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May 14, 2020

Ms. Erin Endsley
Hydrogeologist Program Director
Wisconsin Department of Natural Resources
1701 North 4th Street
Superior, WI 54880

Subject: 2020 Semi-annual Inspection Report – First Report
Stoughton City Landfill, Stoughton, Dane County, Wisconsin
USEPA ID #WID980901219; WDNR BRRTS #02-13-000880

Dear Ms. Endsley:

TRC completed the first semi-annual inspection of two for the 2020 calendar year for the Stoughton City Landfill (Site). Inspection tasks were completed in concurrence with the December 9, 2019 City of Stoughton Landfill Operation and Maintenance Bidding Documents, follow up correspondences between TRC and the Wisconsin Department of Natural Resources (WDNR), and the April 2020 Quality Assurance/Quality Control Plan (Revision 0) (TRC, 2020). This letter summarizes inspection and monitoring activities completed between February and April 2020. A separate report submittal will be completed discussing the groundwater monitoring completed at the Site in April of 2020.

Bimonthly Site Monitoring

Gas Probe Monitoring

Currently the Site contains three gas monitoring probes (GMP-1, GMP-2, and GMP-3) along the southern perimeter of the landfill to evaluate if off site landfill gas migration is occurring. TRC mobilized to the site on February 25, 2020 and April 15, 2020 to monitor gas concentrations and collect pressure reading at each of these gas monitoring probes. Each probe was field monitored using a Landtec GEM 2000 meter for methane (percent lower explosive limit and percent by volume), carbon dioxide, and oxygen. Volatile organic compounds (VOCs) were field monitored using a Rae Systems MiniRae 3000 and a pressure reading was collected using a Dwyer 475 Series Manometer. Field measurements from these two events are included in Attachment 1.

Field data indicates that no methane or VOCs are migrating from the landfill to the southern perimeter as methane was not detected and VOCs were below 1 parts per million. Oxygen levels varied by probe and inspection event but were generally near ambient air levels of 20.9%. Low concentrations of carbon dioxide were detected at select probes and generally were below 1.5%.

Expandable Cap Monitoring

During each bimonthly site visit the expandable caps installed on monitoring wells MW-7I and MW-10I were inspected. These caps were installed previously due to artesian conditions present at these wells.

During the February 2020 inspection, MW-7I was noted to have artesian flow. The expandable cap was off of the well upon arrival and TRC reinstalled the cap to prevent groundwater flow from the well. During the April 2020 inspection, the expandable cap was in place and preventing flow out of the well.

MW-10I has an expandable cap, but a weep hole appears to have been previously installed through the well riser (beneath the expandable cap) and the outer protective casing. Tubing is attached to the weep hole and groundwater is flowing from the well to the ground surface. TRC contacted the WDNR

following the February monitoring event to discuss the status of this well. The well continued to have artesian flow during the April monitoring event. In both the February and April 2020 inspections the expandable cap was in place on MW-10I but groundwater was flowing from the weep hole.

April Semi-annual Site Inspection

The semi-annual site inspection included a visual evaluation of the landfill cover, storm sewer management system, gas venting system, monitoring well network, security fencing/entrance gate, signage, and the access road (Site features). TRC completed a site walk between April 14, and April 15, 2020, completing an inspection of the Site features and a summary of the inspection is included in Attachment 2. A photographic log is also included in Attachment 2.

Landfill Cover

No issues were observed with the landfill cover that require immediate maintenance. Some large vegetation was observed to be growing around the MW-11 well nest and should be removed as time allows. A small depression/gully was noted between gas vents GV-4 and GV-8. The gully is approximately 4-inches in depth by 10-feet in length. There appears to be a small animal burrowing (less than 4-inches) at various spots around the landfill.

Storm Sewer Management System

The storm sewer management system appeared to be functioning as constructed and no significant erosion damage or lack of vegetation was observed. Slight accumulation of water was observed at portions of the landfill. Based on weather conditions during and prior to the inspection, minor water accumulation is to be expected.

