COVER PAGE

Site Number:	**0978020001**
Site Name:	**Zion Site 1 Phase A Landfill**
Category:	**24D RCRA Permits Administrative Record**
Document Date:	**09/25/2025**
Permit ID:	
Permit Log:	**B-23R2**

Volume 2 of 7

THIS PAGE FOR IMAGING PURPOSES

CORRESPONDENCE

B-23R2 (AI)
cc: Des Plaines
R 000347

REPUBLIC SERVICES

Sustainability in Action

BFI Waste Systems of North America, LLC.
26W580 Schick Road
Hanover Park, IL 60133

Via Fed Ex
8821 8245 3352

June 20, 2025

Joshua L. Rhoades, P.G.
Manager, Permit Section
Illinois Environmental Protection Agency
Bureau of Land
2520 W. Iles Ave
Springfield, Illinois 62704

Subject: 0978020001 - Lake County
Zion Site 1 Phase A Landfill
ILD980700728
Log No. B-23R2
RCRA Permits Administrative Record - 24D
Addendum 2 – Additional Information
Responses to NOD

Dear Mr. Rhoades:

BFI Waste Systems of North America, LLC submits the attached Addendum No. 2, additional information regarding an application for renewal of the RCRA Post-Closure Permit for the Zion Site 1 Phase A Landfill (Log No. B-23R2). The addendum provides additional responses to a Notice of Deficiency letter received from the Illinois IEPA Bureau of Land on May 7, 2025.

If you have any questions concerning this submittal, please contact me at 224-970-1129 or JHitzeroth@republicservices.com.

Sincerely,
BFI Waste Systems of North America, LLC

James Hitzeroth
Environmental Manager

Attachments

Copy: Mike Stoeckigt, GFL Environmental
Eric Ballenger, Republic Services
Ed Doyle, Environmental Information Logistics, LLC
Mike Maxwell, Weaver Consultants Group

RECEIVED
JUN 23 2025
IEPA-BOL
PERMIT SECTION

ENVIRONMENTAL
INFORMATION
LOGISTICS, LLC
1323 Butterfield Road
Suite 104
Downers Grove, IL 60515
www.EILLLC.com

June 20, 2025

Jim Hitzeroth
Environmental Manager
BFI Waste Systems of North America, LLC
26W580 Schick Rd.
Hanover Park, IL 60133

Subject: 0978020001 - Lake County
Zion Site 1 Phase A Landfill
ILD980700728
Log No. B-23R2
RCRA Permits Administrative Record - 24D
Addendum 2 – Additional Information
Responses to NOD

Dear Jim,

This letter serves as Addendum 2 to the pending RCRA post-closure permit application (Log No. B-23R2). This addendum provides additional responses to the Notice of Deficiency (NOD) letter received from the Illinois IEPA Bureau of Land on May 7, 2025.

Specifically, Addendum 2 provides updated permit application forms. The table below lists each form and where it should be inserted into the pending permit application.

Form	Insert Location
RCRA Subtitle C Site Identification Form (EPA Form 8700-12)	Appendix A-1
RCRA Permit Application Form (LPC-PA23)	Appendix A-1
39(i) Certification for Operating a Waste Management Facility (Owner)	Appendix A-2
39(i) Certification for Operating a Waste Management Facility (Operator)	Appendix A-2

If you have any questions or need more information, please contact me at edoyle@EILLLC.com or 630-254-9388.

Sincerely,
Environmental Information Logistics, LLC

Ed Doyle, P.E.
Senior Engineer

Attachment
Attachment 1 Permit Application Forms

June 20, 2025
Zion Site 1 Phase A Landfill
Log No. B-23R2
RCRA Permits Administrative Record - 24D
Addendum No. 2 – Additional Information
Responses to NOD

Attachment 1
Permit Application Forms

RCRA Subtitle C Site Identification Form (EPA Form 8700-12)

RCRA Permit Application Form (LPC-PA23)

39(i) Certification for Operating a Waste Management Facility (Owner)

39(i) Certification for Operating a Waste Management Facility (Operator)

B-23R2 (AI)
R-000350
cc: Des Plaines

REPUBLIC SERVICES

Sustainability in Action

BFI Waste Systems of North America, LLC.
26W580 Schick Road
Hanover Park, IL 60133

Via Fed Ex
8818 3411 6144

June 6, 2025

Joshua L. Rhoades, P.G.
Manager, Permit Section
Illinois Environmental Protection Agency
Bureau of Land
2520 W. Iles Ave
Springfield, Illinois 62704

Subject: 0978020001 - Lake County
Zion Site 1 Phase A Landfill
ILD980700728
Log No. B-23R2
RCRA Permits Administrative Record - 24D
Responses to Permit NODs

Dear Mr. Rhoades:

BFI Waste Systems of North America, LLC submits the attached Addendum No. 1, additional information regarding an application for renewal of the RCRA Post-Closure Permit for the Zion Site 1 Phase A Landfill (Log No. B-23R2). The addendum responds to a Notice of Deficiency letter received from the Illinois IEPA Bureau of Land on May 7, 2025.

If you have any questions concerning this submittal, please contact me at 224-970-1129 or JHitzeroth@republicservices.com.

Sincerely,
BFI Waste Systems of North America, LLC

James Hitzeroth
Environmental Manager

Attachments

Copy: Mike Stoeckigt, GFL Environmental
Eric Ballenger, Republic Services
Ed Doyle, Environmental Information Logistics, LLC
Mike Maxwell, Weaver Consultants Group

RECEIVED
JUN 09 2025
IEPA-BOL
PERMIT SECTION

ENVIRONMENTAL
INFORMATION
LOGISTICS, LLC
1323 Butterfield Road
Suite 104
Downers Grove, IL 60515
www.EILLLC.com

June 06, 2025

Jim Hitzeroth
Environmental Manager
BFI Waste Systems of North America, LLC
26W580 Schick Rd.
Hanover Park, IL 60133

Subject: 0978020001 - Lake County
Zion Site 1 Phase A Landfill
ILD980700728
Log No. B-23R2
RCRA Permits Administrative Record - 24D
Responses to Permit NOD

Dear Jim,

This letter responds to a Notice of Deficiency (NOD) letter received from the Illinois IEPA Bureau of Land on May 7, 2025 regarding the application to renew the RCRA post closure permit for the Zion Site 1 Phase A Landfill (Site 1A) operated by BFI Waste Systems of North America, LLC (BFI). Each item from the letter is repeated below along with the corresponding additional information.

The NOD letter noted that the response must include a table that lists each comment in the NOD, the response, and the location in the application that was revised in response to the comment. Because the responses to some of the comments are lengthy, they are provided below in this letter. Attachment 1 of this letter is a table that lists each comment and which section(s) of the application was revised in response to the comment. The table also includes remove/replace instructions if revised portions of the application attachments are provided.

The revised text of the application is provided in Attachment 2, and a redline version of the revised text is provided in Attachment 3.

Schedule for Submittal of Additional Responses

BFI has made every effort to respond within the required 30-day time limit, however, responses for several items are not yet complete. As discussed with BOL staff, BFI has responded to the items that were BOL's highest priority, as well as a number of others. For the remaining items, BFI proposes to submit responses by August 8, 2025, approximately 90 days from the date of the NOD letter.

Responses to NOD Items

1. *General Comment*

   The renewal application must be updated to include information related to the following permit modification applications which were submitted after the submittal of the renewal application:

   a. *A permit modification application submitted to address a landfill gas exceedance reported at gas monitoring well GMP-2. This modification request was assigned Log No. Log B-23R-M-8 by the Illinois EPA and included the following submittals:*

      i. *Initial submittal, dated October 11, 2024;*

      ii. *Notification of Connection of Probe GMP2 to GCCS, dated October 16, 2024; and*

      iii. *Notification of Installation of Vacuum Curtain Wells, dated December 16, 2024.*

   b. *A permit modification application titled, "Leachate Forcemain Repair", dated December 16, 2024, submitted to address a replacement of a portion of the leachate forced main. This modification request was assigned Log No. B-23R-M-9 by the Illinois EPA.*

      Section E.5 and the drawings in Appendix E-13 of the application have been updated to include this information. The Appendix E-13 drawings are provided in Attachment 4.

Section A - Forms, Certifications, Confidentiality, and Public Involvement

2. *New Personnel*

   The Illinois EPA has become aware of new personnel associated with the owner or operator who can sign the permit application or who has control over operating decisions regarding the facility, such as a corporate officer or a delegated employee. Section A.1. and A.2. of the application must be updated to reflect these changes.

   Updated versions of USEPA Form 8700-23, Illinois EPA form PA23, and Illinois EPA form 39(i) have been prepared. They are provided in Attachment 5.

3. *Section A.1. RCRA Part A Application Form*

   a. *The Zion Site 1 Phase A Landfill is a co-disposal landfill that disposed of solid waste and hazardous waste. The RCRA Subtitle C Site Identification Form, Item 7, should be revised to include NAICS code 562211 (Hazardous waste disposal facilities) to identify the co-disposal of solid and hazardous waste at the landfill.*

The Site Identification Form has been updated.

b. *The United States Environmental Protection Agency (USPEA) Hazardous Waste Permit Part A Form located in Appendix A-1, Item 4, Other Environmental Permits, must be updated to identify the current environmental permits for the facility. The Illinois EPA Air Permit, Number 93080012, appears to have been withdrawn in 2011. The NPDES Permit Number is incorrect.*

See the response to Item 2.

Section B - Facility Description

4. *Section B.2.2. Facility+ 1,000 feet*

Figure B-3 is at a scale of 1 inch equal to 400 feet rather than 1 inch equal to not more than 200 feet. The figure also does not include the surrounding area 1,000 feet outside the facility's property line.

The topographic map must show the layout of the facility and the surrounding area a distance of 1,000 feet outside the facility's property line. This map must be at a scale of 1 inch equal to not more than 200 feet. Ground surface contours must be shown on the map; the contour interval must be sufficient to clearly show the pattern of surface water flow in the vicinity of and from each hazardous waste management unit at the facility (a two-foot interval should be used if the ground surface relief at the facility is less than 20 feet and a five-foot interval should be used if the relief is greater than 20 feet).

The map(s) should contain/identify the following:

Map Requirements: Facility + 1,000 feet	
Map Orientation {north arrow)	*Areas in the 100-year flood plain*
Map Date	*Flood control or drainage barriers*
Scale	*Run-on/run-off control systems*
Legal boundaries of the facility	*Fire control facilities*
Surrounding land uses	*A wind rose*
Access controls	*Hazardous waste management units*
Buildings and Structures	*Solid waste management units*
Storm drains	*Equipment required by Item D.2 below*
Sewers: storm, sanitary and process	*Surface waters including intermittent streams*
Any waste injection or groundwater withdrawal wells (both on-site and off- site)	

Multiple maps may be submitted to meet this requirement if necessary. If multiple maps are used, a discussion of how the various maps meet the above requirements must be provided. If the applicant determines that some of these requirements cannot be met or are not applicable, then sufficient information must be provided in the application to support this position. Finally, with appropriate supporting justification/discussion in the application, the applicant may vary from the above requirements if what is provided meets the general intent of these requirements.

The 35 IAC 703.183(s) regulation specifying the map requirements for Part B Permit Applications include the following BOARD NOTE: "For large HWM facilities, the Agency must allow the use of other scales on a case-by-case basis". The large size of the Zion Landfill warrants use of a scale of 1 inch = 400 ft. This is adequate to show key site features and has been approved by the Agency in multiple prior Part B Permit Applications for this facility.

Land contours for the area surrounding 1,000 feet outside the facility's property line are shown on Figure B-2. However, given the scale of this map extending one mile from the facility, a new map has been developed in response to this comment showing the topography within 1,000 feet from the facility. It has been designated Figure B-3A and is provided in Attachment 6. Also, a second new map, Figure B-4, showing water withdrawal wells in the area surrounding the landfill property, is provided in Attachment 6.

Multiple maps may be submitted to meet the above topographic map requirements. The following table lists the items cited above, along with a description of how the item is satisfied.

Map Requirements: Facility + 1,000 feet	
Item	Drawing Location
Map Orientation {north arrow)	Figure B-1 and B-3
Map Date	Figure B-1 and B-3
Scale	Figure B-1 and B-3
Legal boundaries of the facility	Appendix B-2
Surrounding land uses	Figure B-2
Access controls	Figure B-1 (fence shown as ----x----x----)
Buildings and Structures	
Storm drains	None
Sewers: storm, sanitary and process	None
Any waste injection or groundwater withdrawal wells (both on-site and off-site)	Figure B-4
Areas in the 100-year flood plain	Appendix B-4
Flood control or drainage barriers	None, as noted in Section B.2.2
Run-on/run-off control systems	Figure B-3
Fire control facilities	None

Map Requirements: Facility + 1,000 feet	
Item	Drawing Location
A wind rose	Appendix B-3
Hazardous waste management units	Figures B-1 and B-3
Solid waste management units	Figures B-1 and B-3
Equipment required by Item D.2 below	Figure in Appendix D-1
Surface waters including intermittent streams	Figure B-1, B-2, and B-3

5. *Section B.4. Operating Record*

   The location where the Operating Record is maintained at the facility, and the procedures used to record the required records must be provided in this section of the application. If details describing how the requirements of this section are met are provided in other sections of the application the locations of the required information must be provided in this section.

   According to 35 IAC 724.173, the operating record is to be kept at the facility and various information is to be recorded as it becomes available and maintained in this operating record for three years (unless otherwise provided in the above regulation). For this facility, BFI is the operator, but a separate independent entity, GFL Environmental Inc. (GFL) is owner of the Zion Landfill property and operator of Site 2. BFI does not own any buildings at the facility that are suited for storing Site 1A's operating record. Thus, it is not possible for BFI to maintain a physical operating record at the physical facility. As an alternative, the operating record is stored at the BFI office in Hanover Park, Illinois (less than 60 miles from the Zion Landfill). This office is where BFI personnel responsible for operation of Site 1A are based. Keeping the operating record here allows those personnel to access it as needed and to keep the records complete and current. BFI may also keep certain operating record items electronically to minimize paper usage and improve accessibility.

   The above information has been added to Section B.4.

Section C - Groundwater Monitoring

6. *Section C.6.1. Indicator Parameters, Waste Constituents, Reaction Products to be Monitored*

   This section must be revised to meet the requirements of 35 IAC 703.185(f)(1) and 35 IAC 724.198(a). The request to update the STORET number in the existing Permit for 1,2-dichloropropane to 34541 is not approved. The Permittee needs to provide additional information. The following items are required: 1) Provide data that shows the STORET number currently in use sampling Cyanide (total) and Cyanide (dissolved) at Site 1 Phase A Landfill; and 2) Provide confirmation that the analyses under STORET 31541 and STORET 34541 are the same.

1) Table C-2 has been revised to show separate STORET numbers for the dissolved and total species of the List G2 metals. The table is provided in Attachment 7.

2) Although dichloropropane (1,2) is included in Illinois EPA's master STORET list, it is a non-standard alternate name for 1,2-dichloropropane. We also note that 1,2-dichloropropane is included in the 35 IAC 620.410 list, however, dichloropropane (1,2) is not. We again request that STORET number 34541 (1,2-dichloropropane) replace 31541 (dichloropropane (1,2)).

7. *Section C.6.3. Groundwater Monitoring System*

This section must be revised to meet the requirements of 35 IAC 703.185(f)(2), 35 IAC 724.197(a) and (b), 35 IAC 724.198(b). The Groundwater Monitoring System requires that the applicant reference by location, boring logs and well completion reports. A table of wells must be submitted identifying the well ID numbers and measurements for the following in both feet Mean Sea Level (MSL) and feet below ground surface (ft. bgs): well depth, screen interval, ground surface, and stickup. The listed items are required for wells: Shallow wells (Wells GT02 and GT05), Background wells (Wells G121, R123, R136, and R127), and POC wells (Wells R124, R126, R128, C129, G131, G132, and R133).

A table of well information has been prepared. It is provided as Attachment 8.

8. *Section C.6.4. Description of Sampling and Analysis Procedures*

   a. *Revise Section C.6.4. The description of Sampling and Analysis Procedures states that, "groundwater purged from detection monitoring wells will be directed into the adjacent perimeter stormwater ditch and disposed of on the ground within the waste limits". The statement needs to be revised to include "Purged groundwater will be collected, containerized, and upon receipt of groundwater analysis, disposed of properly."*

   The facility has completed over 27 years of post-closure care groundwater monitoring (in addition to multiple years of groundwater monitoring performed prior to certification of post-closure in 1998). Groundwater monitoring data collected twice per year over the 27 years of post-closure care overseen by the Agency has not identified confirmed statistically significant concentrations of indicator parameters. Accordingly, implementation of a Detection Groundwater Monitoring system was proposed to continue in the May 2021 Permit Renewal Application.

   Given the extensive historical data documenting that no adverse groundwater impacts have occurred, returning purged groundwater to the ground surface as proposed (where it will infiltrate back into the monitored aquifer) creates no threat to human health or the environment. If confirmed statistical exceedances are identified in the future, a permit modification to begin a Compliance Groundwater Monitoring Program is required to be submitted and approved by the Agency. BFI acknowledges that containerization of purged groundwater would be appropriate if Compliance Monitoring is necessary. Accordingly, BFI agrees to modify the groundwater sampling procedure to

include containerizing purged groundwater as indicated in this comment if Compliance Groundwater Monitoring is implemented in the future.

b. *To meet the requirements of 35 IAC 620.510(b)(4), the sampling and analysis plan must be revised to propose a methodology for analyzing constituents which complies with the Lower Limit of Quantitation (LLOQ) instead of the Practical Quantitation Limit (PQL) and those values must be equal to or less than the groundwater standards of 35 IAC Part 620, Subpart D, effective March 28, 2025.*

The term Lower Limit of Quantitation (LLOQ) does not appear in the RCRA regulations pertaining to groundwater monitoring. The term practical quantitation limit (PQL) appears in 35 IAC 724.197(i)(5) and therefore was included in the May 2021 Permit Renewal Application. Because the term LLOQ does not appear in the RCRA groundwater monitoring regulations, it isn't clear that this term is applicable to the groundwater monitoring program being implemented at Site 1A.

Regardless of the regulatory applicability of the term LLOQ to the groundwater monitoring program at Zion Landfill Site 1 Phase, the analytical laboratory contracted to perform the analysis of groundwater samples at Site 1A has indicated that there's essentially no difference between the LLOQ as defined in the regulation listed above and the PQL as defined in the RCRA groundwater monitoring regulations. Therefore, the historical reporting limits utilized by the contracted analytical laboratory for groundwater analysis remain appropriate. The analytical laboratory will continue to report the groundwater data at a reporting limit at or below the applicable standard specified in both the May 2021 Permit Renewal Application and the existing effective permit. This value is the greater of the historical background value and the 35 IAC 620 Class 1 groundwater quality standard.

c. *Propose a timeline within the Permit application for sampling and development of new background values to be conducted which meets 35 IAC Part 620 for all new and existing parameters and their respective standards based on the revisions to 35 IAC Part 620, effective March 28, 2025.*

This item will be addressed in a future submittal.

Section D - Procedures to Prevent Hazards

9. *Section D.2.2. Internal Communications*

Personnel using cellular phones to communicate must have access to phone numbers to allow them to summon emergency assistance and communicate with other facility personnel. The application must describe how this will be accomplished. Non-employees who are not accompanied by facility personnel, such as contractors should be provided with an emergency facility contact (person and phone number). In addition, this information should be provided to

contractors as part of the contractor handout located in Appendix D-1 of the application.

The contractor handout in Appendix D-1 has been revised to include phone numbers for emergency contacts at the facility. The handout will also note that municipal emergency services can be reached via 911. The revised handout is provided in Attachment 9.

10. *Section D.2.3. External Communications*

See the comment on Section D.2.2 above.

11. *Section D.2.4. Emergency Response Equipment*

The location of first aid stations, eyewash, and showers should be identified on a facility map available to facility personnel and contractors. The map with this information should be provided as part of the contractor handout (Appendix D-1). Non-employees who are not accompanied by facility personnel, such as contractors should be provided with an emergency facility contact (person and phone number).

The application must describe the capabilities of the water supply tanks and water dispersion equipment.

The Contractor Handout in Appendix D-1 has been revised to include the phone number of emergency contacts at the facility. The map that is part of the Contractor Handout has been revised to show the location of first aid stations, eyewash and showers.

Water supply tanks and water dispersion equipment are addressed in the next item.

12. *Section D.2.5. Water for Fire Control*

The application does not provide information on the adequacy of the water retention basin to provide water to address concerns of the "hazards posed by waste handled at the facility" as required by 35 IAC 724.132(d). The application must include a discussion of:

a. *the amount and the adequacy of water present in the retention basin;*

35 IAC 724.132 requires that facilities must be equipped with certain emergency preparedness equipment "unless the owner or operator demonstrates to the Agency that none of the hazards posed by waste handled at the facility could require a particular kind of equipment specified below." Item d of 724.132 is "Water at adequate volume and pressure to supply water hose streams, or foam producing equipment, or automatic sprinklers or water spray systems."

The only waste handled at Site 1A is landfill leachate, which is aqueous and not flammable. All the waste in Site 1A is safely contained under the final

cover, thus, it is not susceptible to ignition from lightning strikes or other sparks from passing heavy equipment.

The gas collection system in Site 1 Phase 1 is carefully managed to prevent oxygen intrusion into the waste mass and without oxygen combustion cannot occur. If, in the very unlikely event that the waste did begin to combust, industry-best practice is to smother the combusting waste with soil, not apply water.

For these reasons, a supply of water for firefighting at Site 1A is not necessary and the application does not need to address the amount of water in the retention basin. The application has been updated accordingly.

b. *the capabilities and adequacy equipment used to deliver water in response to a fire at the landfill;*

See response to Item a above.

c. *any municipal fire department(s) that may respond to a fire;*

The Zion Fire Department responds to emergency services calls related to fires, injuries or hazardous material spills.

d. *the location of fire hydrants near or at the facility that may be used to as a source of water; and*

Fire hydrants are located along 9th Street, the road that is the southern boundary of the Zion Landfill facility.

e. *the adequacy of the available water supply and equipment to address hazards posed by waste handled at the facility.*

See response to Item a above regarding water supply. Regarding other equipment, the adjacent municipal solid waste landfill maintains heavy equipment and daily cover stockpiles that can be used to smother a waste fire. Equipment can also be procured from local rental firms. Fire extinguishers are located in buildings, in vehicles, and on heavy equipment.

13. *Section D.2.6. Personnel Protection Equipment*

The application must describe Personnel Protection Equipment (PPE) required for workers, including contractors, performing tasks that are expected to be regularly performed at the facility. This would include task such as collection of groundwater samples, gas monitoring, and maintenance of the cover.

Personal Protective Equipment required for workers and contractors varies depending on the task that they will perform. At a minimum, a high visibility shirt or vest and work boots with a safety toe are required. Other requirements could include hard hats, eye protection and gloves.

14. Section D.2.7. Testing & Maintenance of Emergency Equipment

The application must include a description of the testing and maintenance of emergency equipment identified in the application, including:

a. Equipment used to deliver water for fire control, mentioned in Section D.2.5 of the application.

Not applicable. See response to Item 12.

b. First aid kits, assure the kits are properly stocked and have not exceeded the kits expiration date.

Contractors are required to provide first aid kits for their employees and ensure that they are properly stocked and expiration dates are current.

c. Radios and cellphones used by contractors or employees should be checked prior to entering the site to ensure that they are operating, and cellular service is available.

This item is outdated. Contractors and employees use cell phones to communicate when at Site 1A; radios are no longer used. There has been strong cellular service at the facility for many years. Individuals use cell phones throughout each so they check them regularly to ensure they are operating.

d. PPE maintained on-site.

See response to Item 13.

15. Section D.2.7.1. Equipment Testing

The application states "the safety eye bath requires no periodic testing or maintenance." The application must provide documentation that the safety eye bath requires no periodic testing or maintenance.

35 IAC 724.133 requires maintenance of "communications or alarm systems, fire protection equipment, spill control equipment, and decontamination equipment, where required...", but does not require health and safety equipment to be tested or maintained. Text regarding eye bath maintenance has been deleted.

All equipment used to deliver water to a potential fire, discussed in Section 2.5 of the application, must be identified and a schedule for maintenance and testing of the equipment must be included in the application.

Not applicable. See response to Item 12.a.

16. Section D.2.7.2. Schedule

Schedules for inspection, maintenance and/or testing of equipment identified in Section D.2.7.1 and D.2.7.2 of the application must be provided.

The maintenance schedule for the on-site fire extinguishers is discussed in Section D.2.7.1.

17. Section D.3.1. Inspection Log

The Post-Closure Inspection Log Forms, located in Appendix D-2 of the application, must include the equipment and other items identified in Section D.2, and any other items added in response to deficiencies noted elsewhere in this NOD which are required to be inspected. The remainder of Sections D.3 must be updated to address any additional items added in response to this comment.

The only additional items required by 35 IAC 724.132 that are not currently on the inspection forms are fire extinguishers and communication equipment.

Regarding fire extinguishers, see the response to Item 15.

Communication equipment now consists exclusively of cell phones. Every employee and contractor that enters the site has one and, since they are used for more than communication, are checked daily for proper operation.

No changes to the inspection forms are proposed.

Section E – Post-Closure Requirements

18. Section E.3.1. Quality of Leachate in the Leachate Collection System

The proposed leachate sampling parameters do not meet the requirements of this section. The leachate sampling parameter list has been expanded since the permit was last renewed. The expanded list includes additional chemical constituents added in the March 28, 2025, update to 35 IAC Part 620.

The Permittee must revise the list in accordance with Section E.3.1, Items 1 and 2 below from the Illinois EPA's guidance document, Information Required in an Application for a RCRA Post-Closure Permit May 2021, and the March 28, 2025, update to 35 IAC Part 620:

a. The leachate needs to be analyzed for the parameters listed below, and the results of annual analyses conducted on representative samples of leachate must be provided in the permit application. This will give an indication of the potential contaminants in a subsurface release from the unit to the groundwater. The leachate needs to be analyzed for:

i. Those constituents for which a public or food processing water supply standard has been established in 35 IAC Part 302;

ii. Those constituents for which a groundwater quality standard has been established in 35 IAC Part 620, including but not limited to the following constituents for which groundwater quality standards were established in the March 28, 2025, updates to 35 IAC Part 620:
1) HFPO-DA (hexafluoropropyleneoxide dimer acid GenX);
2) PFBS (perfluorobutanesulfonic acid);

3) PFHxS (perfluorohexanesulfonic acid);
4) PFNA (perfluorononanoic acid);
5) PFOA (perfluorooctanoic acid); and
6) PFOS (perfluorooctanesulfonic acid).;

iii. The 51 organic chemicals in drinking water described in 40 CFR 141.40.

iv. Any other contaminants expected to be present in the leachate, based on the characteristics of the waste and materials present in the unit.

