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November 19, 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 – Second Report
Stoughton City Landfill, Stoughton, Dane County, Wisconsin
USEPA ID #WID980901219; WDNR BRRTS #02-13-000880

Dear Ms. Endsley:

TRC completed the second semi-annual inspection for the 2020 calendar year for the Stoughton City Landfill (Site). Inspection tasks were completed as described in 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 May and October 2020.

Bimonthly Site Monitoring

Gas Probe Monitoring

Currently the Site has 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 June 19, August 27, and October 22, 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 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 generally below 1 part 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 1.0%.

Expandable Cap Monitoring

During each bimonthly site visit the expandable cap installed on monitoring well MW-7I, to prevent artesian flow, was inspected. The cap was noted to be in place and preventing flow out of the well. The expandable cap installed in monitoring well MW-10I was not able to restrict artesian flow and a mechanical packer was installed in August 2020 and was preventing flow out of well during the October inspection.

October Semi-annual Site Inspection

The semi-annual site inspection included a visual evaluation of the landfill cover (including vegetation), 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 on

October 22, 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. Woody vegetation was observed to be growing around the MW-11 well nest, around GV-11, and along the interior fence line along the west side of the landfill. This vegetation should be removed as time allows. The small depression/gully noted to be between gas vents GV-4 and GV-8 during the April 2020 inspection was not observed in October. There appears to be a small animal burrowing (burrows less than 4-inches) at various spots around the landfill. Annual mowing of the landfill cover was conducted on August 27, 2020.

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. Vegetation is present around GV-11, 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 preventing groundwater from flowing from the well. The well cap will continue to be monitored on a bi-monthly basis.
- MW-8I is an artisan well and the expandable cap at the time of this inspection was preventing groundwater from flowing out of the well.
- A packer was installed in MW-10I on August 27th, 2020 and is preventing artesian flow from the well.
- MW-13I was abandoned on April 17, 2020 and documentation was 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. The two wood slats that were noted to have been broken off along the west side of the landfill have been replaced. 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 clearing of the woody vegetation around the MW-11 nest, GV-11, and from along the fence along the west side of the landfill. 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 will provide a cost estimate to replace select locks that are not functioning and to install packers in monitoring wells MW-7I and MW-8I.

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

Sincerely,

TRC

Andrew M. Stehn

Andrew Stehn, PE
Project Manager

Attachments: 1. Bi-monthly Gas Probe Monitoring Forms (June, August, and October 2020)
2. Semi-annual Site Inspection Form – October 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 (June, August, and October 2020)

PROJECT NAME:	Stoughton Landfill
PROJECT NUMBER:	375007
PROJECT MANAGER:	Andrew Stehn
SITE LOCATION:	Stoughton, Wisconsin
DATES OF FIELDWORK:	6/19/2020 TO 10/22/2020
PURPOSE OF FIELDWORK:	Bi-monthly Gas Probe Monitoring
WORK PERFORMED BY:	Wes Braga John Roelke

Wesley J Braga John Roelke 11/19/2020

SIGNED DATE

Andrew M. Stehn 11/19/2020

CHECKED BY DATE

PID FIELD CALIBRATION LOG

PROJECT NAME:	Stoughton City Landfill	MODEL:	MiniRae 3000
PROJECT NUMBER.:	375007	LAMP VOLTAGE:	10.6
SAMPLER NAME:	Wes Braga/John Roelke	SERIAL NO.:	RENTAL

PID CALIBRATION CHECK

	DATE: 6/19/2020 TIME: 12:10 INITIALS: WB	DATE: 8/27/2020 TIME: 11:35 INITIALS: WB	DATE: 10/22/2020 TIME: 10:45 INITIALS: JR	DATE: TIME: INITIALS:	DATE: TIME: INITIALS:
BATTERY CHECK	☑	☑	☑	☐	☐
ZERO GAS	0.0 / 0.0	0.0/0.0	0.0/0.0	/	/
SPAN GAS	100.7 / 100.0	100.5/100.0	100.2/100.0	/	/
AUDIBLE FAN MOTOR CHECK	☑	☑	☑	☐	☐
RESPONSE CHECK	☑	☑	☑	☐	☐

