Compliance Test Report
Determination of
Tier 2 Five Year Test
Non-methane Organic Compound Concentrations

Wexford County Landfill
Manton, Michigan

Prepared for:

Wexford County Landfill
990 N Mackinaw Rd
Manton, Michigan 49663

Prepared by:

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May, 2022

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AIR QUALITY DIVISION

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

RENEWABLE OPERATING PERMIT REPORT CERTIFICATION

Authorized by 1994 P.A. 451, as amended. Failure to provide this information may result in civil and/or criminal penalties.

Reports submitted pursuant to R 336.1213 (Rule 213), subrules (3)(c) and/or (4)(c), of Michigan's Renewable Operating Permit (ROP) program must be certified by a responsible official. Additional information regarding the reports and documentation listed below must be kept on file for at least 5 years, as specified in Rule 213(3)(b)(ii), and be made available to the Department of Environmental Quality, Air Quality Division upon request.

Source Name: Wexford County Landfill — County: Wexford

Source Address: 990 N. Mackinaw Trai — City: Manton

AQD Source ID (SRN): N3862 — ROP No.: N3862-2017 — ROP Section No.: 1

Please check the appropriate box(es):

☐ **Annual Compliance Certification (Pursuant to Rule 213(4)(c))**

Reporting period (provide inclusive dates): From _____ To _____

☐ 1. During the entire reporting period, this source was in compliance with **ALL** terms and conditions contained in the ROP, each term and condition of which is identified and included by this reference. The method(s) used to determine compliance is/are the method(s) specified in the ROP.

☐ 2. During the entire reporting period this source was in compliance with all terms and conditions contained in the ROP, each term and condition of which is identified and included by this reference, **EXCEPT** for the deviations identified on the enclosed deviation report(s). The method used to determine compliance for each term and condition is the method specified in the ROP, unless otherwise indicated and described on the enclosed deviation report(s).

☐ **Semi-Annual (or More Frequent) Report Certification (Pursuant to Rule 213(3)(c))**

Reporting period (provide inclusive dates): From _____ To _____

☐ 1. During the entire reporting period, **ALL** monitoring and associated recordkeeping requirements in the ROP were met and no deviations from these requirements or any other terms or conditions occurred.

☐ 2. During the entire reporting period, all monitoring and associated recordkeeping requirements in the ROP were met and no deviations from these requirements or any other terms or conditions occurred, **EXCEPT** for the deviations identified on the enclosed deviation report(s).

☒ **Other Report Certification**

Reporting period (provide inclusive dates): From N/A To _____

Additional monitoring reports or other applicable documents required by the ROP are attached as described:

Tier 2 Test Report - NESHAP and Federal Plan

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this report and the supporting enclosures are true, accurate and complete

Steve Kniss	Landfill Manager	231-357-9922
Name of Responsible Official (print or type)	Title	Phone Number
		April 29, 2022
Signature of Responsible Official		Date

* Photocopy this form as needed.

EQP 5736 (Rev 11-04)

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1.0 INTRODUCTION

Environmental Information Logistics, LLC (EIL) was retained by GFL Environmental (GFL) to perform a Tier 2 landfill gas sampling and analysis test at the Wexford County Landfill in Manton, Michigan. The sampling was performed to determine non-methane organic compound (NMOC) concentrations and compare them to the Federal Plan (40 CFR Part 62 Subpart OOO) emission threshold of 34 megagrams per year (Mg/year) and the revised Landfill NESHAP (40 CFR 63 Subpart AAAA) threshold of 50 Mg/year. The testing was conducted in accordance with the revised Landfill NESHAP, the Federal Plan and Method 25C of 40 CFR 60 Appendix A.

A Tier 2 test protocol was submitted to the Air Quality Division for Michigan Department of Environment, Great Lakes, and Energy (EGLE) and USEPA Region 5 on February 4, 2022. No comments were received from the EGLE or USEPA. Testing was initiated on March 7, 2022 and was completed by March 8, 2022.

2.0 REGULATORY BACKGROUND

The Wexford County Landfill is owned and operated by GFL. The landfill began accepting waste in 1974. Approximately 44.13 acres of waste have been in place for at least two years and were suitable for Tier 2 sampling. Note: the February 4, 2022 workplan incorrectly stated that 52.3 acres of waste were in place eligible for Tier 2 sampling. However, during report preparation, it was determined that the acreage of Cell A, which lies completely beneath Cell F, was inadvertently included in the total. Because of this initial acreage estimate, more samples were collected during the Tier 2 test than were necessary. However, all samples were used in the NMOC concentration determination.

The facility is subject to the revised Landfill NESHAP – 40 CFR 63 Subpart AAAA and to 40 CFR 62, Subpart OOO – Federal Plan Requirements for Municipal Solid Waste Landfills that commenced construction, reconstruction or modification before July 17, 2014 and have not been modified or reconstructed since July 17, 2014.

The facility submitted a Tier 1 calculation to USEPA Region 5 and the EGLE on September 14, 2021. NMOC emissions using Federal Plan default parameters were greater than 34 Mg/year.