This item will be addressed in a future submittal.

b. *If the list of analytes has been reduced, provide an analysis for all constituents listed in Section E.3.1.1 each time the post-closure permit is renewed. Compare the reduced list to the full list. If no new parameters are detected, the application can propose to resume analyzing leachate for the previously approved reduced list. If any new parameters are detected, they must be added to the reduced list and the list of groundwater monitoring parameters.*

This item will be addressed in a future submittal.

c. *Describe the procedures used to collect, handle, and analyze the leachate samples discussed above. All such efforts must be carried out in accordance with procedures approved/established by Illinois EPA or USEPA. To meet the requirements of 35 IAC 620.510(b)(4), the leachate sampling and analysis plan must be revised to propose a methodology for analyzing constituents which complies with the Lower Limit of Quantitation (LLOQ) instead of the Practical Quantitation Limit (PQL) and those values must be equal to or less than the groundwater standards of 35 IAC Part 620, Subpart D, effective March 28, 2025.*

Despite the applicable RCRA regulations not explicitly requiring ongoing collection and analysis of leachate samples, BFI has proposed to continue monitoring leachate, as has been done for the 27 years of the post-closure care period completed to date. The procedures used to collect, handle, and analyze the leachate samples are presented in Section E.3.1 of the Permit Renewal Application. While it is acknowledged that specialized, more detailed procedures would be applicable if the PFAS/PFOA compounds listed in NOD Comment 18.a.ii were to be analyzed (due to the ubiquitous nature of these compounds in everyday products creating cross-contamination concerns), there is no need for these specialized procedures because there is no regulatory or technical basis for sampling for these compounds at this facility at this time. In fact, the cross-contamination concerns with these compounds make them an unreliable indicator of impacts from the closed landfill. Other constituents that are more common in waste and are more detectable that are already included in the list of groundwater indicator parameters will provide a more reliable indication of potential impacts from the closed landfill, as required by the RCRA groundwater monitoring regulations.

The Lower Limit of Quantitation (LLOQ) is not a term that currently appears in the above RCRA regulations. The term Practical Quantitation Limit (PQL) appears in 35 IAC 724.197(i)(5), but this regulation pertains to groundwater monitoring. There are no RCRA regulations that explicitly require ongoing leachate monitoring at this facility, thus neither term appears in RCRA regulations pertaining to leachate monitoring. Moreover, the 35 IAC 620 regulations that use the term LLOQ pertain to groundwater, not leachate. There is no regulatory obligation to compare leachate concentrations to groundwater quality standards. Due to the nature of the leachate matrix, it is common for laboratories to dilute samples to attain the quality assurance/quality control (QA/QC) requirements mandated by the standard analytical methods. Accordingly, it is possible that some leachate constituents may not be reported to a groundwater LLOQ or PQL that would allow for comparing leachate concentrations to the 35 IAC 620 groundwater quality standards. However, there is no practical implication resulting from this, as the purpose of leachate monitoring is only to assist in the establishment of groundwater monitoring parameters.

Nevertheless, in response to the Agency's comment, the contracted analytical laboratory was consulted about the definitions of LLOQ and PQL, as defined in the 35 IAC 620 and 35 IAC 724 regulations. They indicated that there is essentially no difference between the LLOQ and PQL, as defined in the applicable regulations. Therefore, the historical reporting limits utilized by the contracted laboratory for leachate analysis will be sufficient for purposes of a periodic screen of the leachate to confirm that the groundwater monitoring parameters remain appropriate, after 27 years of leachate data have already been collected.

19. *Section E.3.5. Summary of Leachate Management Program Conducted to Date*

The application should discuss the efficacy of the existing leachate management program or identify deficiencies which must be addressed to ensure leachate is adequately managed in the landfill.

The existing leachate management system, most of which has been in-place since closure in 1998, continues to operate as designed. The technical details pertaining to the existing leachate management system are presented in Section E.3.4, Section E.3.5, and the various referenced attachments to the May 2021 Permit Renewal Application. No substantial issues/failures of the leachate management system have been identified since the prior Permit Renewal Application was approved in 2011. Leachate continues to be collected, routed to the temporary accumulation tank, and regularly removed from the facility for off-site disposal.

While the above qualitative information related to the leachate management system is useful for assessing efficacy, additional evidence of the continued viability of the leachate management system can be found in the extensive quantitative data collected from the facility's groundwater monitoring program. Groundwater data collected from the beginning of the post-closure care period in 1998 to present documents that there has been no adverse impact to groundwater from the closed landfill, including impacts from landfill leachate.

Based upon the above extensive quantity of both qualitative and quantitative data collected during the over 27 years of post-closure care conducted to date, there is no need for modification of the existing leachate management system. Accordingly, the May 2021 Permit Renewal Application proposed no changes to the leachate management system.

20. *Section E.5. Operation of the Gas Monitoring/Collection System*

Section E.5. of the application must be updated to address modifications to the Gas Monitoring / Collection System described in permit modification applications identified in Item 1 of this NOD.

The modifications identified in Item 1 have been added to Section E.5.

21. *Section E.5.3. Landfill Gas Disposal/Processing System*

Sections E.5.3. and E.5.4. of the application must be updated to reflect the current landfill gas disposal/processing system, including the replacement of the gas-to-energy plant with a system to process landfill gas to provide pipeline quality gas for commercial use.

These sections have been updated to note that the gas-to-energy plant has been decommissioned. All gas collected from Site 1A as well as the other units is flared. The facility's air permits have been updated to reflect this. A revised Drawing A-14 is provided in Attachment 10.

22. *Section E.5.4. Summary of the Landfill Gas Collection/ Monitoring/ Processing Systems*

a. *See comments above for Sections E.5 and E.5.3. of the application.*

Noted.

b. *The application must include the following:*

i. *The procedures followed to document/record information associated with the operation of the landfill gas collection, monitoring, and processing systems in the operating record is not provided.*

See the response to Item 34.

ii. *A summary of the operation of the landfill gas collection, monitoring, and processing systems during the past ten years is not provided.*

The gas collection, monitoring and processing systems have been operated in compliance with the facility's permits and applicable regulations. Summaries of operations are provided in the annual reports that are submitted each year to the Agency.

23. Section E.6. Post-Closure Inspection Plan

This section of the application (E.6) refers to Section D.3 Inspection Requirements to meet the requirement of this section. Deficiencies identified in Section D.3 apply to the subsections below. Only additional deficiencies specific to the requirements of this section are identified below.

Noted.

24. Section E.6.1.3. Inspection Frequency

The inspection frequency identified in Section D.3.1.1, Section D.3.1.3 and this section (E.6.1.1) must be revised to include inspections to be completed within 24 hours of any rainfall event of two or more inches in 24 hours to detect evidence of any of deterioration, malfunctions, or improper operation of run-on and run off system. The application must state that appropriate corrective action must be taken if problems, including erosion, blockage of the channels, slope failure, etc. are observed.

There is no regulatory requirement to support this request. 35 IAC 724.410.b.1. requires BFI to, "Maintain the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, or other events." The cover has been maintained in accordance with this requirement since the final cover was completed in 1998.

A vegetative cover was established as the final stage of construction of the final cover and there has been minimal disturbance of it since then. The vegetative cover is well established and thriving. Over the 27 years that the cover has been in place, erosion due to rainfall has been negligible. Also, the landfill is subject to an NPDES permit which requires periodic inspections of the cover and monitoring surface water discharges from the facility.

There have been numerous 2-inch-plus rain events since the cover was established and those events did not cause significant erosion. Given the performance history of the final cover and the fact that inspections are already required under the NPDES permit, the proposed inspection requirement is duplicative and unnecessary.

25. Section E.7.1. Facility Controls

The application must state the benchmarks present at or near the closed Site 1 Phase A Landfill that are utilized to identify the location of the disposal unit will be surveyed once every five years. Any other solid waste management units and units/areas covered by an established institutional control must also be surveyed at least once every five years.

Section E.7.1 of the application has been revised to note that Site 1A benchmarks used for Site 1A will be surveyed once every five years.

26. Section E.7.2. Surveys and Corrective Action

The application must identify the units at the facility that will be surveyed every five years. This includes the Site 1 Phase A Landfill as a unit subject to post-closure requirements per 35 IAC 724.210(b).

There is no regulatory requirement to survey this landfill every five years, nor is there a technical basis for it. Since the landfill is closed, there is no possibility of waste being placed beyond the permitted limit of waste, nor is there any possibility of horizontal movement of the existing limit of waste. Settlement of the waste in addressed in the response to Item 27.b.

27. Section E.7.2.1. Provide the following for the units identified item E.7.2:

The application must be revised to include:

a. *A copy of the survey for the closed Site 1 Phase A Landfill generated every five years since the unit was closed that shows the horizontal and vertical extent of the unit, drainage control structures, leachate collection wells, and groundwater monitoring wells.*

   Surveys of the landfill have not been performed every five years since the unit was closed because there is no regulatory requirement to do so and because BFI has not observed any conditions that would warrant an updated topographic survey. However, an as-built drawing of the unit has been updated regularly as repairs and modifications have been made to the gas collection and leachate management systems. These drawings are provided in Appendix E-13.

b. *Scale drawing(s) (1 inch= 200ft) and cross sections that identify those areas of the cover system or engineered barrier that have changed 1 foot or more in elevation since the unit was closed.*

   The landfill's final cover system is designed to accommodate general settlement of the waste mass that is caused by decomposition and consolidation of the waste. It is also designed to accommodate differential settlement of relatively localized areas that can occur due to random, uneven settlement which is common in landfills.

   Therefore, there is no technical basis for tracking whether areas of the final cover have settled more than one foot since the unit was closed. Moreover, there is no regulatory basis for this request. It is a certainty that the entire unit has settled more than one foot since the unit was closed; the waste continues to decompose and settlement continues to occur.

   When routine inspections of the landfill are performed, the inspectors look for areas of differential settlement that are significant enough to potentially impact the integrity of the final cover or the gas and leachate piping within the cover. This inspection and evaluation process is sufficient to ensure that the final cover continues to perform as designed. This differential settlement

would typically be in the range of at least three feet over a distance of 50 feet or less.

The current inspection program has been effective for the 27 years of post-closure care to date. BFI proposes to continue the inspection program without changes.

c. *If corrective action was required in response to a release, damage to the cover system, settlement, erosion, stressed vegetation, or damage to a leachate well, groundwater monitoring well, or benchmark since post-closure care began, identify the date and location of the corrective action on the scale drawings required above. Also, provide copies of the inspection and repair logs that include the date each incident was discovered, a description of the incident and corrective action taken, and the date corrective action was completed.*

There have been no releases or incidents of damage to the cover system, settlement, erosion, stressed vegetation, or damage to a leachate well, groundwater monitoring well, or benchmark since at least 2019. Quarterly inspection reports and monthly repair logs are included in the annual reports that are submitted each year to the Agency.

d. *If corrective action occurred in the same general area two or more times since post- closure began, discuss the actions the permittee has implemented to prevent this from happening again.*

There have been no significant corrective actions in the same general area since at least 2019.

28. *Section E.7.3. Leachate Collection System*

The application must describe how information about the leachate collection system for the closed Site 1 Phase A Landfill is monitored, evaluated, and recorded.

Section E.7.3.1 through E.7.3.3 provide the required information.

29. *Section E.7.3.1. Leachate Quality*

The application must discuss if the concentrations of the constituents in the leachate have changed during the post-closure period and any actions taken in response. This discussion must include:

Leachate quality of every landfill varies somewhat with time, including the leachate quality of this unit. This is expected and no actions are taken in response, nor do any actions need to be taken.

a. *Summary of Sample Results: Provide a summary table of the leachate sampling results for Site 1 Phase A Landfill since post-closure began. Identify the concentration for each parameter detected in each sampling event.*

Leachate quality data has been submitted to Illinois EPA throughout the operating life and post-closure of Site 1A.

b. *Parameter Comparison: Indicate if any of the leachate analyses detected a parameter for which the groundwater is/was not being analyzed and the actions taken if this occurred.*

This item will be addressed in a future submittal.

30. *Section E.7.3.2. Leachate Quantity*

a. *The application must provide a record of the amount of liquid removed from the leachate collection sump (in gallons) at least monthly after closure of the Site 1 Phase A Landfill. The following information regarding leachate generation rates needs to be provided both in table form and graphically:*

i. *Monthly for each year for each sump since the unit was closed*

ii. *Annually for each sump since the unit was closed*

iii. *Annually for each unit since the unit was closed*

b. *If the leachate generation rates are not trending downward during the post closure period, discuss why this is not happening. Provide information regarding precipitation rates during the post-closure period, as well as groundwater elevations relative to the leachate extraction wells within the landfill.*

Leachate quantity data has been submitted in the facility's annual reports, in compliance with the facility's permit and the applicable regulations. BFI is not aware of any regulatory requirement to provide more than what has already been submitted.

31. *Section E.7.3.3. Leachate Reporting*

The application must describe the procedures followed to electronically report the quality and quantity of leachate generated at the facility to the Illinois EPA.

Data from the annual leachate quality sampling is submitted electronically. Per condition III.H.8, leachate quantity data is submitted as part of the facility's annual report.

32. *Section E.7.6.1. Gas Quality*

The application must include a discussion of how the parameters (methane, pressure, oxygen; and carbon dioxide) in the gas system have changed during the post-closure period and any actions taken in response to those changes.

a. *Summary of Sample Results: Provide a summary table of the gas sampling results for each unit since post closure began for that unit. Identify the concentration for each parameter detected in each sampling event.*

b. *Parameter Comparison: Describe the parameter thresholds used to adjust the gas collection system to improve overall efficiency of the system. Describe any major gas system upgrades/ overhauls since post-closure began.*

Performance of Site 1A's gas collection system is regulated under Zion Landfill's air permit. BFI is not aware of any regulatory requirement under the facility's RCRA post-closure permit to provide gas quality data or typical operating procedures.

33. *Section E.7.6.2. Gas Quantity*

a. *The application must include a record of the amount of gas removed from each unit at least monthly following closure. The following information regarding gas generation rates needs to be provided both in table form and graphically:*

i. *Monthly for each year for each unit since the unit was closed; and*

ii. *Annually for each unit since the unit was closed*

b. *If the gas generation rates are not trending downward during the post-closure period, discuss why this is not happening.*

See response to Item 32.

34. *Section E.7.6.3. Summary of Results from the Gas Collection / Monitoring System*

a. *The application must describe the procedures followed to document/record information associated with the operation of the landfill gas collection, monitoring, and processing systems in the operating record.*

Data from the gas collection system and gas monitoring probes is compiled soon after it is prepared. After it is reviewed by site personnel, it is placed in the operating record.

b. *Summarize the operation of the landfill gas collection, monitoring, and processing systems since the unit was closed. Describe any adjustments to the design or operation of the systems since the unit was closed.*

As noted in the response to Item 5, 35 IAC 724.173 requires facilities to maintain three years of data in the operating record. There have been no major upgrades of the gas system in the last three years. However, a minor upgrade was completed in 2024 when several small-diameter out-of-waste gas wells were installed on the west side of Site 1A. These were installed in response to an exceedance of methane in gas monitoring probe GMP-2R. They are described in Section E.5.

35. Section E.8.1. Procedures, Equipment & Materials:

A list of the items to be maintained and inspected is provided in the application; however, it does not describe the preventive and corrective maintenance procedures, equipment and materials required to provide adequate post-closure care of the landfill. Include the following items in the maintenance plan, as applicable:

a. Repair of security control devices;
b. Erosion damage repair;
c. Correction of settlement, subsidence and displacement;
d. Mowing, fertilization and other vegetative cover maintenance;
e. Repair of run-on and run-off control structures;
f. Maintenance of any leachate removal system(s) including the flushing of the LCS;
g. Maintenance of the gas monitoring/extraction system;
h. Replacement of groundwater monitoring wells; and
i. Surveyed benchmarks.

The procedures, equipment and materials needed to maintain the landfill are generally the same as those used to construct the listed systems and structures, and should be self-evident. That is, to repair erosion damage, soil, grass seed and erosion mat are necessary along with the equipment to install those materials. To repair groundwater wells, PVC pipe, well screen, sand and bentonite are required. An exhaustive list of all the items required to maintain this landfill would be multiple pages long and is not necessary when the operator's personnel and their vendors are experienced with the needed materials and procedures.

36. Section E.8.2. Rationale

The application must provide the rationale which will be used to determine the need for corrective maintenance activities for each of the items mentioned for Section E.8.1 above.

BFI is not aware of any regulatory requirement to provide rationale for determining post-closure maintenance activities. BFI has consistently met the performance standards 35 IAC 724.410.b., which are:

1. Maintain the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, or other events;
2. Continue to operate the leachate collection and removal system until leachate is no longer detected;
3. Maintain and monitor the LDS in accordance with Sections 724.401(c)(3)(D) and (c)(4) and 724.403(c), and comply with all other applicable LDS requirements of this Part;

4. Maintain and monitor the groundwater monitoring system and comply with all other applicable requirements of Subpart F;
5. Prevent run-on and run-off from eroding or otherwise damaging the final cover; and
6. Protect and maintain surveyed benchmarks used in complying with Section 724.409.

37. Section E.8.3. Frequency

The application must provide the frequency for maintaining each of the items mentioned for Section E.8.1 above if it is known. This needs to include, but not be limited to:

a. The frequency for mowing, fertilization and other vegetative cover maintenance, and

b. Annual maintenance / cleaning of pumps used in the LCS, and gas collection systems.

c. The manufacturer's recommended replacement rate for the pumps used in the LCS, or gas collection systems.

d. High pressure jet flushing of the LCS collection pipes and sumps every 5 years.

e. Procedures and scheduling of non-routine maintenance and change-out of equipment.

Inspection frequency and general repair guidelines are provided in Section D.3.1. Regarding high pressure jet flushing of the LCS collection system, BFI's experience has shown that routine jetting of piping at Site 1A is not necessary. Historically, it has been used only occasionally over the 27 years of post-closure.

Regarding scheduling of non-routine maintenance, by definition, non-routine maintenance is not scheduled.

38. Section E.11. Post-Closure Cost Estimate

The post-closure cost estimate must be revised to address the following to meet the requirements of 35 IAC 703.183(p), 35 IAC 724.244:

a. All costs must be updated to reflect the current costs in 2025 dollars. Contact Daniel Britton by email at Daniel.Britton@illinois.gov or 217/524-3497 for inflation factors.

The post-closure cost estimate presented in the May 2021 Permit Renewal Application (Table E-3) has been updated to reflect current 2025 costs. The revised estimate is provided in Attachment 11.

Some line items have been adjusted using the annual inflation factors provided by Illinois EPA for the years since the application was submitted. The inflation factors are included at the top of the table. The unit costs have been increased each year since 2021 by the annual inflation factor and the 2025 extended cost has been calculated by multiplying the unit quantity by the 2025 adjusted unit cost.

Line items in the post-closure cost estimate pertaining to groundwater and leachate monitoring have been updated to reflect 2025 costs based on information from independent third-party contractors, as specifically requested below in Item 38.c.

b. *The cost-estimate must be updated to address additional cost to be incurred to address comments/deficiencies identified in this NOD. These include:*

   i. *revisions to the gas extraction and monitoring system;*

   ii. *revisions to leachate extraction and monitoring system;*

   iii. *revisions to groundwater monitoring system;*

   iv. *revisions to inspection and maintenance procedures; and*

   v. *any other revisions impacting cost associated with post-closure care.*

   A new line item has been added to the post-closure cost estimate as Line 1a to reflect regular inspections of the vacuum curtain wells installed to address an exceedance at a gas monitoring probe (see Item 1). Based on the permittee's response to the above NOD comments, no further revision to the post-closure care cost estimate is necessary at this time.

c. *Costs related to groundwater monitoring identified in Section C of the application must be updated to reflect the most current costs and inflation rates. Additionally, third party costs for groundwater monitoring requirements and separate laboratory analysis (2nd quarter and 4th quarter) estimates from First Environmental Laboratories must be submitted.*

   The current 2025 costs for groundwater and leachate monitoring included in the revised Table E-3 are based on quotes from independent third-party contractors attained in 2025. These line items are noted on the table with the notation "Current (2025) Costs Utilized" in the columns that were adjusted for inflation based on the annual inflation factor for other line items. Copies of the documentation from the third-party contractor implementing the groundwater monitoring and laboratory analysis services are also provided in Attachment 12.

Additional Modifications to the Application

1. Leachate Sampling Locations. There is a typographical error in Section E.3.1 of the application. One of the four leachate sampling points listed is incorrect as noted below:

Listed in Application	Corrected List
EW-2, EW-6, EW-20, EW-**23**	EW-2, EW-6, EW-20, EW-**24**

2. Minor Improvement Notification and Approval Procedures. The 2009 permit renewal application proposed language to allow implementation of certain minor enhancements, replacements or repairs to the landfill without the need for prior formal Illinois EPA review and approval through the standard permit modification process. The types of repairs were differentiated into three categories which were developed following verbal discussions with Illinois EPA personnel in 2009 and subsequently approved in permit B-23R issued in 2011.

   This approach has been implemented successfully and has helped to streamline the permitting process while maintaining compliance. This language was not included in the 2021 permit renewal application, however, they are being proposed again via this addendum.

   The following language is proposed to be added in Section D.3.

   D.3.4 Notification Requirements for Repairs

   To expedite the implementation of minor improvements, replacements and repairs to the landfill and to streamline the permitting process, the following notification and approval process is proposed. This language was included in the 2009 permit renewal application and was approved.

   Category 1 – Automatic Implementation With Subsequent Notice To Illinois EPA

   The first category of activities will be implemented automatically without prior notification to Illinois EPA. This category will include adjustments to the number or location of leachate extraction pumps. It could include repositioning pumps either horizontally to different leachate extraction points or vertically within the same extraction point. For the activity to qualify in this category, the number of pumps must either remain constant or increase. If the number of pumps is to be reduced, then the Category 3 procedures would apply.

   A letter or report documenting the revisions made will be provided to the Illinois EPA within 60 days of the implementation of the revisions and also inserted in the operating record.

   Category 2 – Automatic Implementation After Providing Notice to Illinois EPA

   This category includes activities intended to maintain or enhance the leachate and/or gas piping to increase the removal efficiency. It might include the installation of new forcemain or other piping. These types of activities will be implemented after providing Illinois EPA with typically seven days advance notice in writing. This notice will describe the general nature of the intended activities. If the new forcemain or other piping will result in a reduction in leachate and/or gas removal, it will be subject to the Category 3 procedures.

   A construction quality assurance (CQA) Report will be provided to the Illinois EPA within 90 days after the completion of the construction in the field. The

CQA Report will be required to include such information as details concerning the lines that were replaced, including material, size of piping, depth, backfill material.

The CQA Report will also be signed and stamped by a professional engineer licensed in the state of Illinois.

Category 3 – Illinois EPA Approval Needed Through Standard Permit Modification Before Proceeding

All other activities not falling into Category 1 or 2 above will require the permittee to follow the standard permit modification procedures, including the temporary authorization process. The proposed revisions will need to be reviewed and approved by the Illinois EPA prior to implementation.

3. Remove Contingency Plan. Permit B-23R-M-10, issued June 2, 2025, approved removal of the Contingency Plan from the post-closure permit. Therefore, the Contingency Plan should removed from Appendix E-15. A revised cover page for Appendix E-15, noting that the appendix is reserved, is included with the updated application text in Attachment 2.

4. Remove Figure E-1. Figure E-1 shows the gas and leachate collection system, however, it is redundant with gas and leachate collection system drawing in Appendix E-13.

5. Revised Gas Monitoring Plan. The gas monitoring plan in Appendix E-20 of the application will be updated to incorporate the removal of monitoring probe GMP-2 and the addition of GMP-2R. Other minor updates will also be incorporated. The revised plan will be submitted at a later date.

If you have any questions concerning this submittal, please contact me at edoyle@EILLLC.com or 630-254-9388.

Sincerely,
Environmental Information Logistics, LLC

Ed Doyle, P.E.
Senior Engineer

Attachments

Attachment 1	Table of NOD Items and Location in Application of Revised Information
Attachment 2	Revised Application Text
Attachment 3	Revised Application Text (Redline)
Attachment 4	Revised Gas/Leachate System Drawing
Attachment 5	Revised Forms 8700-23, PA23 and 39(i)
Attachment 6	Drawings B-3A and B-4
Attachment 7	Revised Table C-2 – Groundwater Monitoring Parameter List
Attachment 8	Table of Groundwater Well Survey and Depth Information

Attachment 9	Revised Sample Contractor Handout
Attachment 10	Revised Drawing A-14
Attachment 11	Revised Post-Closure Cost Estimate
Attachment 12	Post-Closure Cost Documentation – Groundwater Sampling and Analysis

June 06, 2025
Zion Site 1 Phase A Landfill
Addendum No. 1 to Log B-23R2
Response to NOD

Attachment 1
Table of NOD Items and Location in Application of Revised Information

Location in Application of Responses to NOD Items and Schedule of Submittal

Item	Revised Section of Application	Who	Status	Who	Status	Submittal Date	Remove / Replace Instructions
General Comment The renewal application must be updated to include information related to the following permit modification applications which were submitted after the submittal of the renewal application: a. A permit modification application submitted to address a landfill gas exceedance reported at gas monitoring well GMP-2. This modification request was assigned Log No. Log B-23R-M-8 by the Illinois EPA and included the following submittals: i. Initial submittal, dated October 11, 2024; ii. Notification of Connection of Probe GMP2 to GCCS, dated October 16, 2024; and iii. Notification of Installation of Vacuum Curtain Wells, dated December 16, 2024. b. A permit modification application titled, "Leachate Forcemain Repair", dated December 16, 2024, submitted to address a replacement of a portion of the leachate forced main. This modification request was assigned Log No.: Log B-23R-M-9 by the Illinois EPA.	Section E-5 Drawings in App. E-13	Text - WCG Drawings - EIL	Done	EIL	Done	6/6	Remove / replace application text. Replace drawings in Appendix E-13 with drawing in Attachment 6.
Section A--Forms, Certifications, Confidentiality, and Public Involvement	---	---	---	---	---		---
2. The Illinois EPA has become aware of new personnel associated with the owner or operator who can sign the permit application or who has control over operating decisions regarding the facility, such as a corporate officer or a delegated employee. Section A.1. and A.2. of the application must be updated to reflect these changes.	---	WCG	In progress	EIL	Done	---	---
3. Section A.1. RCRA Part A Application Form	---	---	---	---	---		---
a. The Zion Site 1 Phase A Landfill is a co-disposal landfill that disposed of solid waste and hazardous waste. The RCRA Subtitle C Site Identification Form, Item 7, should be revised to include NAICS code 562211 (Hazardous waste disposal facilities) to identify the co-disposal of solid and hazardous waste at the landfill.	Appendix A-1	WCG	In progress	EIL	Done	6/6	Remove forms in Appendices A-1, A-2 and A-3 and replace with revised forms in Attachment 5
b. The United States Environmental Protection Agency (USPEA) Hazardous Waste Permit Part A Form located in Appendix A-1, Item 4, Other Environmental Permits, must be updated to identify the current environmental permits for the facility. The Illinois EPA Air Permit, Number 93080012, appears to have been withdrawn in 2011. The NPDES Permit Number is incorrect.	Appendix A-1	WCG	In progress	EIL	Done	6/6	Updated forms listed above should be inserted in Appendix A in place of previoulsy submitted forms.
Section B--Facility Description	---	---	---	---	---		---
4. Section B.2.2. Facility+ 1,000 feet Figure B-3 is at a scale of 1 inch equal to 400 feet rather than 1 inch equal to not more than 200 feet. The figure also does not include the surrounding area 1,000 feet outside the facility's property line. A topographic map must show the layout of the facility and the surrounding area a distance of 1,000 feet outside the facility's property line. This map must be at a scale of 1 inch equal to not more than 200 feet. Ground surface contours must be shown on the map; the contour interval must be sufficient to clearly show the pattern of surface water flow in the vicinity of and from each hazardous waste management unit at the facility (a two-foot interval should be used if the ground surface relief at the facility is less than 20 feet and a five-foot interval should be used if the relief is greater than 20 feet). The map(s) should contain/identify the following: · Map Orientation (north arrow) · Map Date · Scale · Legal boundaries of the facility · Surrounding land uses · Access controls · Buildings and Structures · Storm drains · Sewers: storm, sanitary and process · Any waste injection or groundwater withdrawal wells (both on-site and off- site) · Areas in the 100-year flood plain · Flood control or drainage barriers · Run-on/run-off control systems · Fire control facilities · A wind rose · Hazardous waste management units · Solid waste management units · Equipment required by Item D.2 below · Surface waters including intermittent streams Multiple maps may be submitted to meet this requirement if necessary. If multiple maps are used, a discussion of how the various maps meet the above requirements must be provided. If the applicant determines that some of these requirements cannot be met or are not applicable, then sufficient information must be provided in the application to support this position. Finally, with appropriate supporting justification/discussion in the application, the applicant may vary from the above requirements if what is provided meets the general intent of these requirements.	Figures B-3A and B-4	WCG	In progress	WCG	Done	6/6	Insert new Figures B-3A and B-4 after Figure B-3 in the Figures Section. Figures are in Attachment 6.
5. Section B.4. Operating Record The location where the Operating Record is maintained at the facility, and the procedures used to record the required records must be provided in this section of the application. If details describing how the requirements of this section are met are provided in other sections of the application the locations of the required information must be provided in this section.	B.4	WCG	Done	WCG	Done	6/6	Remove / replace application text
Section C - Groundwater Monitoring	---	---	---	---	---	---	---
6. Section C.6.1. Indicator Parameters. Waste Constituents. Reaction Products to be monitored							

