708 Heartland Trl.
Suite 3000
Madison, WI 53717

T 608.826.3600
TRCcompanies.com

May 17, 2022

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

Subject: 2022 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 2022 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 January and April 2022. A separate report submittal will be completed discussing the groundwater monitoring completed at the Site in April of 2022.

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 7, 2022 and April 8, 2022 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.

No methane gas was detected in the gas probes during the February and April 2022 monitoring events which indicates that it's unlikely that any significant landfill gas migration is occurring along the southern perimeter. Additionally, VOC migration from the landfill in that area is unlikely since all detectable PID readings were below 1 parts per million. Oxygen levels varied by probe and inspection event but were generally just below ambient air levels of 20.9%. Low concentrations of carbon dioxide were generally detected at the probes with the highest reading of 4.4% by volume at GMP-3 during the February 2022 event, all other detectable readings at the site were below 1.7%.

Flow Prevention Monitoring

During each bimonthly site visit the flow prevention devices at monitoring wells MW-7I, MW-8I and MW-10I were inspected. The devices include mechanical packers installed at MW-7I, MW-8I and MW-10I due to artesian conditions present at these wells. During all site inspections the packers were in place and preventing flow out of the well.

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 on April 6, 2022, 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. However, during the 2022 groundwater monitoring event, while TRC was accessing the MW-5 well nest for sampling purposes, a field vehicle got stuck due to overly saturated conditions resulting in minor surface rutting. The vehicle was towed from the area with a small track loader to reduce further rutting. Ruts that occurred were approximately 6 inches deep and TRC plans to repair and reseed the area when conditions allow it to be accessed by vehicle. There were a number of small animal burrowing's (less than 4-inches) at various spots around the landfill, nothing extensive that requires additional maintenance.

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.

Monitoring Well Network

There are currently 37 monitoring, extraction, or observation wells installed surrounding and in close proximity to the landfill. Each well was inspected, and the following observations were found:

- MW-7I is an artisan well and the packer 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 packer at the time of this inspection was working and will continue to be monitored on a bi-monthly basis.
- MW-10I is an artisan well and the packer at the time of this inspection was working and will continue to be monitored on a bi-monthly basis.
- OW-2 has a packer installed and is preventing possible artisan conditions. TRC attempted to remove the packer to check if artisanal flow is still occurring at this location, however the packer appeared to be stuck in place and unable to be removed by normal hand tools. If removal of this packer is required at any time in the future it may require additional effort.

- OW-4 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.
- EW-01 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.

Security - Fencing/Gate

The chain link fence that surrounds a portion of the landfill was in good condition. The gate was in good condition and the lock was functioning. There was a large section of broken fencing near the western gated entrance and to the north. The damage was likely caused from a tornado that touched down in Stoughton on March 5, 2022. The WDNR is aware of the issue and is working to schedule a subcontractor to complete the repairs.

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 plans to repair ruts created during the 2022 groundwater monitoring event. Per the request for proposal document, TRC can assist with the repair of the broken fence as needed.

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

Sincerely,

TRC

Andrew Stehn, PE
Project Manager

Attachments: 1. Bi-monthly Gas Probe Monitoring Forms (February and April 2022)
2. Semi-annual Site Inspection Form – April 2022

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 2022)

PROJECT NAME:	Stoughton Landfill
PROJECT NUMBER:	375007.0002.0000
PROJECT MANAGER:	Andrew Stehn
SITE LOCATION:	Stoughton, Wisconsin
DATES OF FIELDWORK:	2/6/2022 TO 4/8/2022
PURPOSE OF FIELDWORK:	Bi-monthly Gas Monitoring and April Semi-annual Site Inspection
WORK PERFORMED BY:	Wes Braga John Roelke

Wesley J Braga 4/8/2022

SIGNED DATE

Andrew M. Stehn 5/16/2022

CHECKED BY DATE

PID FIELD CALIBRATION LOG

PROJECT NAME:	Stoughton City Landfill	MODEL:	MiniRae 3000
PROJECT NUMBER.:	375007.0002.0000	LAMP VOLTAGE:	10.6
SAMPLER NAME:	John Roelke/ Wes Braga	SERIAL NO.: 1117091	RENTAL

