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March 22, 2023

Ms. Cindy Koepke
Hydrogeologist
Wisconsin Department of Natural Resources
3911 Fish Hatchery Road
Fitchburg, WI 53711

Subject: Refuse Hideaway Landfill
February 2023 Operation Monitoring and Maintenance Activities

Dear Cindy:

TRC completed the following operation, monitoring, and maintenance activities and system troubleshooting at the Refuse Hideaway Landfill (the Site) in Middleton, WI in February 2023.

- February 7, 2023 – Gas Probe Monitoring
- February 27, 2023 – Monthly Site Inspection

Electrical Upgrades

TRC is working with an electrical subcontractor to restore electrical service to the Site to allow for system operation.

Gas Extraction System

The gas extraction system (GES) was restarted in October 2022 and was operated until December 15, 2022 when an overvoltage fault was observed and the system was shut down until the electrical service to the Site is repaired.

Perimeter gas probe monitoring was conducted at the site on February 7, 2023.

Field data from system and gas probe monitoring is included in the attachments.

Leachate Extraction System

The leachate extraction system remained off during the month of February due to the lack of electrical service to the Site.

The leachate tank level was gauged during the February 27, 2023, Monthly Site Inspection and contained 96.25 inches of leachate.

Cap Inspection

Due to snow cover, TRC was unable to conduct a monthly inspection of the landfill cap and stormwater conveyance features in February 2023.

Monitoring results collected during the site visits completed in February 2023 are attached.

If you have any questions, please contact me at astehn@trccompanies.com or 608-807-8112.

Sincerely,

TRC

Andrew Stehn, PE
Project Manager

Attachments: February 2023 Monitoring Results

February 2023 Monitoring Results

REFUSE HIDEAWAY LANDFILL
GAS PROBE MONITORING FORM

TECHNICIAN(S): J. Roelke

DATE: 2/ 7 /2023

START TIME: 9:45 AM

END TIME: 3:00 PM

GAS/INSTRUMENT TYPE: **GEM 2000**

SERIAL NO.: 11668

DATE LAST CALIBRATED: 2/7/2023

METHOD: Standard Calibration Gases

PRESS INSTRUMENT : Manometer

WEATHER CONDITIONS: cloudy

TEMPERATURE: 35 °F

BAROMETRIC PRESSURE & TREND: 29.97 in. Hg, rising

GROUND CONDITIONS: frozen

GAS PROBE NAME	Time	PRESSURE (in. WC)	METHANE (% LEL)	METHANE (%, by vol.)	CARBON DIOXIDE (%, by vol.)	OXYGEN (%, by vol.)	COMMENTS
GP-1D	10:11	0.0	0.0	0.0	1.4	19.7	(2)
GP-1S	10:13	0.0	0.0	0.0	0.0	20.8	(2)
GP-2D	10:16	0.0	0.0	0.0	0.6	20.4	(1)
GP-2S	10:18	-0.05	0.0	0.0	0.8	20.1	(1)
GP-3	10:21	0.0	46	2.3	3.9	15.4	(1)
GP-4	10:27	-0.01	0.0	0.0	2.5	19.8	(1)
GP-5	10:30	0.0	0.0	0.0	0.8	20.1	(2)
GP-6	10:36	0.0	0.0	0.0	0.2	19.8	(1)
GP-7	10:43	0.0	0.0	0.0	1.6	19.7	(2)
GP-8	10:51	0.0	0.0	0.0	2.2	19.8	(2)
GP-9	10:55	0.0	0.0	0.0	1.5	19.7	(1)
GP-10	10:59	0.0	0.0	0.0	1.5	19.8	(1)
GP-11D	11:08	0.0	0.0	0.0	0.0	20.6	(2)
GP-11S	11:10	0.0	0.0	0.0	0.0	20.8	(2)
GP-12D	11:15	0.0	70	3.5	4.0	16.8	(1) Stable readings at 2 minutes.
GP-12S	11:18	0.0	0.0	0.0	1.2	19.8	(1)
GP-13D	11:22	0.0	0.0	0.0	0.2	20.6	(2)
GP-13S	11:24	0.0	0.0	0.0	0.4	20.3	(2)