Location in Application of Responses to NOD Items and Schedule of Submittal							
Item	**Revised Section of Application**	**Who**	**Status**	**Who**	**Status**	**Submittal Date**	**Remove / Replace Instructions**
This section must be revised to meet the requirements of 35 IAC 703.185(f)(1) and 35 IAC 724.198(a). The request to update the STORET number in the existing Permit for 1,2- dichloropropane to 34541 is not approved. The Permittee needs to provide additional information. The following items are required: 1) Provide data that shows the STORET number currently in use sampling Cyanide (total) and Cyanide (dissolved) at Site 1 Phase A Landfill; and 2) Provide confirmation that the analyses under STORET 31541 and STORET 34541 are the same.	Table C-2	EIL	Done	EIL	Done	6/6	Remove Table C-2 from the application and replace with the revised version in Attachment 7.
7. Section C.6.3. Groundwater Monitoring System This section must be revised to meet the requirements of 35 IAC 703.185(f)(2), 35 IAC 724.197(a) and (b), 35 IAC 724.198(b). The Groundwater Monitoring System requires that the applicant reference by location, boring logs and well completion reports. A table of wells must be submitted identifying the well ID numbers and measurements for the following in both feet Mean Sea Level (MSL) and feet below ground surface (ft. bgs): well depth, screen interval, ground surface, and stickup. The listed items are required for wells: Shallow wells (Wells GT02 and GT05), Background wells (Wells G121, R123, R136, and R127), and POC wells (Wells R124, R126, R128, C129, G131, G132, and R133).	Table C-3	EIL	In progress	EIL	In progress	6/6	Remove Table C-3 from the application and replace with the revised version in Attachment 8.
8. Section C.6.4. Description of Sampling and Analysis Procedures a. Revise Section C.6.4. The description of Sampling and Analysis Procedures states that, "groundwater purged from detection monitoring wells will be directed into the adjacent perimeter stormwater ditch and disposed of on the ground within the waste limits". The statement needs to be revised to include "Purged groundwater will be collected, containerized, and upon receipt of groundwater analysis, disposed of properly."	none	EIL	Done	WCG	Done	---	---
b. To meet the requirements of 35 IAC 620.510(b)(4), the sampling and analysis plan must be revised to propose a methodology for analyzing constituents which complies with the Lower Limit of Quantitation (LLOQ) instead of the Practical Quantitation Limit (PQL) and those values must be equal to or less than the groundwater standards of 35 IAC Part 620, Subpart D, effective March 28, 2025.	none	---	---	WCG	Done	---	---
c. Propose a timeline within the Permit application for sampling and development of new background values to be conducted which meets 35 IAC Part 620 for all new and existing parameters and their respective standards based on the revisions to 35 IAC Part 620, effective March 28, 2025.	---	---	---	WCG	Done	8/9	---
Section D--Procedures to Prevent Hazards	---	---	---	---	---	---	---
9. Section D.2.2. Internal Communications Personnel using cellular phones to communicate must have access to phone numbers to allow them to summon emergency assistance and communicate with other facility personnel. The application must describe how this will be accomplished. Non-employees who are not accompanied by facility personnel, such as contractors should be provided with an emergency facility contact (person and phone number). In addition, this information should be provided to contractors as part of the contractor handout located in Appendix D-1 of the application.	App. D-1, Contractor Handout	EIL	Done	EIL	Done	6/6	Remove / replace application text
10. Section D.2.3. External Communications See the comment on Section D.2.2 above.	none	---	---	EIL	Done	---	---
11. Section D.2.4. Emergency Response Equipment The location of first aid stations, eyewash, and showers should be identified on a facility map available to facility personnel and contractors. The map with this information should be provided as part of the contractor handout (Appendix D-1). Non-employees who are not accompanied by facility personnel, such as contractors should be provided with an emergency facility contact (person and phone number). The application must describe the capabilities of the water supply tanks and water dispersion equipment.	App. D-1, Contractor Handout	EIL	In progress	EIL	Done	6/6	Remove the existing Contractor Handout and map from Appendix D-1. Replace with revised version in Attachment 9.
12. Section D.2.5. Water for Fire Control The application does not provide information on the adequacy of the water retention basin to provide water to address concerns of the "hazards posed by waste handled at the facility" as required by 35 IAC 724.132(d). The application must include a discussion of: a. the amount and the adequacy of water present in the retention basin; b. the capabilities and adequacy equipment used to deliver water in response to a fire at the landfill; c. any municipal fire department(s) that may respond to a fire; d. the location of fire hydrants near or at the facility that may be used to as a source of water; and e. the adequacy of the available water supply and equipment to address hazards posed by waste handled at the facility.	Sec. D.2.5	WCG	Done	EIL EIL EIL EIL EIL EIL EIL	Done Done Done Done Done Done Done	6/6	Remove / replace application text
13. Section D.2.6. Personnel Protection Equipment The application must describe Personnel Protection Equipment (PPE) required for workers, including contractors, performing tasks that are expected to be regularly performed at the facility. This would include task such as collection of groundwater samples, gas monitoring, and maintenance of the cover.	Sec. D.2.6	WCG	Done	EIL	Done	6/6	Remove / replace application text
14. Section D.2.7. Testing & Maintenance of Emergency Equipment The application must include a description of the testing and maintenance of emergency equipment identified in the application, including: a. Equipment used to deliver water for fire control, mentioned in Section D.2.5 of the application. b. First aid kits, assure the kits are properly stocked and have not exceeded the kits expiration date. c. Radios and cellphones used by contractors or employees should be checked prior to entering the site to ensure that they are operating, and cellular service is available. d. PPE maintained on-site.	Sec D.2.7	WCG	Done	--- --- EIL EIL EIL EIL	--- --- Done Done Done Done	6/6	Remove / replace application text
15. Section D.2.7.1. Equipment Testing The application states "the safety eye bath requires no periodic testing or maintenance." The application must provide documentation that the safety eye bath requires no periodic testing or maintenance.	Sec D.2.7.1	WCG	Done	EIL	Done	6/6	Remove / replace application text

Location in Application of Responses to NOD Items and Schedule of Submittal							
Item	Revised Section of Application	Who	Status	Who	Status	Submittal Date	Remove / Replace Instructions
equipment used to deliver water to a potential fire, discussed in Section 2.5 of the application, must be identified and a schedule for maintenance and testing of the equipment must be included in the application.				EIL	Done		
16. Section D.2.7.2. Schedule Schedules for inspection, maintenance and/or testing of equipment identified in Section D.2.7.1 and D.2.7.2 of the application must be provided.	Sec. D.2.7.2	WCG	Done	EIL	Done		Remove / replace application text
17. Section D.3.1. Inspection Log The Post-Closure Inspection Log Forms, located in Appendix D-2 of the application, must include the equipment and other items identified in Section D.2, and any other items added in response to deficiencies noted elsewhere in this NOD which are required to be inspected. The remainder of Sections D.3 must be updated to address any additional items added in response to this comment.	none	---	---	EIL	Done	6/6	---
Section E--Post-Closure Requirements							
18. Section E.3.1. Quality of Leachate in the Leachate Collection System The proposed leachate sampling parameters do not meet the requirements of this section. The leachate sampling parameter list has been expanded since the permit was last renewed. The expanded list includes additional chemical constituents added in the March 28, 2025, update to 35 IAC Part 620. The Permittee must revise the list in accordance with Section E.3.1, Items 1 and 2 below from the Illinois EPA's guidance document, Information Required in an Application for a RCRA Post-Closure Permit May 2021, and the March 28, 2025, update to 35 IAC Part 620: a. The leachate needs to be analyzed for the parameters listed below, and the results of annual analyses conducted on representative samples of leachate must be provided in the permit application. This will give an indication of the potential contaminants in a subsurface release from the unit to the groundwater. The leachate needs to be analyzed for: i. Those constituents for which a public or food processing water supply standard has been established in 35 IAC Part 302; ii. Those constituents for which a groundwater quality standard has been established in 35 IAC Part 620, including but not limited to the following constituents for which groundwater quality standards were established in the March 28, 2025, updates to 35 IAC Part 620: 1) HFPO-DA (hexafluoropropyleneoxide dimer acid GenX); 2) PFBS (perfluorobutanesulfonic acid); 3) PFHxS (perfluorohexanesulfonic acid); 4) PFNA (perfluorononanoic acid); 5) PFOA (perfluorooctanoic acid); and 6) PFOS (perfluorooctanesulfonic acid).; iii. The 51 organic chemicals in drinking water described in 40 CFR 141.40. iv. Any other contaminants expected to be present in the leachate, based on the characteristics of the waste and materials present in the unit.	----	---	---	WCG / EIL	In progress	8/9	
b. If the list of analytes has been reduced, provide an analysis for all constituents listed in Section E.3.1. I each time the post-closure permit is renewed. Compare the reduced list, to the full list. If no new parameters are detected, the application can propose to resume analyzing leachate for the previously approved reduced list. If any new parameters are detected, they must be added to the reduced list and the list of groundwater monitoring parameters.	---	---	---			8/9	
c. Describe the procedures used to collect, handle, and analyze the leachate samples discussed above. All such efforts must be carried out in accordance with procedures approved/established by Illinois EPA or USEPA. To meet the requirements of 35 IAC 620.510(b)(4), the leachate sampling and analysis plan must be revised to propose a methodology for analyzing constituents which complies with the Lower Limit of Quantitation (LLOQ) instead of the Practical Quantitation Limit (PQL) and those values must be equal to or less than the groundwater standards of 35 IAC Part 620, Subpart D, effective March 28, 2025.	none	---	---			6/6	---
19. Section E.3.5. Summary of Leachate Management Program Conducted to Date The application should discuss the efficacy of the existing leachate management program or identify deficiencies which must be addressed to ensure leachate is adequately managed in the landfill.	none	---	---	WCG	Done	6/6	---
20. Section E.5. Operation of the Gas Monitoring/Collection System Section E.5. of the application must be updated to address modifications to the Gas Monitoring/Collection System described in permit modification applications identified in Item 1 of this NOD.	Sec. E.5 Appendix E-13	WCG / EIL		EIL	Done		Remove / replace application text. Replace drawings in Appendix E-13 with drawing in Attachment 4.
21. Section E.5.3. Landfill Gas Disposal/Processing System Sections E.5.3. and E.5.4. of the application must be updated to reflect the current landfill gas disposal/processing system, including the replacement of the gas-to-energy plant with a system to process landfill gas to provide pipeline quality gas for commercial use.	Secs. E.5.3 and E.5.4 App. E-19	WCG	Done	EIL	Done	6/6	Remove / replace application text. Remove Drawing titled "Power Station Site Layout" from Appendix E-19. Replace Drawing A-14 in Appendix E-19 with revised Drawing A-14 in Attachment 9.
22. Section E.5.4. Summary of the Landfill Gas Collection/ Monitoring/ Processing Systems a. See comments above for Sections E.5 and E.5.3. of the application. b. The application must include the following: i. The procedures followed to document / record information associated with the operation of the landfill gas collection, monitoring, and processing systems in the operating record is not provided. ii. A summary of the operation of the landfill gas collection, monitoring, and processing systems during the past ten years is not provided.	---	WCG EIL	 IP	EIL EIL EIL	Done Done Done	6/6	---
23. Section E.6. Post-Closure Inspection Plan							

Location in Application of Responses to NOD Items and Schedule of Submittal							
Item	Revised Section of Application	Who	Status	Who	Status	Submittal Date	Remove / Replace Instructions
This section of the application (E.6) refers to Section D.3 Inspection Requirements to meet the requirement of this section. Deficiencies identified in Section D.3 apply to the subsections below. Only additional deficiencies specific to the requirements of this section are identified below.	---	---	---	EIL		---	---
24. Section E.6.1.3. Inspection Frequency The inspection frequency identified in Section D.3.1.1., Section D.3.1.3 and this section (E.6.1.1.) must be revised to include inspections to be completed within 24 hours of any rain fall event of two or more inches in 24 hours to detect evidence of any of deterioration, malfunctions, or improper operation of run-on and run off system. The application must state that appropriate corrective action must be taken if problems, including erosion, blockage of the channels, slope failure, etc. are observed.	---	---	---	EIL		6/6	---
25. Section E.7.1. Facility Controls The application must state, the benchmarks present at or near the closed Site 1 Phase A Landfill that are utilized to identify the location of the disposal unit will be surveyed once every five years. Any other solid waste management units and units/areas covered by an established institutional control must also be surveyed at least once every five years.	Sec. E.7.1	WCG		EIL	Done	6/6	Remove / replace application text.
26. Section E.7.2. Surveys and Corrective Action The application must identify the units at the facility that will be surveyed every five years. This includes the Site 1 Phase A Landfill as a unit subject to post-closure requirements per 35 IAC 724.210(b).	---	---	---	EIL	Done	6/6	---
27. Section E.7.2.1. Provide the following for the units identified in item E.7.2:	---					---	---
The application must be revised to include: a. A copy of the survey for the closed Site 1 Phase A Landfill generated every five years since the unit was closed that shows the horizontal and vertical extent of the unit, drainage control structures, leachate collection wells, and groundwater monitoring wells.	---	---	---	EIL	Done	6/6	---
b. Scale drawing(s) (1 inch= 200ft) and cross sections that identify those areas of the cover system or engineered barrier that have changed 1 foot or more in elevation since the unit was closed.	---	---	---	EIL	Done	6/6	---
c. If corrective action was required in response to a release, damage to the cover system, settlement, erosion, stressed vegetation, or damage to a leachate well, groundwater monitoring well, or benchmark since post-closure care began, identify the date and location of the corrective action on the scale drawings required above. Also, provide copies of the inspection and repair logs that includes the date each incident was discovered, a description of the incident and corrective action taken, and the date corrective action was completed.	---	EIL	IP	EIL	Done	6/6	---
d. If corrective action occurred in the same general area two or more times since post- closure began, discuss the actions the permittee has implemented to prevent this from happening again.	---	---	---	EIL	Done	6/6	---
28. Section E.7.3. Leachate Collection System The application must describe how information about the leachate collection system for the closed Site 1 Phase A Landfill is monitored, evaluated, and recorded.	---	---	---	EIL	Done	6/6	---
29. Section E.7.3.1. Leachate Quality The application must discuss if the concentrations of the constituents in the leachate have changed during the post-closure period and any actions taken in response. This discussion must include:	---	---	---	EIL	Done	6/6	---
a. Summary of Sample Results: Provide a summary table of the leachate sampling results for Site 1 Phase A Landfill since post-closure began. Identify the concentration for each parameter detected in each sampling event.	---	---	---	EIL	Done	6/6	---
b. Parameter Comparison: Indicate if any of the leachate analyses detected a parameter for which the groundwater is/was not being analyzed and the actions taken if this occurred.	---			EIL	IP	8/9	---
30. Section E.7.3.2. Leachate Quantity a. The application must provide a record of the amount of liquid removed from the leachate collection sump (in gallons) at least monthly after closure of the Site 1 Phase A Landfill. The following information regarding leachate generation rates needs to be provided both in table form and graphically: i. Monthly for each year for each sump since the unit was closed ii. Annually for each sump since the unit was closed iii. Annually for each unit since the unit was closed	---	EIL (tables & graphs)		EIL	IP	6/6	---
b. If the leachate generation rates are not trending downward during the post closure period, discuss why this is not happening. Provide information regarding precipitation rates during the post-closure period, as well as groundwater elevations relative to the leachate extraction wells within the landfill.				EIL	IP		
31. Section E.7.3.3. Leachate Reporting The application must describe the procedures followed to electronically report the quality and quantity of leachate generated at the facility to the Illinois EPA.	---			EIL	IP	6/6	---
32. Section E.7.6.1. Gas Quality The application must include a discussion of how the parameters (methane, pressure, oxygen; and carbon dioxide) in the gas system have changed during the post-closure period and any actions taken in response to those changes.	---	WCG	use response text	EIL	IP	6/6	---
a. Summary of Sample Results: Provide a summary table of the gas sampling results for each unit since post closure began for that unit. Identify the concentration for each parameter detected in each sampling event.							
b. Parameter Comparison: Describe the parameter thresholds used to adjust the gas collection system to improve overall efficiency of the system. Describe any major gas system upgrades/ overhauls since post-closure began.		---	---	EIL	Done		
33. Section E.7.6.2. Gas Quantity a. The application must include a record of the amount of gas removed from each unit at least monthly following closure. The following information regarding gas generation rates needs to be provided both in table form and graphically: i. Monthly for each year for each unit since the unit was closed; and ii. Annually for each unit since the unit was closed	---			EIL	Done	6/6	---

Location in Application of Responses to NOD Items and Schedule of Submittal							
Item	Revised Section of Application	Who	Status	Who	Status	Submittal Date	Remove / Replace Instructions
b. If the gas generation rates are not trending downward during the post-closure period, discuss why this is not happening.				EIL	Done		
34. Section E.7.6.3. Summary of Results from the Gas Collection/ Monitoring System a. The application must describe the procedures followed to document/record information associated with the operation of the landfill gas collection, monitoring, and processing systems in the operating record.	E.7.6.3		use response text	EIL	Done	6/6	Remove / replace application text.
b. Summarize the operation of the landfill gas collection, monitoring, and processing systems since the unit was closed. Describe any adjustments to the design or operation of the systems since the unit was closed.	---		use response text	EIL	Done	6/6	---
35. Section E.8.1. Procedures. Equipment & Materials: A list of the items to be maintained and inspected is provided in the application; however, it does not describe the preventive and corrective maintenance procedures, equipment and materials required to provide adequate post-closure care of the landfill. Include the following items in the maintenance plan, as applicable: a. Repair of security control devices; b. Erosion damage repair; c. Correction of settlement, subsidence and displacement; d. Mowing, fertilization and other vegetative cover maintenance; e. Repair of run-on and run-off control structures; f. Maintenance of any leachate removal system(s) including the flushing of the LCS; g. Maintenance of the gas monitoring/extraction system; h. Replacement of groundwater monitoring wells; and i. Surveyed benchmarks.	E.8.1	WCG	use response text	EIL	Done	6/6	Remove / replace application text.
36. Section E.8.2. Rationale The application must provide the rationale which will be used to determine the need for corrective maintenance activities for each of the items mentioned for Section E.8.1 above.	---	WCG	use response text	EIL	Done	6/6	---
37. Section E.8.3. Frequency The application must provide the frequency for maintaining each of the items mentioned for Section E.8.1 above if it is known. This needs to include, but not be limited to: a. The frequency for mowing, fertilization and other vegetative cover maintenance, and b. Annual maintenance / cleaning of pumps used in the LCS, and gas collection systems. c. The manufacturer's recommended replacement rate for the pumps used in the LCS, or gas collection systems. d. High pressure jet flushing of the LCS collection pipes and sumps every 5 years. e. Procedures and scheduling of non-routine maintenance and change-out of [illegible]ament.	---			EIL	Done	6/6	---
Section E.11. Post-Closure Cost Estimate The post-closure cost estimate must be revised to address the following to meet the requirements of 35 IAC 703.183(p) [[cost est, documentation and financial assurance]], 35 IAC 724.244 [[cost est.]]: a. All cost must be updated to reflect the current costs in 2025 dollars. Contact Daniel Britton by email at Daniel.Britton@illinois.gov or 217/524-3497 for inflation factors.		WCG	IP	WCG	Done		
b. The cost-estimate must be updated to address additional cost to be incurred to address comments/deficiencies identified in this NOD. These include: i. revisions to the gas extraction and monitoring system; ii. revisions to leachate extraction and monitoring system; iii. revisions to groundwater monitoring system; iv. revisions to inspection and maintenance procedures; and v. any other revisions impacting cost associate with post-closure care.	Section E-11. Table E-3. Appendix E-25	---	---	WCG	Done	6/6	Remove existing Table E-3. Replace with revised Table E-3 in Attachment 11. Add cost documention in Attachment 12 to Appendix E-25.
c. Costs related to groundwater monitoring identified in Section C of the application must be updated to reflect the most current costs and inflation rates. Additionally, third party costs for groundwater monitoring requirements and separate laboratory analysis (2nd quarter and 4th quarter) estimates from First Environmental Laboratories must be submitted.		WCG	IP	WCG	Done		
Other Modficiations							
1. Leachate Sampling Locations	E.3.1	WCG		EIL	Done	6/6	Remove / replace application text.
2. Minor Improvement Notification and Approval Procedures.	Section D.3.4			EIL	IP	6/6	Remove / replace application text.
3. Remove Contingency Plan	Appendix E-15			EIL	Done	6/6	Remove / replace application text. Remove Appendix 15.
4. Remove Figure E-1	Figures	EIL	Done	EIL		6/6	Remove Figure E-1
5. Revise Gas Monitoring Plan	Appendix E-20	EIL		EIL	Done	8/9	---

June 06, 2025
Zion Site 1 Phase A Landfill
Addendum No. 1 to Log B-23R2
Response to NOD

Attachment 2
Revised Application Text

Appendix E-19

(Reserved)

June 06, 2025
Zion Site 1 Phase A Landfill
Addendum No. 1 to Log B-23R2
Response to NOD

Attachment 3
Revised Application Text (Redline)

File 0120-037-01-05
May 6, 2021, Revised June 2025

RCRA PART B POST-CLOSURE PERMIT RENEWAL APPLICATION ZION SITE 1, PHASE A LANDFILL

VOLUME I

IEPA Site No. 0978020001
ILD 980700728

Prepared For:

BFI Waste Systems of North America, LLC
26 West 580 Schick Rd.
Hanover Park, IL 60103

PREPARED BY

Weaver Consultants Group

EIL ENVIRONMENTAL INFORMATION LOGISTICS, LLC

RCRA PART B POST-CLOSURE
PERMIT RENEWAL APPLICATION
ZION SITE 1 PHASE A LANDFILL

TABLE OF CONTENTS

A. FORMS, CERTIFICATIONS, CONFIDENTIALITY, PUBLIC INVOLVEMENT A-1

A.1 RCRA Part A Application Form A-1

A.2 Certification Using the LPC-PA23 Form A-1
A.2.1 Facility Certification A-1
A.2.2 Technical Information Certification A-1
A.2.3 39i Certification A-1

A.3 Public Disclosure Exemption Claims and Trade Secret Claims A-1
A.3.1 No Information Claimed Exempt from Public Disclosure A-1

A.4 Public Participation: Facility Mailing List & Information Repositories A-2
A.4.1 Facility Mailing List A-2
A.4.2 Identification of Repository A-2
A.4.3 Contents of Repository A-3
A.4.4 Public Notice of Repository Availability A-3

B. FACILITY DESCRIPTION B-1

B.1 General Facility Description B-1
B.1.1 Operation of the Facility B-2
B.1.2 Hazardous Waste Management Units at the Facility B-3
B.1.3 Solid Waste Management Units at the Facility B-3

B.2 Topographic Map B-3
B.2.1 Facility + 1 Mile B-3
B.2.2 Facility + 1,000 Feet B-3

B.3 Location Standards B-4
B.3.1 Seismic Standard B-4
B.3.2 Floodplain Standard B-4
B.3.3 Facilities in the 100-year Floodplain B-5

B.4 Operating Record B-5

C. GROUNDWATER MONITORING C-1

C.1 Exemption from Groundwater Protection Requirement C-1
C.1.1 Waste Piles C-1
C.1.2 Landfill C-1
C.1.3 No Migration C-1

C.2 Interim Status Groundwater Monitoring Data C-1

Formatted: Font: 12 pt, Do not check spelling or grammar

Deleted: J:\Projects\0100-0199\0120\37\01\Renewal Ap 2021\NOD May 2025\PC Permit Renewal Ap Zion May 2021 Rev 6-2025.docJ:\Projects\0100-0199\0120\37\01\Renewal Ap 2021\PC Permit Renewal Ap Zion May 2021 rev.doc¶

RCRA PART B POST-CLOSURE
PERMIT RENEWAL APPLICATION
ZION SITE 1 PHASE A LANDFILL

TABLE OF CONTENTS

C.3 Historical Hydrogeological Summary C-2
C.4 Topographic Map Requirements C-5
C.5 Contaminant Plume Description C-6
C.6 Detection Monitoring Program C-6
C.6.1 Indicator Parameters, Waste Constituents, Reaction Products Monitored C-7
C.6.2 General Monitoring Program Requirements C-8
C.6.3 Groundwater Monitoring System C-9
C.6.4 Description of Sampling and Analysis Procedures C-9
C.6.5 Evaluation of Groundwater Surface C-14
C.6.6 Background Quality C-14
C.6.7 Statistical Evaluations C-15
C.6.8 Statistically Significant Increases C-17
C.7 Compliance Monitoring Program C-21
C.7.1 Description of the Monitoring Program C-21
C.7.1.1 Waste Description C-21
C.7.1.2 Concentration Limits C-21
C.7.1.3 Compliance Point C-21
C.7.1.4 Compliance Period C-21
C.7.2 Alternate Concentration Limits C-21
C.7.2.1 Adverse Effects on Groundwater Quality C-22
C.7.2.2 Potential Adverse Effects Hydraulically Connected Surface Water C-22
C.7.3 General Monitoring Program Requirements C-22
C.7.4 Groundwater Monitoring System C-22
C.7.5 Description of Sampling and Analysis Procedures C-22
C.7.6 Background Quality C-22
C.7.7 Statistical Evaluations C-22
C.7.8 Evaluation of Groundwater Surface C-22
C.7.9 Annual Appendix I C-22
C.7.10 Statistically Significant Increases C-23
C.8 Corrective Action Program C-23
C.8.1 Description of Corrective Action Program C-23
C.8.1.1 Characterization of Contaminated Groundwater C-23
C.8.1.2 Concentration Limits C-23
C.8.1.3 Compliance Point C-23
C.8.1.4 Compliance Period C-23
C.8.1.5 Construction Detail C-23
C.8.1.6 Effectiveness of Corrective Action C-24

Deleted: *J:\Projects\0100-0199\0120\37\01\Renewal Ap 2021\NOD May 2025\PC Permit Renewal Ap Zion May 2021 Rev 6-2025.docJ:\Projects\0100-0199\0120\37\01\Renewal Ap 2021\PC Permit Renewal Ap Zion May 2021 rev.doc¶*

RCRA PART B POST-CLOSURE
PERMIT RENEWAL APPLICATION
ZION SITE 1 PHASE A LANDFILL

TABLE OF CONTENTS

C.8.2 Alternate Concentration Limits C-24
C.8.2.1 Adverse Effects on Groundwater Quality C-24
C.8.2.2 Potential Adverse Effects on Hydraulically Connected Surface Water C-24
C.8.3 Corrective Action Plan C-24
C.8.4 Groundwater Monitoring Program C-24
C.8.4.1 General Monitoring Program Requirements C-24
C.8.4.2 Groundwater Monitoring System C-24
C.8.4.3 Description of Sampling and Analysis Procedures C-24
C.8.4.4 Background Quality C-25
C.8.4.5 Statistical Evaluations C-25
C.8.4.6 Evaluation of Groundwater Surface C-25
C.8.4.7 Extension of Compliance Period C-25
C.8.4.8 Effectiveness of Corrective Action C-25
C.8.4.9 Evaluation of the Corrective Action Program C-25
C.9 Reporting Requirements C-25

