April 26, 2024

Brian L. Rath, P.E.
Environmental Engineer Senior
IDNR – Land Quality Bureau
Wallace State Office Building
502 E. 9th Street
Des Moines, Iowa 50319

HLW Engineering Group
Engineering Management

RE: SEMI-ANNUAL INSPECTION – SPRING, 2024
JACKSON COUNTY SANITARY LANDFILL
IDNR PERMIT #49-SDP-01-74C - CLOSED
HLW PN 6040-22A.751

Dear Mr. Rath:

In accordance with Special Provision X.6 of the SDP Closure Permit dated August 29, 1994, a semi-annual inspection of the Jackson County SLF was completed the afternoon of April 8, 2024. Frank Frieberg, Director of Operations, Waste Authority of Jackson County, was notified of the results of the inspection prior to submittal of the report to IDNR. Conditions at the time of the inspection were clear, windy, with temperatures in the 60's.

Status of the Permit

The Closure Permit was issued on August 29, 1994. The facility has received the following amendments to the Permit to date:

- Permit Amendment #1, December 16, 1994, removed the methane gas ventilation system maintenance requirements from the closure permit since the permittee decided not to install the gas ventilation system detailed on Sheet 3 of the Closure/Postclosure Plan.
- Permit Amendment #2, January 28, 1997, approved the installation of the Methane Collection System detailed in the January 17, 1997 submittal from Midwest Environmental Consulting (Doc # 51082). Replaced Special Provision X.11.
- Permit Amendment #3, May 27, 1988, modified the sampling requirements by approving the variance to IAC 267-103.2(4)b to measure site monitoring wells on a quarterly versus monthly basis.
- Permit Amendment #4, September 4, 1998, approved the as built plans of the modification of the "let down structure in the southerly landfill sideslope" (Doc #51079) and continued the "supplemental semiannual sampling and testing of MW-15 and SW-3 for both arsenic and benzene".
- Permit Amendment #5, June 8, 2000, revised the permit to discontinue the supplemental monitoring for Benzene at MW-15.
- Unnumbered Permit Amendments, February 28, 2001 and March 30, 2001, required the submittal of an Emergency Response and Remedial Action Plan (ERRAP). Also revised Permit Provisions regarding yard waste and the Annual Water Quality Report.
- Permit Amendment #6, October 26, 2001, deleted Special Provision X.13 of the Closure Permit.

- Permit Amendment #7, January 30, 2002, approved the Emergency Response and Remedial Action Plan dated December 28, 2001 submitted by Midwest Environmental Consulting (Doc #51067).
- Permit Amendment #8, January 25, 2005, modified the sampling requirements by approving the installation of 05MW-21 and requiring that 90MW-15 and 05MW-21 be sampled for EPA Appendix I during the Fall 2005 sampling event.
- Permit Amendment #9, March 7, 2006, modified numerous sampling requirements – replaced Special Provision X.5.
- Permit Amendment #10, February 16, 2012, modified numerous sampling requirements – replaced Special Provision X.5.d.
- Unnumbered Permit Amendment, May 22, 2013, eliminated the requirement to submit a Semiannual Water Quality Report.
- Permit Amendment #11, March 17, 2015, authorized temporary changes to the HMSP during calendar year 2015.
- Permit Amendment #12, January 19, 2016, authorized temporary changes to the HMSP during calendar year 2016 and required a review of total suspended solids (TSS) and turbidity testing. Sampling procedures have been modified to address this amendment, and a letter discussing TSS and field turbidity measurements was submitted to IDNR on November 16, 2016 (Doc #87796). IDNR accepted the TSS/field turbidity correlation in the letter on January 24, 2017.
- Permit Amendment #13, August 8, 2016, authorized the semi-annual monitoring of Gas Probes GP-1, GP-2, GP-3, GP-4 and GP-5 as a substitute for the quarterly ambient air monitoring. Note quarterly monitoring of on-site structures was still required by this Amendment.
- Permit Amendment #14, January 24, 2017, authorized temporary changes to the HMSP during calendar year 2017.
- Permit Amendment #15, January 8, 2018, authorized temporary changes to the HMSP during calendar year 2018.
- Permit Amendment #16, July 16, 2018, changed the explosive gas monitoring frequency of the on-site structure from quarterly to semi-annually.

Conformance with SDP Permit Special Provisions

SP#1 - The thirty-year post closure period began on August 29, 1994.

SP#2 - The closed landfill is being maintained in general accordance with the approved Closure/Post-Closure Plan.

SP #3 - The facility is closed. There are no waste disposal or related activities taking place.

SP #4 - The closure compliance documentation required by this Special Provision was submitted to IDNR on December 21, 1994 (Doc #51083).

SP #5 - The Spring semi-annual water sampling was conducted April 8, 2024, in accordance with the applicable Permit Amendments.

All monitoring wells viewed during the inspection were locked.

SP #6 - The Spring Semi-Annual inspection was completed on April 8, 2024.

SP #7 - Diversion and drainage systems are being maintained. Additional discussion on the condition of the cap is included in the "Additional Comments" section below.

SP #8 - The vegetative cover is being maintained. Additional discussion on the condition of the cap is included in the "Additional Comments" section below.

SP #9 - The integrity and effectiveness of the final cover system is being maintained. Additional discussion on the condition of the cap is included in the "Additional Comments" section below.

SP #10 - Methane gas monitoring is conducted semi-annually in accordance with the applicable Permit Amendments. Methane gas monitoring results will be included in the Annual Water Quality Report. It is noted that the frequency of gas monitoring at GP-3 is changed to quarterly in the IDNR Comment Letter dated April 1, 2024 (Doc# 109707).

