May 20, 2019
File No. 25219092.00

Mr. Jason Lowery
Wisconsin Department of Natural Resources
101 S. Webster St.
P.O. Box 7921
Madison, WI 53707-7921

Subject: First 2019 Semi-annual Facility Inspection Report
Stoughton City Landfill
FID #113005950 – License #133
USEPA ID #WID980901219
WDNR Purchase Order #37000-0000010307

Dear Mr. Lowery:

This letter provides a summary of the observations and results from the activities performed in association with the first 2019 semi-annual period at the Stoughton City Landfill site (Site). The activities during this period include bimonthly monitoring of the perimeter landfill gas probes and an inspection of the Site including the landfill cover, storm water management system, landfill gas venting system, perimeter fencing, groundwater monitoring wells, and access road. A copy of this letter is also being sent to Ms. Van Nguyen at the U.S. Environmental Protection Agency (USEPA), and an electronic copy has been emailed to you.

BIMONTHLY GAS PROBE MONITORING

SCS Engineers (SCS) personnel monitored three perimeter landfill gas probes at the Site in association with this period on December 10, 2018; March 4, 2019; and April 25, 2019. The sampling was conducted using several field meters to assess the quality and pressure/vacuum of soil gas at the probe locations.

Methane was not identified at concentrations above 50 percent of the lower explosive limit (LEL) or 2.5 percent by volume at any of the gas probes. Based on the monitoring results, it does not appear that high concentration landfill gas, exceeding the Lower Explosive Limit (LEL) of 5 percent for methane, is migrating to the south of the landfill towards occupied homes. The completed bimonthly gas probe monitoring report forms are included in **Attachment A**.

SITE INSPECTION

SCS performed the semi-annual facility inspection at the site on April 25, 2019. The completed semi-annual facility inspection report is included in **Attachment B**. The observations from the semi-annual inspection for this period are summarized below.

Landfill Cover – The landfill cover is generally in good condition. The items noted included:

- a small area of approximately 5 square feet north of GV-18 where vegetation was not present
- minor ruts in several areas on the cap

A photograph of the area near GV-18 is included in **Attachment C** (i.e., the Photograph Log). Although likely outside the landfill limits, SCS staff also noted woody vegetation in the vicinity of the tarped soil bags near MW-2S that were intended for use in repairing the small areas of the cover and are in poor condition (**Photo 1, Attachment C**), and another area of woody vegetation surrounding the MW-11 nest (**Photo 4, Attachment C**). The woody vegetation should be removed in conjunction with the annual mowing of the Site. The soil from the bags should be spread in the ruts or other areas of the Site, and the bags (i.e., trash) properly disposed of.

Storm Water Management System – No visible erosion was noted in the drainage channels. The culverts were undamaged. The dense woody vegetation noted in the last 2018 semi-annual inspection remains near many of the culvert ends. SCS will engage a subcontractor to remove the woody vegetation in summer 2019.

Landfill Gas Venting System – The gas venting wells were intact, and no stressed vegetation was identified in the vicinity of the wells. The screens were not obstructed.

Perimeter Security Fencing – The chain-link fencing on the north and east sides of the site was in good condition. Both access gates are in good condition, and the padlocks operated properly. Vegetation in front of the west gate made it difficult to open. Signage was present and legible on both access gates. There was no evidence of trespassing or unauthorized use of the portion of the Site where access is restricted.

The wooden perimeter fence was in good condition; however, trees growing under the fence along the north and west sections may cause future damage (**Photo 3, Attachment C**). This woody vegetation should also be removed in conjunction with the annual mowing event.

Monitoring Wells and Wellhead Covers – SCS staff measured the depth to water at 25 groundwater monitoring wells, and collected samples from 13 of those wells, during the period of April 25 to 26, 2019. SCS staff collected data for field parameters and sent samples to Eurofins TestAmerica for laboratory analysis. The field and laboratory data will be presented and reviewed in the annual report for the Site. SCS also repaired wells MW-15S, MW-15D, MW-15I, MW-8S, and MW-14I during that period by extending the protective casings and replacing the caps and padlocks, so the wells could be locked. Photographs of the repaired wells are included in **Attachment C**.

SCS staff did note that the mechanical packers previously installed in wells MW-10I and MW-13I were not able to be completely removed from the wells. The packers could be loosened so that groundwater was able to flow past the lower seal of the unit, so that a sample could be obtained from the well, but the unit was not able to be entirely removed prior to sampling, as expected. As stated in the 2018 Semi-annual Report, SCS intends to provide mechanical packers for three additional flowing wells (i.e., MW8S, MW-8B, and MW-8I) in summer 2019. We will assess the potential problem with the existing packers prior to installing any additional units at the Site.

All monitoring wells were locked after completion of the well repairs.

Access Road – The site access road was in good condition with no ruts or erosion noted. No standing water was observed on the site access road.

If you have any questions about this report or any other aspect of the project, please call us at 608-224-2830.