D. PROCEDURES TO PREVENT HAZARDS D-1

D.1 Security D-1
D.1.1 Waiver From Security Requirements D-1
D.1.2 Restricting Entry to the Facility D-1
D.1.3 Warning Signs D-2
D.2 Equipment Requirements D-2
D.2.1 Waiver D-2
D.2.2 Internal Communications D-2
D.2.3 External Communications D-2
D.2.4 Emergency Response Equipment D-2
D.2.5 Water for Fire Control D-3
D.2.6 Personal Protective Equipment D-3
D.2.7 Testing & Maintenance of Emergency Equipment D-4
D.2.7.1 Equipment Testing D-4
D.2.7.2 Schedule D-4
D.2.8 Equipment and Power Failure D-4
D.3 Inspection Requirements D-4
D.3.1 Inspection Log D-5
D.3.1.1 Types of Problems D-7
D.3.1.2 Inspection Frequency D-10
D.3.2 Repair Log D-10
D.3.3 24 Hour Reporting D-11

Deleted: *J:\Projects\0100-0199\0120\37\01\Renewal Ap 2021\NOD May 2025\PC Permit Renewal Ap Zion May 2021 Rev 6-2025.docJ:\Projects\0100-0199\0120\37\01\Renewal Ap 2021\PC Permit Renewal Ap Zion May 2021 rev.doc¶*

RCRA PART B POST-CLOSURE
PERMIT RENEWAL APPLICATION
ZION SITE 1 PHASE A LANDFILL

TABLE OF CONTENTS

D.3.4 Notification Requirements for Repairs D-11

E. POST-CLOSURE REQUIREMENTS E-1

E.1 Information Regarding the Unit Closed as a Landfill E-1
E.1.1 General Information Regarding Unit to Receive Post-Closure Care E-1
E.1.2 Geology and Hydrogeology Around/Beneath the Unit E-1
E.1.3 Characterization of Waste/Contaminated Soil Present in the Landfill Unit E-1
E.1.4 Initial Closure Activities E-2
E.1.5 Details Associated with the Closed Unit E-2

E.2 Contact Person E-6

E.3 Operation of the Leachate Collection System E-6
E.3.1 Quality of Leachate in the Leachate Collection System E-6
E.3.2 Leachate Collection System Within the Landfill E-7
E.3.3 Leachate Collection System Outside Landfill E-10
E.3.3.1 Leachate Tank – 90 Day Storage Requirement E-11
E.3.3.2 Leachate Tank – Applicable Subpart J Requirements E-12
E.3.4 Management of Leachate Collection System (LCS) E-21
E.3.5 Summary of Leachate Management Program Conducted to Date E-23

E.4 Operation of Leak Detection System E-24

E.5 Operation of the Gas Monitoring/Collection System E-24
E.5.1 Detailed Description of the Landfill Gas Collection System E-24
E.5.2 Landfill Gas Monitoring Plan E-25
E.5.3 Landfill Gas Disposal/Processing System E-26
E.5.4 Summary of Landfill Gas Collection/Monitoring/Processing Systems E-26

E.6 Post-Closure Inspection Plan E-26
E.6.1 Inspection Log E-26
E.6.1.1 Items Inspected E-27
E.6.1.2 Types of Problems E-27
E.6.1.3 Inspection Frequency E-27
E.6.2 Repair Log E-27
E.6.3 24 Hour Reporting E-27

E.7 Post-Closure Monitoring Plan E-27
E.7.1 Facility Controls E-27
E.7.2 Surveys and Corrective Action E-27
E.7.3 Leachate Collection System E-28
E.7.3.1 Leachate Quality E-28

Deleted: *J:\Projects\0100-0199\0120\37\01\Renewal Ap 2021\NOD May 2025\PC Permit Renewal Ap Zion May 2021 Rev 6-2025.docJ:\Projects\0100-0199\0120\37\01\Renewal Ap 2021\PC Permit Renewal Ap Zion May 2021 rev.doc¶*

RCRA PART B POST-CLOSURE
PERMIT RENEWAL APPLICATION
ZION SITE 1 PHASE A LANDFILL

TABLE OF CONTENTS

E.7.3.2 Leachate Quantity E-28
E.7.3.3 Leachate Reporting E-28
E.7.4 Leak Detection System (LDS) E-28
E.7.5 Groundwater Monitoring System E-28
E.7.6 Gas Collection System E-29
E.7.6.1 Gas Quality E-29
E.7.6.2 Gas Quantity E-29
E.7.6.3 Summary of Results from the Gas Collection/Monitoring System E-29
E.8 Post-Closure Maintenance Plan E-29
E.8.1 Procedures, Equipment & Materials E-29
E.8.2 Rationale E-31
E.8.3 Frequency E-31
E.9 Survey Plat E-31
E.10 Notice in Deed and Certification E-32
E.11 Post Closure Cost Estimate E-32
E.12 Financial Assurance Mechanism for Post-Closure Care E-32
E.13 State Mechanisms E-33
F. CORRECTIVE ACTION F-1
F.1 Identification of SWMUs F-1
F.2 Characterization of SWMUs F-1
F.3 Characterization of Releases from SWMUs F-1
F.4 Information Required for Renewal Applications F-1
F.5 Proposed Interim Measures to be Conducted F-1
F.6 Cost Estimate for Required Corrective Action F-1
F.7 Financial Assurance for Corrective Action F-1

List of Figures

Figure B-1: General Facility Layout
Figure B-2: Site Location/Surrounding Land Use – 1 Mile Radius
Figure B-3: Topographic Map
Figure B-3A: Topographic Map (1,000 Feet From Facility Boundary)

Deleted: *J:\Projects\0100-0199\0120\37\01\Renewal Ap 2021\NOD May 2025\PC Permit Renewal Ap Zion May 2021 Rev 6-2025.docJ:\Projects\0100-0199\0120\37\01\Renewal Ap 2021\PC Permit Renewal Ap Zion May 2021 rev.doc¶*

RCRA PART B POST-CLOSURE
PERMIT RENEWAL APPLICATION
ZION SITE 1 PHASE A LANDFILL

TABLE OF CONTENTS

Figure B-4: Site 1 Phase A Water Wells
Figure C-1: Groundwater Monitoring Network
Figure C-2: Sample Field Information Log
Figure C-3: Sample Chain-Of-Custody Form
Figure E-1 Leachate and Gas Collection System

List of Tables

Table C-1: Hazardous Waste Codes Corresponding to Indicator Parameters
Table C-2: Summary of Indicator Parameters
Table C-3: Groundwater Monitoring System Summary
Table E-1: Gas/Leachate Extraction Well Information
Table E-2: Log For Documenting 90 Day Storage Requirement, Leachate Accumulation Tank
Table E-3: Cost Estimate For Post-Closure Care

List of Appendices (A-1 through E-11 contained in **Volume I** and E-12 through E-24 contained in **Volume II)**

Volume I:

A-1: Part A Permit Application and Supporting Materials/LPC-PA23 Form
A-2: 39i Certification
A-3: Facility Mailing List and Public Notice Information
B-1: Effective Hazardous Waste Management RCRA Post-Closure Permit
B-2: Legal Description/Plat of Survey
B-3: Wind Rose
B-4: Floodplain Documentation
C-1: Summary of Hydrogeologic Studies and Drilling History
C-2: Potentiometric Contour Maps, Shallow Drift Aquifer
C-3: Supporting Data For Statistical Calculations
D-1: Sample Contractor Handout
D-2: Post-Closure Inspection Forms
E-1: Plat of Survey and Post-Closure Notices

Deleted: *J:\Projects\0100-0199\0120\37\01\Renewal Ap 2021\NOD May 2025\PC Permit Renewal Ap Zion May 2021 Rev 6-2025.docJ:\Projects\0100-0199\0120\37\01\Renewal Ap 2021\PC Permit Renewal Ap Zion May 2021 rev.doc¶*

RCRA PART B POST-CLOSURE
PERMIT RENEWAL APPLICATION
ZION SITE 1 PHASE A LANDFILL

TABLE OF CONTENTS

E-2	Documentation of Landfill Excavation Limits
E-3	Construction Documentation – Clay Division Berm and Slurry Wall
E-3A	Construction Documentation, October 1991
E-3B	Construction Documentation, May 1992
E-3C	Construction Documentation, May/June 1992
E-3D	Construction Documentation, June 1992
E-3E	Construction Documentation, October 1992
E-3F	Construction Observation Report, Slurry Trench Cutoff Wall, February 1989
E-3G	Construction Observation Report, Slurry Trench Cutoff Wall, January 1991
E-4	Final Landfill Cap Design Specifications, July 31, 1996
E-5	Construction Acceptance Report for Site 1 – Phase A Final Closure, February 1998 (TOC and Narrative only)
E-6:	Analytical Results from Recent Leachate Sampling
E-7:	Construction Acceptance Report, Site 1, Phase A Leachate Extraction System, September 27, 2000
E-8:	Forcemain Profile and Details, 2000 Manhole Upgrades
E-9	Construction Acceptance Report, Improvements to Leachate Collection System, Zion Site 1, Phase A Landfill, December 2009
E-10	Construction Acceptance Report, February 2012
E-11	Construction Acceptance Report, February 2016
Volume II:	
E-12	Construction Acceptance Report, February 2018
E-13	Leachate/Gas Collection System Layout and Flow Figures
E-14	Hazardous Waste Tank Assessment for Existing Leachate Collection Tank
E-15	(Reserved)
E-16	Job Descriptions
E-17	As Built Extraction Well Detail and Boring Logs
E-18	Historical O&M Records
E-19	(Reserved)
E-20	Gas Monitoring Plan
E-21	Operation & Maintenance Manual, Landfill Gas Extraction System

Deleted: Contingency Plan

Deleted: Blower Building, Flare, and Power Plant As-Built Drawings...

Deleted: *J:\Projects\0100-0199\0120\37\01\Renewal Ap 2021\NOD May 2025\PC Permit Renewal Ap Zion May 2021 Rev 6-2025.docJ:\Projects\0100-0199\0120\37\01\Renewal Ap 2021\PC Permit Renewal Ap Zion May 2021 rev.doc¶*

RCRA PART B POST-CLOSURE
PERMIT RENEWAL APPLICATION
ZION SITE 1 PHASE A LANDFILL

TABLE OF CONTENTS

E-22	Gas Collection and Control System Data
E-23	Financial Assurance Documentation
E-24	Construction Acceptance Report, Gas Extraction System, February 1998
E-25	Post-Closure Cost Documentation

Deleted: *J:\Projects\0100-0199\0120\37\01\Renewal Ap 2021\NOD May 2025\PC Permit Renewal Ap Zion May 2021 Rev 6-2025.docJ:\Projects\0100-0199\0120\37\01\Renewal Ap 2021\PC Permit Renewal Ap Zion May 2021 rev.doc¶*

A. FORMS, CERTIFICATIONS, CONFIDENTIALITY, PUBLIC INVOLVEMENT

A.1 RCRA Part A Application Form

A Part A Application is included in **Appendix A-1**. The Part A application has been signed by the facility Owner and Operator.

A.2 Certification Using the LPC-PA23 Form

A completed LPC-PA23 form is also provided in **Appendix A-1**, also signed by the Owner and Operator.

A.2.1 Facility Certification

The appropriate certification statement signed by the facility Owner and Operator is included on the LPC-PA23 Form, which is presented in **Appendix A-1**.

A.2.2 Technical Information Certification

The certification of the technical information presented in this application is included on the LPC-PA23 Form, which is presented in **Appendix A-1**.

A.2.3 39i Certification

The 39i Certifications for the facility Owner and Operator are presented in **Appendix A-2**. As the owner and operator are different entities, a separate form is provided for both the Owner (Zion Landfill, Inc.) and Operator (BFI Waste Systems of North America, LLC).

A.3 Public Disclosure Exemption Claims and Trade Secret Claims

Section A.3 is not applicable because the owner/operator:

- Is not requesting a public disclosure exemption;
- Is not invoking a trade secret claim; or
- Is not asserting that any portion of the submittal is regarded as privileged in relation to this application.

A.3.1 No Information Claimed Exempt from Public Disclosure

No information in this application is claimed exempt from public disclosure. Therefore subsections A.3.2, A.3.3, and A.3.4 are not applicable.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

A.4 Public Participation: Facility Mailing List & Information Repositories

A.4.1 Facility Mailing List

A Facility Mailing List has been established that includes a list of entities who must be notified of permit-related activities. The most recent version of the Facility Mailing List (obtained from Illinois EPA in April 2021) is included in **Appendix A-3**.

The list will be updated and resubmitted to the Illinois EPA as needed to include individuals who have interacted with the facility, such as: respondents to mailings and those attending public meetings when a permit modification is requested. If mail to contacts on the Facility Mailing list is returned, then those contacts will be removed. Illinois EPA will review and approve all updates prior to using an updated mailing list.

A.4.2 Identification of Repository

A copy of this Permit Renewal Application has been placed on file at the following locations:

Zion-Benton Public Library
2400 Gabriel Ave.
Zion, IL 60099
Ph: (847) 872-4680

The library hours for limited lobby service currently are:

Mon, Wed, Th: 10 AM – 6 PM

Tue: 10 AM- 7 PM

Sat: 10 AM – 5 PM

Office of County Board Chair
Lake Co. Board Office
18 North County Street
Waukegan, IL 60085

Contact info:
Ms. Sandy Hart
Lake County Board Chair
Ph: (847) 377-2300
Business hours are: 8:30 AM – 4:30 PM (M-F).

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

A.4.3 Contents of Repository

The above repositories contain a copy of this Permit Renewal Application. If revisions are made to this application after review by Illinois EPA, then the additional information will also be added to the repository.

A.4.4 Public Notice of Repository Availability

Together with the submission of this application to Illinois EPA, a notice has been sent to the facility mailing list including the following information:

1. Identification and address of the facility and the hazardous waste management operations that the permit application addresses;
2. A statement that the permit application materials have been prepared and are available for community members to review and copy at the repositories;
3. The location and business hours of the repositories;
4. A statement that the applicant will update the repository materials periodically during the Illinois EPA's review of the permit application;
5. The name, address and telephone number of the applicant's contact person to address questions regarding the application or to be added to the facility's mailing list for future permit activities; and
6. The following statement: "For general information on the hazardous waste management permit program in Illinois, please contact: the Illinois EPA RCRA Community Involvement Coordinator".

This notice was made no later than the date the permit application was submitted to the Illinois EPA. A copy of the notice distributed to the above referenced facility mailing list is provided in **Appendix A-3**. The notice was sent via certified mail.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

B. FACILITY DESCRIPTION

B.1 General Facility Description

The most recent version of the effective Hazardous Waste Management RCRA Post-Closure Permit (Permit) issued by the Illinois EPA Bureau of Land is Mod No. 7, dated March 12, 2018. Permit Modification No. 7 references the permit conditions contained in the eight sections and two attachments issued by Illinois EPA in the Permit dated July 28, 2015. A copy of the effective facility Permit (including both the March 12, 2018 and July 28, 2015 versions of the document) are presented in **Appendix B-1**.

A description of the facility is provided in Section I of the Hazardous Waste Management RCRA Post Closure Permit Log No. B-23R (Permit). The following general facility description summary is based on information contained in Section I of the effective Permit. A General Facility Layout is provided as **Figure B-1**.

The original waste disposal permit for the facility was issued to Browning-Ferris Industries to operate a 59-acre solid waste disposal facility at the location now known as Zion Site 1 Landfill in October 1976. The waste disposal area comprised approximately 40 acres. This permit was issued before the effective date of the RCRA hazardous waste regulations. The RCRA hazardous waste regulations became effective in November 1980 and the Zion Site 1 Landfill operated under RCRA hazardous waste interim standards from 1980 until the first RCRA disposal permit was issued by Illinois EPA in April 1988.

Deleted: (BFI)

During operation, the above 40-acre waste disposal facility received mainly non-hazardous waste, but some hazardous waste was disposed in the unit currently known as Site 1, Phase A. BFI ceased disposing hazardous waste in this unit in 1990. Closure activities were completed for Site 1, Phase A in 1997 and BFI certified completion of closure on February 10, 1998.

Ten acres of the initially permitted Zion Landfill Site 1 were re-permitted by Illinois EPA for disposal of only non-hazardous waste on June 24, 1994. This portion of the facility came to be known as the Zion Landfill Site 1, Phase B, which is unrelated to this permit renewal application. This landfilling operation occurred in two cells: Cell 1, consisting of approximately 4.9 acres and Cell 2, consisting of approximately 4.7 acres. Non-hazardous waste was disposed in these units from 1994 until 1996. Closure activities for both cells were completed in 1998 and Illinois EPA approved the certification of closure of these units on August 28, 1998.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

The remaining approximately 10 acres of the originally permitted 59-acre facility house ancillary equipment and structures associated with the Site 1, Phase A and B landfills, including:

- Tanks and associated loading areas used to manage the collected leachate before it is sent off-site for treatment; and
- Blowers, flare, and gas to energy station associated with the gas management system at the facility.

The area to the east of Site 1, Phase A (Site 1A) is a permitted operating non-hazardous waste landfill currently owned and operated by GFL Environmental. (this facility is also unrelated to this permit renewal application). Zion Landfill, Inc. is the entity that owns the Zion Landfill Site 1, however as the operator, BFI has retained the post-closure care responsibilities for the Zion Landfill Site 1A (RCRA unit) and Site 1B (non-hazardous unit).

B.1.1 Operation of the Facility

The Zion Landfill is located at 9th Street and Green Bay Road within the City limits of Zion, Lake County, Illinois. The closed hazardous waste landfill identified as the Zion Landfill Site 1A is in Benton Township.

The activities included in the Hazardous Waste Management RCRA Post-Closure Permit that are the subject of this Permit Renewal Application (i.e., Site 1, Phase A) occur on approximately 49 acres. Most of the surrounding acreage is utilized for non-hazardous solid waste disposal-related activities, including the following:

- Site 1, Phase B, which is comprised of two cells (Cell No. 1 and Cell No. 2) that contain non-hazardous waste (no hazardous waste), which are also closed, as described above; and
- Site 2, which also contains only solid waste (no hazardous waste), in which the western portion is closed, but the eastern portion is still active and currently owned and operated by GFL Environmental.

A legal description of the facility developed and certified by a professional land surveyor licensed to practice in Illinois is presented in **Appendix B-2**. The Tax Property Identification Numbers of the land which comprises the facility is 03-12-200-016 and 04-07-200-013.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

B.1.2 Hazardous Waste Management Units at the Facility

Prior to 1991, the Zion Landfill commercially accepted RCRA hazardous waste into the section permitted for this activity (Site 1A). The disposal footprint for Site 1A is approximately 40 acres. The hazardous wastes disposed at the facility originated from a range of business and industry including manufacturing, petrochemical, steel, utilities, and government. No hazardous waste has been accepted into Site 1 Phase A since 1990 and the Site 1 Phase A landfill has been closed since 1998. According to Permit Condition III.A, the permittee must continue to provide post-closure care for Site 1A until at least February 9, 2028.

B.1.3 Solid Waste Management Units at the Facility

No solid waste management units that are currently subject to RCRA Corrective Action have been identified at the facility to date.

B.2 Topographic Map

B.2.1 Facility + 1 Mile

Figure B-2 is a 2018 USGS topographic map including areas within 1 mile around the closed Site 1A RCRA unit. This map depicts the boundary of the Site 1A facility and the surrounding land uses.

The site is located within the City of Zion limits. Other former waste disposal units associated with the Zion Landfill are located to the east and west of the Zion Landfill Site 1A. The former waste disposal areas immediately bordering Site 1A are also closed and have also received final cover. The Shepherds Crook Golf Course is located north and west of Site 1A. Property south of Site 1A is presently used for agricultural purposes, while residential land use is present to the southeast of Site 1A.

B.2.2 Facility + 1,000 Feet

Figure B-3 is the 2020 topographic map of the facility, along with areas surrounding the facility. This map is at a scale of 1 inch equals 200 feet, with a contour interval that is sufficient to show the pattern of surface water flow in the vicinity of and from the Zion Landfill Site 1A. Additional drawings showing other site features are provided elsewhere in this Permit Renewal Application.

The above map contains the following, as required by 35 IAC 703.183(s):

- Map orientation, date, and scale;

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

- Legal boundary of the facility;
- Surrounding land uses (included on **Figure B-2**);
- Access controls;
- Buildings and structures;
- Storm drains, sewers, sanitary and process;
- Waste injection or groundwater withdrawal wells;
- Run-on/run-off control systems
- Fire control facilities (i.e. fire extinguishers);
- Wind rose (provided separately as **Appendix B-3**);
- Hazardous waste management units;
- Applicable equipment; and
- Surface waters, including intermittent streams.

The following items are listed in 35 IAC 703.183(s), but not applicable to the Zion Site 1A facility and therefore not shown on either **Figure B-2** or **Figure B-3**:

- Areas in the 100 year flood plain (neither the facility, nor areas within 1,000 feet of the facility are located within the 100 year flood plain – see letter from FEMA in **Appendix B-4**);
- Flood control or drainage barriers; and
- Solid waste management units (SWMUs). No SWMUs have been identified at the facility.

B.3 Location Standards

B.3.1 Seismic Standard

Nothing has changed relative to the seismic standards described in the originally approved RCRA Part B Permit Application prepared prior to issuance of the 1988 permit. Therefore, no additional information is provided in this Application and no permit modifications are requested relative to the seismic standards.

B.3.2 Floodplain Standard

Appendix B-4 contains an April 24, 1996 letter from the Federal Emergency Management Agency (FEMA) reflecting that the site is not located within the limits of a 100-year floodplain area. The FEMA map included in the original Part B Permit Application showed a small area approximately 400-feet north and a larger around approximately 1,600 feet east of the Site 1 Phase A landfill as

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

being A Zones which are considered flood hazards. The updated FEMA map has removed these A Zones. The latest available FIRM maps from FEMA (confirming that the site is not located within a 100-year floodplain) are dated 2013 and are also included in **Appendix B-4.**

B.3.3 Facilities in the 100-year Floodplain

As the facility is not located within the 100-year floodplain, this section and subsections are not applicable.

B.4 Operating Record

The operating record will include results of post-closure groundwater sampling, analyses, and statistical evaluation; inspection reports; training records; leachate removal records; and annual reports. The operating record will be retained at the facility or a secure location at another office of the owner or operator.

According to 35 IAC 724.173, the operating record is to be kept at the facility and various information is to be recorded as it becomes available and maintained in this operating record for three years (unless otherwise provided in the above regulation). For this facility, BFI is the operator, but a separate independent entity (GFL) is owner of the Zion Landfill property and operator of Site 2. BFI does not own any buildings at the facility that are suited for storing Site 1 Phase A's operating record. Thus, it is not possible for the operator to maintain a physical operating record at the physical facility. As an alternative, the operating record is stored at the BFI office in Hanover Park, Illinois (less than 60 miles from the Zion Landfill). This office is where BFI personnel responsible for operation of Site 1 Phase A are based. Keeping the operating record here allows BFI personnel to access it as needed and to keep the records complete and current. The operator may also keep certain operating record items electronically to minimize paper usage.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

C. GROUNDWATER MONITORING

C.1 Exemption from Groundwater Protection Requirement

A waiver from the 35 IAC 724, Subpart F groundwater monitoring requirements is not being requested. Therefore, this section is not applicable.

C.1.1 Waste Piles

A waiver from the 35 IAC 724, Subpart F groundwater monitoring requirements is not being requested. Therefore, this section is not applicable.

C.1.2 Landfill

A waiver from the 35 IAC 724, Subpart F groundwater monitoring requirements is not being requested. Therefore, this section is not applicable.

C.1.3 No Migration

A waiver from the 35 IAC 724, Subpart F groundwater monitoring requirements is not being requested. Therefore, this section is not applicable.

C.2 Interim Status Groundwater Monitoring Data

The permittee has submitted regular quarterly and annual groundwater monitoring reports to Illinois EPA in accordance with prior permits. Copies of these reports, as well as interim status groundwater monitoring reports are contained in the operating record, as well as Illinois EPA files. Due to the significant volume of these historical reports and consistent with the most recent permit renewal application, they have not been reproduced for this Permit Renewal Application.

Many of the original permitted wells were damaged during various prior landfill construction activities. In 1991, low level volatile organic constituents (VOCs) were detected in some of these wells. The permittee notified Illinois EPA of the situation and initiated several investigations. The conclusion of the investigations, which were submitted to Illinois EPA, was that the source of the contamination was landfill gas. Damaged wells and wells that had gone dry due to construction activities were acting as conduits for the gas. To address the issue, in March 1992, the permittee submitted a Class 3 Modification proposing corrective action which included the construction of an active gas extraction system at the site. The gas extraction system was approved under a

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

Temporary Authorization on July 16, 1996. The system was installed in 1997 and certified in 1998. Technical details pertaining to this system are discussed below in Section E.5.

Other actions taken in response to the 1991 VOC detections included replacing damaged wells. Several wells were replaced in 1992 and 1993 in accordance with Illinois EPA approvals. In March 2000, damaged wells A129 and G139 were replaced with R129 and A139 respectively.

C.3 Historical Hydrogeological Summary

Throughout the history of the Zion Landfill, including both solid and hazardous waste programs, at least 30 subsurface investigations have been conducted for various purposes, including hydrogeologic exploration and piezometer/monitoring well installation. Since 1975, over 250 borings, piezometers, gas probes, monitoring wells, and replacement wells have been drilled and/or installed on the combined properties of the facility. Approximately 300 additional holes have been dug for trench probe inspections on Sites 1 and 2.

The initial hydrogeologic report for Site 1 was prepared by Soil Testing Services, Inc. (STS, 1975). It was based on ten soil borings installed in November 1974. Using that data and data from ten additional borings in the eastern portion of the site, James Douglas Andrews, P.E., Environmental Engineering, Inc., prepared additional reports as part of the 1980 Application for Permit (Andrews, 1980; STS, 1980). These reports discussed various aspects of hydrogeological conditions below the facility.

In late 1983 and early 1984, hydrogeologic investigations were conducted by Wehran Engineering and Recra Research, Inc. to further develop site-specific information that was used in the original RCRA Part B Permit Application. The Recra Research report was included in the original application.

After these investigations, borings have been installed to place or replace monitoring wells and piezometers. Further, hydrogeologic studies have been conducted on portions of the landfill lying north, west, and east of Site 1A to satisfy various solid waste permitting requirements.

In 1995, in preparation for a solid waste landfill expansion, Roberta Jennings & Belinda Staurowsky – Consulting Hydrogeologists integrated all previous investigations at the site into one inclusive report. Although the primary focus of the report was the expansion area east of the Zion Site 1A Landfill, the report also summarized the Site 1A features. The hydrogeologic discussion from the report and key figures and tables are provided in **Appendix C-1. Appendix**

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

C-1 contains a drawing (No. 31) from the Jennings report showing the average groundwater flow beneath the property. The drawing was developed using groundwater elevations from several years. A summary of the hydrogeologic investigations conducted at the site is also provided in **Appendix C-1**.

The Jennings report indicates the hydrogeologic conditions beneath the site are substantially the same as described in the original Part B Permit Application. Following is a summary of the conditions.