§62.16718(a)(3) and §63.1959(a)(3) allow the landfill owner to establish a site-specific NMOC concentration for use in establishing Federal Plan applicability within six months of submittal of the Tier 1 calculation which exceeds 34 Mg/year.

The average measured NMOC concentration from the Tier 2 test was 294.17 parts per million (ppm) as hexane for the samples collected at the flare (representing areas of the site covered by the active landfill gas collection and control system or GCCS – see Figure 1). The samples collected from the remainder of the Tier 2 test locations, representing areas of the site not covered by the active GCCS, averaged 437.59 ppm NMOC, as hexane (see Figure 2). Laboratory results are provided in Appendix A. Calculations for each portion of the site (areas covered by GCCS and areas not covered by the GCCS) are provided in Appendix B. The results indicate that the NMOC emissions rate from the facility is 32.33 Mg/year in the year 2022. This is the sum of the 8.28 Mg/year NMOC emissions rate calculated for the areas of the landfill covered by the active GCCS, and 24.05 Mg/year NMOC emissions rate from the areas of the site not covered by the active GCCS.

Based on the sampling results provided in this report, gas collection and control requirements of the Federal Plan are not yet applicable to the facility, since NMOC emissions using the new Tier 2 value are below 34 Mg/yr.

The Tier 2 testing results are valid for five years according to §62.16718(a)(3)(iii) and §63.1959(a)(3)(iii). A new site-specific NMOC concentration will have to be obtained in 2027, within five years from the March 7th & 8th 2022 test date.

3.0 SAMPLING AND ANALYTICAL PROCEDURES

3.1 Sample Locations

The Tier 2 methodology requires collection of two samples per hectare of landfill surface area in which waste has been in-place for a minimum of two years. At the Wexford County Landfill, approximately 44.13 acres, or 14.62 hectares, have had waste in place for more than two years. The GCCS covers the majority of the waste mass eligible for Tier 2 sampling (approximately

36.13 acres). Four (4) samples from the main header to the flare were collected by EIL for Tier 2 sampling.

The remaining 8.00 acres (or 3.23 hectares) are located in a quarter of Cell C, twenty percent of Cell D/E, and eighty percent of existing Cell G3. Seven (7) sample locations were therefore required. However, EIL installed and sampled 10 Tier 2 test probes in these areas. Landfill gas samples collected from these 10 probes were composited giving a total of 5 samples from Tier 2 test probes. Additionally, EIL sampled a leachate cleanout riser in Cell G3 and two vertical gas extraction wells in the active system which were under positive pressure at the time of the test (GW-25 and GW-35). Landfill gas samples collected from GW-25 and GW-35 were composited into one sample. Lastly, there is a passive landfill gas vent on the southwest side of the site, which vents landfill gas collected from original Cell A (now beneath Cell F). Landfill gas was not suitable for sampling at this location since the gas quality measured in the field detected no methane (see Table 1). Therefore, EIL collected a duplicate sample at the cleanout riser in Cell G3 and at Tier 2 test probes 7 & 8. Field data from these locations are provided in Table 1.

3.2 Probe Installation/Sampling Description

The probe sampling was conducted by installing a series of temporary collection probes into the surface of the waste, in accordance with Method 25C. A Geoprobe push rig was used to install the temporary probes into the waste a minimum of three feet below the daily or interim cover in each location, as required by Method 25C. Non-vented, stainless-steel drill tips were placed on 4 feet long by 1.5 inch diameter stainless-steel sampling rods. A stainless-steel sampling probe with a 24 inch perforated stainless-steel screen was present inside the sampling rods. The Geoprobe rig pushed each sampling rod coupled with a 5-foot push rod at least three feet into underlying waste material. The Geoprobe rig then withdrew the outer sampling rod by 12 – 24 inches, which exposed the perforated steel screen within the waste, allowing any landfill gas present to enter the probe. The rods were then capped with a stainless-steel flush threaded cap with a ¼ inch barbed fitting. Sample tubing was attached to the top of each probe via a ¼" barbed fitting to prevent ambient air from entering the probes, or accumulated gas from seeping out of the landfill gas sampling location. A sample train comprised of stainless-steel and polytetrafluoroethylene (PTFE) tubing was attached to the rods via the barbed fitting to purge the

sample probe prior to sampling, and for sample collection. A schematic of the sample train is provided in Figure 3.

Probes were installed, sampled, and abandoned one at a time. Field measurements of landfill gas quality (methane, carbon dioxide, oxygen and balance gas) were taken before the Tier 2 samples were collected, as described further in Section 3.3.

Samples at the flare were collected from a port located prior to condensate removal or gas moving equipment. Each six (6) liter sample canister was pre-filled with less than 3 liters of helium. The attached Table 1 contains the information for each sample point including collection times, initial and final cylinder vacuums, barometric pressure and ambient temperatures as required by Method 25C. The sample flow rate was set between 100 - 200 cc/min and was adjusted, as necessary, during the sampling event to maintain a constant sample flow rate. Field measurements of methane, carbon dioxide, and oxygen levels in the sample probes were measured with a Landtec™ GEM gas analyzer to assure the samples were valid in the field (i.e., less than 5% O_2 or less than 20% N_2). Gas quality was checked pre-sampling and post-sampling, to ensure air was not introduced into the sample train during sample collection.