NOTES

PROBLEMS ENCOUNTERED	CORRECTIVE ACTION

Wesley J Braga John Roelke 11/19/2020

SIGNED DATE

Andrew M. Stelz 11/19/2020

CHECKED DATE

GAS MONITORING REPORT

SITE NAME:	Stoughton City Landfill	DATE: 6/19/2020	
PROJECT NUMBER:	375007.0000.0000	TECHNICIAN: Wes Braga	
GAS SENSOR MODEL:	GEMS 2000	FIELD CALIBRATED: YES: ☑	NO: ☐

WEATHER

WEATHER: Sunny
SKY CONDITIONS: Clear
GROUND CONDITIONS: SNOW: YES: ☐ NO: ☑
FROZEN GROUND/FROST: YES: ☐ NO: ☑
VISIBILITY: Clear TIME: 12:15

TEMPERATURE: 85 °F
WIND SPEED: 5 MPH DIR: South
RELATIVE HUMIDITY (%): 62
DEW POINT °F 62
BAROMETRIC PRESS (in.Hg): 29.08 TREND: falling

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	12:29	+	0.47	0.0	0.0	20.1	0.3	1.3	
GMP-2	12:35	-	1.24	0.0	0.0	19.9	0.3	0.1	
GMP-3	12:45		0.00	0.0	0.0	19.6	0.4	0.3	

Wesley J Braga 11/19/2020
SIGNED DATE

Andrew M. Stelz 11/19/2020
CHECKED BY DATE

GAS MONITORING REPORT

SITE NAME:	Stoughton City Landfill	DATE: 8/27/2020	
PROJECT NUMBER:	375007.0000.0000	TECHNICIAN: Wes Braga	
GAS SENSOR MODEL:	GEMS 2000	FIELD CALIBRATED: YES: ☑	NO: ☐

WEATHER

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

TEMPERATURE: 90 °F
WIND SPEED: 5 MPH DIR: SSE
RELATIVE HUMIDITY (%): 72
DEW POINT °F 74
BAROMETRIC PRESS (in.Hg): 28.96 TREND: down

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	11:54		0.00	0.0	0.0	19.9	0	0.3	
GMP-2	12:03		0.00	0.0	0.0	20.5	0	0.1	
GMP-3	11:23		0.00	0.0	0.0	19.6	0	0.3	

Wesley J Braga 11/19/2020
SIGNED DATE

Andrew M. Stelz 11/19/2020
CHECKED BY DATE

GAS MONITORING REPORT

SITE NAME:	Stoughton City Landfill	DATE: 10/22/2020	
PROJECT NUMBER:	375007.0000.0000	TECHNICIAN: John Roelke	
GAS SENSOR MODEL:	GEMS 2000	FIELD CALIBRATED: YES: ☑	NO: ☐

WEATHER

WEATHER: Rain
SKY CONDITIONS: Cloudy
GROUND CONDITIONS: SNOW: YES: ☐ NO: ☑
FROZEN GROUND/FROST: YES: ☐ NO: ☑
VISIBILITY: Low TIME: 10:45

TEMPERATURE: 46 °F
WIND SPEED: 9 MPH DIR: N
RELATIVE HUMIDITY (%): 96
DEW POINT °F 43
BAROMETRIC PRESS (in.Hg): 29.94 TREND: Falling

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	10:55		0.0	0.0	0.0	20.8	0.1	0.0	
GMP-2	11:12		0.0	0.0	0.0	20.7	0.1	0.0	
GMP-3	11:01	+	0.49	0.0	0.0	19.6	3.8	0.0	