Landfill Gas Vents

The Site contains 21 gas vents throughout the limits of the landfill. Each vent was inspected by TRC and no issues were noted. The previous inspection report noted that the woody vegetation around GV-11 was obstructing the vent. The area still had vegetation, but the vent did not appear to be obstructed.

Monitoring Well Network

There are currently 33 monitoring, extraction, or observation wells installed surrounding and in close proximity to the landfill. Each well was inspected, and the following observations were found:

- TRC did not have a key for monitoring wells MW-1S, MW-1D, and OW-4;
- Monitoring wells MW-2S, MW-2D, MW-6S, MW-6D, MW-11S, MW-11I, and MW-11D have weathered locks which were not functioning. This could be due to TRC not having the correct key or the well locks have ceased up and no longer function.
- MW-7I is an artisan well and the expandable cap at the time of this inspection was working and will continue to be monitored on a bi-monthly basis.
- MW-8I is an artisan well and the expandable cap is not able to prevent groundwater from flowing out of the well.

- MW-10I contains a weep hole and tubing and groundwater is actively discharging to the surface surrounding the well.
- MW-13I was abandoned on April 17, 2020 and documentation will be included in the 2020 Annual Groundwater Monitoring Report.

Security - Fencing/Gate

The chain link fence that surrounds a portion of the landfill was in good condition. It was noted that there is no fabric along the chain link fence. There are two wood slats that have been broken off along the west side of the landfill and the fence will need to be repaired. The gate was in good condition and the lock was functioning.

Signage

Signs are located along the exterior of the fence surrounding the landfill. The signs were in good condition and labels were visible.

Access Road

No issues were observed with the Site access road during this inspection.

Recommendations

TRC recommends that the wood slat fence be repaired to prevent unauthorized entry and clearing of the woody vegetation around the MW-11 nest. Per the request for proposal document, TRC can assist with these issues or the City of Stoughton can be notified to address the issues. TRC also recommends replacing select locks that are not functioning or determining if another key is available for access. The condition of the artisan monitoring wells should be further discussed to determine if action is required to prevent groundwater from flowing to the ground surface surrounding the wells.

If you have any questions, please contact me at astehn@trccompanies.com or 608-826-3665.

Sincerely,

TRC

Andrew Stehn, PE
Project Manager

Attachments: 1. Bi-monthly Gas Probe Monitoring Forms (February and April 2020)
2. Semi-annual Site Inspection Form – April 2020

cc: Giang Van Nguyen – USEPA Region V

References

TRC Environmental Corporation. 2020. Quality Assurance/Quality Control Plan. Stoughton City Landfill. Stoughton, Dane County, Wisconsin. April 13, 2020.

Attachment 1

Bi-monthly Gas Probe Monitoring Forms (February and April 2020)

TRC

GAS MONITORING REPORT

SITE NAME:	Stoughton City Landfill	DATE: 2/25/2020	
PROJECT NUMBER:	375007.0000.0000	TECHNICIAN: Wesley Braga	
GAS SENSOR MODEL:	GEMS 2000	FIELD CALIBRATED: YES: ☑	NO: ☐

WEATHER

WEATHER: Sunny
SKY CONDITIONS: Clear/Overcast
GROUND CONDITIONS: SNOW: YES: ☑ NO: ☐
FROZEN GROUND/FROST: YES: ☑ NO: ☐
VISIBILITY: Clear TIME: 11:45

TEMPERATURE: 33 °F
WIND SPEED: 20 MPH DIR: NNE
RELATIVE HUMIDITY (%): 66
DEW POINT °F 23
BAROMETRIC PRESS (in.Hg): 29.15 TREND: UP

GAS READINGS

Probe/Vent Number	Time	Pressure		CH_4		O_2 (% V/V)	CO_2 (% V/V)	PID (ppm)	Comment
		+ or -	in w.c.	%LEL	% V/V				
GMP-1	11:22		0.10	0.0	0.0	20.9	0.1	0.5	
GMP-2	11:33		0.00	0.0	0.0	19.6	0.8	0.0	
GMP-3	11:39		0.00	0.0	0.0	20.2	1.5	0.0	