Additionally, 5-minute shut-in tests were performed on each canister to confirm there were no leaks in the tank connection or sample train; all canisters passed this leak check prior to initiating sampling. If the canister failed the 5 minute shut-in test, then that canister would not be used. However, all canisters passed the leak check prior to initiation of sampling during this testing program.

Samples from the cleanout riser and the two wells under positive pressure were collected from sample ports located on the riser/well piping. The sample flow rate was set between 100 - 200 cc/min and was adjusted as necessary during the sampling to maintain a constant sample flow rate. Field measurements of methane, carbon dioxide, and oxygen levels in the sample probes were measured with a Landtec™ GEM gas analyzer to assure the samples were valid in the field (i.e., less than 5% O_2 or less than 20% N_2 as balance gas).

3.3 Composite Sampling and Analysis

EPA Method 25C procedures allow for composite sampling to occur in the field, as long as approximately equal volumes of sample are collected from each gas probe/sample location. A minimum volume of one liter per sample probe must be collected (reference Federal Register Volume 65, No. 201 Page 62067, October 17, 2000).

Based on the Method 25C requirement to install two sample probes per hectare, seven probe locations were required but ten probes were actually installed as discussed in Section 2. Samples were composited at a 2:1 ratio for the probes. One duplicate sample was collected from two of the test probes. In addition, supplemental samples were collected from an existing leachate cleanout riser in Cell G3 (two sets), two existing gas wells that were under positive pressure (composited into one sample canister), and four (4) samples from the main landfill gas header to the flare (not composited) for a total of thirteen total samples. Composite sampling was conducted for the Tier 2 test probes and the two gas wells using two sample points for each of the composites. Each sample was collected using the sample train shown in Figure 3.

Each six (6) liter sample canister was evacuated to -30 inches of mercury (Hg) and then partially pre-filled with helium. The initial tank pressure was recorded prior to sampling to determine the final tank pressures required to achieve equal sample volumes of at least one liter for each sample location. Gas samples were collected in equal volumes based on pre-determined initial and final pressures calculated for each composite sample.

Composite sampling was performed by taking an initial vacuum reading from the sample tank. To assure the cylinder did not reach ambient pressure and maintain a vacuum in the sample canister, two inches of Hg pressure was subtracted from the initial tank pressure that was recorded prior to sampling. Since two samples were collected in one tank, the initial vacuum was subtracted by two inches Hg and divided by two. The samples for each tank would use the set amount of vacuum calculated above. Upon completion of the second sample, the remaining vacuum was two inches Hg. Table 1 contains the composite information for each sample point including sampling rate, collection times and beginning and ending cylinder vacuums. The

sample flow rate was set to approximately 300 - 500 cc/min and was adjusted as necessary during the sample collection to maintain a constant sample flow rate no greater than 500 cc/min.

After completing the sample probe installation, the methane, carbon dioxide, oxygen and balance gas levels in the sample probes were measured with a Landtec™ GEM 5000 gas analyzer. The volume of each probe was determined in order to calculate a purge time for a probe volume's worth of gas. Then, the gas/air inside the sample probes was evacuated at least twice with the Landtec™ meter. After two probe volumes were purged, an evacuated stainless-steel canister was attached to each sample probe. The landfill gas sample was collected from each probe at a flow rate of less than 500 cc/min.

Analysis was performed at the laboratory with gas chromatography equipped with a flame ionization detector (GC/FID) for EPA Method 25C and gas chromatography equipped with a thermal conductivity detector (GC/TCD) for EPA Method 3C. The samples were analyzed for NMOC following EPA Method 25C and for methane, carbon dioxide, hydrogen, carbon monoxide, oxygen and nitrogen following EPA Method 3C. NMOC results are reported as ppmv-carbon. A schematic of the Method 25C sampling train is shown in Figure 3.

4.0 RESULTS

In accordance with Method 25C, samples cannot contain oxygen and nitrogen above the acceptable thresholds (i.e. greater than 5% oxygen and greater than 20% nitrogen). NMOC concentration must be corrected for air intrusion using nitrogen as the correction factor unless the measured concentration is greater than 20%. One of the samples (G3-CO-2) had nitrogen results that were greater than the specified threshold, therefore an oxygen corrected value was used as allowed by Method 25C. Nitrogen corrected values were used for all other samples. Analytical data is provided in Appendix A. A summary of laboratory results is shown in Table 2.

In order to calculate the NMOC emissions rate from the areas covered by the existing GCCS, the equation provided in 40 CFR 60.754(b) was used to calculate an NMOC emissions rate from the landfill. This equation requires GCCS system flow as an input, as well as the average measured NMOC concentration from the samples collected at the flare. Flare flow data from January 1, 2022 – March 31, 2022 is provided in Table 3. The average flow rate was 526 standard cubic feet

per minute (scfm). The average NMOC concentration from the flares measured 294.17 ppm as hexane. This yielded an NMOC emissions rate of 8.28 Mg/year for the 36.13 acres of the site covered by the GCCS. Calculations are included in Appendix B.

