - H2S 2	1/6/2024	17:28:50	106	NE	2.7	Detection > MDL	
SCL- H2S 2	1/6/2024	17:29:05	105	NE	2.7	Detection > MDL	
SCL - H2S 2	1/6/2024	17:29:35	100	NE	2.7	Detection > MDL	
SCL - H2S 2	1/6/2024	17:30:05	105	NE	2.1	Detection > MDL	
SCL - H2S 2	1/6/2024	17:30:20	100	NE	2.1	Detection > MDL	
SCL - H2S 2	1/6/2024	17:30:36	126	NE	2.1	Detection > MDL	
SCL - H2S 2	1/6/2024	17:30:50	109	NE	2.1	Detection > MDL	
SCL - H2S 2	1/6/2024	17:31:05	102	NNE	3.5	Detection > MDL	
SCL - H2S 2	1/6/2024	17:31:20	118	NNE	3.5	Detection > MDL	
SCL - H2S 2	1/6/2024	17:32:05	103	NE	3.8	Detection > MDL	
SCL - H2S 2	1/6/2024	17:32:20	114	NE	3.8	Detection > MDL	
SCL - H2S 2	1/6/2024	17:42:06	105	FNE	2.5	Detection > MDI	
SCL - H2S 2	1/6/2024	17:42:20	113	ENE	2.5	Detection > MDL	
SCL - H2S 2	1/6/2024	17:44:21	110	ENE	2.9	Detection > MDL	
SCL - H2S 2	1/6/2024	17:45:05	108	NE	1.8	Detection > MDL	
SCL - H2S 2	1/6/2024	17:45:20	105	NE	1.8	Detection > MDL	
SCL - H2S 2	1/6/2024	17:50:05	103	NE	2.5	Detection > MDL	
SCL - H2S 2	1/6/2024	17:50:20	105	NE	2.5	Detection > MDL	
SCL - H2S 2	1/6/2024	17:50:36	108	NE	2.5	Detection > MDL	
SCL - H2S 2	1/6/2024	17:51:05	105	NNE	2.5	Detection > MDL	
SCL - H2S 2	1/6/2024	17:51:20	118	NNE	2.4	Detection > MDL	
SCL - H2S 2	1/6/2024	17:51:35	153	NNE	2.4	Detection > MDL	
SCL - H2S 2	1/6/2024	17:51:50	165	NNE	2.4	Detection > MDL	
SCL - H2S 2	1/6/2024	17:52:06	164	NNE	1.4	Detection > MDL	
SCL - H2S 2	1/6/2024	17:52:20	127	NNE	1.4	Detection > MDL	
SCL - H2S 2	1/6/2024	17:52:35	102	NNE	1.4	Detection > MDL	
SCL - H2S 2	1/6/2024	17:54:50	106	NNE	1.9	Detection > MDL	
SCL - H2S 2	1/6/2024	18.00.20	101	NNE	1.0	Detection > MDL	
SCL - H2S 2	1/6/2024	18:00:35	107	NNE	1.7	Detection > MDL	
SCL - H2S 2	1/6/2024	18:01:06	114	ENE	1.7	Detection > MDL	
SCL - H2S 2	1/6/2024	18:01:50	112	ENE	1.7	Detection > MDL	
SCL - H2S 2	1/6/2024	18:15:21	113	E	2.4	Detection > MDL	
SCL - H2S 2	1/6/2024	18:15:51	102	E	2.4	Detection > MDL	
SCL - H2S 2	1/6/2024	18:18:50	105	ENE	2.2	Detection > MDL	
SCL - H2S 2	1/6/2024	18:19:35	108	ENE	1.9	Detection > MDL	
SCL - H2S 2	1/6/2024	18:20:00	109	NE	1.5	Detection > MDL	
SCL - H2S 2	1/6/2024	18:23:06	105	NE	1.5	Detection > MDL	
SCL - H2S 2	1/6/2024	18:23:20	104	NE	1.5	Detection > MDL	
SCL - H2S 2	1/6/2024	18:23:36	108	NE	1.5	Detection > MDL	
SCL - H2S 2	1/6/2024	18:24:50	104	N	0.5	Detection > MDL	
SCL - H2S 2	1/6/2024	18:25:05	117	N	1.1	Detection > MDL	
SCL - H2S 2	1/6/2024	18:25:20	117	N	1.1	Detection > MDL	
SCL - H2S 2	1/6/2024	18:25:35	110	N	1.1	Detection > MDL	
ЗОL - П2З Z SCL - H2S 2	1/6/2024	18:25:50	103		1.1	Detection > MDL	
SCL - H2S 2	1/6/2024	18:28:05	101	NE	3.0	Detection > MDL	
SCL - H2S 2	1/6/2024	18:29:21	103	NE	2.1	Detection > MDL	
SCL - H2S 2	1/6/2024	18:30:05	103	NE	1.6	Detection > MDL	
SCL - H2S 2	1/6/2024	18:34:06	112	NNE	2.2	Detection > MDL	
SCL - H2S 2	1/6/2024	18:34:20	110	NNF	22	Detection > MDI	