GAS PROBE NAME	Time	PRESSURE (in. WC)	METHANE (% LEL)	METHANE (%, by vol.)	CARBON DIOXIDE (%, by vol.)	OXYGEN (%, by vol.)	COMMENTS
GP-16D	11:41	-0.03	0.0	0.0	9.2	6.5	(2)
GP-16S	11:43	0.0	0.0	0.0	1.0	19.0	(2)
GP-17D	11:34	0.0	0.0	0.0	1.8	18.7	(1)
GP-17M	11:36	0.0	0.0	0.0	0.0	20.8	(1)
GP-17S	11:38	0.0	0.0	0.0	0.4	20.5	(1)
GP-18D	11:50	-0.08	0.0	0.0	0.0	20.8	(2)
GP-18M	11:52	0.0	0.0	0.0	0.0	20.8	(2)
GP-18S	11:54	0.0	0.0	0.0	0.2	20.6	(2)
GP-19$^{85-100}$	12:40	-0.03	0.0	0.0	1.9	18.5	(1)
GP-19$^{50-70}$	12:42	0.0	0.0	0.0	2.4	17.7	(1)
GP-19$^{25-40}$	12:44	0.0	0.0	0.0	2.8	17.1	(1)
GP19$^{2-15}$	12:46	0.0	0.0	0.0	2.5	17.8	(1)
GP-20$^{85-100}$	12:31	-0.06	0.0	0.0	0.8	19.7	(2)
GP-20$^{50-70}$	12:33	0.0	0.0	0.0	1.5	19.0	(2)
GP-20$^{25-40}$	12:35	0.0	0.0	0.0	1.8	18.5	(2)
GP-20$^{2-15}$	12:37	0.0	0.0	0.0	1.5	18.8	(2)
GP-21$^{85-100}$	12:23	-0.15	0.0	0.0	0.4	20.3	(2)
GP-21$^{50-70}$	12:25	-0.06	0.0	0.0	1.0	19.8	(2)
GP-21$^{25-40}$	12:27	-0.04	0.0	0.0	0.0	20.8	(2)
GP-21$^{2-15}$	12:29	0.0	0.0	0.0	0.9	20.0	(2)
GP-22$^{85-100}$	12:51	-0.04	0.0	0.0	2.2	19.1	(2)
GP-22$^{50-70}$	12:53	-0.06	0.0	0.0	1.1	20.0	(2)
GP-22$^{25-40}$	12:55	0.0	0.0	0.0	1.4	19.6	(2)
GP-22$^{2-15}$	12:57	0.0	0.0	0.0	1.7	19.4	(2)

GAS PROBE NAME	Time	PRESSURE (in. WC)	METHANE (% LEL)	METHANE (%, by vol.)	CARBON DIOXIDE (%, by vol.)	OXYGEN (%, by vol.)	COMMENTS
GP-23$^{85-100}$	13:02	-0.02	0.0	0.0	0.0	20.8	(2)
GP-23$^{50-70}$	13:04	-0.03	0.0	0.0	0.0	20.8	(2)
GP-23$^{25-40}$	13:06	0.0	0.0	0.0	0.0	20.8	(2)
GP-23$^{2-15}$	13:08	0.0	0.0	0.0	2.4	18.4	(2)
GP-24$^{85-100}$	13:13	-0.07	0.0	0.0	0.0	20.8	(2)
GP-24$^{50-70}$	13:15	-0.09	0.0	0.0	0.4	20.4	(2)
GP-24$^{25-40}$	13:17	0.0	0.0	0.0	0.0	20.8	(2)
GP-24$^{2-15}$	13:19	0.0	0.0	0.0	0.3	20.4	(2)
GPW-1D	14:37	-0.79	0.0	0.0	0.0	20.8	(1)
GPW-1M	14:39	-0.71	0.0	0.0	0.0	20.8	(1)
GPW-1S	14:41	0.0	0.0	0.0	1.1	19.7	(1)
G-1D	10:03	-0.06	0.0	0.0	0.0	20.8	(1)
G-1S	10:05	-0.04	0.0	0.0	0.1	20.7	(1)
G-2D	11:27	-0.02	0.0	0.0	0.0	20.8	(1)
G-2S	11:29	0.0	0.0	0.0	0.0	20.8	(1)
G-5	10:48	0.0	0.0	0.0	1.3	19.7	(1)
G-6	9:56	0.0	0.0	0.0	0.0	20.8	(1)
G-8	12:17	0.0	0.0	0.0	0.0	20.8	(1)
G-9	12:04	0.0	0.0	0.0	2.1	16.5	(1)
G-10	13:27	-0.82	0.0	0.0	0.0	20.8	(1)
Speedway Office	10:07	0.0	0.0	0.0	0.0	20.8	Open to ATM

NOTES:

(1); Locked probe casing.
(2): Probe is above casing and cannot be locked.
(3): No cap for probe casing and cannot be locked.