The equation provided in 40 CFR 62.16718(a)(1)(i)(A) was used to recalculate the NMOC emissions for the Wexford County Landfill for the year 2022 as shown in Appendix B. The EPA's LandGEM Model (Version 3.3) was utilized for this calculation. Waste intake rates used in the model are provided in Appendix C. These values were obtained from site historical information on initial fill dates for Cells C, D & E and G3, and engineering drawings showing the base grades for the cells (in order to determine approximate volumes of waste in areas not covered by the GCCS). Waste intake rates for areas that were not eligible for Tier 2 sampling (existing Cell H, which began filling in July 2020) were also included in the LandGEM model, in order to prepare the NMOC emissions rate calculation for all areas of the landfill not covered by the active GCCS.

The average NMOC concentration used in the LandGEM model, based on the concentrations measured in the Tier 2 sample probes, gas wells GW-25 and GW-35 and the two duplicate samples from the Cell G3 leachate cleanout riser, was 437.59 ppm NMOC as hexane. The LandGEM model calculated an NMOC emissions rate of 24.05 Mg/year from the 8.00 acres of the site not covered by the GCCS.

When the two NMOC emissions rates are summed together, a total site NMOC emissions rate of 32.33 Mg/year is obtained. This value is below the Federal Plan 34 Mg/year trigger for the installation of a GCCS and also below the NESHAP trigger of 50 Mg/year NMOC for GCCS installation.

The facility will submit annual reports of NMOC emissions in April of each year, until it is time to obtain a new site-specific value for NMOC in five years. As the GCCS is expanded into existing areas without GCCS coverage and/or new areas of the facility are constructed/filled, the annual NMOC emissions rate calculation will be modified accordingly.

TABLES

Table 1: Wexford Landfill
Tier 2 Sampling Field Data March 7-8, 2022
Manton, MI

Sample Location Name	Sample Date	Pre-Sample Purging (<500 ml/min)		LFG Quality - Pre-Sampling				Sample Collection		LFG Quality - Sample Train				Sample Tank Pressures		Sample Canister#	Barometric Pressure (inches Hg)	Ambient Temperature (°F)
		Start	Stop	CH4 (%)	CO2 (%)	O2 (%)	BAL (%)	Start	Stop	CH4 (%)	CO2 (%)	O2 (%)	BAL (%)	Pre-Test Pressure (" Hg)	Post-Test Pressure ("Hg)			
Flare 1	3/7/2022	9:30	9:35	49.4	32.9	0.0	17.6	9:37	9:43	49.0	33.0	0.0	17.9	-18.5	-3.0	36961	28.31	27.0
Flare 2	3/7/2022	9:53	9:58	48.8	32.9	0.0	18.3	10:00	10:05	49.3	33.0	0.0	17.7	-17.5	-3.0	36971	28.31	27.0
Flare 3	3/7/2022	10:12	10:17	48.9	32.9	0.0	18.2	10:19	10:24	49.4	33.2	0.0	17.4	-17.0	-3.0	39979	28.31	27.0
Flare 4	3/7/2022	10:30	10:35	49.1	33.1	0.0	17.8	10:36	10:41	49.7	33.2	0.0	17.1	-17.0	-3.0	18163	28.31	27.0
Probe 1	3/7/2022	14:53	14:55	62.0	38.2	0.0	0.1	14:59	15:04	61.5	38.3	0.0	0.1	-18.0	-10.5	36456	28.33	29.0
Probe 2	3/7/2022	15:21	15:24	60.0	39.9	0.0	0.1	15:27	15:32	60.4	39.5	0.0	0.1	-10.5	-3.0	36456	28.33	29.0
Probe 3	3/7/2022	15:48	15:50	60.0	39.9	0.0	0.1	15:53	15:58	60.1	39.8	0.0	0.1	-17.0	-10.0	20667	28.33	29.0
Probe 4	3/7/2022	16:13	16:15	69.2	30.7	0.0	0.1	16:16	16:21	69.6	30.3	0.0	0.1	-10.0	-3.0	20667	28.33	29.0
Probe 5	3/7/2022	16:49	16:51	56.9	43.1	0.0	0.0	16:52	16:57	56.7	43.3	0.0	0.0	-17.0	-10.0	36978	28.35	29.0
Probe 6	3/7/2022	17:15	17:17	45.5	54.5	0.0	0.0	17:20	17:25	46.0	54.0	0.0	0.0	-10.0	-3.0	36978	28.37	29.0
Probe 7	3/8/2022	9:31	9:34	60.6	39.4	0.0	0.0	9:37	9:42	59.8	40.1	0.0	0.1	-19.0	-11.0	39983	28.57	24.0
Probe 7.1	3/8/2022	9:31	9:34	60.6	39.4	0.0	0.0	9:43	9:48	59.8	40.1	0.0	0.1	-19.0	-11.0	39969	28.57	24.0
Probe 8	3/8/2022	10:01	10:04	58.2	41.8	0.0	0.0	10:06	10:11	58.5	41.4	0.0	0.1	-11.0	-3.0	39983	28.56	26.0
Probe 8.1	3/8/2022	10:01	10:04	58.2	41.8	0.0	0.0	10:13	10:18	58.5	41.4	0.0	0.1	-11.0	-3.0	39969	28.56	26.0
Probe 9	3/8/2022	10:53	10:55	43.6	56.3	0.0	0.1	10:57	11:02	44.1	55.8	0.0	0.1	-17.0	-10.0	18172	28.57	28.0
Probe 10	3/8/2022	11:37	11:39	60.4	39.5	0.0	0.1	11:41	11:46	60.3	39.6	0.0	0.1	-10.0	-30.0	18172	28.52	28.0
G3-CO	3/8/2022	12:53	12:55	50.6	37.9	0.0	11.5	13:00	13:05	51.6	38.7	0.0	11.1	-17.0	-3.0	37814	28.37	31.0
G3-CO2	3/8/2022	13:16	13:19	43.8	33.4	1.5	21.1	13:21	13:26	43.7	33.1	1.7	21.5	-17.0	-3.0	37859	28.37	31.0
GW25	3/7/2022	11:03	11:08	58.7	41.3	0.0	0.0	11:15	11:20	58.6	46.3	0.0	0.1	-17.0	-10.0	39981	28.31	29.0
GW35	3/7/2022	11:54	12:00	58.5	41.4	0.0	0.1	12:00	12:05	58.4	41.6	0.0	0.0	-10.0	-3.0	39981	28.35	29.0
*Gas Vent (Cell A)	3/8/2022	9:00	9:06	0.0	0.7	20.3	79.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	28.57	24.0