- Natural ground surface elevation at the site ranges from approximately 720 feet mean sea level (MSL) to 760 feet MSL.
- The uppermost aquifer unit is the glacial till. The unit is approximately 100 feet thick and consists of a weathered portion and unweathered portion. The weathered portion ranges in thickness from about 10 to 20 feet, including approximately two feet of topsoil. Below the weathered portion lies 80 to 90 feet of unweathered clay soil.
- Within the glacial tills are isolated, discontinuous lenses of silts and silty clayey sands, which are interpreted as interglacial lacustrofluvial deposits. In general, when these intra-till sorted sediments are present, they are encountered between 20 to 60 feet below the ground surface.
- The intra-till sorted sediments do not constitute an aquifer. However, because the sediments are more permeable than the surrounding till, the intra-till sorted sediment units are monitored as potential contaminant pathways. Based on the hydraulic conductivities, these sediments do not meet the requirements of 35 IAC 620.210 for Class I, Potable Resource Groundwater. The hydraulic gradients through these sediments are predominantly vertical, with horizontal flow negligible, except to and from an intercepting well or where sorted sediments intersect a surface boundary such as the wall of an excavation.
- Locally continuous interglacial sand is continuous beneath the landfill at approximately 100 feet. Beneath Site 1A, this sand layer is approximately 20 to 50 feet thick. This zone has been referred to historically and herein as the "shallow drift aquifer".
- The shallow drift aquifer is the uppermost aquifer underlying the site for purposes of this application. This aquifer is in the interglacial sand deposits. This unit meets the definition of 35 IAC 620.210 for Class I, Potable Resource Groundwater. Vertical flow predominates, although horizontal flow is also present. The horizontal flow beneath Site 1A is complex. Water flows toward the center of the site from both the northwest and southeast and then flows downgradient to the east-northeast. This approximates the geologic structure beneath the site that appears to include a stream channel deposit near the center of the site.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

- Beneath the sand layer lies an unconsolidated material consisting of interfingering dense clay, silty clay/clayey silt, sandy clay, clayey sand and fine silty sand. In general, this material has a higher percentage of coarser grained material than the upper till unit.
- A second sand unit is encountered at approximately 150 feet below ground surface. This sand layer is approximately 15 to 60 feet thick.
- Bedrock is encountered at approximately 200 to 225 feet below ground surface.

A summary of the hydraulic properties of various soil units beneath the Zion Site 1A Landfill is presented below.

Glacial Till

Property	Approximate Value	Source of Data
Particle Size Analysis	Clay: aprox. 39% Silt: aprox. 42% Sand: aprox. 19%	Report of Hydrogeological Investigations: Zion Sanitary Landfill – Jennings & Staurowsky, 1995
Porosity	30%	Report of Hydrogeological Investigations: Zion Sanitary Landfill – Jennings & Staurowsky, 1995
Hydraulic Conductivity	2.80×10^{-8} cm/sec (recompacted) 2.65×10^{-8} cm/sec (mean value for site)	Report of Hydrogeological Investigations: Zion Sanitary Landfill – Jennings & Staurowsky, 1995

Intratill Sediments

Property	Approximate Value	Source of Data
Porosity	40%	Report of Hydrogeological Investigations: Zion Sanitary Landfill – Jennings & Staurowsky, 1995
Transmissivity	0.09 to 53.18 gal/day/ft	Report of Hydrogeological Investigations: Zion Sanitary

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

		Landfill – Jennings & Staurowsky, 1995
Hydraulic Conductivity	3.66 x 10^{-5} cm/sec (geometric mean)	Report of Hydrogeological Investigations: Zion Sanitary Landfill – Jennings & Staurowsky, 1995

Interglacial Sand / Shallow Drift Aquifer

Property	Approximate Value	Source of Data
Porosity	25-50%	Report of Hydrogeological Investigations: Zion Sanitary Landfill – Jennings & Staurowsky, 1995
Transmissivity	< 1 to > 12,000 gal/day/ft	Report of Hydrogeological Investigations: Zion Sanitary Landfill – Jennings & Staurowsky, 1995
Hydraulic Conductivity	3.97 x 10^{-4} cm/sec (geometric mean)	Report of Hydrogeological Investigations: Zion Sanitary Landfill – Jennings & Staurowsky, 1995
General Flow Direction	Generally to the East	Four quarters of potentiometric contour maps from 1995 and 2009 and 2019/2020
Rate	1.02 ft./year (average over 4 quarters)	Four quarters of groundwater elevation contour maps from 1995

C.4 Topographic Map Requirements

In accordance with 35 IAC 703.183(s), the topographic map is included as **Figure B-3**. A legal description of the Site 1A property boundary is included in **Appendix B-2**. The following information referenced in the above regulation is provided elsewhere in the application as follows:

- The wind rose for the area is provided in **Appendix B-3**;

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

- There is no 100 year flood plain located within 1,000 feet of the facility (see documentation from FEMA in **Appendix B-4**);
- Surrounding land uses are shown on **Figure B-2** (Site Location/Surrounding Land Use Map);
- Injection and withdrawal wells are shown on **Figure C-1** (Groundwater Monitoring Network) and maps included in **Appendix C-1**; and
- Streams and surface waters are shown on **Figure B-2** (Site Location/Surrounding Land Use Map).

The topographic map shows the waste management area and property boundary. The location of the groundwater monitoring wells is also provided on **Figure B-3**.

The point of compliance is shown on **Figure C-1**. The point of compliance is specified by Illinois EPA and is the point at which the groundwater protection standard applies and at which monitoring is conducted. The groundwater protection standard is based upon the greater of the statistical background value as calculated by the methods included herein or the 35 IAC 620 Class I Groundwater Quality Standard, or two times the PQL (depending upon the frequency of detection in the background data). The point of compliance is a vertical surface located at the hydraulically downgradient limit of the waste management area that extends downward into the uppermost aquifer underlying the regulated units.

The general groundwater flow direction in the shallow drift aquifer is from west to east, with a slight component to the northeast over the southern portion of Site 1A. Thus, monitoring wells to the west of Site 1A are considered upgradient and wells to the east are downgradient. However, locally groundwater flow can be to the north and south. Historical groundwater elevation contour maps from 2009, as well as more recent contour maps from 2020 are included in **Appendix C-2**. These maps confirm that the current groundwater flow direction in the shallow drift aquifer is consistent with the historic data.

C.5 Contaminant Plume Description

This section is not applicable. No plume of contamination from the Zion Site 1A Landfill has been identified.

C.6 Detection Monitoring Program

Detection monitoring remains the most appropriate groundwater monitoring program for Site 1A. The Detection Monitoring Program will consist of sampling groundwater monitoring wells in

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

the shallow drift aquifer at least twice per year throughout the remainder of the post-closure care period. The "shallow drift aquifer" is the uppermost continuous aquifer beneath the facility.

Another shallower zone that yields water has been monitored throughout the current Part B permit period. Consistent with historical practices, this zone is also proposed to be monitored as part of the post-closure groundwater monitoring program proposed herein. This "shallow zone" program is also described below.

C.6.1 Indicator Parameters, Waste Constituents, Reaction Products Monitored

A list of indicator parameters has been historically monitored in the groundwater based on the wastes previously accepted for disposal at the Site 1A facility. These parameters were selected because they are persistent, detectable/quantifiable, mobile, not highly biodegradable, and generally do not exist naturally in groundwater. In addition, most of these constituents have an established 35 IAC 620 Groundwater Quality Standard.

A summary of the hazardous waste codes historically received at the Site 1A facility, along with a description that includes the basis for listing is provided on **Table C-1**. As shown in **Table C-1**, the list of indicator parameters is representative of the chemical characteristics of the hazardous waste codes historically disposed at the facility.

The indicator parameters represent families of constituents as follows:

Volatile Organics: A series of volatile organic compounds (VOCs) will be included as indicator parameters. VOCs do not occur naturally, but are prominent in the wastes historically disposed at Site 1A and in landfill leachate and therefore represent appropriate indicator parameters. VOCs are the most common constituent related to the specific hazardous waste codes that were historically disposed in the landfill. The suite of VOCs selected is representative of a typical SW-846 8260 scan. The list of specific VOCs included is provided in **Table C-2**.

Please note that the Storet number listed in the existing permit for 1,2-Dichloropropane is presently listed as 31541. However, to be consistent with the solid waste facility permits (for Site 1 Phase B and Site 2), please modify this Storet number to 34541.

Metals and Cyanide: A series of metals representative of the historic hazardous wastes disposed at the facility will also be monitored on a regular basis, along with cyanide. Two sets of samples will be analyzed for metals. One sample container will not be filtered and the results from this

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

container are considered to represent total metals. Another container will be filtered in the field with a 0.45 micron filter and therefore will be considered dissolved analysis. Significant concentrations of these metals generally do not occur naturally and therefore metals also represent quality indicator parameters. The specific metals selected are based upon the basis for listing the hazardous wastes that had historically been disposed at Site 1A. The list of specific metals included is provided in **Table C-2**.

In addition to the above indicator parameters, various field parameters will also be monitored, including specific conductance, pH, temperature, and turbidity. The primary purpose for collecting this data is to evaluate when the purge process can terminate and groundwater samples can be collected. Therefore, statistical comparisons between upgradient and downgradient concentrations will not be conducted for these field parameters.

C.6.2 General Monitoring Program Requirements

A groundwater detection monitoring program will be implemented to monitor groundwater beneath the facility. The uppermost aquifer monitored beneath the facility is the shallow drift aquifer.

The point of compliance is defined as the vertical surface located at the hydraulically downgradient limit of the landfill that extends down into the uppermost aquifer underlying the landfill. The point of compliance is shown on **Figure C-1**.

Shallow Drift Aquifer

The proposed groundwater monitoring system is shown on **Figure C-1**. Well locations are based on their position with respect to groundwater flow lines. In general, upgradient wells are located to the west of Site 1A. Upgradient wells are selected to be representative of groundwater that is unimpacted by Site 1A. Downgradient wells are located to the east. The point of compliance is formed by these downgradient wells. Additional monitoring wells on either side of the point of compliance (to the north and south) are in a sidegradient position relative to groundwater flow. These sidegradient wells are included in the groundwater monitoring system as a precaution to account for potential dispersion.

Shallow Zone

Throughout the current Part B permit period, the permittee has monitored shallow zone monitoring wells. The shallow zone is located approximately 50-70 feet above the shallow drift

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

aquifer discussed above. The interglacial deposits where the shallow zone wells are screened are discontinuous. There are no known water wells in the area using water from this unit. The purpose of the shallow zone wells is to serve as an early warning system to detect potential leaks before constituents could potentially migrate to the deeper uppermost aquifer (i.e., the shallow drift aquifer).

C.6.3 Groundwater Monitoring System

A summary of the construction detail for the proposed groundwater monitoring wells is provided in **Table C-3**. This table identifies the well designations, coordinates, ground surface elevation, inside casing elevation, screen interval, bottom of well elevation, internal casing material, internal casing diameter, geologic formation monitored, and date installed. **Figure C-1** shows the location of these wells.

C.6.4 Description of Sampling and Analysis Procedures

The following sampling and analysis procedures will be followed for monitoring wells screened in both the shallow draft aquifer and the shallow zone.

Pre-Sampling Preparation

Preparation for a successful sampling event must begin in advance of field sampling operations. In as much as possible, sampling events will be scheduled at least 2-3 weeks in advance of the sampling event. This will allow time for the preparation and assembly of sampling equipment, sampling bottles, labels, chain of custody forms, and paperwork. Prior to sampling, monitoring equipment will be assembled and carefully inspected to ensure proper working order and supply. Worn or discolored equipment will be replaced or repaired. Batteries for field meters will be checked and if necessary, replaced.

The expiration date of the calibration buffers will be checked. If expired, fresh buffers will be obtained. The field meters will be calibrated and evaluated for drift and stability. The supply of incidental sampling equipment, including the 0.45 micron filters will be evaluated.

The laboratory performing the groundwater analysis shall supply the necessary coolers, pre-cleaned containers, trip blanks, chemical preservatives, labels, custody seals, chain-of-custody and shipping forms. Sample containers need to be constructed of a material compatible and non-reactive with the material it is to contain. Adequate instructions to the laboratory must be given in advance of each monitoring event. Details concerning changes to the monitoring plan and/or

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

procedures will be given to the laboratory in writing prior to the field sampling personnel arriving on the site. A specific contact person shall be established at both the facility and contract laboratory for communication between the two parties.

Although every effort will be made to adhere to established schedules, sampling schedules are subject to change based on factors such as weather. No sampling will occur during inclement weather conditions (i.e., when precipitation in the form of rain or snow will potentially contaminate samples, when winds are high enough to cause blowing dust and other materials to uncontrollably contaminate samples, or when the weather is so cold that it interferes with the operation of equipment or the sampling crew's ability to exercise effective quality control). The decision to postpone or delay a sampling event will be at the discretion of the Project Manager and will be reported to the Illinois EPA if such a delay extends beyond the permitted time-frame.

Water Level and Well Depth Measurements

Water levels will be measured at the monitoring wells and recorded. The depth below ground of wells that do not have a dedicated pump will be measured on an annual basis. The depth below ground of wells having a dedicated pump will be measured every five years or whenever it is pulled.

Groundwater Purging

Dedicated purge and sampling equipment serves to minimize potential cross-contamination between wells. Groundwater samples are extracted using individual dedicated submersible pumps. If dedicated sampling equipment is not functional for a sampling event, the affected well(s) will be sampled with a disposable bailer or with equipment that has been decontaminated in the field prior to the sampling event.

Groundwater will be purged prior to sampling such that the water level is not lowered to within the screen interval. Wells installed in poorly productive horizons will be purged until the water level is lowered to immediately above the well screen.

A total of three well volumes of groundwater will be purged from each well, if possible. Less volume will be purged from wells in which the static water level lies close to or within the screen interval or that recharge slowly.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

The temperature, pH, and specific conductance of groundwater will be monitored regularly during purging and the results recorded.

Groundwater purged from detection monitoring wells will be directed into the adjacent perimeter stormwater ditch or disposed of on the ground within the waste limits. Groundwater purged from wells undergoing compliance monitoring and/or corrective action will be containerized and disposed with leachate.

Deleted: assessment

Sample Collection

Upon arrival at the well location, observe and record the condition of the well and its surrounding area on a field information form. Carefully observe each well or piezometer for signs of deterioration or other problems (e.g. rusted or broken locks, crumbling or cracked surface pad, missing well cap, standing water, etc.). If problems are observed, report the problem to appropriate personnel. **Figure C-2** is a sample Groundwater Sampling Form. The actual format of this form may change during the life of the permit. Alternate forms may be used, if the same basic information is provided. Also, electronic forms may be utilized.

Groundwater will be sampled following purging. The pump rate will be maintained at approximately 100 ml/minute or less prior to sample collection. The groundwater level will not be lowered to within the screen interval during sampling. Field measurements for pH, specific conductance, and temperature will be performed and recorded. Samples will be containerized in order of volatility, as listed below.

Samples will be collected in the following order:

- Field parameters,
- Volatile Organics (VOCs),
- Total metals,
- Dissolved metals, and
- Inorganics.

When sampling for VOCs, care must be exercised to minimize loss of the volatile organic compounds. Precautionary measures to be taken include:

- Drawing VOC samples slowly from the dedicated tubing. The sample container should be tilted slightly and the sample will be released slowly and allowed to run down the side of the container in a manner which minimizes sample agitation or aeration.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

- Fill bottles to capacity with sample and eliminate air bubbles. This is done by overfilling the container to a point where the liquid meniscus is above the top of the container. Tightly cap container. Invert container after capping and tap to visually examine for air bubbles. Should air be detected, refill with new sample until a "zero headspace" sample is obtained.

Each piece of down hole equipment, including: submersible pumps and tubing are presently dedicated to a specific well. Filtering will be performed in-line, as the groundwater is removed from each well. Therefore, the need for decontamination of non-dedicated equipment will be minimal.

Sample Preservation and Shipment Procedures

Since multiple analyses will be required, different types of containers and preservatives will be necessary. Multiple pre-labeled containers will be supplied by the laboratory for each sampling point. The appropriate preservatives will be attached to the bottle in small vials or will have been added to each container (as required) during sample preparation by the analytical laboratory. Sample preservation should be performed immediately upon sample collection.

The sample containers and chemical preservatives to be utilized for the indicator parameters will be as follows:

Parameter Group	Container	Preservative
VOCs	40 mL glass vials w/ no headspace	HCl to pH < 2
Metals (total and dissolved)	500 mL plastic (sample unfiltered for total metals and filtered for dissolved metals)	HNO_3 to pH < 2
Cyanide	500 mL plastic	NaOH to pH > 12

Immediately after collection, bottles will be placed in coolers with ice. Samples will be maintained at approximately 4-6°C. The samples will be sent to the laboratory and will arrive (at the laboratory) within 48 hours of collection. The temperature inside the coolers containing the samples will be verified upon receipt of the coolers.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

Chain of Custody Procedures

At the time each sample is taken, a chain-of-custody record will be completed and sent to the laboratory, along with the groundwater samples. **Figure C-3** is a sample chain-of-custody form. The format for this form is expected to change from time to time during the life of the permit. Alternate forms may be utilized, if the same basic information is provided.

Upon transfer of sample possession to subsequent custodians, the chain-of-custody record will be signed by the person taking custody of the sample container and the person giving up custody. Upon receipt of samples at the laboratory, the date and time of arrival will be noted on the chain-of-custody records. The laboratory receiver will verify that the seal is intact, if present, and custody has not been broken. The shipping container seal will then be broken. The chain-of-custody records will be included in the analytical report prepared by the laboratory.

As part of the chain-of-custody procedure, each sample container will be labeled with the sample identification and the parameter to be analyzed.

Quality Control Samples

Field blanks and trip blanks may be used to assess the integrity of the sampling and shipping process. At a minimum, one trip blank will be included for each cooler containing samples to be analyzed for volatile organics. Trip blanks will only be analyzed for VOCs. If the samplers have reason to suspect ambient contamination during sampling, a field blank will be analyzed for the same list of parameters using the same analytical methods as used for the groundwater samples. The blank results will be provided in the laboratory reports for the groundwater event.

Analytical Procedures

From time to time during the post-closure care period, the permittee may contract analytical services from various laboratories. In general, a single laboratory will perform analysis for one or more full calendar year(s). Each contracted laboratory will be required to provide a copy of its Laboratory Quality Control Procedures, which will be maintained by the permittee and will be available for review by Illinois EPA inspectors, upon request.

When matrix conditions within a sample allow, the practical quantitation limit (PQL) for each indicator parameter will be at least equal to the Class I groundwater quality standard listed in 35 IAC 620. The PQL is defined in 35 IAC 724.197(i)(5) as the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

operating conditions that are available to the facility. The PQL utilized will be identified on the analytical reports provided by the laboratory. Occasionally, PQLs may vary due to interferences, changes in laboratory procedures, or other factors.

The analytical methods for the indicator parameters proposed in the detection groundwater monitoring program will be as follows:

VOCs:	SW-846 8260
Total and Dissolved Ba, Cd, Cr, Pb, Ni:	SW-846 6010B
Total and Dissolved Hg:	SW-846 7470A
Cyanide:	SW-846 9012

Analytical methods will be in accordance with the latest promulgated version of USEPA's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods-SW-846 Third Edition, Final Update III, Revision 4". If the specific methods listed above are updated or if a new method is promulgated, then the updated method may be utilized.

C.6.5 Evaluation of Groundwater Surface

Shallow Drift Aquifer

Groundwater elevations will be measured when groundwater samples are collected. Prior to groundwater purging and sample withdrawal, an accurate depth to water-level measurement will be taken with a portable, conventional static water level indicator. The depth to water level meter will be properly decontaminated prior to the first measurement and after each measurement has been recorded for each well. The water level measurements will be recorded and a groundwater elevation contour map will be developed.

Shallow Zone

While groundwater elevations will be measured on a regular basis at wells screened in the shallow zone using the same procedures as above, a groundwater elevation contour map will not be developed for the shallow zone because this unit is discontinuous.

C.6.6 Background Quality

Background groundwater quality has been previously evaluated for both the shallow drift aquifer and shallow zone based upon the previously approved statistical procedures contained in the prior permit renewal application and the current effective Permit. The background values for the List G1 parameters were approved by Illinois EPA with Permit Modification Log # B-23R-M-1 and

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

are listed in Section IV to the current effective Permit (see **Appendix B-1**). Background values for List G2 parameters were approved by Illinois EPA with Permit Modification Log # B-23R-M-3 and are also listed in Section IV to the current effective Permit.

No revisions to the currently approved background values are being sought as part of this Permit Renewal Application. However, a typographical error is believed to be included in the existing permit regarding the background values listed for cyanide (dissolved) and cyanide (total). The background values for both constituents are listed as 0.005 ug/L. However, prior documentation submitted to Illinois EPA indicates that the background value for both these constituents should be 5 ug/L, not 0.005 ug/L. Alternatively, the background values could be listed as 0.005 mg/L. The laboratory is unable to report to 0.005 ug/L under existing SW-846 analytical methods.

C.6.7 Statistical Evaluations

Shallow Drift Aquifer

The prediction limit statistical method previously calculated, reviewed, and approved by the Illinois EPA remains appropriate. The prediction limit method is referenced in 35 Ill. Adm. Code 724.197(h)(3) and in various guidance documents on statistical analysis of groundwater quality data published by the USEPA, including the Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities Unified Guidance, dated March, 2009.

Background groundwater quality values have been developed for each indicator parameter. Interwell statistical procedures are being applied to the shallow drift aquifer and therefore, the background data is obtained from the upgradient wells screened in the shallow drift aquifer. The prediction limit test using the 0.01 level of significance (i.e., 99% confidence) will be the statistical method applied.

The appropriate methodology for calculating the prediction limit is based upon the normality characteristics of the background data. Normality testing has been performed on the background dataset. Data from each of the upgradient wells was pooled for subsequent statistical evaluation. Based on the Shapiro-Wilk normality tests, the data was separated according to data normality or percentage of data below the PQL. The intrawell prediction limits for normally distributed parameters was calculated according to the methods in ASTM, 2005. This method provides for prediction limit calculations based on the number of background values, the number of future observations, and the false positive rate. The prediction limit approach utilizes verification

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

sampling to differentiate statistically significant increases from false positive errors. The prediction limit for normally distributed constituents is calculated as follows:

$$\bar{x} + s * \sqrt{1 + \frac{1}{n}} * t_{[n-1,\alpha]}$$

Where:

α is the false positive rate for each individual test (i.e., 0.01);
$t_{[n-1,\alpha]}$ is the one sided (1-α) 100 % point of Student's t distribution on n-1 degrees of freedom (see Table in **Appendix C-3**);
$\bar{x}$ is the mean of the data set;
s is the standard deviation of the background data set; and
n is the total number of background measurements (pooled from each of the upgradient wells).

Prediction limits for lognormally distributed data were calculated using natural logarithms of the original data. For presentation purposes, after calculation of the prediction limit, the natural logarithm prediction limits are converted back to original units.

In accordance with USEPA, 1992, the prediction limits for background data that was neither normally nor lognormally distributed were calculated using nonparametric procedures. The nonparametric prediction limits were established as the maximum detected concentration in the pooled background database. Also, parameters with greater than 50% of the background data reported below the PQL will be considered to have an indeterminate distribution. In this case, the background levels will be based on nonparametric prediction limits (i.e., the highest concentration in the pooled background data set).

Lastly, the background levels for constituents with 100 percent of the data reported below the PQL will be established based on the practical quantitation limit (PQL) for the referenced SW 846 Method.

Shallow Zone

The same statistical procedure has been applied to data collected from wells screened in the shallow zone. The only difference is that background data from each individual well was utilized for purposes of computing the background prediction limits, rather than the pooled background data from upgradient wells, as was the case for the shallow drift aquifer.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

C.6.8 Statistically Significant Increases

Shallow Drift Aquifer

The procedures for evaluating for a preliminary statistically significant increase are based upon whether the indicator parameter is present in the background data set or not.

If a parameter is present in the background data, then the following procedures will apply.

The data obtained from point of compliance wells will be compared to the background prediction limit established as discussed above or the 35 IAC 620, Class I Groundwater Quality Standard, whichever is greater, each time groundwater quality is evaluated at the point of compliance.

If a parameter is not present in the background data, then the following procedures will apply.

A preliminary statistically significant increase will be identified if either of the following conditions are noted:

1. The measured concentration of a single constituent is greater than two times the PQL; or
2. The measured concentration of two (2) or more constituents is greater than the PQL for each constituent.

If a preliminary statistically significant change is noted, the permittee has the option of declaring the preliminary increase a confirmed increase without performing verification sampling or may initiate verification procedures to evaluate whether the increase will be considered confirmed. The verification procedures will include collection of another sample from the specific well(s) for the specific parameter(s) exhibiting the preliminary statistically significant increase. The verification sample will be collected within 45 days of receipt of the laboratory report that indicates a preliminary exceedance.

Collection, preservation, and analysis of the resample will be carried out in a manner as described above. Only wells and/or parameters exhibiting a preliminary statistical increase will be included in the scope of the verification sampling. The results of the resampling will be compared to the appropriate standard described above. If the resample results are equal to or less than the above standard, then detection monitoring will continue. If the second round of sampling and analysis confirms the initial findings, the permittee may declare a confirmed increase, or has the option of further evaluating the validity of the statistics using the trend analysis approach described below.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

Certain naturally occurring parameters (such as certain metals) show considerable fluctuation at individual wells and at different times (both annual due to seasonal fluctuations and over longer periods of time). While routine statistical evaluation of these parameters sometimes indicate a significant change has occurred, in actuality, there has been no impact from the landfill. Rather, the change is a naturally occurring phenomena. Trends will be maintained for these parameters and the trends may be used to demonstrate the change is normal as evidenced by natural fluctuations over time.

The specific trend evaluation performed in this situation will be the Mann-Kendall Test. The Mann-Kendall test can evaluate both upward and downward trends. The Mann-Kendall Test Statistic is the difference in the number of increasing values and the number of decreasing values in the database. The test statistic, along with the sample size (n), will be used to calculate the corresponding probability of the trend being true. If the test statistic (S) is less than zero (i.e., the total number of negatives is greater than the total number of positives), then an overall downward trend is present. If the test statistic is greater than zero (i.e., the total number of positives is greater than the total number of negatives), then an upward trend is present. A description of the test methodology and assumptions associated with the Mann-Kendall Test is presented below.

The Mann-Kendall Test requires no distributional assumptions, but does require insertion of the reporting limit (i.e., the PQL) where the concentration was reported as not detected. Trend testing will be performed at a Type I error rate of 0.01 (i.e., 99% confidence). This provides a sufficient level of confidence for individual tests. Example calculations utilizing the Mann-Kendall Test are provided in both Gibbons (1994) and Gilbert (1987) and are also included within **Appendix C-3**.

The procedure for the Mann-Kendall test is as follows:

1. Order the data by sampling date: $x_1, x_2, \ldots, x_n$, where x_i is the measured value on occasion i.

2. Record the signs of each of the N' possible differences $x_{i'} - x_i$, where $i'>i$. For example, let:

$$\text{sgn}(x_{i'}-x_i) = \begin{cases} 1 & \text{if } x_{i'}-x_i > 0 \\ 0 & \text{if } x_{i'}-x_i = 0 \\ -1 & \text{if } x_{i'}-x_i < 0 \end{cases}$$

Deleted:

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

3. The Mann-Kendall statistic is then computed as:

$$S = \sum_{i=1}^{n-1} \sum_{i'=k+1} \text{sgn}(x_{i'} - x_i)$$

which is the number of positive differences minus the number of negative differences.

Values of *S*, *n*, and the associated probability for the test of S=0 for values of *n* up to ten are given in Table 9.4 of Gibbons (1994), which is also provided in **Appendix C-3**. For values of *n* greater than ten, refer to Table A.21 in Hollander and Wolfe (1973), which is also provided in **Appendix C-3**. A significance level of 0.01 will be utilized. If the probability obtained from either Table 9.4 of Gibbons (1994) or Table A.21 of Hollander and Wolfe (1973) is less than 0.01, then the data set will be considered to have a statistically significant trend.