John Roelke — SIGNED — 11/19/2020 DATE

Andrew M. Stelz — CHECKED BY — 11/19/2020 DATE

Attachment 2

Semi-annual Site Inspection Form
October 2020

PROJECT NAME:	Stoughton Landfill
PROJECT NUMBER:	375007
PROJECT MANAGER:	Andrew Stehn
SITE LOCATION:	Stoughton, Wisconsin
DATES OF FIELDWORK:	10/22/2020 TO 10/22/2020
PURPOSE OF FIELDWORK:	October Semi-annual Site Inspection
WORK PERFORMED BY:	John Roelke

John Roelke 11/19/2020

SIGNED DATE

Andrew M. Stehn 11/19/2020

CHECKED BY DATE

Operation and Maintenance Semi-Annual Inspection Report

Stoughton City Landfill
Stoughton, Wisconsin

INSPECTOR: John Roelke	LOCATION: STOUGHTON CITY LANDFILL - STOUGHTON, WI
COMPANY: TRC	DATE/TIME: 10/2202020, 10:45AM
PROJECT: STOUGHTON CITY LANDFILL O&M	PROJECT NUMBER : 375007.0000.0000

WEATHER

WEATHER	CLEAR	PARTLY CLOUDY	**CLOUDY**	FOG
TEMPERATURE	HIGH	46°F	---	---
WIND	CALM	**MEDIUM**	HIGH	---
PRECIPITATION	RAIN	LIGHT	MODERATE	**HEAVY**
	SNOW	LIGHT	MODERATE	HEAVY

INSPECTION ITEMS

TYPE OF INSPECTION	ROUTINE	SPECIAL
	☑	☐

PERSONS/EQUIPMENT PRESENT: John Roelke/ GEM 2000, Mini Rae 3000 PID, Dwyer Digital Manometer.

GENERAL DESCRIPTION OF SITE CONDITIONS: Site is in good condition. Cap is saturated due to current/recent rain event, no localized ponding observed. Vegetation is well established and is not stressed. Broken fence slats located on the west side of landfill have been repaired. All gas vents are in good condition. Some woody growth observed near the MW-11 cluster, GV-11, and along the western fence line.

SPECIAL INSPECIAL ITEMS	POTENTIAL PROBLEM AREA	STATUS	NOTES
PERIMETER SECURITY FENCING	BROKEN OR MISSING WOOD SLATS, TORN CHAIN LINK FABRIC	1	Slats were repaired on the west side of the landfill.
ENTRANCE GATE AND LOCKING MECHANISM	LOCK BROKEN/MISSING, MECHANISM INOPERATIVE	1	
MONITORING WELLS AND WELLHEAD COVERS	SIGNS OF TAMPERING, CASING DAMAGED, LOCK MISSING.	1	Locks for well nests MW-6, MW-11, MW-2, MW-1 and OW-4 were unable to be opened. Well MW-7I and MW-8I require flow prevention due to artesian conditions. A packer has been installed in MW-10I to prevent artesian flow out of the well.
FINAL COVER VEGETATION	BARE SPOTS, STRESSED VEGETATION, DEEP ROOTED VEGETATION	1	Vegetation growing around GV-11, MW-11 well nest, and along the fence on the west side of the landfill.
FINAL COVER SLOPE (EXPLAIN BELOW)	GULLIES, LACK OF VEGETATION, SUBSIDENCE, PONDING	1	Gully erosion was not observed between GV-8 and GV-4 during this inspection.
EVIDENCE OF BURROWING ANIMALS	DAMAGE TO FINAL COVER, EVIDENCE OF WASTE	1	Small animal burrowing seen at various spot 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	Cap was recently mowed. Woody vegetation observed around GV-11, MW-11 well nest, and along western fence line.

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

SUMMARY OF DEFICIENCIES AND/OR CORRECTIVE ACTIONS: Expandable caps installed on monitoring wells MW-7I and MW-8I appear to be preventing artesian flow. TRC has discussed this issue with the WDNR and will provide a cost for packers to be installed. A mechanical packer was installed in well MW-10I in August 2020 to prevent artesian flow. TRC has discussed the condition of well locks at the site and will provide a cost for replacing non-functional locks. Vegetation around MW-11 well nest, GV-11, and along the fence on the west side of the landfill should be removed, TRC can assist if needed.