Key:

Shallow or 2'-15'
Medium or 25'-40'
Deep or 50'-70'
85'-100'

Entered by: J. Roelke 3/20/2023
Checked by: T. Perkins 3/20/23

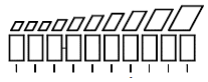
Monthly System Inspection Log
Landfill Gas Extraction and Leachate Pump System
WDNR - Refuse Highway Landfill
Middleton, Wisconsin

TRC Operator Name:	**John Roelke**				
Date:	**2/27/2023**	**Arrival Time:**	**13:27**	**Departure Time**	**13:57**

Site Conditions	Initial[1]	Final[2]	Equipment	
Weather Conditions:	Light rain	-	Gas/Instrument Type:	GEMS 2000
Ground Condition:	Frozen ground, snow cover	-	Serial Number:	11668
Barometric Pressure:	29.15 in Hg	-	Date Last Calibrated:	NA
Barometric Pressure Trend:	Falling	-	Method:	Standard field calibration
Temperature:	38F	-	Pressure Instrument:	Dwyer Series 475 Manometer

Landfill Gas Extraction System[3]							
System	***Location***	***Tag #***	***Equipment Description***	***Set Point***	***Typical Range***	***Initial Field Reading [1]***	***Final Field Reading [2]***
Blower Motor -	Remote	GHS-BLR-301	Amperage	-	3 - 4 amps	NM	NM
			Speed	-	1800 - 1900 rpm	NM	NM
			Frequency	-	30 - 35 Hz	NM	NM
	HMI		Amperage	-	3 -4 amps	NM	NM
	HMI		Speed	-		NM	NM
	HMI		Hours	-	-	NM	NM
Blower Operating (YES). Note excessive noise or issues observed.							
Blower Inlet	HMI	PT-301	Blower Inlet Vacuum	7 in. w.c.	7 in. w.c.	NM	NM
	HMI	TE-301	Blower Inlet Temperature	-	50 - 90 °F	NM	NM
	Local	GHS-PI-301	Blower Inlet Vacuum	7 in. w.c.	7 in. w.c.	NM	NM
	Local	GHS-TI-301	Blower Inlet Temperature	-	50 - 90 °F	NM	NM
	Local	Sample Port	Gas Composition - % Methane	-		NM	NM
			Gas Composition - % CO2	-		NM	NM
			Gas Composition - % Oxygen	-		NM	NM
			Gas Composition - % Balance	-		NM	NM
Demister	Local	GHS-PDI-301	Demister Differential Pressure	-	1-2 in w.c	NM	NM
	Local		Slight Glass: Liquid Present	-	-	NM	NM
	HMI	LS-701	Level Indication	-	-	NM	NM
Blower Outlet	HMI	PT-302	Blower Outlet Flow Pressure	-	-	NM	NM
	HMI	TE-302	Blower Outlet Temperature	-	50 - 90 °F	NM	NM
	HMI	PDT-301	Blower Outlet Flow Differential Pressure	-	1-2 in w.c	NM	NM
	HMI	-	Blower Outlet Flow Rate	-	180 - 190 scfm	NM	NM
	Local	GHS-PI-302	Blower Outlet Flow Pressure	-	-	NM	NM
	Local	GHS-TI-302	Blower Outlet Temperature	-	50 - 90 °F	NM	NM
	Local	Sample Port	Gas Composition - % Methane	-		NM	NM
			Gas Composition - % CO2	-		NM	NM
			Gas Composition - % Oxygen	-		NM	NM
			Gas Composition - % Balance	-		NM	NM
Branch Headers	Local	North	North Branch Vacuum	-	6 - 7 in w.c.	NM	NM
	Local	North	Valve Position	6 turns open /6	6 turns open	NM	NM
	Local	North Sample Port	Gas Composition - % Methane	-		NM	NM
			Gas Composition - % CO2	-		NM	NM
			Gas Composition - % Oxygen	-		NM	NM
			Gas Composition - % Balance	-		NM	NM
	Local	Central	Central Branch Vacuum	-	6 - 7 in w.c.	NM	NM
	Local	Central	Valve Position	-	6 turns open	NM	NM
	Local	Central Sample Port	Gas Composition - % Methane	-		NM	NM
			Gas Composition - % CO2	-		NM	NM
			Gas Composition - % Oxygen	-		NM	NM
			Gas Composition - % Balance	-		NM	NM
	Local	South	South Branch Vacuum	-	6 - 7 in w.c.	NM	NM
	Local	South	Valve Position	-	6 turns open	NM	NM
	Local	South Sample Port	Gas Composition - % Methane	-		NM	NM
			Gas Composition - % CO2	-		NM	NM
			Gas Composition - % Oxygen	-		NM	NM
			Gas Composition - % Balance	-		NM	NM