*Gas Vent from Cell A was not sampled due to no gas being present

TABLE 2

SUMMARY OF METHOD 25C AND METHOD 3C DATA

Wexford Landfill

Sample ID	Sample Location	Date Sampled	CH4 (%)	CO2 (%)	O2 (%)	N2 (%)	NMOC N2 Corrected (ppm as carbon)	NMOC O2 Corrected (ppm as carbon)	NMOC (ppm as hexane)
22B0815-01	Flare 3	3/7/2022	45.1	33.0	1.08	19.50	1970	1560	328.33
22B0815-02	Flare 4	3/7/2022	45.2	32.9	0.52	17.5	1760	1400	293.33
22B0815-03	Flare 1	3/7/2022	44.9	32.9	0.6	17.7	1570	1250	261.67
22B0815-04	Flare 2	3/7/2022	44.8	32.9	0.64	17.9	1760	1420	293.33
		Average	**45.00**	**32.93**	**0.71**	**18.15**	**1,765.00**	**1,407.50**	**294.17**
22B0815-05	Probe 1 - Probe 2	3/7/2022	54.2	35.8	0	0.47	1160	1150	193.33
22B0815-06	Probe 3 - Probe 4	3/7/2022	60.5	37.8	0	0	1360	1360	226.67
22B0815-07	GW25 & GW35	3/7/2022	54.8	41.9	0	0	1700	1700	283.33
22B0815-08	Probe 5 - Probe 6	3/7/2022	44.7	48.6	0	0.97	9960	9860	1660.00
22B0815-09	Probe 7 - Probe 8	3/8/2022	51.9	37.8	0	1.33	1470	1440	245.00
22B0815-10	Probe 7.1 - Probe 8.1	3/8/2022	55.5	40.4	0	0	1360	1360	226.67
22B0815-11	G3-CO-2	3/8/2022	39.7	31.1	4.95	22.2	2360	2210	368.33
22B0815-13	Probe 9 - Probe 10	3/8/2022	46.8	46.7	0	0.62	2470	2450	411.67
22B0815-14	G3-CO-2	3/8/2022	42	33.1	3.4	16.90	1940	1810	323.33
		Average	**50.01**	**39.24**	**0.93**	**4.72**	**2,642.22**	**2,593.33**	**437.59**

Notes:

Samples were composited in the field at a 2:1 ratio with the exception of the flare samples, and the Cell G3 sump samples.

Due to recent changes in Method 25C, nitrogen-corrected NMOC values must be used unless they are over 20%. Therefore, all nitrogen-corrected NMOC concentrations were used in the calculation for the average NMOC with the exception of Sample ID 22B0815-11 (G3-CO-2), where nitrogen exceeded 20%. Since oxygen was less than 5%, the sample was still valid and the oxygen-corrected NMOC value was used in the average.

CH4: methane

CO2: carbon dioxide

O2: oxygen

N2: nitrogen

%: percent

NMOC as hexane: Non Methane Organic Compounds as hexane (NMOC as carbon divided by six)