If trend analyses fail to show a pattern indicating a statistically significant upward trend, routine detection monitoring will continue.

If trend analyses show a statistically significant upward trend for the specific indicator parameter at a specific well, then it will be concluded that a statistically significant increase has occurred (in the affected well). Upon this conclusion, the permittee will notify Illinois EPA in writing within seven (7) business days indicating the affected well(s) and the parameter(s).

Unless the permittee pursues an alternate source demonstration as described below, within the specified timeframe, upon identification of a confirmed statistically significant increase, all point of compliance wells will be sampled and analyzed for the parameters listed in 35 IAC 724 Appendix I (Appendix I). If any Appendix I parameters are detected, additional sampling/analysis for the detected parameter(s) will be performed within 30 days of receipt of the final laboratory data from the initial Appendix I event. The permittee will subsequently prepare a Class 3 Permit Modification to propose a Compliance Monitoring Program for the point of compliance wells, which will be based on the results from the Appendix I sampling event(s). This Class 3 Modification application will be submitted within 120 days of receipt of the final laboratory data from the Appendix I resample event. The application must include the following information:

A) An identification of the concentration of any constituent in Appendix I detected in the groundwater at each monitoring well at the compliance point;

B) Any proposed changes to the groundwater monitoring system at the facility necessary to meet the requirements of Section 724.199;

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

C) Any proposed additions or changes to the monitoring frequency, sampling and analysis procedures or methods, or statistical methods used at the facility necessary to meet the requirements of Section 724.199;

D) For each hazardous constituent detected at the compliance point, a proposed concentration limit under Section 724.194(a)(1) or (a)(2), or a notice of intent to seek an alternate concentration limit under Section 724.194(b).

As an alternative to performing the above Appendix I sampling, the permittee also has the option of demonstrating that the confirmed statistically significant increase is from a source other than the landfill or the increase resulted from an error in sampling, analysis, or evaluation. In this instance, the permittee will proceed as follows:

1. Notify the Illinois EPA in writing that they intend to make this demonstration. This notification must be submitted to the Illinois EPA within seven (7) days of the date that the increase is discovered;
2. Submit a report to the Illinois EPA which demonstrates that a source other than a regulated unit caused the increase, or that the increase resulted from error in sampling, analysis, or evaluation. This report must be submitted within ninety (90) days of the date that the increase is discovered;
3. Submit to the Illinois EPA an application to make any appropriate changes to the Groundwater Detection Monitoring Program (if any). This application must be submitted within ninety (90) days of the date that the increase is discovered;
4. Continue to monitor in accordance with the detection monitoring program at the facility.

If the above demonstration is denied by the Illinois EPA, then the permittee would then be obligated to perform the Appendix I sampling referenced above. In addition, the permittee is not relieved of the requirement to submit a permit modification to begin a compliance groundwater monitoring program, unless the above demonstration successfully shows that the source of the statistical increase was related to a source other than the regulated unit or the increase resulted from error in sampling, analysis, or evaluation.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

Shallow Zone

The procedures for evaluating for a statistically significant increase in the shallow zone will be the same as the procedures implemented for the shallow drift aquifer, except that the statistical analysis will be performed on an intrawell basis, rather than an interwell basis.

C.7 Compliance Monitoring Program

As discussed above, no documented impacts have been identified in the groundwater to date and the facility is implementing a detection groundwater monitoring program. Therefore, a compliance monitoring program is not required and this section is not applicable.

C.7.1 Description of the Monitoring Program

As indicated above immediately under the heading Section C.7, a compliance monitoring program is not required. Thus, this subsection is not applicable.

C.7.1.1 Waste Description

As indicated above immediately under the heading Section C.7, a compliance monitoring program is not required. Thus, this subsection is not applicable.

C.7.1.2 Concentration Limits

As indicated above immediately under the heading Section C.7, a compliance monitoring program is not required. Thus, this subsection is not applicable.

C.7.1.3 Compliance Point

As indicated above immediately under the heading Section C.7, a compliance monitoring program is not required. Thus, this subsection is not applicable.

C.7.1.4 Compliance Period

As indicated above immediately under the heading Section C.7, a compliance monitoring program is not required. Thus, this subsection is not applicable.

C.7.2 Alternate Concentration Limits

As indicated above immediately under the heading Section C.7, a compliance monitoring program is not required. Thus, this subsection is not applicable.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

C.7.2.1 Adverse Effects on Groundwater Quality

As indicated above immediately under the heading Section C.7, a compliance monitoring program is not required. Thus, this subsection is not applicable.

C.7.2.2 Potential Adverse Effects Hydraulically Connected Surface Water

As indicated above immediately under the heading Section C.7, a compliance monitoring program is not required. Thus, this subsection is not applicable.

C.7.3 General Monitoring Program Requirements

As indicated above immediately under the heading Section C.7, a compliance monitoring program is not required. Thus, this subsection is not applicable.

C.7.4 Groundwater Monitoring System

As indicated above immediately under the heading Section C.7, a compliance monitoring program is not required. Thus, this subsection is not applicable.

C.7.5 Description of Sampling and Analysis Procedures

As indicated above immediately under the heading Section C.7, a compliance monitoring program is not required. Thus, this subsection is not applicable.

C.7.6 Background Quality

As indicated above immediately under the heading Section C.7, a compliance monitoring program is not required. Thus, this subsection is not applicable.

C.7.7 Statistical Evaluations

As indicated above immediately under the heading Section C.7, a compliance monitoring program is not required. Thus, this subsection is not applicable.

C.7.8 Evaluation of Groundwater Surface

As indicated above immediately under the heading Section C.7, a compliance monitoring program is not required. Thus, this subsection is not applicable.

C.7.9 Annual Appendix I

As indicated above immediately under the heading Section C.7, a compliance monitoring program is not required. Thus, this subsection is not applicable.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

C.7.10 Statistically Significant Increases

As indicated above immediately under the heading Section C.7, a compliance monitoring program is not required. Thus, this subsection is not applicable.

C.8 Corrective Action Program

As mentioned above, presence of hazardous constituents has not been identified in the groundwater. Therefore, a corrective action program is not required, and this section and all subsections are not applicable.

C.8.1 Description of Corrective Action Program

As indicated above immediately under the heading Section C.8, a corrective action program is not required. Thus, this subsection is not applicable.

C.8.1.1 Characterization of Contaminated Groundwater

As indicated above immediately under the heading Section C.8, a corrective action program is not required. Thus, this subsection is not applicable.

C.8.1.2 Concentration Limits

As indicated above immediately under the heading Section C.8, a corrective action program is not required. Thus, this subsection is not applicable.

C.8.1.3 Compliance Point

As indicated above immediately under the heading Section C.8, a corrective action program is not required. Thus, this subsection is not applicable.

C.8.1.4 Compliance Period

As indicated above immediately under the heading Section C.8, a corrective action program is not required. Thus, this subsection is not applicable.

C.8.1.5 Construction Detail

As indicated above immediately under the heading Section C.8, a corrective action program is not required. Thus, this subsection is not applicable.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

C.8.1.6 Effectiveness of Corrective Action

As indicated above immediately under the heading Section C.8, a corrective action program is not required. Thus, this subsection is not applicable.

C.8.2 Alternate Concentration Limits

As indicated above immediately under the heading Section C.8, a corrective action program is not required. Thus, this subsection is not applicable.

C.8.2.1 Adverse Effects on Groundwater Quality

As indicated above immediately under the heading Section C.8, a corrective action program is not required. Thus, this subsection is not applicable.

C.8.2.2 Potential Adverse Effects on Hydraulically Connected Surface Water

As indicated above immediately under the heading Section C.8, a corrective action program is not required. Thus, this subsection is not applicable.

C.8.3 Corrective Action Plan

As indicated above immediately under the heading Section C.8, a corrective action program is not required. Thus, this subsection is not applicable.

C.8.4 Groundwater Monitoring Program

As indicated above immediately under the heading Section C.8, a corrective action program is not required. Thus, this subsection is not applicable.

C.8.4.1 General Monitoring Program Requirements

As indicated above immediately under the heading Section C.8, a corrective action program is not required. Thus, this subsection is not applicable.

C.8.4.2 Groundwater Monitoring System

As indicated above immediately under the heading Section C.8, a corrective action program is not required. Thus, this subsection is not applicable.

C.8.4.3 Description of Sampling and Analysis Procedures

As indicated above immediately under the heading Section C.8, a corrective action program is not required. Thus, this subsection is not applicable.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

C.8.4.4 Background Quality

As indicated above immediately under the heading Section C.8, a corrective action program is not required. Thus, this subsection is not applicable.

C.8.4.5 Statistical Evaluations

As indicated above immediately under the heading Section C.8, a corrective action program is not required. Thus, this subsection is not applicable.

C.8.4.6 Evaluation of Groundwater Surface

As indicated above immediately under the heading Section C.8, a corrective action program is not required. Thus, this subsection is not applicable.

C.8.4.7 Extension of Compliance Period

As indicated above immediately under the heading Section C.8, a corrective action program is not required. Thus, this subsection is not applicable.

C.8.4.8 Effectiveness of Corrective Action

As indicated above immediately under the heading Section C.8, a corrective action program is not required. Thus, this subsection is not applicable.

C.8.4.9 Evaluation of the Corrective Action Program

As indicated above immediately under the heading Section C.8, a corrective action program is not required. Thus, this subsection is not applicable.

C.9 Reporting Requirements

Groundwater monitoring, testing, and analytical data obtained as part of the Detection Monitoring Program described above will be compiled in the facility operating record. The data will include all computations, calculations, and related statistical evaluations.

The groundwater samples will be collected to meet the requirements of the Detection Groundwater Monitoring Program described above. The applicable data will be submitted to the Illinois EPA in accordance with the following schedule:

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

Samples to be Collected During The Months of	Results Submitted to the Illinois EPA by the Following	Parameters
April – May	July 15	VOCs, Metals, and Cyanide
October – November	January 15	VOCs

Groundwater surface elevation data and the field parameters (pH, specific conductance, temperature, and turbidity) shall be collected each sampling event and submitted to the Illinois EPA in accordance with the schedule included in the above table. The groundwater flow rate and direction in the shallow drift aquifer will be reported annually by July 15 each year.

The Permittee shall report the surveyed elevation of the top of the well casing "stick-up", referenced to MSL in accordance with the following schedule:

1. For wells identified in **Table C-3**, every five years (during the annual sampling event); or at the request of the Illinois EPA; or whenever the elevation changes.

2. For any new wells, at the time of installation and reported in the as-built diagrams, subsequent measurements shall be made every five years (during the annual sampling event), or at the request of the Illinois EPA, or whenever the elevation changes.

Elevation of the bottom of each monitoring well, as referenced to MSL, is to be reported every five years or more frequently, if the dedicated pumps are removed from the monitoring wells for maintenance. This measurement shall be taken during the annual sampling event.

Deleted: (5)

Deleted: (5)

Deleted: (5)

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

D. PROCEDURES TO PREVENT HAZARDS

D.1 Security

D.1.1 Waiver From Security Requirements

A waiver from applicable security requirements is not being sought, therefore this section is not applicable.

D.1.2 Restricting Entry to the Facility

Since the facility is closed and regularly undergoing post-closure care and maintenance, the activities near the unit will be minimal. Activities will be limited to those inspection, monitoring and repair/maintenance activities necessary during post-closure. The individuals involved in these planned activities will be aware of the hazardous nature of the closed site. The potential for exposure to hazardous waste or hazardous waste constituents to unknowing persons or livestock will be minimal, since no wastes are exposed.

Multiple security controls deter unknowing and unauthorized entry to the site. The perimeter of the facility is fenced to control entry. The fence is routinely inspected, and repairs are made as necessary to maintain an adequate barrier. Traffic enters and exits the Zion 1A Landfill through the main gate on Green Bay Road. When the site is open, this gate is continuously monitored. The gate is locked when the site is closed. Other gates, located along 9th Street and onto Kenosha Road (see **Figure B-2**), are kept locked and are only opened by permittee personnel for planned (e.g. construction, leachate removal) or emergency activities.

Because of normal wear, it is anticipated that annual maintenance will be required to provide a functional security system. Therefore, fencing repair and replacement will be performed on an as-needed basis. Chains, locks and signs will be checked at least annually to assess whether replacement or maintenance is needed.

Finally, because the solid waste landfill on the eastern side of the property will continue to be active throughout much of the hazardous waste unit's post-closure care period, site personnel will be present for a great portion of each operating day. The presence of trained, attentive employees will provide added security for the closed Site 1A facility.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

D.1.3 Warning Signs

Signs are posted at all gates to the facility. Additional signs are located along the perimeter of the Site 1A facility. The signs, which have been created to be legible from 25-feet, contain the following information:

DANGER – UNAUTHORIZED PERSONNEL KEEP OUT

Signs that are not be legible from a distance of 25 feet will be replaced on an as needed basis.

D.2 Equipment Requirements

D.2.1 Waiver

The permittee is not requesting a waiver of the preparedness and prevention requirements of Subpart C of 35 IAC 724.

D.2.2 Internal Communications

Because the facility is closed and no longer receiving hazardous waste, the equipment maintained on-site to prevent hazards is relatively minimal. Buildings are equipped with methane detectors. The primary means of internal and external communication on-site during the post-closure period is by cell phone. Personnel performing post-closure compliance activities at Site 1A will have a cell phone with them. Fire extinguishers are provided in buildings maintained by the owner and on construction equipment.

D.2.3 External Communications

When post-closure activities are required on-site, the staff performing the work carry cell phones, which can be used in the event of an emergency.

D.2.4 Emergency Response Equipment

A fire extinguisher is located in the area of the secondary containment tank and blower building. Spill control and decontamination equipment are also stored in a building located near the tank.

The facility owner maintains supplies of other emergency equipment on-site. This equipment includes, but is not limited to, the following:

1. Additional fire extinguishers located throughout each building at the facility, around fuel storage areas, and on mobile landfill equipment.
2. Landfill equipment capable of moving and placing earth material.

Deleted: will be
Deleted: 2-way radio and/or
Deleted: ular
Deleted: either
Deleted: radio and/or
Deleted: regularly
Deleted: ular
Deleted: tele
Deleted: will
Deleted: proper
Deleted: F
Deleted: <#>Landfill equipment capable of carrying supplies of water and capable of dispersing water as necessary.¶
Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

For emergency communication, cell phones are used. These devices are not kept on-site and is instead maintained by individual contractor/operator employees.

D.2.5 Water for Fire Control

According to 35 IAC 724.132, facilities must be equipped with certain emergency preparedness equipment "unless the owner or operator demonstrates to the Agency that none of the hazards posed by waste handled at the facility could require a particular kind of equipment specified below." Item d of 724.132 is "Water at adequate volume and pressure to supply water hose streams, or foam producing equipment, or automatic sprinklers or water spray systems.

The only waste handled at Site 1 Phase A is landfill leachate, which is aqueous and not flammable (as documented by historical analytical data). All the waste in Site 1 Phase A is safely contained under the final cover, thus, it is not susceptible to ignition from lightning strikes or other sources such as sparks from passing heavy equipment.

The gas collection system in Site 1 Phase A is carefully managed to prevent oxygen intrusion into the waste mass, and without oxygen combustion cannot occur. If, in the very unlikely event that the waste did begin to combust, industry-best practice is to smother the combusting waste with soil, not apply water. A stockpile of daily cover soil that can be used to smother a waste fire is maintained by the operating solid waste landfill.

For these reasons, a supply of water for firefighting at Site 1 Phase A is not necessary and the application does not need to address the amount of water in the retention basin.

D.2.6 Personal Protective Equipment

There are a number of general safety rules to ensure safe operations. Employees and contractors are required to wear applicable personal protective equipment while performing their work. The operator does not maintain any buildings at the site that are suitable for storing equipment, therefore, PPE for contractors will be provided by their employer and by BFI for their employees. At a minimum, a high visibility shirt or vest and work boots with a safety toe are required. Smoking on-site is restricted. Contractors performing post-closure services at the site will be provided a fact sheet concerning the nature of the landfill. A sample contractor handout is provided in **Appendix D-1**.

Deleted: First aid stations located at various locations around the facility.¶

Deleted: C

Deleted: ular

Deleted: tele

Deleted: for emergency response communications

Deleted: i

Deleted: equipment is

Deleted: kept/

Deleted: s

Deleted: Communications equipment (two-way radios and telephones) which allows various personnel at the facility to contact each other.

Deleted: A water detention basin that regularly holds water is located west of Site 1A that can serve as a source of water for firefighting purposes, in the unlikely event of a fire at the Site 1A facility. ...

Deleted:

Deleted: ,

Deleted: supply

Deleted: stockpiles

Deleted: adjacent

Deleted: municipal

Deleted: Emergency equipment such as first aid kits, eyewashes, and showers are found in many of the buildings.

Deleted: /

Deleted: post-closure workers

Deleted: contractors/employees of the operator

Deleted: closure and

Deleted: prior to working

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

D.2.7 Testing & Maintenance of Emergency Equipment

As described above, the facility is not regularly staffed with personnel and personnel performing the various required post-closure tasks carry cellular telephones for communication. There has been strong cellular service at the facility for many years. Individuals use cell phones throughout the day, so the cell phones are assessed regularly to ensure they are operating properly. Therefore, there is no need for maintenance of facility communications systems.

Emergency equipment maintained at the closed landfill includes fire extinguishers. Except for the fire extinguisher located near the blower building, the operator has no buildings on-site suitable for housing fire extinguishers. However, fire extinguishers are kept in buildings occupied by the owner.

Contractors are required to provide first aid kits to their employees and ensure that they are properly stocked, and expiration dates are current.

D.2.7.1 Equipment Testing

Fire extinguishers are maintained by the owner and operator in accordance with the manufacturer's recommendations.

D.2.7.2 Schedule

See Section D.2.7.1.

D.2.8 Equipment and Power Failure

In the event of a power outage, the leachate extraction pumps within the landfill would cease operation. The automated pumps will operate again, once power has been restored. Portable generators are also available, should auxiliary power be necessary. Potential issues related to operation of the leachate pumps will be identified and corrected in accordance with the inspection requirements described in Section D.3 below.

D.3 Inspection Requirements

Regular maintenance and inspections are performed to preserve the proper functioning of the facility. Depending upon the results from the inspections, maintenance activities may be performed on such things as fence/gates, office buildings, interior roads, utilities, the groundwater monitoring system, and the leachate/gas collection system.

Deleted: historically

Deleted: and

Deleted: :

Deleted: and a safety eye bath

Deleted: These items will be maintained in accordance with the manufacturer's recommendations.

Deleted: F

Deleted: on-site in

Deleted: maintained

Deleted: , but the operator has no buildings on-site suitable for housing fire extinguishers

Deleted: Therefore, the on-site fire extinguishers will be maintained by the owner.

Deleted: The emergency equipment is tested periodically to assure proper operation. Fire extinguishers are periodically tested in accordance with the manufacturer's recommendations. The safety eye bath requires no periodic testing or maintenance.

Deleted: The fire extinguishers on-site will be tested and maintained in accordance with the manufacturer's recommendations. a minimum of one time per year during one of the regular post-closure site inspections.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

During post-closure care and maintenance, routine inspections will be conducted on the schedule described below in Section D.3.1. Findings made during each inspection will be recorded on the appropriate post-closure inspection log. Copies of the inspection logs will be made part of the operating record and will be kept at the facility or within the facility post-closure files kept at the offices of the post-closure contact. Documentation of repairs performed or replacements required to properly maintain the site will be kept in the inspection logs.

D.3.1 Inspection Log

Throughout the post-closure period, inspections will be conducted to verify that systems supporting the closed facility are functioning properly. The systems specific to the closed hazardous waste landfill include the final cap, the groundwater monitoring network, and the leachate/gas collection system, including the leachate accumulation tank.

Copies of the Post-Closure Inspection Log Forms in **Appendix D-2**. The forms include the date and time of each inspection, the name of inspector, notation of the observations made, and date of required repairs or remedial actions. Alternate documentation forms/spreadsheets may be utilized, if the information listed below is provided.

Deleted: are presented

The following items will be regularly inspected:

Deleted: <#>Items Inspected¶

Weekly Basis:

Items related to 90-day Leachate Accumulation Tank will be inspected on a weekly basis. According to 35 IAC 725.295, the default inspection frequency under 35 IAC 725 Subpart J for each of the following items is at least once each operating day:

- Overfill/spill control equipment to ensure that it is in good working order;
- Above ground portions of the tank system, to detect corrosion or releases of waste;
- The construction materials and area immediately surrounding the externally accessible portion of the tank system, including the secondary containment system to detect erosion or signs of releases; and
- Data from release detection equipment.

While the default inspection frequency for a 90-day leachate accumulation tank is at least once each operating day pursuant to 35 IAC 725 Subpart J, a weekly inspection frequency may be implemented if: 1) the tank uses leak detection equipment to alert facility personnel to leaks, or 2) the facility implements established workplace practices to ensure leaks are promptly

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

identified. As described below in Section E.3.3, leak detection equipment has been installed to monitor the leachate level in the tank, which can be monitored remotely over a web-based platform. This equipment also provides notice of potential leaks, in the form of alarm notifications. Consequently, a weekly inspection frequency will be implemented for the 90-day leachate accumulation tank.

If the leak detection system is not functional, then the following workplace practices will be employed to justify implementation of a weekly inspection frequency:

- The liquid level in the tank will be monitored on a daily basis using the on-line remote monitoring system;
- The daily leachate level will be recorded on a log. The log will also indicate whether any leachate was pumped from the tank that day; and
- In the absence of known pumping from the tank into the tanker truck that transports the leachate to the treatment facility, if the leachate level remains either steady or increasing, then the integrity of the tank will be deemed intact. If the level in the tank is found to be decreasing over 2 consecutive days without the scheduled pumping to the tanker truck, then the permittee will perform an inspection of the tank within 24 hours and take necessary steps to address a leak, if the primary tank is found to be compromised.

The following items will be inspected on a Monthly Basis:

- Gas Collection and Control System (GCSS)
- Leachate Collection System (LCS)

The following items will be inspected on a Quarterly Basis:

- Site security
- Vegetation, run-off, erosion
- Runoff control & spill prevention
- Leachate collection system
- Gas collection system
- Blower building

The groundwater monitoring system will be inspected on a Semi-Annual basis.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

D.3.1.1 Types of Problems

An unsatisfactory observation during an inspection will initiate a response. The response time and effort will depend on the severity of the condition(s) noted. The problem component will be repaired to a condition suitable to function as it was intended.

The following identifies the types of problems (i.e., malfunctions or deterioration) the inspector will assess during inspections.

Security Devices

The perimeter fencing, entrance gate, locks and signs used to prevent unauthorized access to the closed facility will be inspected for evidence of damage.

Vegetation/Runoff

Cover vegetation and surrounding on-site vegetation will be inspected for evidence of vegetative stress or excessive bare vegetation that could result in erosion issues. The slopes and drainage ditches will also be inspected for evidence of erosion obstruction or discoloration.

Groundwater Monitoring Wells

Groundwater monitoring wells will be inspected for security (locking caps) and evidence of physical damage to the protective casing or surface grouting on an annual basis.

Final Cover

The final cover will be inspected for evidence of cracking, subsidence and/or ponding of stormwater, erosion, presence of burrowing animals or deep-routed vegetation (such as small saplings or bushes), presence of large areas of dead vegetation, continuity of vegetation, and evidence of discoloration or leachate penetration.

If standing water on the Site 1 Phase A cap becomes a persistent issue within certain areas of the cap (i.e., due to settlement, subsidence, or displacement), the permittee has the option of addressing it in either of following manners:

1. Install additional clay/topsoil and reseed; or
2. Implement the following modified design.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

The second option will be to install a tile drainage system above the liner and below the vegetative cover. Cap maintenance activities are conducted at the facility on a routine basis. However, due to the natural settlement of waste within the landfill, various points/pockets on the final cover may settle at a differential rate. This settlement may cause some locations to have a lower elevation that may not allow accumulated precipitation to immediately run off to the storm water detention system. This ponding can remain until evaporation occurs. If needed, the following final cover design revisions are expected to allow expedited removal of the surface rain water through a field type drain tile system.

A drainage tile will be installed in the lower elevation of identified depressions and channeled to an area down slope for discharge. The perforated tile will remove the impounded water at a faster rate than evaporation and maintain a dryer cap in the depressed area. As the drainage tile system drains the water, some visual ponding may be observed. The typical corrective action of adding soil and reseeding can create additional settlement and damage to the vegetative cover due to increased weight and ponding can quickly be reestablished. The approach outlined should remove the impounded water through natural drainage over time and cause minimal cap disturbance and vegetative destruction.

The proposed drainage tile system, along with ongoing inspection and maintenance activities on the final cover will allow for the preservation of the liner and vegetative cover throughout the post-closure period.

The type of final cover vegetation utilized at the Zion Site 1 Phase A facility is predominantly a mixture of grasses, including rye fescue, alfalfa, and sweet clover. To maintain the final cover, it will be mowed a minimum of once annually throughout the post-closure period, or as needed.

If cover maintenance activities are conducted or stressed vegetation is observed, it is expected that periodic reseeding and mulching will be necessary to maintain sufficient vegetation. Areas that require reseeding, mulching, and fertilizing will be performed by qualified personnel. A balanced fertilizer and straw mulch will be employed to assist in establishing vegetation.

Leachate Collection System

Areas that will be specifically monitored include collection pipes, extraction wells, pneumatic pumps, leachate storage tank, and loadout pad, and control panels. Visible piping will be visually inspected to ensure there are no cracks or other integrity issues. The pumps will be monitored

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

to ensure that they are operational. This will include confirmation that the airline is connected, investigation of the leachate levels in the wells, and inspection of the counter measurement on the pump. The counter measurement will indicate the number of strokes on the pump. A low number of strokes since the last visit plus an elevated leachate level could suggest that the pump has not been operating properly.

If silting or settlement has occurred within the extraction wells, an evaluation will be made of the ability of the well to function as an extraction point. If it is determined that the well can no longer function properly, a new extraction point will be designated and reported to the IEPA.

Extraction pumps will be removed, inspected, cleaned and tested, but only on an as-needed basis. At the same time, depth of the well measurements will be taken to evaluate whether differential settlement or silting has occurred. Silting or settlement will be addressed in a manner appropriate with the degree to which its intended operation is affected. These inspections will be performed on each well individually to allow continued operation of the leachate collection system. Leachate extraction pumps will be replaced if repair becomes unfeasible or unpractical.

The facility has constructed a concrete load-out pad adjacent to the existing storage tank containment area. The load-out pad provides spill control during the pumping of leachate from the storage tank. The floor of the concrete pad is sloped to the center of the pad and to a trap drain located on the side of the load-out pad. A trap drain was installed for the routing of spilled material and/or stormwater to a dual-contained fiberglass sump that routes the liquid back to the storage tank. The concrete load-out pad will be inspected for evidence of cracks and the trap drain and sump system will be inspected for evidence of leaks, corrosion and overall integrity.

Cover Elevation Reference Points

The final cover elevation reference points (i.e., survey control points) will be inspected for structural integrity. These reference points may be surveyed periodically during post-closure to assess the degree of subsidence and/or differential settlement that may occur during post-closure (if visual evidence of subsidence and/or differential settlement is observed).

Gas Extraction System

During operation of the gas collection system, inspections of various components of the system will be performed to verify proper operation. The following types of problems will evaluated during inspections:

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

- Leaking regulators;
- Leaking airlines;
- Leaky compressor;
- Power issues; and
- Functionality of condensate pumps.

D.3.1.2 Inspection Frequency

The frequency for inspections is listed above in Section D.3.1.1.