#### CH Table 1 - H2S Detections Above Method Detection Limit - Location HS2 2 Smiths Creek Landfill Smiths Creek, St Clair County, Michigan Air Monitoring 1/2/24 (17:00) through 1/12/24 (09:00)



Deployment Label	Date	Time	H2S (ppb)	Wind Direction	Wind Speed (mph)	Notes	
SCL - H2S 2	1/6/2024	18:34:51	104	NNE	2.2	Detection > MDL	
SCL - H2S 2	1/6/2024	18:35:35	108	NE	0.9	Detection > MDL	
SCL - H2S 2	1/6/2024	18:36:21	108	ENE	1.0	Detection > MDL	
SCL - H2S 2	1/6/2024	18:36:35	123	ENE	1.0	Detection > MDL	
SCL - H2S 2	1/6/2024	18:36:51	116	ENE	1.0		
SCL - H2S 2	1/6/2024	18:46:50	103	N	1.0	Detection > MDL	
SCL - H2S 2	1/6/2024	18:47:35	104	NNW	1.0	Detection > MDL	
SCL - H2S 2	1/6/2024	18:48:05	108	NNE	1.4	Detection > MDL	
SCL - H2S 2	1/6/2024	18:48:35	112	NNE	1.4	Detection > MDL	
SCL - H2S 2	1/6/2024	18:48:51	124	NNE	1.4	Detection > MDL	
SCL - H2S 2	1/6/2024	18:49:05	120	N	1.4	Detection > MDL	
SCL - H2S 2	1/6/2024	18:49:20	131	N	1.4	Detection > MDL	
SCL - H2S 2	1/6/2024	18:49:35	111	N	1.4	Detection > MDL	
SCL - H2S 2	1/6/2024	18:49:50	117	N	1.4	Detection > MDL	
SCL - H2S 2	1/6/2024	18:50:20	141	N	1.2	Detection > MDL	
SCL - H2S 2	1/6/2024	18:50:35	163	N	1.2	Detection > MDL	
SCL - H2S 2	1/6/2024	18:50:51	160	Ν	1.2	Detection > MDL	
SCL - H2S 2	1/6/2024	18:51:05	143	Ν	0.7	Detection > MDL	
SCL - H2S 2	1/6/2024	18:51:20	111	Ν	0.7	Detection > MDL	
SCL - H2S 2	1/6/2024	18:51:35	108	Ν	0.7	Detection > MDL	
SCL - H2S 2	1/6/2024	18:52:21	105	N	0.7	Detection > MDL	
SCL-H2S2	1/6/2024	18:52:36	115	N	0.7	Detection > MDL	
SUL - H2S 2	1/6/2024	18:52:50	101	N	0.7	Detection > MDL	
SCL - H2S 2 SCL - H2S 2	1/6/2024	18:53:05	111	NNE	1.1	Detection > MDL	
SCL - H2S 2	1/6/2024	18:53:35	102	NNE	1.1	Detection > MDI	
SCL - H2S 2	1/6/2024	18:54:35	102	NE	1.0	Detection > MDL	
SCL - H2S 2	1/6/2024	18:54:50	112	NE	1.0	Detection > MDL	
SCL - H2S 2	1/6/2024	18:55:05	116	NNE	0.9	Detection > MDL	
SCL - H2S 2	1/6/2024	18:55:20	130	NNE	0.9	Detection > MDL	
SCL - H2S 2	1/6/2024	18:55:35	111	NNE	0.9	Detection > MDL	