Wesley [signature] 5/13/20
SIGNED DATE

Andrew M. Stehn 05/13/2020
CHECKED BY DATE

TRC

PID FIELD CALIBRATION LOG

PROJECT NAME:	Stoughton City Landfill	MODEL:	MINIRAE 2000
PROJECT NUMBER.:	375007	LAMP VOLTAGE:	11.7
SAMPLER NAME:	Wes Braga	SERIAL NO.:	RENTAL

PID CALIBRATION CHECK

	DATE:2/25/2020 TIME: 11:15 INITIALS: WB	DATE: TIME: INITIALS:	DATE: TIME: INITIALS:	DATE: TIME: INITIALS:	DATE: TIME: INITIALS:
BATTERY CHECK	☑	☐	☐	☐	☐
ZERO GAS	0.0 / 0.0	/	/	/	/
SPAN GAS	100.6 / 100.0	/	/	/	/
AUDIBLE FAN MOTOR CHECK	☑	☐	☐	☐	☐
RESPONSE CHECK	☑	☐	☐	☐	☐

NOTES

PROBLEMS ENCOUNTERED	CORRECTIVE ACTION

Wesley J Braga 5/13/20
SIGNED DATE

Andrew M. Stahn 5/13/2020
CHECKED DATE

TRC

GAS MONITORING REPORT

SITE NAME:	Stoughton City Landfill	DATE: 4/15/2020	
PROJECT NUMBER:	375007.0000.0000	TECHNICIAN: Wesley Braga	
GAS SENSOR MODEL:	GEMS 2000	FIELD CALIBRATED: YES: ☑	NO: ☐

WEATHER

WEATHER: Sunny
SKY CONDITIONS: Clear/Overcast
GROUND CONDITIONS: SNOW: YES: ☐ NO: ☑
FROZEN GROUND/FROST: YES: ☐ NO: ☑
VISIBILITY: Clear TIME: 16:30

TEMPERATURE: 37 °F
WIND SPEED: 10-20 MPH DIR: WNW
RELATIVE HUMIDITY (%): 36
DEW POINT °F 12
BAROMETRIC PRESS (in.Hg): 29.14 TREND: UP

GAS READINGS

Probe/Vent Number	Time	Pressure		CH_4		O_2 (% V/V)	CO_2 (% V/V)	PID (ppm)	Comment
		+ or -	in w.c.	%LEL	% V/V				
GMP-1	16:06		0.10	0.0	0.0	20.7	0.2	0.0	
GMP-2	15:59		0.00	0.0	0.0	20.6	0.1	0.0	
GMP-3	15:46		0.00	0.0	0.0	20.4	0.6	0.0	

Wesley Braga 5/13/20
SIGNED DATE

Andrew M. Stehn 05/13/2020
CHECKED BY DATE

TRC

PID FIELD CALIBRATION LOG

PROJECT NAME:	Stoughton City Landfill	MODEL:	MINIRAE 2000
PROJECT NUMBER.:	375007	LAMP VOLTAGE:	11.7
SAMPLER NAME:	Wesley Braga	SERIAL NO.:	RENTAL

PID CALIBRATION CHECK

	DATE: 4/15/2020 TIME: INITIALS:	DATE: TIME: INITIALS:	DATE: TIME: INITIALS:	DATE: TIME: INITIALS:	DATE: TIME: INITIALS:
BATTERY CHECK	☑	☐	☐	☐	☐
ZERO GAS	0.0 / 0.0	/	/	/	/
SPAN GAS	101.5 / 100.0	/	/	/	/
AUDIBLE FAN MOTOR CHECK	☑	☐	☐	☐	☐
RESPONSE CHECK	☑	☐	☐	☐	☐