Air Compressor System[3,5,6] - AIR COMPRESSOR SYSTEM OFFLINE								
Operational Settings	Pressure Set Points					Condensate Set Points		
	Tank Low (psi)	Tank High (psi)	Well Field (psi)	On (min.)	Off (min.)	Open (sec.)	Closed (min.)	Test Operation
	NOT OPERATING							(yes/no)

Air Dryer System[4] - AIR DRYER OFFLINE		Electrical Status		HMI Heater/Air Conditioner	
System Operational:	NA	3-Phase Power Indicator:	3 of 3	Operational	Yes
Condensate Drain Operational:	NA	GFI 1 Status:	GREEN	Temperature	44
Alarm Indictor:	NA	GFI 2 Status:	GREEN	Filter Cleaned	No
Condenser Cleaned[2]:	No	**Leachate Tank/Loadout**			
Dew Point Indicator:		Liquid Level (inches):	96.25	Visual Check:	
	Indicate which bars are green(G) or red (R) and note (F) if flashing.	***Contact WDNR if level is above***	71 inches	·Evidence of Tank Overflow:	No
		Leak Detection Test Completed:	(yes/no)	·Inspect concrete pad and storm sewer for damage or backup	
		Overfill Float Functional[7]	(yes/no)		
		Exhaust Stack			
		Drain Stack Sump (vol. removed)	0 gal	Stack Condition[6]:	Good

1. Initial site conditions represents readings collected upon arrival to the site and initial field readings are collected prior to the landfill balancing.

2. Final site conditions represents readings collected upon departure from the site and final field readings are collected following the landfill balancing.

3. Check all air lines and gas extraction lines for leaks during each site visit. Drain inline air filters and replace as needed.

4. Air Dryer - Clean the condenser monthly using an air jet (max. 2 bar / 30 psig) inside out. Make sure not to damage the aluminum lamellae of the cooling package.

5. On a quarterly basis change the oil and check/clean the air filters and intercoolers for the air compressor.

6. Inspect mounting brackets and bolts for the air compressor and effluent stack for tightness.

7. Test overfill float operation on a monthly basis.

Comments/Notes:
NM - Not Measured
Blower offline. Heat trace is working. No balancing of gas extraction wells. Blower 301, over voltage fault/3210 on Dec. 15 at 02:53. Shut off breaker to blower 301.

Data Entered By: T. Perkins 3/20/2023
Checked By: J. Roelke 3/20/2023

Cap Inspection
Note: Photograph all issues encountered during inspection
Note: Keep vehicle traffic to gravel roadways, avoid driving on the landfill surface
Is the landfill surface covered in snow (Y/N)? **Yes**
Inspect the landfill surface when not covered in snow. Describe the condition and any issues observed for each category below:
Cap integrity: No inspection - Snow cover.
Condition of drainage ways: No inspection - Snow cover.
Extent of vegetation cover: No inspection - Snow cover.
Significant erosion: No inspection - Snow cover.
Repeated erosion: No inspection - Snow cover.
Vegetation die-off: No inspection - Snow cover.
Maintain surface water conveyances and the sedimentation basin by completing the following:
Inspect drainage ditches for erosion, blockages, and vegetation, describe and note any issues: No inspection - Snow cover.
Inspect sedimentation basin banks and outfalls for erosion, describe and note any issues: No inspection - Snow cover.
Measure the distance between the invert of the sedimentation basin outlet and the top of the sediments accumulated in the basin **(June Only!)**: NA

Created by: J Roelke 3/20/2023
Checked by: T. Perkins 3/20/2023