SCL - H2S 2	1/6/2024	18:55:51	135	NNE	0.9	Detection > MDL	
SUL - FIZS Z	1/6/2024	18:56:05	130	NNE	1.1	Detection > MDL	
SCL - H2S 2	1/6/2024	18:56:36	157	NNE	1.1	Detection > MDL	
SCL - H2S 2	1/6/2024	18:56:51	184	NNE	1.1	Detection > MDL	
SCL - H2S 2	1/6/2024	18:57:05	166	NNE	1.2	Detection > MDL	
SCL - H2S 2	1/6/2024	18:57:21	135	NNE	1.2	Detection > MDL	
SCL - H2S 2	1/6/2024	18:57:35	135	NNE	1.2	Detection > MDL	
SCL - H2S 2	1/6/2024	18:57:51	138	NNE	1.2	Detection > MDL	
SCL - H2S 2	1/6/2024	18:58:06	140	NNE	1.1	Detection > MDL	
SCL - H2S 2	1/6/2024	18:58:22	123	NNE	1.1	Detection > MDL	
SCL - H2S 2	1/6/2024	18:59:06	113	N	0.8	Detection > MDL	
SCL - H2S 2	1/6/2024	18:59:20	102	N	0.8	Detection > MDL	
SCL - H2S 2	1/6/2024	18:59:35	103	N	0.8	Detection > MDL	
SCL - H2S 2	1/6/2024	19:13:35	101	ENE	0.9	Detection > MDL	
SCL - H2S 2	1/6/2024	19:13:51	107	ENE	0.9	Detection > MDL	
SCL - H2S 2	1/6/2024	19:14:05	124	ENE	1.7	Detection > MDL	
SCL - H2S 2	1/6/2024	19:17:05	112	ENE	1.2	Detection > MDL	
SCL - H2S 2	1/6/2024	19:17:21	141	ENE	1.2	Detection > MDL	
SCL - H2S 2	1/6/2024	19:17:51	120	ENE	1.2	Detection > MDL	
SCL - H2S 2	1/6/2024	19:18:05	120	ENE	2.0	Detection > MDL	
SCL - H2S 2	1/6/2024	19:18:20	121	ENE	2.0	Detection > MDL	
SCL - H2S 2	1/6/2024	19:18:35	103	ENE	2.0	Detection > MDL	
SCL - H2S 2	1/6/2024	19:19:35	108	ENE	2.2	Detection > MDL	
SCL - H2S 2	1/6/2024	19:19:50	124	ENE	2.2	Detection > MDL	
SCL - H2S 2	1/6/2024	19:20:05	117	NE	1.6	Detection > MDL	
SCL - H2S 2	1/6/2024	19:20:21	138	NE	1.6	Detection > MDL	
SUL - H2S 2	1/6/2024	19:20:35	107		1.6	Detection > MDL	
SCL - H2S 2	1/6/2024	19:20.01	104	NF	1.0	Detection > MDL	
SCL - H2S 2	1/6/2024	19:21:35	112	NE	1.5	Detection > MDL	
SCL - H2S 2	1/6/2024	19:21:50	116	NE	1.5	Detection > MDL	
SCL - H2S 2	1/6/2024	19:22:05	105	ENE	1.6	Detection > MDL	
SCL - H2S 2	1/6/2024	19:22:22	106	ENE	1.6	Detection > MDL	
SCL - H2S 2	1/6/2024	19:22:51	104	ENE	1.6	Detection > MDL	
SCL - H2S 2	1/6/2024	19.23.50	108	NF	14	Detection > MDI	