NOTES

PROBLEMS ENCOUNTERED	CORRECTIVE ACTION

Wesley Braga 5/13/20
SIGNED DATE

Andrew M. Stahn 05/13/2020
CHECKED DATE

Attachment 2

Semi-annual Site Inspection Form
April 2020

Operation and Maintenance Semi-Annual Inspection Report

Stoughton City Landfill

Stoughton, Wisconsin

INSPECTOR: WES BRAGA	LOCATION: STOUGHTON CITY LANDFILL - STOUGHTON, WI
COMPANY: TRC	DATE/TIME: 4/14/2020 - 4/15/2020
PROJECT: STOUGHTON CITY LANDFILL O&M	PROJECT NUMBER : 375007.0000.0000

WEATHER

WEATHER	CLEAR	PARTLY CLOUDY	(CLOUDY)	FOG
TEMPERATURE	HIGH	34°F	---	---
WIND	CALM	MEDIUM	(HIGH)	---
PRECIPITATION	RAIN	LIGHT	MODERATE	HEAVY
	SNOW	(LIGHT)	MODERATE	HEAVY

INSPECTION ITEMS

TYPE OF INSPECTION	ROUTINE	SPECIAL
	☑	☐

PERSONS/EQUIPMENT PRESENT: Wesley Braga

GENERAL DESCRIPTION OF SITE CONDITIONS: Site is in good condition. Cap is saturated due to recent rains, minimal localized ponding observed. Vegetation is well established and does not look stressed. Broken fence slats on west side of landfill near frisbee golf course. All gas vents look to be in good condition.

SPECIAL INSPECIAL ITEMS	POTENTIAL PROBLEM AREA	STATUS	NOTES
PERIMETER SECURITY FENCING	BROKEN OR MISSING WOOD SLATS, TORN CHAIN LINK FABRIC	2	Slats broken on west side of Landfill
ENTRANCE GATE AND LOCKING MECHANISM	LOCK BROKEN/MISSING, MECHANISM INOPERATIVE	1	
MONITORING WELLS AND WELLHEAD COVERS	SIGNS OF TAMPERING, CASING DAMAGED, LOCK MISSING.	2	Locks for well nests MW-6, MW-11, MW-2, MW-1, and OW-4 were unable to be opened. Well MW-7I, MW-8I and MW-10I requires flow prevention for artesian conditions.
FINAL COVER VEGETATION	BARE SPOTS, STRESSED VEGETATION, DEEP ROOTED VEGETATION	1	Some large vegetation growing around MW-11 Well nest.
FINAL COVER SLOPE (EXPLAIN BELOW)	GULLIES, LACK OF VEGETATION, SUBSIDENCE, PONDING	1	4" deep by 10' gully noticed between GV-8 and GV-4.
EVIDENCE OF BURROWING ANIMALS	DAMAGE TO FINAL COVER, EVIDENCE OF WASTE	1	Small animal (3-4") burrowing seen at various spots around the cap.
STORMWATER DRAINAGE CHANNELS	GULLIES, EROSION, DEBRIS, CULVERT BLOCKED	1	
LANDFILL GAS VENTING SYSTEM	DAMAGED OR BLOCKED VENT RISERS, STRESSED VEGETATION	1	
ACCESS ROAD	PONDING, RUTTING, EROSION	1	
COVER MOWING AND TALL VEGETATION REMOVAL (OCTOBER INSPECTION ONLY)	MOWING AND TALL VEGETATION REMOVAL DONE TO SPECIFIED VEGETATION HEIGHT, ANY MISSED AREAS		

* (1)ACCEPTABLE - NO MAINTENANCE REQUIRED. (2) NOT ACCEPTABLE - IDENTIFY REQUIRED MAINTENANCE

SUMMARY OF DEFICIENCIES AND/OR CORRECTIVE ACTION: Broken fence slats, inaccessible locks, and flow prevention for monitoring wells: MW-7I, -8I, and-10I should be addressed.