D.3.2 Repair Log

An unsatisfactory observation of the conditions will initiate a response. The response time and effort will depend on the severity of the unsatisfactory condition and include such things as:

1. Application, compaction, and grading of clay soils in areas of poor drainage, differential settling, and erosion or installation of the drainage tile system discussed above.
2. Removal of accumulations of sediment and debris from drainage ditches and monitoring wells.
3. Reseeding and mulching in areas of cover vegetation failure.
4. Containment and management of surface contamination and repair of final cover.
5. Replacement or repair of structures and equipment (i.e., monitoring wells or leachate/gas extraction wells and ancillary equipment).

If repairs are required based on results from inspections, they will be documented, including:

1. The item needing repair;
2. The problem identified during the inspection needing repair;
3. Date the inspection occurred;
4. Name of the person conducting the inspection;
5. Name of the person making the repair;
6. Date of repair;
7. Efforts associated with making the repair;
8. Other appropriate comments (if applicable).

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

Response to observations of unsatisfactory conditions will be described on a Repair Log after remedial action has been completed. An example log is contained in **Appendix D-2.** An alternate format may be utilized, if the same information is documented.

D.3.3 24 Hour Reporting

If an item noted during an inspection reveals any noncompliance with the permit which may endanger human health or the environment, then 1) the appropriate information will be reported to Illinois EPA within 24 hours from the time the Permittee becomes aware of the circumstances and 2) provide a written description of the incident within 5 days of the time the Permittee became aware of the circumstances.

D.3.4 Notification Requirements for Repairs

To expedite the implementation of minor improvements, replacements and repairs to the landfill and to streamline the permitting process, the following notification and approval process is proposed. This language was included in the 2009 permit renewal application and was approved.

Category 1 – Automatic Implementation With Subsequent Notice To Illinois EPA

The first category of activities will be implemented automatically without prior notification to Illinois EPA. This category will include adjustments to the number or location of leachate extraction pumps. It could include repositioning pumps either horizontally to different leachate extraction points or vertically within the same extraction point. For the activity to qualify in this category, the number of pumps must either remain constant or increase. If the number of pumps is to be reduced, then the Category 3 procedures would apply.

A letter or report documenting the revisions made will be provided to the Illinois EPA within 60 days of the implementation of the revisions and also inserted in the operating record.

Category 2 – Automatic Implementation After Providing Notice To Illinois EPA

This category includes activities intended to maintain or enhance the leachate and/or gas piping to increase the removal efficiency. It might include the installation of new forcemain or other piping. These types of activities will be implemented after providing Illinois EPA with typically seven days advance notice in writing. This notice will describe the general nature of the intended activities. If the new forcemain or other piping will result in a reduction in leachate and/or gas removal, it will be subject to the Category 3 procedures.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

A construction quality assurance (CQA) Report will be provided to the Illinois EPA within 90 days after the completion of the construction in the field. The CQA Report will be required to include such information as details concerning the lines that were replaced, including material, size of piping, depth, backfill material.

The CQA Report will also be signed and stamped by a professional engineer licensed in the state of Illinois.

Category 3 – Illinois EPA Approval Needed Through Standard Permit Modification Before Proceeding

All other activities not falling into Category 1 or 2 above will require the permittee to follow the standard permit modification procedures, including the temporary authorization process. The proposed revisions will need to be reviewed and approved by the Illinois EPA prior to implementation.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

E. POST-CLOSURE REQUIREMENTS

E.1 Information Regarding the Unit Closed as a Landfill

The two fundamental aspects of the design of an appropriate leachate or gas management system in a closed landfill are: (1) the geology/hydrogeology around and beneath the landfill; and (2) landfill construction. The following sections provide information pertaining to the above topics.

E.1.1 General Information Regarding Unit to Receive Post-Closure Care

A scaled drawing showing the location and boundaries of the Zion Landfill Site 1A is included in this Post-Closure Permit Renewal Application as **Figure B-3**. A certified copy of the survey plat and post-closure notice previously filed with the Lake County Recorder are presented in **Appendix E-1**.

Prior to 1991, the Zion Landfill Site 1, Phase A facility accepted hazardous waste for disposal. The landfill closure was performed and a closure certification report was submitted to the Illinois EPA in February 1998. Based upon prior communications with Illinois EPA and according to the Effective Permit, February 1998 is considered the beginning of the 30-year post closure period for Site 1A.

The Zion Site 1 Phase A has been certified closed by the Illinois EPA, so no Closure Plan is required or included in this Post-Closure Permit Renewal Application. The following sections present the applicable information relevant to the continued implementation of an effective post-closure program at a closed landfill.

E.1.2 Geology and Hydrogeology Around/Beneath the Unit

A description of the geology and hydrogeology around/beneath the unit is presented above in Section C.3 (Historical Hydrogeological Summary).

E.1.3 Characterization of Waste/Contaminated Soil Present in the Landfill Unit

Site 1 Phase A accepted hazardous wastes from a variety of industries, including manufacturing, petrochemical, steel, and utilities. The hazardous characteristics of the wastes accepted included heavy metals and corrosivity. Some waste materials are considered hazardous by default due to the generation process. The facility accepted some of these "listed" wastes as well. Examples of listed wastes accepted include wastewater treatment sludges from electroplating operations;

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

various solvents used in degreasing; pesticides; laboratory chemicals; and emission control dust from steel production. Much of the hazardous waste managed at the Zion Landfill's Site 1A was from clean-up activities and generally consisted of soil contaminated with lower concentrations of hazardous constituents.

Zion Landfill Site 1A was a co-disposal landfill. Co-disposal, a common practice at that time, disposed of both hazardous waste and solid waste in the same landfill. The quantity of hazardous waste compared to the total quantity of solid, non-hazardous, municipal waste accepted in Site 1 Phase A was relatively small.

E.1.4 Initial Closure Activities

As described below in further detail in Section E.1.5, the Zion Landfill Site 1A was closed in-place with the installation of a final cover system. Large volumes of landfilled waste materials/contaminated soil were not removed as part of initial closure activities. Further, the landfilled wastes did not require stabilization, nor significant quantities of structural fill to establish final contours. The final cover system was installed as described below.

E.1.5 Details Associated with the Closed Unit

The Zion Landfill Site 1, Phase A was the first known portion of the property developed for waste disposal. The first known land permit allowing development of a waste disposal facility was issued in 1975. Although facility files have been searched to locate detailed documentation pertaining to construction of the Site 1A landfill, due to the age of the facility and the scope of the regulations relative to record keeping during landfill construction that occurred in the 1970s, detailed construction completion reports have not been identified. However, various engineering cross sections illustrating the bottom of the landfill have been located. These cross sections indicate "excavation limits" believed to represent the bottom of the landfill. A copy of these cross sections is provided in **Appendix E-2**.

According to these cross sections, the bottom of the landfill is located at an elevation of approximately 750 ft. MSL at the northern portions, sloping to 730 ft. MSL. at the southern end of Site 1A. These drawings also indicate that the sidewalls were built at a 2:1 slope.

Based on the knowledge of the current landfill staff, Site 1A was constructed of a 10-foot thick in-situ clay liner. Two leachate collection trenches were installed. These trenches trend north-south and are connected on the south end of Site 1A. The trenches run from the south end

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

approximately half way to the north border of Site 1A. Due to the timeframe that these features were installed, no construction details are available.

The following cut-off walls/slurry walls have also been installed:

1. A clay division berm was installed along the east border of Site 1A to separate Site 1A from the adjacent (non-hazardous) Site 2 facility; and
2. A slurry wall was installed along the east and south portions of Site 1A to cut off shallower sand seams.

Additional details pertaining to the above features are presented in the following sections.

The clay division berm was constructed in several different phases as follows:

An approximately 1,200-foot long portion of the berm was constructed in September-October 1991. Fill materials utilized for construction generally consisted of a mixture of gray silty clay obtained from an on-site borrow area. The clayey soil was placed in 6 inch compacted lifts. The total volume of clay soil placed during this phase of the project was approximately 17,500 in-place cubic yards. Construction activities during this phase are documented in the report entitled, Construction Documentation, Winthrop Harbor Clay Division Berm, dated October 1991, prepared by Donohue & Associates, Inc. A copy of this report is included as **Appendix E-3A**.

An approximately 680-foot long section of the clay division berm was installed from May 6 to May 29, 1992. Fill materials utilized for construction generally consisted of a mixture of gray silty clay obtained from on-site borrow areas. The clayey soil was placed in 6 inch compacted lifts. The total volume of clay placed during this phase of the project was 10,170 in-place cubic yards. Construction activities during this phase of the project are documented in the report entitled, Construction Documentation Winthrop Harbor Clay Division Berm Stations 11700N to 12380N Constructed May 6-29, 1992, prepared by SEC Donohue Inc. A copy of this report is included as **Appendix E-3B**.

An approximately 1,120-foot long portion of the clay division berm was installed from May 6 to June 2, 1992. This portion of the clay berm was constructed from the north end of the existing clay berm at Station 11700N, in a southerly direction to approximately Station 10580N. Fill materials utilized for construction generally consisted of a mixture of gray silty clays obtained from on-site borrow areas. Lift thickness was approximately 6 inches compacted. The total

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

volume of clay soil placed during this phase of construction was approximately 14,153 in-place cubic yards. Construction activities during this phase are documented in the report entitled, Construction Documentation Winthrop Harbor Clay Division Berm Stations 10580 to 11700 Constructed May 6 – June 2, 1992, dated June 1992, prepared by SEC Donohue Inc. A copy of this report is included as **Appendix E-3C**.

Construction of an approximate 680-foot long portion of the clay division berm began on June 2, 1992. This portion of the clay berm was constructed from the north end of the clay berm described above at approximately station 11700N, then proceeding in a northerly direction to approximately Station 12380N. Fill materials utilized for the construction generally consisted of a mixture of gray silty clay obtained from on-site borrow areas. Lift thickness was approximately 6 inches compacted. The total volume of clay soil placed during this phase of construction was approximately 9,826 in-place cubic yards. Construction activities during this phase are documented in the report entitled, Construction Documentation, Winthrop Harbor Clay Division Berm, Stations 11700N to 12380N Constructed June 2-11, 1992, dated June 1992, prepared by SEC Donohue, Inc. A copy of this report is included as **Appendix E-3D**.

A 1,700 foot section of clay division berm was installed on top of the previously installed clay berm during September-October 1992. Fill materials utilized for construction generally consisted of a mixture of gray silty clays obtained from an on-site borrow area. Lift thickness was approximately 6 inches compacted. The total volume of clay soil placed during this phase of construction was approximately 12,827 in-place cubic yards. Construction activities during this phase of construction are documented in the report entitled, Construction Documentation, Winthrop Harbor Clay Division Berm Stations 10800N to 12500N Constructed September 15 – October 2, 1992, dated October 1992, prepared by SEC Donohue Inc. A copy of this report is included as **Appendix E-3E**.

A slurry cut off wall was installed along a portion of the east and south borders of Site 1A. The construction of this slurry cutoff wall took place in two phases. The primary purpose of this slurry trench cutoff wall was to cut off shallower sand seams in the soils along the east and south sections of Site 1A. This in turn, was intended to minimize seepage from shallow saturated sand seams during construction of the Site 1B landfill cells located to the west of Site 1A.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

The first phase of the construction is documented in a report entitled, Construction Observation Report for the Winthrop Harbor Waste Management Facility Slurry Trench Cutoff Wall, dated February 1989, prepared by Foth & Van Dyke. A copy of this report is included in **Appendix E-3F**.

The second phase of construction is documented in a report entitled, Construction Observation Report For The Slurry Trench Cutoff Wall, Zion Waste Management Facility, Zion, Illinois, prepared by Mc Donald-Maas Associates, dated January 1991. A copy of this report is included in **Appendix E-3G**.

The above reports and drawings were prepared to demonstrate that construction was performed in substantial compliance with the design. The reports include trench slurry test results, backfill test results, photo documentation, Quality Assurance Manuals, laboratory test results for key-in materials, visual classification of the key-in material for the wall, and laboratory test results for backfill. The drawings depict conditions encountered during the construction of the slurry trench cutoff wall.

After receipt of waste materials ceased, a final cover system was installed at the facility. In 1993 and 1996, auger borings were performed on a 100-foot grid pattern to verify the thickness of clay cap material placed over Site 1A. The thickness of the clay capping material varied from 1.5 feet to 10 feet. Results from these borings were submitted to Illinois EPA with a letter dated May 3, 1996. A modified final cover design was presented to Illinois EPA within a Class 3 Permit Modification prepared by Ries Environmental, Inc., dated July 31, 1996. A copy of this permit modification is included as **Appendix E-4**. The permit modification includes cross sections showing the final cover design installed at the landfill (identified as "Proposed Final Cover" In the July 1996 permit modification) and the final cover design that was permitted prior to July 1996 for both the flatter top portions of the landfill and sideslopes. The revised final cover design presented in the above permit modification was approved in a letter from Illinois EPA dated March 6, 1997.

The installation of the final cover was completed in 1997 and consists of the following layers in ascending order:

- Minimum of two feet of compacted clay;
- 40 mil LLDPE geomembrane (over the upper, flatter portions of the landfill);
- Geocomposite (single-sided on top of landfill and double sided on the sideslopes);

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

- Protective soil layer generally comprised of a minimum of 2.5 feet of soil overlain by 6 inches of topsoil; and
- Vegetation layer.

The final cover system installation activities performed in 1997 are documented in the report entitled, Construction Acceptance Report For the Site 1 – Phase A Final Closure, Permit No. B-23-M-16, Zion Sanitary Landfill, Zion, Illinois, Dated February 1998, prepared by CQM, Inc. This report includes drawings and cross sections documenting the installation of the final cover system. As this report has previously been submitted to the Illinois EPA, due to its large size (it is comprised of a total of three bound volumes), only the narrative portion of this report is included herein (see **Appendix E-5**).

Various drainage ditches, swales, and diversion berms have also been installed to manage surface water flow around the facility. Details pertaining to these features are also presented in the Construction Acceptance Report referenced above.

E.2 Contact Person

The post-closure contact for the Zion Site 1 Phase A Landfill is:

Mr. Jim Hitzeroth
BFI Waste Systems of North America, LLC
26 West 580 Schick Road
Hanover Park, IL 60133
Phone: (224) 970-1129

The Illinois EPA post-closure permit and associated permit modifications will be maintained at the above location.

E.3 Operation of the Leachate Collection System

A leachate collection system has been installed at the Zion Site 1 Phase A Landfill. The following sections provide a description of the operation of the leachate collection system.

E.3.1 Quality of Leachate in the Leachate Collection System

Samples of leachate have historically been collected and analyzed in accordance with Permit Condition III.G.7. The leachate samples are collected on a rotating basis from EW-2, EW-6, EW-20, and EW-24. Pursuant to Permit Condition III.G.7, the leachate samples are collected annually and analyzed for the constituents listed in 35 Ill. Adm. Code 811, Appendix C., which include:

Deleted: 3

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

various inorganic constituents, metals, VOCs, Pesticides/PCBs, SVOCs, Herbicides, and Dioxins. The analytical results from the last several years of sampling are presented in **Appendix E-6**.

The leachate samples will be collected by personnel trained in sampling various environmental media, including groundwater and leachate. The samples will be collected in certified clean sample containers, with the appropriate quantity of chemical preservatives in accordance with SW-846, Test Methods for Evaluating of Solid Waste directly from the leachate extraction wells or tank, if needed. The sampling personnel will wear clean latex or nitrile gloves during sampling, so that representative samples are obtained and for the protection of the sampling staff. The samples will be placed in a cooler on ice immediately upon collection and submitted to an accredited analytical laboratory under standard chain of custody procedures. The samples will be analyzed pursuant to standard SW-846 Methods.

No changes to the current leachate sampling/analysis protocol contained in the current Effective Permit are being proposed.

E.3.2 Leachate Collection System Within the Landfill

In 2000, 23 leachate extraction air actuated pumps were installed on Site 1A to discharge leachate from the wells to the existing leachate management system. The pumps were connected to the air supply and leachate discharge piping via flexible hose. Operation of the pumps is controlled by a 1-inch diameter stainless steel ball valve on the air supply piping and a 1 ¼ inch diameter stainless steel ball valve on the leachate discharge piping. A needle valve installed on the air exhaust line from the pump can also be used to control pump operation. Specifications relating to these pumps are included within the Construction Acceptance Report, Site 1 Phase A Leachate Extraction System, Onyx Zion Landfill, IEPA Site No. 0978020001, RCRA Permit Log No. B-23-M-21, prepared by Weaver Boos & Gordon, Inc., dated September 27, 2000. A copy of this report is contained in **Appendix E-7**.

Immediately after closure of Site 1A in the late 1990s, leachate was transferred off-site by pumping directly from the manhole located on the southeast corner of Site 1 – Phase B. In 2000, a concrete pad and containment system was installed in the loadout area next to the leachate above ground storage tank located in the southwest corner of the site, near the landfill gas flare system. Details pertaining to the installation of this system are presented in the above report dated September 27, 2000.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

Further upgrades to the leachate collection system performed in 2000 included the installation of additional leachate discharge piping and air supply line from the manhole to EW-21. Prior to that time, leachate was collected in the manhole, and to conduct off-site disposal operations, the tanker truck had to pull onto the landfill and pump the leachate directly out of the manhole. A pneumatic pumping system was installed in the manhole to allow the leachate to be pumped from the manhole to the existing leachate extraction system forcemain located adjacent to EW-21. This allowed the leachate to be collected in an above ground storage tank and unloaded on a concrete loadout containment pad. Additional details pertaining to these upgrades are provided on the drawing entitled, Site 1 – Phase A Forcemain Profile and Details included in **Appendix E-8.** Although these upgrades were installed in 2000, the Illinois EPA needed to approve the change to the permit before the change could be included in the permit. A Temporary Authorization request and Class 3 permit modification request was submitted to Illinois EPA, both dated February 24, 2003. The Temporary Authorization was approved by Illinois EPA in a letter dated May 10, 2006.

A cross-section of the manhole is included in **Appendix E-8**. Cleanouts were installed on the new forcemain line installed in 2006 on the northwest corner of Site 1B, Cell No. 2 and between the two above ground storage tanks.

In 2006, approximately 540 feet of leachate forcemain that routes leachate from Site 1A to the hazardous waste storage tank was replaced when efforts to jet out a clog in the line were unsuccessful. Prior to abandonment, the area around the witness pipe of the 6"/3" dual contained forcemain was excavated for cleaning. Northern Plant Services was contracted to jet out the forcemain. As the pipe was being cleaned, any liquids or solids removed were pumped into a tanker truck for disposal. After approximately six hours of jetting, a down-well camera was used to reveal that blockage was still present and deemed too hard to remove. After jetting attempts were complete, the 3" line was triple rinsed with clean water to remove any remaining loose material with the liquid being pumped into the on-site hazardous waste storage tank. A 6"/3" end cap was then welded onto each end of the pipe prior to backfilling over the now abandoned pipe.

The trench for the replacement forcemain was dug around the west side of the gas-to-energy building and in between two existing leachate storage tanks on the south side of the blower building. The trench was excavated approximately 4.5 feet deep.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

The new leachate forcemain was constructed from dual-walled HPDE 6"/3" SDR 17/11 pipe. Pipe and fittings were butt-fusion welded in accordance with industry standards for HPDE pipe construction. Air pressure tests were conducted on the HDPE 6"/3" SDR 17/11 piping to verify the integrity of the butt-fusion welds and mechanical connections. After welding, the piping was pressurized to forty (40) pounds per square inch (psi) with an air compressor and maintained for a minimum duration of one (1) hour. WCG CQA personnel observed the air pressure testing.

The HDPE 6"/3" SDR 17/11 forcemain was placed in the trench. Prior to backfilling, the north end of the line was tied into the existing forcemain and the east end connected to the hazardous waste storage tank.

A cleanout was also installed where the new line tied into the existing line on the northwest corner of Site 1B, Cell No. 2. A report documenting the above construction activities dated July 11, 2006 was submitted to the Illinois EPA.

In 2007, the northern part of Site 1, Phase A was not moving leachate as efficiently as projected, so the leachate forcemain was extended. New leachate forcemain was installed within the final cover between EW-2 and EW-28. The new forcemain was tied into EW-10 to allow the removal of leachate from both the north and south sides of the unit. These upgrades to the leachate collection system were documented in a report entitled, Construction Acceptance Report, Improvements to Leachate Collection System, Zion Site 1, Phase A Landfill, dated December 2009, prepared by Weaver Boos Consultants. A copy of this report is contained in **Appendix E-9**.

A portion of the leachate forcemain piping which carried leachate from leachate extraction wells within Site 1 Phase A to the leachate accumulation tank was replaced in November 2010. The upgrades to the leachate collection system were implemented in response to a blockage discovered during a routine inspection in October 2010. Given that attempts to jet the line and remove the blockage were not successful, approximately 1,910 feet of replacement forcemain was installed. The replacement consisted of a dual-contained line serving extraction wells EW-20 through EW-28. The previous forcemain was disconnected and the lines capped. The CQA Report documenting this upgrade to the leachate collection system is presented in **Appendix E-10**.

A portion of leachate forcemain transmitting leachate from Site 1 Phase A across the northern boundary of Site 1 Phase B to the leachate accumulation tank was replaced in November 2015. These upgrades were implemented in response to restricted leachate flow discovered within a

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

section of east-west trending piping between Site 1B Cell No. 1 and Site 1B Cell No. 2. After repeated attempts at clearing the blockage(s) via jetting, it was decided that this section of approximately 625 feet of forcemain would be abandoned and replaced. The new leachate forcemain was constructed from 3" x 6" dual contained HDPE pipe. The CQA Report documenting these upgrades to the leachate collection system is presented in **Appendix E-11**. The documentation report was approved by Illinois EPA with the issuance of Permit Mod No. 6, dated June 23, 2016.

Another section of leachate forcemain was replaced in 2017 in response to the identification of a blockage that did not allow leachate to be transmitted from the closed landfill to the leachate accumulation tank. Approximately 320 feet of replacement leachate forcemain was installed, old forcemain piping was abandoned, and repairs were made to a leachate forcemain junction. The CQA Report documenting these upgrades to the leachate collection system is presented in **Appendix E-12**. The documentation report was approved by Illinois EPA with the issuance of Permit Mod No. 7, dated March 12, 2018.

A plan view of the leachate collection system as it is designed to date is included in **Appendix E-13**. The plan view details the existing leachate collection system, including the piping locations, leachate extraction wells, cleanouts, one manhole, leachate storage tank and loadout, and the blower building.

The facility is not subject to the requirements of 35 IAC 724.401(c), which include a top liner, composite bottom liner, and a leak detection system (LDS). Therefore, information pertaining to the requirements of 35 IAC 724.401(c) are not applicable to this Permit Renewal Application.

E.3.3 Leachate Collection System Outside Landfill

Leachate is extracted from wells by a submersible pump and drains to the manhole where it is pumped back into the forcemain to the 8,000 gallon dual-walled above ground tank (see **Figure E-1**). Gas condensate is routed to one of two condensate sumps and then pumped to the storage tank.

This tank is considered a 90 day accumulation tank under 35 IAC 722.117 (Conditions for Exemption for a Large Quantity Generator That Accumulates Hazardous Waste). This regulation allows a large quantity generator (LQG) to accumulate hazardous waste in a tank without a RCRA Permit, if:

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

1. The hazardous waste is only present in the tank for 90 days or less; and
2. The LQG complies with the applicable requirements of 35 IAC 725 Subpart J, except Closure and Post-Closure Care, Waste Analysis and comply with applicable requirements of Subparts AA, BB, and CC.

E.3.3.1 Leachate Tank – 90 Day Storage Requirement

The first condition for exemption of the above tank is the 90 day accumulation requirement. The landfill leachate accumulating in the tank can only remain in the tank for no more than 90 days pursuant to 35 IAC 722.117(a). The leachate collection system is designed to pump leachate from a collection sump into the accumulation tank whenever leachate levels reach a pre-determined level within the leachate extraction wells. Thus, leachate has the potential to flow continuously into the accumulation tank.

While the regulations do not offer explicit detail on how the 90 day requirement shall be maintained and documented for continuous flow process tanks, United States Environmental Protection Agency (USEPA) has offered written guidance on the subject. The following procedures included in a letter found on USEPA's RCRA On-Line Database (14763) from USEPA to National Paint and Coatings Association dated February 16, 2007 will be utilized to demonstrate compliance with the 90 day storage requirement. As stated in this letter:

> *...In the case of hazardous wastes flowing through tanks continuously, there is a means of demonstrating when a tank is 'emptied' within 90 days ... that would not require completely emptying the tank, and that may be more suitable for tanks with continuous flow. More specifically, a mass balance approach (i.e., turnover approach...) can be used for continuous flow tanks... The key parameters in this mass balance approach are the volume of the tank (e.g., 6,000 gallons), the daily throughput of hazardous waste (e.g., 300 gallons per day) and the time period the hazardous waste 'resides' in the tank. In this example, the hazardous waste entering the tank would have a residence time of 20 days (6,000 gallons/300 gallons per day = 20 days) and meet the requirement of [40 CFR 262.17(a)(2)] since the hazardous waste has been in the tank for less than 90 days [EPA's RCRA On-Line Database 14763].*

The above letter from USEPA also discusses the types of records that a generator must maintain to demonstrate compliance with the 90-day time limit:

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

Large quantity generators accumulating hazardous wastes through a continuous flow process must also demonstrate that the hazardous waste has not been stored for more than 90 days. This may be achieved by use of inventory, or some form of accounting and monitoring data. For example, a generator could confirm that the volume of a tank has been emptied every 90 days by recording the results of monitoring equipment both entering and leaving the tank. This recordkeeping, in conjunction with the tank volume, would enable inspectors, as well as facility personnel to demonstrate compliance with [40 CFR 262.17(a)(2)].

The above guidance indicates that the quantity of leachate flowing into the tank should be kept in the operating record to allow for documentation of compliance with the 90 day accumulation requirement. To demonstrate compliance with the 90 Day Storage Requirement, the quantity of leachate in the tank will be tracked on the log contained in **Table E-2** attached. The information from the remote leachate level monitoring equipment installed on the leachate accumulation tank (described below in Section E.3.3.2) can be utilized to attain the data included on the form included as **Table E-2**. Alternately, facility personnel may attain the tank level data on-site. One entry will be made to the log each week. To comply with the 90 day storage requirement, a minimum of 8,000 gallons of leachate must flow through the tank on average, every 90 days.

E.3.3.2 Leachate Tank – Applicable Subpart J Requirements

The second condition for exemption of the above existing tank as stated in 35 IAC 722.117 is that the LQG must comply with the applicable requirements of Subpart J (35 IAC 725 – Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities). The following presents the major applicable Subpart J requirements, followed by a description of how compliance will be attained.

The Subpart J requirements are subdivided into requirements for "existing tanks" and "new tanks". The 2019 amended regulations did not modify the definitions of "existing tank" and "new tank". Under the original RCRA regs, tanks holding hazardous waste before the effective date of the original Subpart J regs (i.e., 1980-81) were deemed "interim status tanks", while all other tanks needed a permit to hold hazardous waste. The RCRA regulations for hazardous waste tanks were significantly amended in 1986, when the terms "new" and "existing" tank were introduced. Under the 1986 amendments, "new" tanks were defined as tanks that started holding hazardous waste after the effective date of the 1986 rule (July 14, 1986). Based on the above regulations

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

and guidance, the Zion Site 1A leachate accumulation tank is considered a "new" tank, as it started accumulating hazardous waste in 2000.