#### Table 1 - H2S Detections Above Method Detection Limit - Location HS2 2 Smiths Creek Landfill



#### Smiths Creek, St Clair County, Michigan Air Monitoring 1/2/24 (17:00) through 1/12/24 (09:00)

Deployment Label	Date	Time	H2S (ppb)	Wind Direction	Wind Speed (mph)	Notes	
SCL - H2S 2	1/6/2024	19:24:21	113	NE 1.3 [		Detection > MDL	
SCL - H2S 2	1/6/2024	19:25:35	102	ENE	1.1	Detection > MDL	
SCL - H2S 2	1/6/2024	19:26:35	104	E	1.6	Detection > MDL	
SCL - H2S 2	1/7/2024	5:27:21	117	E	2.2	Detection > MDL	
SCL - H2S 2	1/7/2024	5:27:36	200	E	2.2	Detection > MDL	
SCL - H2S 2	1/7/2024	5:27:51	175	E	2.2	Detection > MDL	
SCL - H2S 2	1/7/2024	5:28:07	141	E	1.8	Detection > MDL	
SCL - H2S 2	1/7/2024	5:28:22	135	E	1.8	Detection > MDL	
SCL - H2S 2	1/7/2024	5:28:36	178	E	1.8	Detection > MDL	
SCL - H2S 2	1/7/2024	5:28:51	229	E	1.8	Detection > MDL	
SCL - H2S 2	1/7/2024	5:29:06	231	ESE	1.4	Detection > MDL	
SCL - H2S 2	1/7/2024	5:29:22	236	ESE	1.4	Detection > MDL	
SCL - H2S 2	1/7/2024	5:29:36	239	ESE	1.4	Detection > MDL	
SCL - H2S 2	1/7/2024	5:29:51	222	ESE	1.4	Detection > MDL	
SCL - H2S 2	1/7/2024	5:30:06	184	E	0.9	Detection > MDL	
SCL - H2S 2	1/7/2024	5:30:21	186	E	0.9	Detection > MDL	
SCL - H2S 2	1/7/2024	5:30:37	143	E	0.9	Detection > MDL	
SCL - H2S 2	1/7/2024	5:30:51	127	E	0.9	Detection > MDL	
SCL - H2S 2	1/7/2024	5:31:06	106	ENE	0.9	Detection > MDL	
SCL - H2S 2	1/7/2024	5:31:22	116	ENE	0.9	Detection > MDL	
SCL - H2S 2	1/7/2024	5:31:37	106	ENE	0.9	Detection > MDL	
SCL - H2S 2	1/7/2024	5:32:21	132	ENE	1.5	Detection > MDL	
SCL - H2S 2	1/7/2024	5:32:36	137	ENE	1.5	Detection > MDL	
SCL - H2S 2	1/7/2024	5:32:51	127	ENE	1.5	Detection > MDL	
SCL - H2S 2	1/7/2024	5:33:07	151	E	1.3	Detection > MDL	
SCL - H2S 2	1/7/2024	5:33:21	205	E	1.3	Detection > MDL	
SCL - H2S 2	1/7/2024	5:33:36	207	E	1.3	Detection > MDL	
SCL - H2S 2	1/7/2024	5:33:52	223	E	1.3	Detection > MDL	
SCL - H2S 2	1/7/2024	5:34:07	227	E	1.3	Detection > MDL	
SCL - H2S 2	1/7/2024	5:34:21	206	E	1.3	Detection > MDL	