Table 3: Flare Flow Data January - March, 2022
Wexford Landfill Tier 2 Test

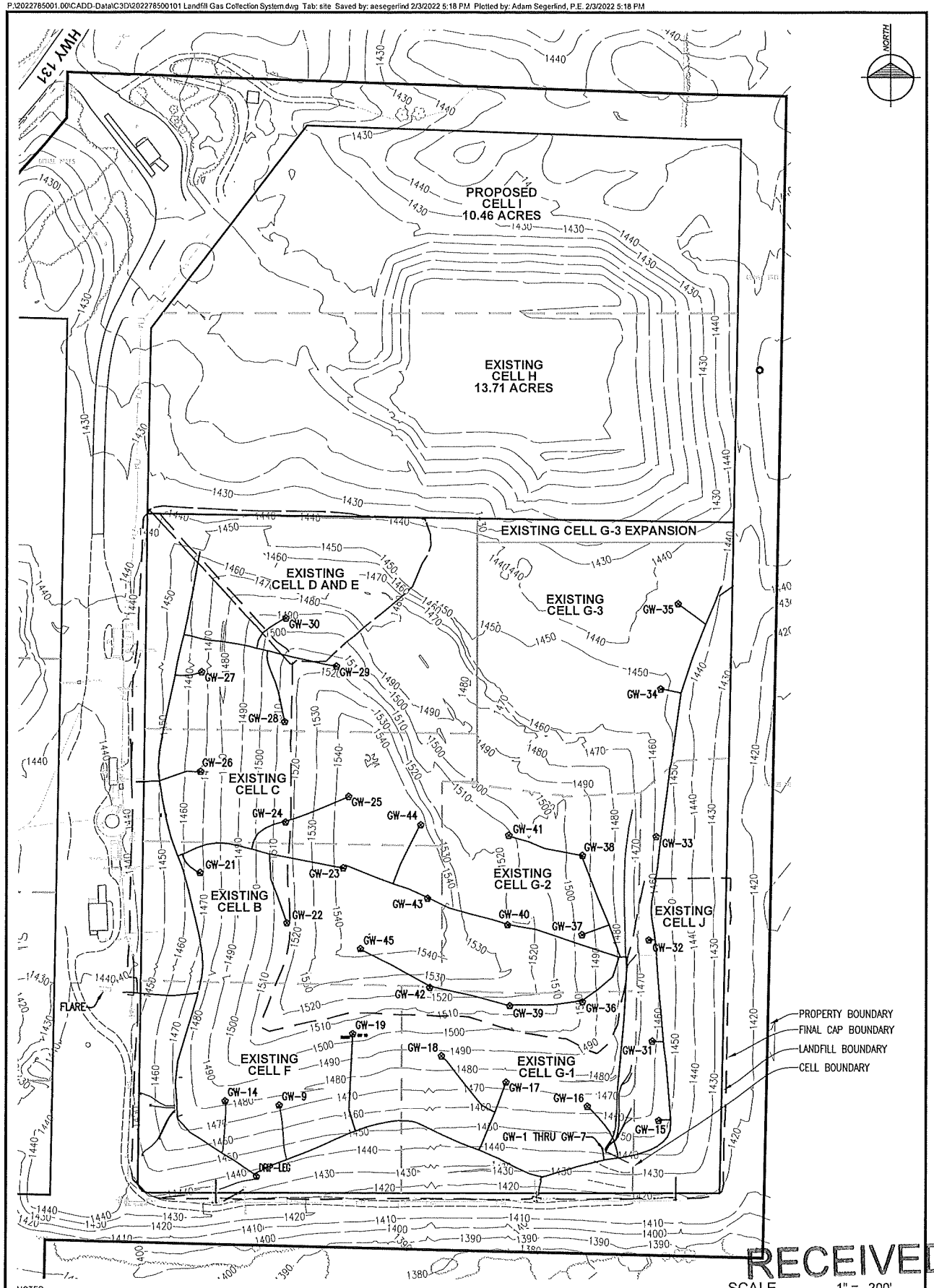
Date	Measured Flare Flow (SCFM)
1/1/2022	538
1/2/2022	537
1/3/2022	544
1/4/2022	549
1/5/2022	542
1/6/2022	530
1/7/2022	535
1/8/2022	542
1/9/2022	541
1/10/2022	548
1/11/2022	555
1/12/2022	540
1/13/2022	541
1/14/2022	542
1/15/2022	551
1/16/2022	554
1/17/2022	538
1/18/2022	533
1/19/2022	519
1/20/2022	533
1/21/2022	545
1/22/2022	551
1/23/2022	542
1/24/2022	537
1/25/2022	528
1/26/2022	538
1/27/2022	537
1/28/2022	532
1/29/2022	539
1/30/2022	530
1/31/2022	529
2/1/2022	522
2/2/2022	527
2/3/2022	535
2/4/2022	542
2/5/2022	537
2/6/2022	533
2/7/2022	533
2/8/2022	536
2/9/2022	518
2/10/2022	521
2/11/2022	523
2/12/2022	516
2/13/2022	524

Date	Measured Flare Flow (SCFM)
2/14/2022	522
2/15/2022	523
2/16/2022	519
2/17/2022	516
2/18/2022	523
2/19/2022	514
2/20/2022	506
2/21/2022	512
2/22/2022	521
2/23/2022	507
2/24/2022	522
2/25/2022	511
2/26/2022	520
2/27/2022	529
2/28/2022	532
3/1/2022	524
3/2/2022	523
3/3/2022	519
3/4/2022	525
3/5/2022	529
3/6/2022	513
3/7/2022	517
3/8/2022	517
3/9/2022	515
3/10/2022	517
3/11/2022	527
3/12/2022	523
3/13/2022	521
3/14/2022	512
3/15/2022	516
3/16/2022	517
3/17/2022	510
3/18/2022	517
3/19/2022	518
3/20/2022	501
3/21/2022	514
3/22/2022	520
3/23/2022	518
3/24/2022	512
3/25/2022	511
3/26/2022	505
3/27/2022	509
3/28/2022	512
3/29/2022	517
3/30/2022	521
3/31/2022	504
2022 Average Flow	**526**