SIGNATURE OF INSPECTOR: Wesley Braga DATE: 5/13/20

Photographic Log

Client Name:	Site Location:	Project No.:
Wisconsin Department of Natural Resources	Stoughton City Landfill	375007

Photo No.	Date
1	4/15/2020

Time: 10:13

Weather: Sunny / 37°F

Description:
Wood slat fence along the western side of the landfill has two broken slats.

Photographer:
Wes Braga

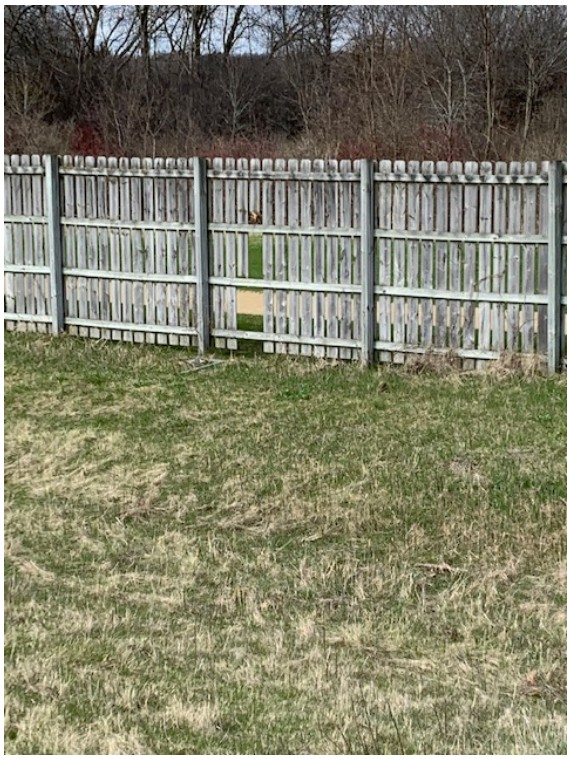


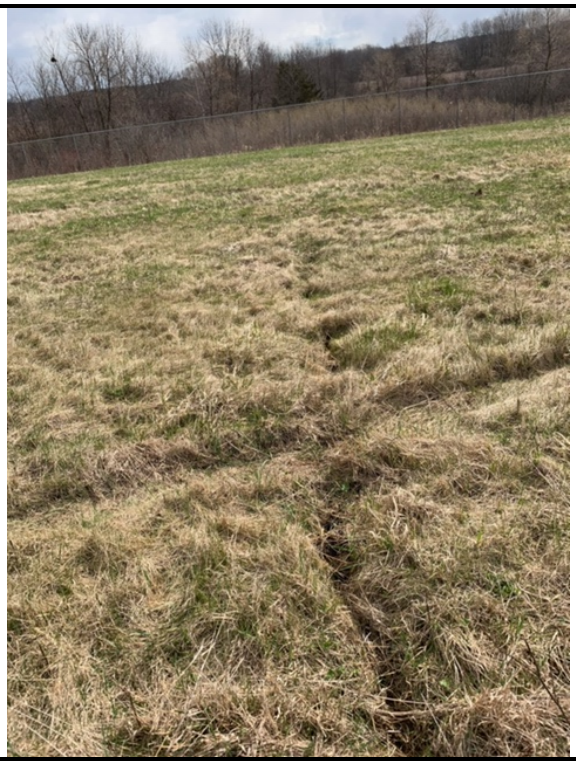
Photo No.	Date
2	4/14/2020

Time: 10:31

Weather: Cloudy / 34°F

Description:
A small gully approximately 4-inches deep and 10-foot-long was observed between gas vents GV-4 and GV-6

Photographer:
Wes Braga



Photographic Log

Client Name:	Site Location:	Project No.:
Wisconsin Department of Natural Resources	Stoughton City Landfill	375007

Photo No.	Date
3	4/15/2020

Time: 10:15

Weather: Sunny / 37°F

Description:
Woody vegetation observed around the MW-11 well nest.

Photographer:
Wes Braga