SCL - H2S 2	1/7/2024	5:34:36	187	E	1.3	Detection > MDL	
SCL - H2S 2	1/7/2024	5:34:52	184	E	1.3	Detection > MDL	
SCL - H2S 2	1/7/2024	5:35:06	157	ENE	1.2	Detection > MDL	
SCL - H2S 2	1/7/2024	5:35:22	185	ENE	1.2	Detection > MDL	
SCL - H2S 2	1/7/2024	5:35:38	187	ENE	1.2	Detection > MDL	
SCL - H2S 2	1/7/2024	5:35:52	197	ENE	1.2	Detection > MDL	
SCL - H2S 2	1/7/2024	5:36:07	177	ENE	1.2	Detection > MDL	
SCL - H2S 2	1/7/2024	5:36:21	159	ENE	1.2	Detection > MDL	
SCL - H2S 2	1/7/2024	5:36:36	144	ENE	1.2	Detection > MDL	
SCL - H2S 2	1/7/2024	5:36:51	145	ENE	1.2	Detection > MDL	
SCL - H2S 2	1/7/2024	5:37:07	156	ENE	1.4	Detection > MDL	
SCL - H2S 2	1/7/2024	5:37:21	151	ENE	1.4	Detection > MDL	
SCL - H2S 2	1/7/2024	5:37:36	169	ENE	1.4	Detection > MDL	
SCL - H2S 2	1/7/2024	5:37:51	178	ENE	1.4	Detection > MDL	
SCL - H2S 2	1/7/2024	5:38:06	149	NE	1.4	Detection > MDL	
SCL - H2S 2	1/7/2024	5:38:22	148	NE	1.4	Detection > MDL	
SCL - H2S 2	1/7/2024	5:38:36	131	NE	1.4	Detection > MDL	
SCL - H2S 2	1/7/2024	5:38:51	146	NE	1.4	Detection > MDL	
SCL - H2S 2	1/7/2024	5:39:06	171	ENE	1.5	Detection > MDL	
SCL - H2S 2	1/7/2024	5:39:21	148	ENE	1.5	Detection > MDL	
SCL - H2S 2	1/7/2024	5:39:37	153	ENE	1.5	Detection > MDL	
SCL - H2S 2	1/7/2024	5:39:51	146	ENE	1.5	Detection > MDL	
SCL - H2S 2	1/7/2024	5:40:06	158	NE	1.7	Detection > MDL	
SCL - H2S 2	1/7/2024	5:40:21	160	NE	1.7	Detection > MDL	
SCL - H2S 2	1/7/2024	5:40:36	153	NE	1.7	Detection > MDL	
SCL - H2S 2	1/7/2024	5:40:51	133	NE	1.7	Detection > MDL	
SCL - H2S 2	1/7/2024	5:42:22	121	NNE	0.7	Detection > MDL	
SCL - H2S 2	1/7/2024	5:42:51	109	NNE	0.7	Detection > MDL	
SCL - H2S 2	1/7/2024	5:43:07	107	Ν	0.8	Detection > MDL	
SCL - H2S 2	1/7/2024	5:43:38	106	Ν	0.8	Detection > MDL	
SCL - H2S 2	1/11/2024	23:19:02	105	Ν	1.6	Detection > MDL	
SCL - H2S 2	1/11/2024	23:19:16	127	Ν	1.6	Detection > MDL	
SCL - H2S 2	1/11/2024	23:19:33	126	Ν	1.6	Detection > MDL	
SCL - H2S 2	1/11/2024	23:19:47	144	Ν	1.6	Detection > MDL	
SCL - H2S 2	1/11/2024	23:20:02	143	NNW	1.3	Detection > MDL	