SIGNATURE OF INSPECTOR: John Roelke DATE: 10/22/2020

Photographic Log

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

Photo No.	Date
1	10/22/2020

Time: 11:12

Weather: Cloudy / 46°F

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

Photographer:
John Roelke

John Roelke

Photo No.	Date
2	10/22/2020

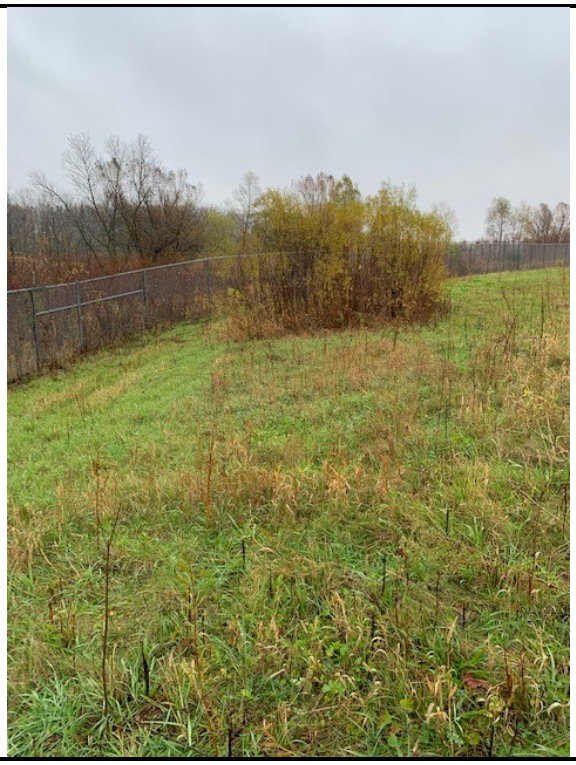
Time: 11:21

Weather: Cloudy / 46°F

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

Photographer:
John Roelke

John Roelke



Photographic Log

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

Photo No.	Date
3	10/22/2020

Time: 11:16

Weather: Cloudy / 46°F

Description:
Woody vegetation observed along the interior fence along the west side of the landfill

Photographer:
John Roelke

John Roelke

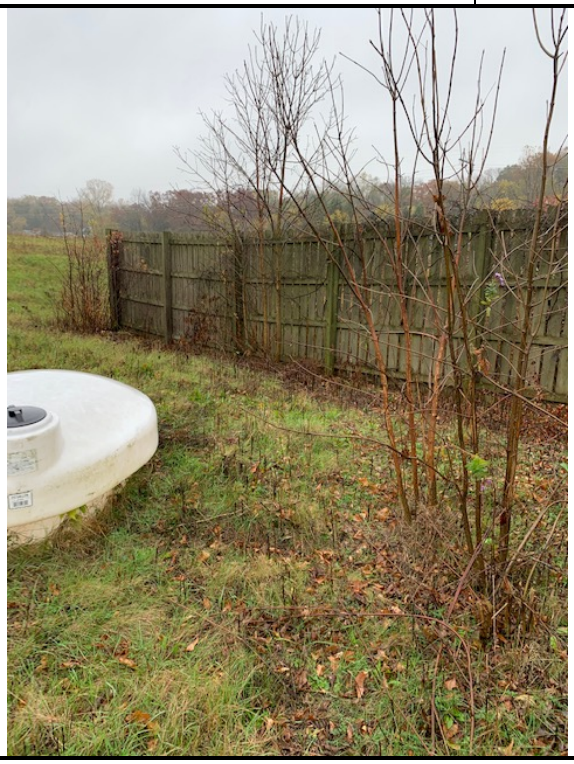


Photo No.	Date
4	10/22/2020

Time: 11:39

Weather: Cloudy / 46°F

Description:
Previously broken wood fence slats have been replaced.

Photographer:
John Roelke

John Roelke