PID CALIBRATION CHECK

	DATE:2/7/2022 TIME: 12:55 INITIALS: JR	DATE: 4/8/2022 TIME: 12:00 INITIALS: WB	DATE: TIME: INITIALS:	DATE: TIME: INITIALS:	DATE: TIME: INITIALS:
BATTERY CHECK	☑	☑	☐	☐	☐
ZERO GAS	0.0/ 0.0	0.0/0.0	/	/	/
SPAN GAS	100.1/ 100.0	100.3/100.0	/	/	/
AUDIBLE FAN MOTOR CHECK	☑	☑	☐	☐	☐
RESPONSE CHECK	☑	☑	☐	☐	☐

NOTES

PROBLEMS ENCOUNTERED	CORRECTIVE ACTION

John Roelke 2/7/2022

SIGNED DATE

Andrew M. Stelz 5/16/2022

CHECKED DATE

GAS MONITORING REPORT

SITE NAME:	Stoughton City Landfill	DATE: 2/7/2022	
PROJECT NUMBER:	375007.0002.0000	TECHNICIAN: John Roelke	
GAS SENSOR MODEL:	GEMS 2000	FIELD CALIBRATED: YES: ☑	NO: ☐

WEATHER

WEATHER: Cloudy

SKY CONDITIONS: Cloudy

GROUND CONDITIONS: SNOW: YES: ☑ NO: ☐

FROZEN GROUND/FROST: YES: ☑ NO: ☐

VISIBILITY: 10 miles TIME: 12:55

TEMPERATURE: 23 °F

WIND SPEED: 8 MPH DIR: WNW

RELATIVE HUMIDITY (%): 53

DEW POINT °F 9

BAROMETRIC PRESS (in.Hg): 30.24 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	13:08		0.0	0.0	0.0	19.8	1.7	0.0	
GMP-2	13:13		0.0	0.0	0.0	20.1	1.0	0.0	
GMP-3	13:20		0.0	0.0	0.0	14.2	4.4	0.0	

Wesley J Bucazo 4/8/2022
SIGNED DATE 2/8/2022

Andrew M. Stehn 5/16/2022
CHECKED BY DATE

GAS MONITORING REPORT

SITE NAME:	Stoughton City Landfill	DATE: 4/8/2022	
PROJECT NUMBER:	375007.0002.0000	TECHNICIAN: Wesley Braga	
GAS SENSOR MODEL:	GEMS 2000	FIELD CALIBRATED: YES: ☑	NO: ☐

WEATHER

WEATHER: Cloudy

SKY CONDITIONS: Cloudy

GROUND CONDITIONS: SNOW: YES: ☐ NO: ☑

FROZEN GROUND/FROST: YES: ☐ NO: ☑

VISIBILITY: 10 miles TIME: 12:55

TEMPERATURE: 35 °F

WIND SPEED: 10 MPH DIR: NNW

RELATIVE HUMIDITY (%): 93

DEW POINT °F 34

BAROMETRIC PRESS (in.Hg): 28.9 TREND: Rising

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	13:28		0.0	0.0	0.0	20.3	0.1	0.1	
GMP-2	13:14		0.0	0.0	0.0	19.4	0.2	0.1	
GMP-3	12:49		0.0	0.0	0.0	19.8	0.7	0.0	

Wesley J Braga 4/8/2022
SIGNED DATE 4/8/2022

Andrew M. Stehn 5/16/2022
CHECKED BY DATE

Attachment 2

Semi-annual Site Inspection Form
April 2022

Operation and Maintenance Semi-Annual Inspection Report

Stoughton City Landfill
Stoughton, Wisconsin

INSPECTOR: Wesley Braga	LOCATION: STOUGHTON CITY LANDFILL - STOUGHTON, WI
COMPANY: TRC	DATE/TIME: 04/06/2022, 15:00
PROJECT: STOUGHTON CITY LANDFILL O&M	PROJECT NUMBER : 375007.0002.0000

WEATHER

WEATHER		CLEAR	PARTLY CLOUDY	**CLOUDY**	FOG
TEMPERATURE		46°F	---	---	---
WIND		CALM	**MEDIUM**	HIGH	---
PRECIPITATION	RAIN	NONE	LIGHT	**MODERATE**	HEAVY
	SNOW	**NONE**	LIGHT	MODERATE	HEAVY

INSPECTION ITEMS

TYPE OF INSPECTION	ROUTINE	SPECIAL
	☑	☐

PERSONS/EQUIPMENT PRESENT: Wesley Braga/ 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. Only small animal burrowing noticed during this inspection. Ruts on north side of landfill due to field vehicle sinking into saturated ground, partially filled with loose material after vehicle was removed. Large area of fencing near western gate and to the north was broken, which likely was caused by a tornado event on March 5, 2022. The WDNR is aware of the issue and is working on contracting to complete the repairs.