SP #11 - Approved the installation of the methane gas ventilation system shown on Sheet 3 of the approved Closure/Postclosure Plan. Note this Special Provision was replaced in Permit Amendment #2 dated January 28, 1997.

SP #12 - Based on a risk assessment, the closed landfill does not require a leachate control plan.

SP #13 - Required the submittal of a "financial assurance plan, emergency response/remedial action plan, and a financial assurance instrument". The financial assurance requirements were deleted in Permit Amendment #6 dated October 26, 2001. An Emergency Response and Remedial Action Plan was submitted and approved in Permit Amendment #7 dated January 30, 2002.

Annual Water Quality Report

The 2023 Annual Water Quality Report (AWQR) was received by IDNR on November 28, 2023 (Doc #108284). IDNR comments on the 2023 AWQR were received on April 1, 2024 (Doc # 109707). A response is required prior to June 1, 2024.

Monitoring Well Maintenance Performance Reevaluation Plan

The most recent Monitoring Well Maintenance Performance Reevaluation Plan (MWMPRP) was submitted to IDNR for review on April 19, 2022 (Doc #102862). The report recommended no changes to the monitoring well system or the Hydrologic Monitoring System Plan. As per IDNR Regulations, the MWMPRP is required every 5 years.

Additional Comments

The IDNR Document DNA website was reviewed and found no recent site visits by IDNR Field Office #1. The last record HLW Engineering has of an IDNR Field Office #1 visit was on September 16, 2015. The inspection report stated that the facility was well maintained. Other comments in the report are addressed in this inspection report.

The site was mowed in October, 2023 and is in overall excellent condition. The gas extraction system along the east property boundary was operating during the inspection. Based on explosive gas monitoring results it appears the extraction system is limiting gas migration in this area.

The bare areas previously noted east of GP-1 were reseeded; however, the vegetation remains thin in the reseeded areas and it appears that the seeding was not effective. Other areas of sparse vegetation were also noted during the inspection – these areas are shown on the attached figure and will continue to be monitored during future inspections.

A small potential leachate seep was noted in the immediate vicinity of the rut repairs (120 feet northwest) of the storage shed during the Spring, 2022 inspection. This area was visited during this inspection and was again active.

Areas of surface water ponding were noted during the inspection following the previous night's rain. The vegetation on the cap appears relatively uniform and did not suggest differences in vegetation due to long term ponding in the identified areas (see attached map).

Explosive gas historically has been recorded in GP-3 and was again detected during the Spring, 2024 measurement event. Mr. Frieberg reported that bids have been received to retain a contractor to install a passive gas venting system in this area to limit potential gas migration to the north.

The riprap area at the location of the former leachate seep east of the maintenance building was reviewed. Liquid was noted ponded in the riprap. The riprap has appeared to work well to date in reducing wildlife damage to vegetation in this area. Note that deer have damaged a portion of the slope north of the riprap immediately adjacent to the riprap area at the approximate location shown on the attached figure. Slight flow was noted from this area to the rip-rap area below. The riprap area appears to contain this flow.

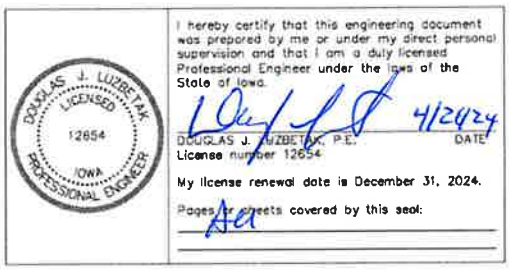
The small trees previously noted in the stabilized drainageway northeast of the maintenance building have been removed.

Based on observations during the inspection the facility appears to be in general conformance with the closure permit.

This report is based on observations made at the site at the time of the inspection and the information sources referenced in the report. This report does not reflect typical variations experienced at the site throughout the year or variations in conditions that may be observed at the site at other times.

Recommendations

1. Install passive gas venting south of GP-3 to limit potential gas migration to the north.
2. Continue to monitor the vegetation damage north of the riprap area for signs of leachate seepage.
3. Continue to monitor the area where the ruts were repaired for signs of leachate seepage.
4. Continue to monitor the riprap in the former seep area east of the maintenance building for evidence of leachate ponding or flow.
5. Continue to monitor the vegetation on the repaired areas east of GP-1. Add shallow vertical vents, topsoil, or soil amendments throughout the area to improve the vegetation as needed.
6. Continue to monitor vegetation and erosion and repair as needed.



cc: Frank Frieberg, Director of Operations, Waste Authority of Jackson County (electronic copy)

0 100 200 400
LIDAR CONTOUR DATE: 4-20-10

THIN VEGETATION
RIPRAP
SEEPAGE

MW-10
MW-9
GP-2
PROPERTY BOUNADRY
MW-19
GP-3
WASTE BOUNDRY
MW-18
H2O
860.0
PONDED WATER
(RAIN PREVIOUS NIGHT)
GP-4
MW-12
MW-11
MW-17
GP-1
MW-16
SEEP
SEEPAGE
MW-13
MW-20
GP-5
MW-15
MW-14
MW-21
184TH STREET

FIGURE: 1

REVISION	NO.	DATE
DRAWN JGH	PROJECT NO. 6040-23A	DATE 4/26/24

SITE PLAN
INSPECTION - SPRING 2024
JACKSON COUNTY SANITARY LANDFILL
MAQUOKETA, IOWA

HLW Engineering Group
204 West Broad Street, P.O. Box 314
Story City, Iowa 50248
Phone: (515) 733-4144
FAX: (515) 733-4146

HLW Engineering Group