Sincerely,

Leslie A. Busse, PE
Senior Project Manager
SCS Engineers

Mike Prattke
Project Director
SCS Engineers

LAB/jsn/MP

cc: Ms. Giang Van Nguyen, USEPA Region V

Encl. Attachment A – Bimonthly Gas Probe Monitoring Report Forms
Attachment B – Completed Semi-annual Facility Inspection Form, April 25, 2019
Attachment C – Photograph Log

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Attachment A

Bimonthly Gas Probe Monitoring Report Forms

Gas Probe Monitoring Report
Stoughton City Landfill
Stoughton, Wisconsin

Probe	%LEL (as methane)	% Oxygen	% CO_2	PID (ppm)	Pressure (inches of water)
GP-1	0.5	20.5	1.1	0.0	+0.01
GP-2	0.0	20.7	0.5	0.0	0.00
GP-2	0.0	18.3	1.8	0.0	-6.08

Instruments Used: Envision / PID #2

Operator: Paul Grover

Date: December 10, 2018

Weather Conditions:

Barometric Pressure (inches of Hg): 29.08 Temperature (Degrees F): 34

Relative Humidity (%): 74 Dewpoint (Degrees F): NA Wind: WSW

Sky Conditions: Cloudy

Ground Conditions:

_____Snow __X__No Snow __X__Frozen Ground/Frost

Gas Probe Monitoring Report
Stoughton City Landfill
Stoughton, Wisconsin

Probe	%LEL (as methane)	% Oxygen	% CO_2	PID (ppm)	Pressure (inches of water)
GP-1	0.0	20.6	0.0	0.0	0.00
GP-2	0.0	20.7	0.0	0.0	0.00
GP-3	0.0	20.7	0.0	0.0	0.00

Instruments Used: Elkins Envision, PID #1

Operator: Paul Grover

Date: 3/4/2019

Weather Conditions: Sunny, cold, breeze

Barometric Pressure (inches of Hg): 29.11 Temperature (Degrees F): 7

Relative Humidity (%): 62 Dewpoint (Degrees F): -3 Wind: S at 8 gusts 17 mph

Sky Conditions: Clear

Ground Conditions:

X Snow _____ No Snow X Frozen Ground/Frost

Gas Probe Monitoring Report
Stoughton City Landfill
Stoughton, Wisconsin

Probe	%LEL (as methane)	% Oxygen	% CO_2	PID (ppm)	Pressure (inches of water)
GP-1	0.0	20.9	0.0	0.0	-0.05
GP-2	0.0	20.9	0.0	15.6	0.1
GP-3	0.0	20.9	0.0	17.2	-5.37

Instruments Used: Elkins Envision, PID #1

Operator: Lindsey Carlson

Date: 4/25/2019

Weather Conditions: _____

Barometric Pressure (inches of Hg): 28.9 Temperature (Degrees F): 59

Relative Humidity (%): 80 Dewpoint (Degrees F): 49 Wind: 12 mph north

Sky Conditions: Partly cloudy

Ground Conditions:

_____Snow __X__No Snow _____Frozen Ground/Frost

Attachment B

Completed Semi-annual Facility Inspection Form, April 25, 2019

Operation and Maintenance Semi Annual Inspection Report
Stoughton City Landfill
Stoughton, Wisconsin

Inspector Lindsey Carlson
Company SCS Engineers
Project Stoughton Landfill
Location Stoughton, WI
Date/Time 4/25/2019
Project No. 25219092.00

Weather:	Clear	**P. Cloudy**	Cloudy	Fog
Temperature :	High	65°F	---	---
Wind:	Calm	**Medium**	High	---
Precipitation:	Rain	Light	Moderate	Heavy
None	Snow	Light	Moderate	Heavy

Type of Inspection: Routine ☒ Special ☐

Persons/Equipment Present: Lindsey Carlson, Elkins Envision landfill gas analyzer, PID #1

General Description of Site Conditions: Wet due to last week's rainfall events, but generally in good condition

Specific Inspection Items	Potential Problem Areas	Status *	Notes
Perimeter Security Fencing	Broken or missing wood slats, torn chain link fabric.	1	Good condition; tree growth along fence may cause issues in future.
Entrance Gate and Locking Mechanism	Lock broken/missing, mechanism inoperative.	1	Vegetation in front of west gate; difficult to open door.
Monitoring Wells and Wellhead Covers	Signs of tampering, casing damaged, lock missing.	1	
Final Cover Vegetation	Bare spots, stressed vegetation, deep rooted vegetation.	2	Minor rutting, bare patch 5 feet square north of GV-18. Thick woody vegetaion surrounding GW-11 nest. Unused tarp and soil bags near MW-2S in poor condition.
Final Cover Slope (explain below)	Gullies, lack of vegetation, subsidence, ponding.	1	
Evidence of Burrowing Animals	Damage to final cover, evidence of waste.	1	
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 hight, any missed areas	1	

* (1) Acceptable - No Maintenance Required. (2) Not Acceptable - Identify Required Maintenance.

Summary of Deficiencies and/or Corrective Actions: Remove excess vegetation surrounding GW-11 wells. Remove tarp and soil bag material near MW-2S. See attached photos.

Signature of Inspector Lindsey E. Carlson Date 4/26/2019

Attachment C

Photograph Log

Stoughton City Landfill
Stoughton, WI
SCS Engineers Project #25219092.00

Operation and Maintenance Semi Annual Inspection Report
April 25, 2019

Photo 1: Unused soil bags and tarp in poor condition near MW-2S. Nearby woody vegetation.

Photo direction: West

Photo 2: Bare patch approximately 5 sq. ft. north of GV-18. Clipboard for scale.

Photo direction: West

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Photo 3: Tree encroachment may damage fence in future. Multiple instances of encroachment along north and west sections of fence.

Photo direction: South

Photo 4: Thick woody vegetation surrounding MW-11 nest.

Photo direction: Northeast

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Photo 5: MW-14I Repair

Photo 6: MW-15S Repair

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Photo 7: MW-15I Repair

Photo 8: MW-15D Repair

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Operation and Maintenance Semi Annual Inspection Report
April 25, 2019

Photo 9: MW-8S Repair