SPECIAL INSPECIAL ITEMS	POTENTIAL PROBLEM AREA	STATUS	NOTES
PERIMETER SECURITY FENCING	BROKEN OR MISSING WOOD SLATS, TORN CHAIN LINK FABRIC	2	Large section of fence broken near west gate, as well as various points of wooden fence north of the western gate. The WDNR is aware of the issue and is working to have the fence repaired. All chain fence and southern section of wood fence okay.
ENTRANCE GATE AND LOCKING MECHANISM	LOCK BROKEN/MISSING, MECHANISM INOPERATIVE	1	
MONITORING WELLS AND WELLHEAD COVERS	SIGNS OF TAMPERING, CASING DAMAGED, LOCK MISSING.	1	
FINAL COVER VEGETATION	BARE SPOTS, STRESSED VEGETATION, DEEP ROOTED VEGETATION	1	
FINAL COVER SLOPE (EXPLAIN BELOW)	GULLIES, LACK OF VEGETATION, SUBSIDENCE, PONDING	2	Rutting occurred during the April 2022 sampling event while accessing the MW-5 well nest due to saturated cap conditions. Ruts were partially filled and will be repaired fully when the location can be accessed safely with a vehicle.
EVIDENCE OF BURROWING ANIMALS	DAMAGE TO FINAL COVER, EVIDENCE OF WASTE	1	Some small animal 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	GV-11 was repaired in December 2021, no issues noticed during April 2022 inspection.
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 ACTIONS: Rutting occurred during the April 2022 sampling event while accessing the MW-5 well nest on west side of landfill. Ruts were approximately 6 inches deep and occurred when a field vehicle got stuck in overly saturated soil. Vehicle was towed to southern gate by a small track loader to avoid additional rutting. TRC plans to repair the ruts this summer when a vehicle can safely access the area.

SIGNATURE OF INSPECTOR: Wesley J Braga DATE: 4/8/2022

Photographic Log

Client Name:	Site Location:	Project No.:
Wisconsin Department of Natural Resources	Stoughton City Landfill	375007.0002

Photo No.	Date
1	4/6/2022

Time: 13:06

Weather: Raining/ 45°F

Description: Broken fence looking southwest.

Photographer:

Wes Braga

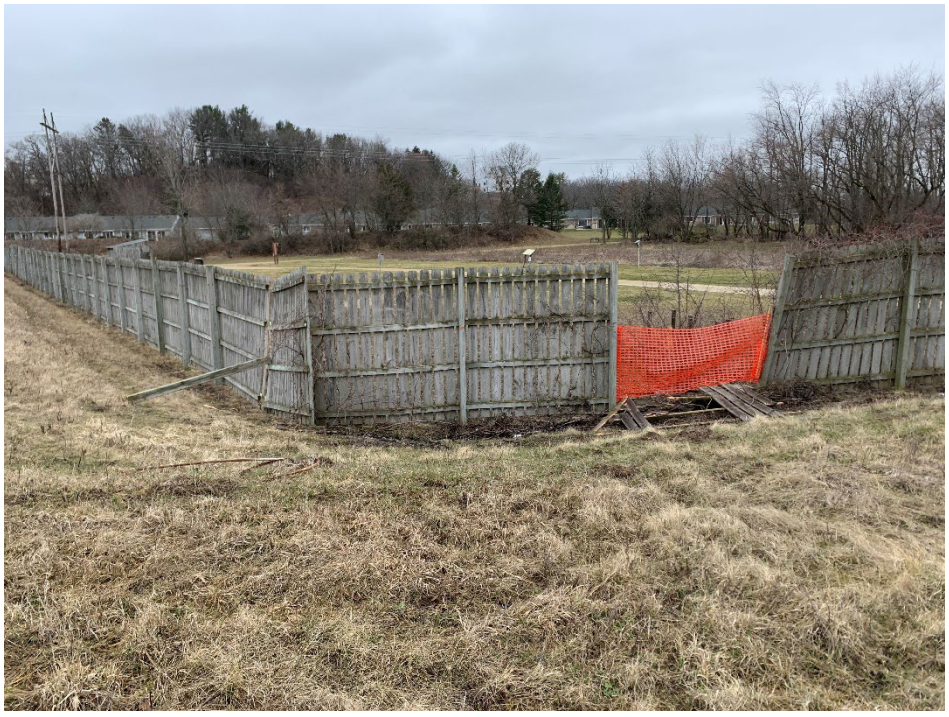


Photo No.	Date
2	4/6/2022

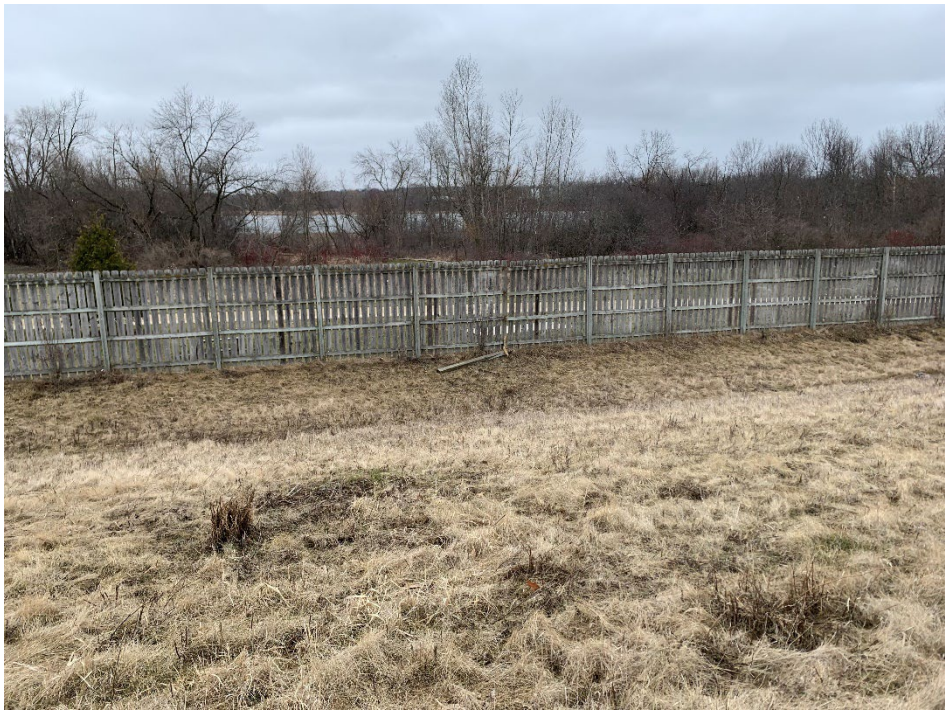
Time: 14:07

Weather: Raining/ 45°F

Description:
Broken fence looking west.

Photographer:

Wes Braga



Photographic Log

Client Name:	Site Location:	Project No.:
Wisconsin Department of Natural Resources	Stoughton City Landfill	375007.0002

Photo No.	Date
3	4/8/2022

Time: 14:10

Weather: Overcast/ 35°F

Description:
Rutting that occurred during April 2022 sampling event.

Photographer:

Wes Braga

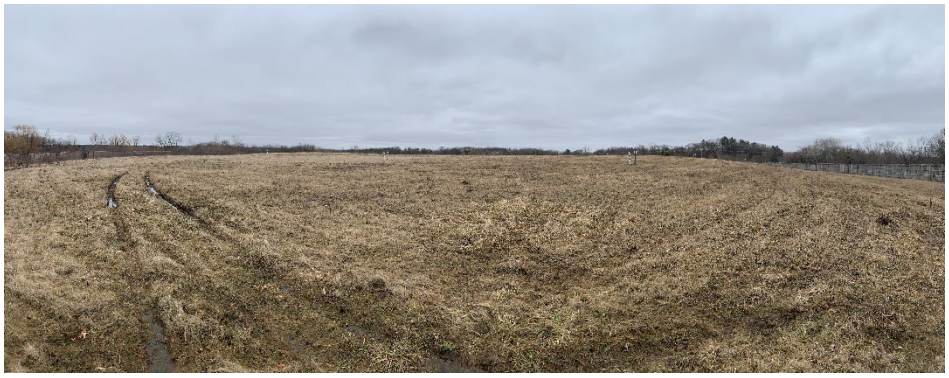


Photo No.	Date
4	4/8/2022

Time: 14:15

Weather: overcast/ 35°F

Description:
Rutting that occurred during April 2022 sampling event.

Photographer:

Wes Braga