Geo-Logic ASSOCIATES

August 13, 2024

Jacqueline M. Cooperider, P.E.
Permit Section Manager
Bureau of Land
Illinois Environmental Protection Agency
1021 North Grand Avenue East
Springfield, IL 62702

Re: 0978020002 – Lake County
Additional Information - Correction
Permit No. 1995-343-LFM, Log No. 2022-254

Dear Ms. Cooperider,

On behalf of Zion Landfill, Inc., Geo-Logic Associates (GLA) is submitting this additional information in response to the Draft Denial Letter received from the Illinois Environmental Protection Agency (IEPA) on April 12, 2024 regarding the permit application to expand Zion Landfill.

In our response to Draft Denial Comments dated July 17, 2024, we had indicated that air supply lines will be tested at 150 psi for 60 minutes. This response was erroneous. The air supply lines will be tested at 120 psi for 60 minutes, as 120 psi is the maximum allowable manufactured pressure for the tubing fittings. This testing pressure was approved is a previous permit modification (No. 156, approved July 21, 2022). Revised pages of the CQA Plan indicating the correct testing pressure have been provided as **Attachment 1.** It should be noted that no other changes have been made from the CQA plan submitted with our response dated July 17, 2024.

If you have any questions, please do not hesitate to contact me at (847) 942-6765. Meanwhile, we look forward to receipt of a development permit for the facility.

Sincerely,
Geo-Logic Associates

Martin N. Fallon
Operations Manager

Attachment 1

Revised CQA Plan

Pages 64 and 90

Geo-Logic ASSOCIATES

- ❑ Observations and measurements should be made to ensure that the pipes are the specified size, manufactured of the specified material, and that pipe perforations are sized and spaced as specified.
- ❑ All piping should be located as noted in the plans and specifications. Locations, grades, and size requirements are specified on the details of the plan set. Observations and surveying measurements should be made to insure the pipes are placed at the specified locations and grades, and the specified configuration. Observations should be made throughout the construction to ensure that backfilling is completed as specified in the plans and specifications and that, in the process, the pipe network is not damaged.
- ❑ Non-perforated pipe will be pressure tested: Landfill gas and gravity flow leachate pipes shall be pressure tested at 5 psi for 60 minutes; condensate pipe and forcemain pipes shall be pressure tested at 50 psi for 60 minutes; air supply lines shall be pressure tested at 120 psi for 60 minutes.

15.2.3 Damages

The COIA will examine each pipe after placement for damage. Damaged pipes or portions of pipes which have been rejected will be marked and removed from the installation area and documented by the COIA.

15.3 Post-Installation

Pipe inverts (or top of pipe elevations) and coordinate locations shall be surveyed at 50- foot intervals and at all tee connection locations. The maximum allowable tolerance for grade is 0.10 feet at each location. The minimum average slope shall be in accordance with the design drawings.

Table 13 Material Testing Methods and Frequency Summary				
Property	**Test Method**	**Minimum Testing Frequency**	**Typical Test per Lift**	**Specifications**
Hydraulic Conductivity	ASTM D2434	1 test per 5,000 yd^3	-	K ≥ $1x10^{-1}$ cm/sec
Thickness	Surveying	100' grid	-	≥ 1-foot normal to surface
HDPE/PVC Pipe				
Pipe Joints	Visual Inspection, ASTM D2657	Each joint	-	Intact, no cracks, no voids in bonding
Dimensions	-	Random measurements of diameters and hole spacing, and end sections of pipe and fittings	-	Design Specifications
Northing, Easting, and Elevation	Survey	Survey every 50' or at joints	-	Tolerance of 0.10 feet
Air Pressure Testing		Pneumatic piping Leachate forcemain carrier piping Leachate forcemain containment piping Non-perforated landfill gas piping		Pressurize to at least 120 psig for at least 1 hour – No greater than 5% drop Pressurize to at least 50 psig for at least 1 hour – No greater than 5% drop Pressurize to at least 50 psig for at least 1 hour – No greater than 5% drop Pressurize to at least 5 psig for at least 1 hour – No greater than 5% drop
Visual physical properties	-	Each lot	-	Equal to manufacturer's data
Washed Gravel Envelope/Backfill for Leachate Collection (Pipe Bedding)				
Grain Size Distribution	ASTM D6913	1 test per source per phase	NA	D_{100} < 2.5 in. D_{90} < 1.35 in.
Lift Thickness	Visual observation	1 observation every 100'	-	Design Specifications
Gravel Backfill for Landfill Gas Extraction Wells				
Grain Size Distribution	ASTM D6913/D7928	1 test per source per phase	NA	1.0 in. ≤ D ≤ 3.0 in.
Final Cover Barrier Soil (2')				
Soil Classification	D2487 (USCS)	1 test per 10,000 yd^3 or change in material type	1 test per 8 acres or per soil type	CH, CL, CL-ML, ML, SC, SM/SC
Standard or Modified Proctor	ASTM D 698 or D1557	1 test per 10,000 yd^3	1 test per 8 acres	Material Specific
Nuclear Density	ASTM D6938	1 test per 10,000 ft^2 per lift	1 test per 10,000 ft^2	≥ 90% Standard Proctor OR ≥ 85% Modified Proctor
Grain Size Distribution	ASTM D6913/D7928	1 test per 10,000 yd^3	1 test per 8 acres	≥ 50% below No. 200 sieve
Atterberg Limits	ASTM D 4318	1 test per 10,000 yd^3	1 test per 8 acres	PI >4 (or PI <4 if hydraulic conductivity is ≤ 1 x 10^{-5} cm/sec) LL >20%
Lift Thickness	Visual Observation	Continuous	NA	9-inch (loose) or thickness of compactor foot
Thickness	Topographic Survey	100' grid or major grade breaks	NA	≥ 24-inches normal to surface