Notes: E- East MDL – Method detection limit N – North S- South SCL – Smiths Creek Landfill W - West



#### Table 2 - H2S Detections Above Method Detection Limit - Location HS2 3 Smiths Creek Landfill Smiths Creek, St Clair County, Michigan Air Monitoring 1/2/24 (17:00) through 1/12/24 (09:00)



Deployment Label	Date	Time	H2S (ppb)	Wind Direction Wind Speed (mph)		Notes	
SCL - H2S 3	1/7/2024	1:11:07	100	WSW	1.5	Detection > MDL	
SCL - H2S 3	1/7/2024	1:11:37	132	WSW	1.5	Detection > MDL	
SCL - H2S 3	1/7/2024	1:11:52	127	WSW	1.5	Detection > MDL	
SCL - H2S 3	1/7/2024	1:12:07	136	WSW	1.6	Detection > MDL	
SCL - H2S 3	1/7/2024	1:12:22	138	WSW	1.6	Detection > MDL	
SCL - H2S 3	1/7/2024	1:12:37	161	WSW	1.6	Detection > MDL	
SCL - H2S 3	1/7/2024	1:12:52	165	WSW	1.6	Detection > MDL	
SCL - H2S 3	1/7/2024	1:13:07	170	WSW	1.7	Detection > MDL	
SCL - H2S 3	1/7/2024	1:13:22	164	WSW	1.7	Detection > MDL	
SCL - H2S 3	1/7/2024	1:13:37	174	WSW	1.7	Detection > MDL	
SCL - H2S 3	1/7/2024	1:13:52	174	WSW	1.7	Detection > MDL	
SCL - H2S 3	1/7/2024	1:14:07	151	WSW	1.8	Detection > MDL	
SCL - H2S 3	1/7/2024	1:14:22	104	WSW	1.8	Detection > MDL	
SCL - H2S 3	1/7/2024	4:21:52	108	NW	2.2	Detection > MDL	
SCL - H2S 3	1/7/2024	4:22:07	108	NW	2.0	Detection > MDL	
SCL - H2S 3	1/7/2024	4:23:07	101	NW	2.0	Detection > MDL	
SCL - H2S 3	1/7/2024	4:23:23	106	NW	2.0	Detection > MDL	
SCL - H2S 3	1/7/2024	4:23:37	114	NW	2.0	Detection > MDL	
SCL - H2S 3	1/7/2024	4:24:52	104	NW	1.8	Detection > MDL	
SCL - H2S 3	1/7/2024	4:40:07	121	WNW	2.6	Detection > MDL	
SCL - H2S 3	1/7/2024	4:40:22	142	WNW	2.6	Detection > MDL	
SCL - H2S 3	1/7/2024	4:40:37	178	WNW	2.6	Detection > MDL	
SCL - H2S 3	1/7/2024	4:40:52	175	WNW	2.6	Detection > MDL	
SCL - H2S 3	1/7/2024	4:41:08	161	WNW	2.6	Detection > MDL	
SCL - H2S 3	1/7/2024	4:41:22	164	WNW	2.6	Detection > MDL	
SCL - H2S 3	1/7/2024	4:41:38	133	WNW	2.6	Detection > MDL	
SCL - H2S 3	1/7/2024	4:41:53	102	WNW	2.6	Detection > MDL	
SCL - H2S 3	1/7/2024	4:43:07	121	WNW	2.9	Detection > MDL	
SCL - H2S 3	1/7/2024	4:43:22	139	WNW	2.9	Detection > MDL	
SCL - H2S 3	1/7/2024	4:43:38	130	WNW	2.9	Detection > MDL	
SCL - H2S 3	1/7/2024	4:43:52	138	WNW	2.9	Detection > MDL	
SCL - H2S 3	1/7/2024	4:44:07	156	WNW	2.9	Detection > MDL	
SCL - H2S 3	1/7/2024	4:44:22	179	WNW	2.9	Detection > MDL	
SCL - H2S 3	1/7/2024	4:44:37	180	WNW	2.9	Detection > MDL	
SCL - H2S 3	1/7/2024	4:44:52	156	WNW	2.9	Detection > MDL	
SCL - H2S 3	1/7/2024	4:45:07	141	WNW	2.7	Detection > MDL	
SCL - H2S 3	1/7/2024	4:45:23	102	WNW	2.7	Detection > MDL	
SCL - H2S 3	1/7/2024	4:47:37	104	WNW	3.1	Detection > MDL	
SCL - H2S 3	1/7/2024	4:47:52	103	WNW	3.1	Detection > MDL	
SCL - H2S 3	1/7/2024	4:48:07	143	WNW	3.1	Detection > MDL	
SCL - H2S 3	1/7/2024	4:48:22	159	WNW	3.1	Detection > MDL	
SCL - H2S 3	1/7/2024	4:48:37	157	WNW	3.1	Detection > MDL	
SCL - H2S 3	1/7/2024	4:48:52	152	WNW	3.1	Detection > MDL	
SCL - H2S 3	1/7/2024	4:49:08	137	WNW	3.2	Detection > MDL	
SCL - H2S 3	1/7/2024	4:49:22	109	WNW	3.2	Detection > MDL	
SCL - H2S 3	1/11/2024	23:14:46	105	NW	1.4	Detection > MDL	

Notes: E- East MDL – Method detection limit N – North S- South SCL – Smiths Creek Landfill W - West

#### Table 3 - Mobile Monitoring Summary Smiths Creek Landfill Smiths Creek, St Clair County, Michigan

	Date	01/02/24	01/03/24	01/04/24	01/05/24	01/06/24	01/07/24	01/08/24	01/09/24	01/10/24	01/11/24	01/12/24
	Time	16:43-17:05	13:20-15:00	19:41-20:05	09:07-10:07	08:00-08:52	NA	13:40-14:53	NA	08:51-09:41	19:53-20:20	09:04-09:30
Location ID	Wind Direction	Southwest	West	Northwest	Southwest	East	West	Southwest	Southeast	West	Southwest	East
	Location Description											
Location 1	Pine Ridge Rd	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND
Location 2	Richman / Yager Rd	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND
Location 3	Burns Rd	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND
Location 4	Main/ Henry	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND
Location 5	Main/ Richman	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND
Location 6	Landfill entrance	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND
Location 7	Smiths Creek/ Sturdevant	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND
Location 8	Monastery entrance	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND
Location 9	South Sturdevant Rd	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND
Location 10	Sturdevant Rd	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND

Notes:

NA - Not available

ND - Not detected

All data was collected using the Jerome J605 Hydrogen Sulfide Analyzer

APPENDIX C PHOTOGRAPHIC DOCUMENTATION LOG



