FIGURES

Figure 1: Active Gas Collection System Layout

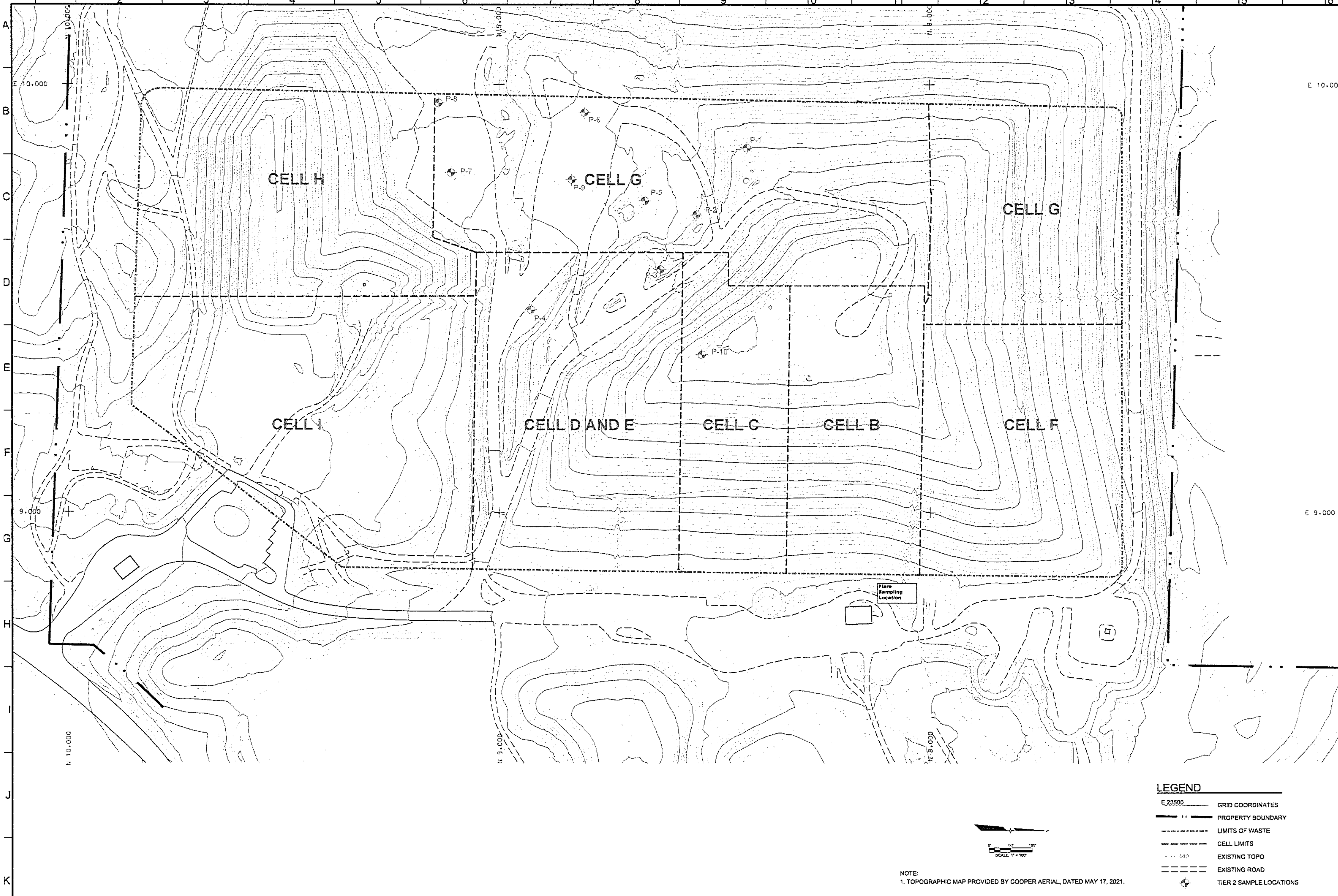
P:\2022785001.00\CADD-Data\C3D\202278500101 Landfill Gas Collection System.dwg Tab: site Saved by: aesegerlind 2/3/2022 5:18 PM Plotted by: Adam Segerlind, P.E. 2/3/2022 5:18 PM



NOTES:
TOPOGRAPHIC SURVEY COMPLETED BY COOPER AERIAL SURVEY, MAY, 2020.
GAS WELL LOCATION SURVEY PROVIDED BY AXIN LAND SURVEYING, DATES VARY.

SCALE 1" = 200'
0' 200' 400'

Location: PART OF SECTIONS 33 & 34, T 23 N, R 09 W, CEDAR CREEK TOWNSHIP, WEXFORD COUNTY, MICHIGAN Sheet 1	LANDFILL GAS COLLECTION SYSTEM WEXFORD COUNTY LANDFILL GFL ENVIRONMENTAL	Job #: 2022785001.01 Date: 02/03/2022 Scale: 1" = 200' Drawn: jrl Chk'd.: AES Rev.: -	Gosling Czubak Engineering Sciences, Inc. 1280 Business Park Drive, Traverse City, Michigan 231-946-9191 800-968-1052 www.goslingczubak.com info@goslingczubak.com CIVIL ENGINEERING | SURVEYING | ENVIRONMENTAL SERVICES | GEOTECHNICAL CONSTRUCTION SERVICES | DRILLING | LANDSCAPE ARCHITECTURE



NO	REVISIONS	DRN	CHK	DATE

DRN
DES
CHK
APP

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WEXFORD COUNTY LANDFILL
990 N MACKINAW ROAD
MANTON, MICHIGAN

TIER 2 SAMPLE LOCATIONS

DATE	APRIL 2022
PROJECT NO	160218
FILENAME	WAYNE TIER II SITE PLAN 04-15-22
SHEET NO	1
FIGURE NO	2

...\Documents\CTI 2018\Laura 2010\WEXFORD\WEXFORD PROBE PLAN 01.15.22\001 WF TIER II SITE PLAN 04.28.22.dwg

FILELOCATION

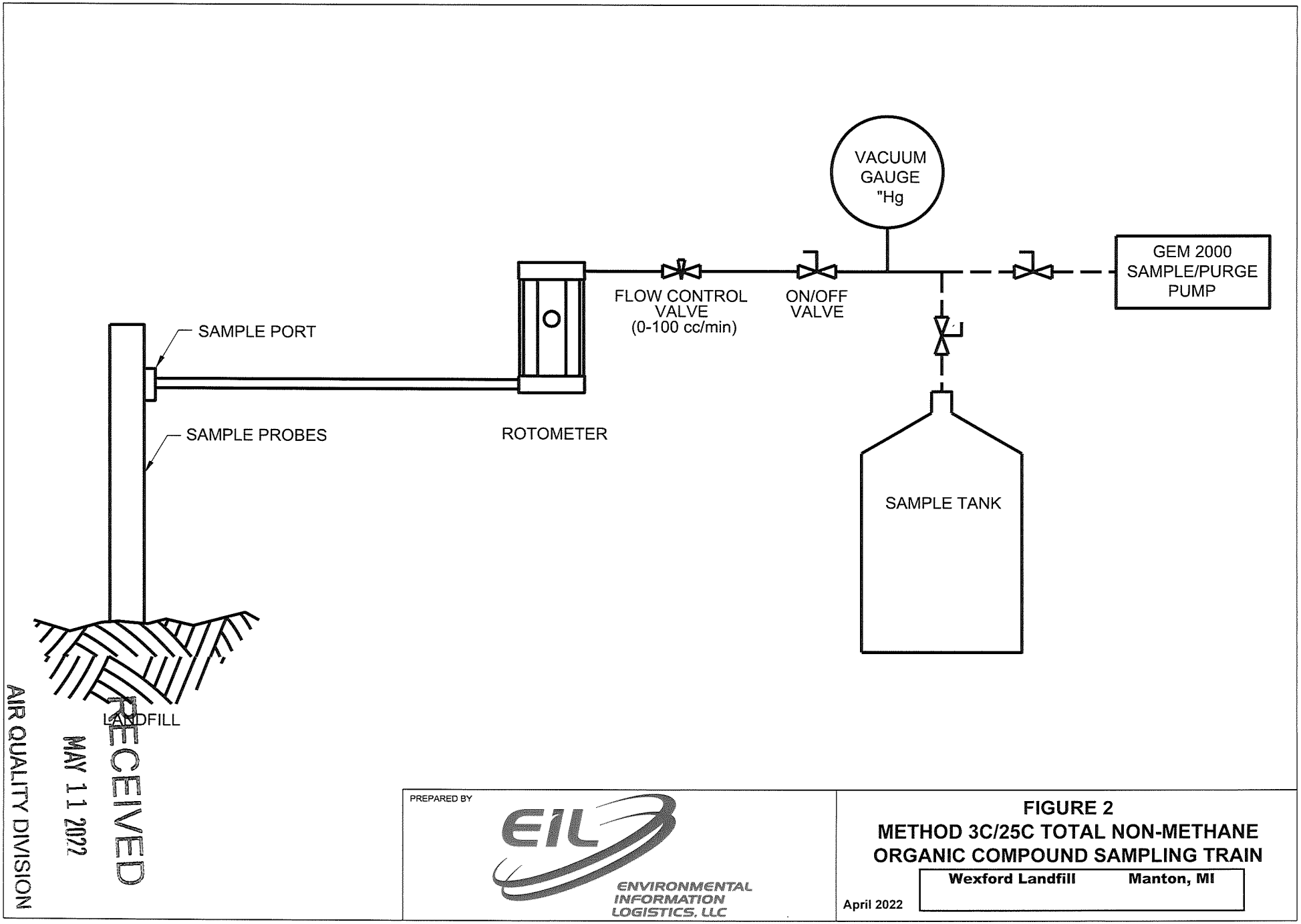

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FIGURE 2
METHOD 3C/25C TOTAL NON-METHANE ORGANIC COMPOUND SAMPLING TRAIN

Wexford Landfill **Manton, MI**

April 2022