Design/Installation of Tank

A new tank is to meet the design and installation standards of Subpart J, 35 IAC 725.292 - Design and Installation of New Tank Systems and Components. These standards require that the foundation, structural support, seams, connections, and pressure controls (if applicable) are adequately designed and that the tank system has sufficient structural strength, compatibility with the wastes to be stored or treated, and corrosion protection so that it will not collapse, rupture, or fail. Further, the owner or operator must obtain a written assessment reviewed and certified by a qualified Professional Engineer (P.E.), in accordance with 35 IAC 702.126(d), attesting that the system has sufficient structural integrity and is acceptable for the storing and treating of hazardous waste. The assessment performed by the P.E. must include the applicable information contained in 35 IAC 725.292.

To comply with the above requirements, a "Hazardous Waste Tank Assessment" was performed by a licensed P.E. in 2014. A copy of this report is attached as **Appendix E-14**. The following information is presented in this report:

- Introduction [40 CFR 264.192(a)];
- Design standards [264.192(a)(1)];
- Hazardous characteristics of the waste [264.192(a)(2)];
- Factors affecting the potential for corrosion [264.192 (a)(3)];
- Inspection during installation [264.192(b)];
- Tightness testing [264.192(d)];
- Ancillary equipment [264.192(e)];
- Containment and detection of releases [264.193], which indicates that the tank; and
- Certification Statement.

The above February 2014 Report from ST Environmental provides an assessment of the tank system. Section 9.0 of the above document certifies the following:

> *In accordance with the review conducted, the existing tank system has sufficient structural integrity and is acceptable for continued storage of the hazardous waste discussed herein in accordance with 40 CFR 264, Subpart J.*

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

Thus, the February 2014 Report from ST Environmental satisfies the above requirement for a written tank assessment certified by a P.E.

Secondary Containment

Subpart J, 35 IAC 725.293 includes standards for containment and detection of releases. According to this regulation, the secondary containment system must be as follows:

- Designed, installed, and operated to prevent migration of wastes or accumulated liquid out of the system to the soil, groundwater, or surface water at any time during the use of the tank system; and
- Capable of detecting and collecting releases and accumulated liquids until the collected material is removed.

Additional information is presented in 35 IAC 725.293(c) providing more details as to how the above requirements are to be satisfied. According to 35 IAC 725.293(c), the secondary containment system must be at a minimum as follows:

1. Constructed of or lined with materials compatible with the wastes to be placed in the tank system and of sufficient strength and thickness to prevent failure due to pressure gradients, physical contact with the waste to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation;
2. Placed on a foundation or base capable of providing support to the secondary containment system and resistance to pressure gradients above and below the system and capable of preventing failure due to settlement, compression, or uplift;
3. Provided with a leak detection system that is designed and operated so that it will detect the failure of either the primary and secondary containment structure or any release of hazardous waste or accumulated liquid in the secondary containment system within 24 hours, or as otherwise provided in the RCRA permit if the operator has demonstrated to the Agency, by way of permit application, that the existing detection technology or site conditions will not allow detection of a release within 24 hours;
4. Sloped or otherwise designed or operated to drain and remove liquids resulting from leaks, spills, or precipitation. Spilled or leaked waste and accumulated precipitation must be removed from the secondary containment system within 24 hours or as otherwise provided in the RCRA permit if the operator has demonstrated to the Agency, by way of permit application, that removal of the released waste or accumulated precipitation cannot be accomplished within 24 hours.

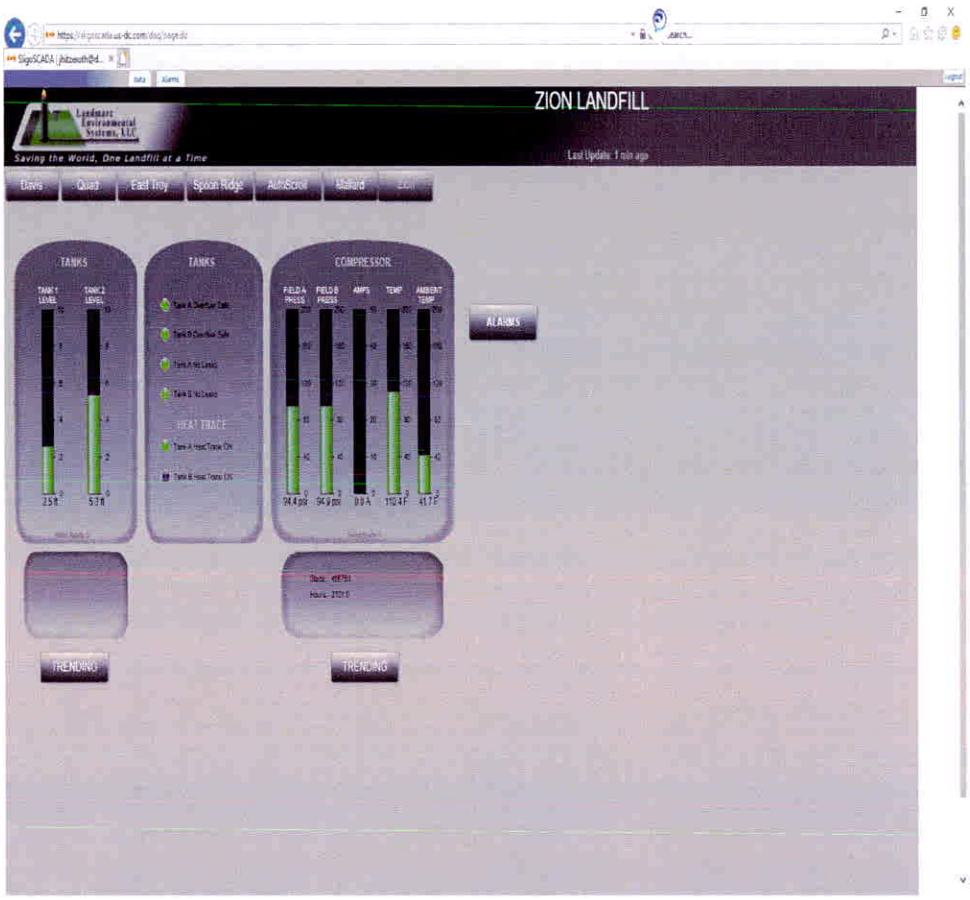
Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

As documented in the engineer's report contained in **Appendix E-14**, the existing Zion Site 1A leachate tank complies with items 1, 2, and 4 above. Item 3 (leak detection) is discussed below.

Leak Detection System

Pursuant to 35 IAC 725.293(c)(3), the secondary containment system must be provided with a leak detection system meeting the requirements listed in Item 3 above. A remote monitoring system meeting the above requirements was installed at the leachate accumulation tank in 2020. This system allows the liquid level in the tank to be monitored remotely. One foot of leachate equates to approximately 1,000 gallons. The system also provides an automatic notification, if issues with the tank system are detected. A screen shot of the automated tank monitoring, as shown from the on-line platform, is presented below:

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶



The Site 1A tank is "Tank 1". The "Tank A Overflow Safe" indicator is tripped based on a sensor monitoring the overflow pipe from the tank to the secondary containment. The Tank A "No Leaks" indicator provides an alert based on a sensor located in between the dual tank wall containment if the interior wall is breached and liquid is detected in the space between the primary and secondary tank walls.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

General Tank Operating Requirements

The leachate accumulation tank will be operated in accordance with 35 IAC 725.294. The contents of the tank will not cause the tank, its ancillary equipment or secondary containment system to rupture, leak, corrode, or otherwise fail. The permittee will also use appropriate controls and practices described herein to prevent spills and overflows from the tank or secondary containment systems, including the following:

- Spill prevention controls;
- Overfill prevention controls; and
- Maintenance of sufficient freeboard in the secondary containment area to prevent overtopping.

While no leaks or spills have occurred since the tank system was first utilized in 2000, if a leak or spill occurs, then the requirements of 35 IAC 725.296 would be followed. This includes notification of the Illinois EPA within 24 hours in the event of a release to the environment (i.e., a release not sufficiently contained by the secondary containment system). If the tank system is deemed unfit for use, it will be removed from service and the permittee will satisfy the following requirements:

- Flow of leachate into the tank will be ceased so that the cause of the release can be assessed;
- Leachate will be removed from the tank;
- A visual inspection of the release will be performed to prevent further migration and visibly contaminated soil or surface water will be removed and properly disposed;
- The appropriate notifications and reports will be performed or produced;
- The tank system will either be closed or repaired; and
- Major repairs will be certified.

Labeling/Marking of Tank

Under 35 IAC 722.117(a)(5)(B), the leachate accumulation tank is labeled with the words "Hazardous Waste".

The tank is also marked/labeled with an indication of the hazards of the contents. The leachate is not characteristically hazardous under RCRA, so will not be labeled as ignitable, corrosive, reactive, or toxic. Example labels may include, but are not limited to:

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

- Hazard communication consistent with Subpart E (Labeling) and Subpart F (Placarding) of 49 CFR 172; or
- A hazard statement or pictogram consistent with 29 CFR 1910.1200 (Hazard Communication); or
- A chemical hazard label consistent with NFPA 704.

To satisfy the above requirements, labels are present on the tank with the 4-Digit DOT Placard UN 3082 and Hazard Class 9, which signifies Environmentally Hazardous Substances, Liquid, N.O.S. This placard is recommended for frequently transported hazardous materials by truck, rail, or aircraft.

Emergency Procedures

The permittee will comply with the 35 IAC 722 Subpart M - Preparedness, Prevention and Emergency Procedures for LQGs. The applicable regulations state that the LQG must maintain and operate the tank in a manner that minimizes the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to the air, soil, or surface water which could threaten human health or the environment. To satisfy these requirements, various equipment is provided near the tank. It is described in Section D.2.

Leachate and gas condensate loadout is conducted on an as needed basis from a concrete loadout pad located near the tank. The 40-foot by 14-foot concrete pad includes footings at a depth of 4.5 feet and four foot deep concrete bearing walls. It is sloped to center where it drains through a floor drain. The pad provides spill control when transferring the contents of the on-site storage tank to the tanker trucks for off-site disposal. The floor of the pad drains to a sump which contains an automatic float-controlled pump that conveys liquid from the pad to the tank. The combined containment capacity of the pad, sump and vault is approximately 6,000 gallons, which is sufficient containment for an over-the-road tanker truck. Drawings of the storage tank design and drawings of the loadout pad are included as Figure 4 of 4 in the Construction Acceptance Report included in **Appendix E-7**.

The dual contained sump has an automatic float-controlled pump which conveys liquid to the hazardous waste tank. The pump has a manual shutoff system that is used when loading activities occur. This shutoff is used in the event of any emergency measures or repair activities.

Deleted: will be

Deleted: , tested, and properly maintained, including:

Deleted: <#>*Internal communications or alarm system capable of providing immediate emergency instruction (voice or signal) to facility personnel*. The facility is a closed landfill that is not regularly staffed. Personnel are only occasionally present to perform certain post-closure operation and maintenance activities. These personnel will satisfy this requirement by maintaining a working cellular phone with them during implementation of their work. ¶
Device capable of summoning emergency assistance from local response teams. Personnel working near the tank will maintain a working cellular phone with them. ¶
Portable fire extinguishers, fire control equipment, spill control equipment, and decontamination equipment. A fire extinguisher is located in the area of the secondary containment tank and blower building. Spill control and decontamination equipment are also stored in a building located near the tank. The equipment maintained at the facility is included in the Contingency Plan presented in **Appendix E-15**. ¶
Water at adequate volume and pressure to supply water hose streams, or foam producing equipment, or automatic sprinklers, or water spray systems. If water is needed to fight a fire, an adequate supply is available from the surface water pond/ditch located on-site.¶
The equipment above will be periodically tested and maintained to keep the equipment in proper working order, if an emergency were to occur. ¶

Deleted: <#>is designed to

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

When leachate from the tank is being transferred from the tank to the tanker for transportation to the treatment facility, personnel present will have a working cell phone with them. The tanker truck is loaded on a concrete load out pad that collects spilled liquids (if spills occur) in a sump and routes the liquid back to the tank. Therefore, the chance of a release to the environment during the transfer of leachate is remote.

A Contingency Plan has also been developed for the facility. The content of the Contingency Plan is based upon the requirements contained in 35 IAC 724 Subpart D, Sections 724.150 through 724.156. The Contingency Plan includes the attempts to make arrangements with local police, fire, and other emergency response personnel, taking into account the characteristics of the landfill leachate that accumulates in the tank. It will be implemented in the event of a fire, explosion, or release from the tank that could threaten human health or the environment.

Deleted: A copy of this plan is included in **Appendix E-15**.

According to 35 IAC 722.117(a)(7), training must be provided to facility personnel in two primary areas:

1. Hazardous waste management procedures; and
2. Emergency response (including Contingency Plan implementation).

The above training may be attained from either classroom instruction, online training (e.g., computer-based or electronic) or on-the-job training that teaches them to perform their duties in a way that ensures compliance with 35 IAC 722.117(a)(7). The training program will be led by a person trained in hazardous waste management procedures.

Facility personnel must successfully complete the training program presented herein within 6 months after the date of their employment, assignment to the facility, or assignment to a new position at the facility, whichever is later. Employees must not work in unsupervised positions until they have completed the training described herein. Facility personnel must take part in an annual review of the initial training program described herein.

Records documenting the above training on current personnel will be kept in the facility record until closure of the tank. Training records on former employees will be kept for at least three years from the date the employee last worked at the facility. The training program will include the elements described below.

Because the facility is a closed former hazardous waste landfill, operations occurring on-site are limited to occasional operation and maintenance (O&M) activities. Consequently, only two

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

permittee job positions have been assigned regular duties at the facility. The two job titles involved in performing on-going operation and maintenance activities associated with the leachate accumulation tank include:

- Environmental Technician, performed by site employee Roger Abel or his successor; and
- Environmental Manager, performed by BFI employee Jim Hitzeroth or his successor.

Job descriptions for these two job titles are presented in **Appendix E-16**. Both of the above job titles will receive the training described below.

Hazardous Waste Management Procedures Training:

This portion of the training program will be performed in a way that allows the facility to comply with the RCRA regulations. Although the likelihood of permittee employees directly contacting the landfill leachate is low, the training will allow workers to safely handle hazardous wastes, if needed. The training will cover hazardous waste management procedures relevant to the positions that the employees hold at the facility.

The landfill leachate accumulating in the tank is regularly pumped from the tank to tanker trucks. No direct contact with the leachate occurs during this process. However, if the need arises for direct contact with the leachate, then proper personal protective equipment (PPE) shall be utilized by employees.

Emergency Response Training:

The emergency response training provided to the above employees will include the Hazardous Waste Operations and Emergency Response (HAZWOPER) Training under 29 CFR 1910.120, including 40 hours of initial training and annual 8 hour refresher training. The 8 hour refresher training will satisfy the requirements for annual refresher training presented in 35 IAC 722.117(a)(7)(C). Emergency response training will also include training tailored more specifically towards the operation and maintenance activities performed related to the 90-day leachate accumulation tank. This facility-specific training will focus upon reviewing the contents of the Contingency Plan. An outline of the topics to be covered during the Contingency Plan training is as follows:

- Procedures to follow in case of a fire;
- Procedures to follow in case of an explosion;
- Procedures to follow in case of a release;

Deleted: (included in **Appendix E-15**)

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

- Procedures to follow in case of an injury;
- Procedures to follow during site evacuation;
- Responsibilities of the Site Emergency Coordinator; and
- List of whom to call in an emergency.

E.3.4 Management of Leachate Collection System (LCS)

The leachate is collected from a series of extraction wells and ultimately routed to a leachate collection tank described in the section above. Leachate collected in the tank is regularly removed via tanker truck and transported to an off-site treatment facility. Piping and instrumentation diagrams are included in **Appendix E-13.**

As mentioned above in Section E.1.5, two leachate collection trenches were installed on the bottom of the Site 1A landfill. They trend north-south and drain towards the south end of Site 1A. Extraction wells are also used to extract landfill leachate. The vertical extraction wells gravity drain leachate to the manhole located southwest of Site 1A shown on the Sheets in **Appendix E-13**. From the manhole, the leachate is pumped into the forcemain that routes leachate to the above ground tank. The boring logs for the extraction wells are included in **Appendix E-17.** The Extraction Wellhead Details are included in the Figures section contained in the Construction Acceptance Report included herein as **Appendix E-7**.

A table detailing the following extraction well specifications is included as **Table E-1**:

- Northing/Easting coordinates;
- Bottom of landfill at each location;
- Total feet at drilling;
- Reported and measured well depth; and
- Depth to pump top and bottom.

As shown in this table, the bottom of the extraction wells are generally located near the bottom of the landfill and the pumps are typically set within one foot of the bottom of the extraction wells. The leachate extraction pumps are set to pump whenever liquid reaches the top of the pump (which are typically 3 feet long).

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

The quantity of leachate hauled from the accumulation tank will be kept in the operating record. The contents of the tank are unloaded and transported by a licensed hazardous waste transporter. During loading of the tanker trucks, the following procedures will be implemented:

- Trucks will be parked in the load out pad area as level as possible;
- Valves will be checked for tightness before removing caps from connections;
- All hose or pipe connections will be secure to prevent potential spills or leaks;
- During loading, pipes and hoses will be protected from traffic movement that could cause breakage or pulling on the lines;
- Supplies of absorbent materials and equipment will be available to control, contain and cleanup spills;
- The truck driver and/or facility personnel will be present during the loading process at all times; and
- Personnel involved in leachate loading operations will wear proper protective clothing.

The Site 1 Phase A leachate is currently transported off-site in 5,000 gallon tanker trucks by the following transporter:

ERC Midwest Carriers
360C South Curtis Rd.
West Allis, Wisconsin 53214
Transporter's ID No. UPW508337MN
USEPA Id No. WIR000140988
Illinois Special Waste Hauling Permit No.: 5363

Copies of the manifests for shipment of the hazardous waste offsite are maintained in the post-closure operating record. The manifests detail the date of shipment, amount hauled, hauling facility, and final treatment and/or disposal facility.

Currently the leachate is transported off-site to the following facility:

CID Recycling and Disposal Facility
P. O. Box 1309
138th and Interstate 94
Calumet City, Illinois 60409

The leachate (wastewater) generated from Site 1A is classified as a F039 listed hazardous waste. The CID facility is a licensed treatment, storage and disposal facility, and CID treats the leachate through a biological treatment method and removes the solids from the waste stream prior to disposal.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

Another leachate transporter and/or disposal facility may be utilized in the future, so long as they have attained the proper licenses and permits.

The leachate level within the tank will also be monitored. As designed, the ball float within the leachate tank causes the leachate extraction system to automatically shut down when the leachate reaches a certain level within the tank. This measure was implemented to prevent the tanks from overflowing.

E.3.5 Summary of Leachate Management Program Conducted to Date

Post-closure operation and maintenance activities have been implemented at the Zion Site 1 Phase A Landfill over the duration of the existing effective Post-Closure Permit, which was first issued in 2011. Regular inspections and maintenance of the leachate collection system have occurred in accordance with the existing Post-Closure Permit. Historical documentation is maintained as part of the facility record.

CID Recycling & Disposal Facility is a permitted off-site treatment works that meets the requirements of 35 Illinois Administrative Code (IAC) 811.309(e)(1). CID is a permitted treatment facility, and wastewater discharges are required to meet the requirements of their water permit obtained pursuant to 35 IAC 309. The volume of leachate generated and transported off-site for disposal from the Site 1 Phase A unit (in gallons) since 2012 is as follows:

2012: 198,617 gallons
2013: 197,371 gallons
2014: 190,080 gallons
2015: 125,115 gallons
2016: 152,662 gallons
2017: 154,940 gallons
2018: 232,624 gallons
2019: 235,622 gallons
2020: 176,763 gallons

Copies of the manifests for shipment of the leachate off-site are maintained in the facility record. The manifests detail the date of shipment, amount hauled, hauling facility, and final treatment and/or disposal facility.

Documentation concerning the operation and maintenance inspections and maintenance regarding the leachate management program have been collected throughout the duration of the post-closure period. Maintenance issues related to the operation of the leachate extraction

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

system are regularly addressed as situations arise. Representative documentation from 2019 and 2020 are included in **Appendix E-18**.

E.4 Operation of Leak Detection System

As a leak detection system is not required at the facility due to the age of the facility, this section is not applicable.

E.5 Operation of the Gas Monitoring/Collection System

A dual leachate/gas extraction system has been installed at the facility. Also, five gas monitoring probes are positioned around the perimeter of Site 1A to monitor the subsurface for stray landfill gas. The following sections provide a discussion of the gas collection and monitoring system.

An air permit has been issued that covers the air emissions from the facility. The permitted gas system is operated in accordance with the air permit requirements.

E.5.1 Detailed Description of the Landfill Gas Collection System

Landfill gas is collected from within the boundary of Site 1A through a network of extraction wells (EW-1 through EW-28) and piping. The piping leads to a flare located south and west of Site 1A. The gas-to-energy plant that had operated at the facility has been decommissioned. The drawings in **Appendix E-19** provide additional details pertaining to the gas collection system.

The gas extraction wells within the boundary of Site 1A were installed in 1997 as part of closure activities. The installation of the extraction wells, as well as the other components of the gas collection system, is documented in the report entitled, Construction Acceptance Report, BFI Zion Landfill Site I/II Landfill Gas Extraction System, Lake County, Zion, Illinois, dated February 1998, prepared by RMT, Inc. Because this report has previously been submitted to the Illinois EPA, only the Table of Contents and narrative portion are included in this document (see **Appendix E-24**).

In late 2024, gas monitoring probe GMP-2, on the west side of Site 1A, was connected to the gas collection system via a new lateral extending from extraction well E-12A. This action was taken in response to detections of methane in GMP-2 and unsatisfactory efforts to eliminate those detections through adjusting vacuum at nearby gas wells. A replacement gas probe, GMP-2R, was installed west of GMP-2. After additional methane detections occurred at GMP-2R, eight small-diameter extraction wells were installed just beyond the waste limit on the west side of Site 1A. These were also connected to the gas extraction system via the new lateral from well

Deleted: The landfill gas collection system is an integrated network of perimeter and central system extraction wells. Five gas monitoring probes are positioned around the perimeter of Site 1A for purposes of compliance. The landfill gas is collected from the extraction wells and transported through a series of headers to a centrally located blower building and electrical generation facility where it is then routed to a flare. When the electrical generation facility is not operating or excess gas is produced, gas from the landfill is routed to a flareThe gastoenergy plant formerly present has been decommissioned. ¶

Deleted: system

Deleted: network and routed through a moisture separator and then into an energy recovery system located north of the leachate collection tank. The dry gas is routed to the gas plant where it is injected into internal combustion engines which drive five generators to produce electricity. The gas may also be disposed through an enclosed flare system during an emergency or when the gas-to-energy plant is unable to receive gas from the landfill.

Deleted: flare

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

E-12A. The intent of the small-diameter wells was to create a vacuum curtain that would capture the small quantity of methane in the subsurface near probe GMP-2R. These actions were approved with the issuance of permit B-23R-M-8; M-9, dated May 6, 2025.

A plan view of the existing gas collection system is included in **Figures 2** and **3** in **Appendix E-13**.

Condensate that collects within the header and lateral piping drains by gravity to a condensate sump located in the northwest corner of Site 1 Phase 1 or to the condensate knockout upstream of the flare. From these points it is pumped to the dual-contained less-than-90-day accumulation tank and transported offsite with the leachate accumulating from Site 1A. Copies of the manifests for the hazardous waste hauled off site will be kept in the facility record.

A description of the machinery, compressors, flare, piping, and appurtenances is included within the Construction Acceptance Report referenced above and provided as **Appendix E-24**. Specifically, this report includes:

- Photographic documentation related to the gas collection system;
- Extraction well boring logs and construction details;
- Air pressure test results;
- Soil test results;
- Survey data;
- Daily field notes;
- Condensate tank information; and
- Blower building and flare information.

The blower building and flare system have been upgraded since initial installation in 1997. The current layout of this area is shown on Drawing A-14 in **Appendix E-19**.

The gas collection system is designed to collect gas and transport it to a central point for destruction via flaring. It is designed to function for at least the remainder of the 30-year post closure period for Site 1A.

E.5.2 Landfill Gas Monitoring Plan

A Gas Monitoring Plan is provided as **Appendix E-20**. This plan summarizes how Site 1 Phase A will measure the composition of landfill gas and monitor methane in the subsurface and in ambient air. This plan includes the following major elements:

Deleted: as it is designed to date

Deleted: The plan view details the existing gas collection system, including the air flow lines, piping locations, gas extraction wells, cleanouts, one manhole, liquid storage tank and loadout, blower building, and gas to energy facility.

Deleted: necessary to the system

Deleted: are

Deleted: included

Deleted: in

Deleted: processing for beneficial use

Deleted: The 30 year post closure period began in February 1998 and can be terminated no earlier than February 2028.

Deleted: will

Deleted: for the buildup

Deleted: and composition of landfill gas

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

- Narrative describing most likely gas migration paths;
- A figure showing the monitoring devices;
- Documentation that the below ground monitoring devices satisfy applicable requirements;
- Ambient air monitoring procedures;
- Monitoring inside buildings associated with Site 1A; and
- Parameters to be tested.

Consistent with Permit Condition III.E.1, gas monitoring will be performed on an annual basis.

Gas monitoring equipment must have infrared sensor technology for CH4 and CO2 measurements, galvanic fuel cell/chemical sensor for O2 measurement, temperature probe to measure the temperature of the gas stream, internal pressure sensors to measure static, available, and differential pressures, the ability to be calibrated in the field, the ability to measure data and user defined comments electronically, and the ability to download stored data into a .csv or excel file.

Raw gas monitoring data will be retained by both the environmental manager and the third party contractor as an electronic file. In addition, a written log book will be kept by the individuals responsible for the operation and maintenance of the gas system.

E.5.3 Landfill Gas Disposal/Processing System

Landfill gas collected from the extraction wells is burned in an on-site flare south and west of 1A. The location of the flare is shown on **Figure E-1**.

E.5.4 Summary of Landfill Gas Collection/Monitoring/Processing Systems

The gas collection, monitoring and processing systems are described thoroughly in Sections E.5.1 through E.5.3.

E.6 Post-Closure Inspection Plan

The procedures to be followed to inspect the functionality of the various components of the post-closure care at the Zion Site 1A Landfill were previously presented above in Section D.3.

E.6.1 Inspection Log

The inspection logs are discussed above in Section D.3.1.

Deleted: currently

Deleted: used to generate energy at an on-site power station or

Deleted: with

Deleted: when the energy plant is unable to accept the gas

Deleted: power station and

Deleted: A drawing showing the layout and details of the power station is included in **Appendix E-19**.

Deleted: Visual inspections will be performed during the gas monitoring events to verify the proper condition of the well heads and the cap. The visual inspection of the well heads will ensure there are no cracks, bad o-rings, or blockage that could be caused by liquid, ice, or other substances. The well casings above grade will be visually inspected along with the surrounding area for signs of damage, deterioration, or potential problems. There must be a tight seal between the boot and the well casing.¶
To maintain the gas collection system, the isolation valve on the collection header will be exercised regularly. If monitoring of the operating parameters indicates the presence of surging or a pipe break, the following procedure will be implemented:¶
Close the inline valve on the problem length of pipe to isolate it from the entire system and prevent having to shut down the entire system. Close all wellhead valves on the isolated portion of the header.¶
Repair the damaged pipe.¶
Additional details pertaining to the maintenance of the gas monitoring and maintenance system are provided in the Operations and Maintenance Manual, Landfill Gas Extraction System, dated August 1998, which is provided in **Appendix E-21**. This document contains the following information:¶
Purpose of the landfill gas extraction system;¶
Site and system description;¶
The physical components of the system, including: extraction wells, gas collection header and lateral piping network, condensate pump stations, condensate/leachate collection tank, knockout pot, extraction system blowers, blower building, air compressor, and flare system;¶
Maintenance of each of the above physical components;¶
Testing procedures;¶
Contingency measures; and¶
Safety procedures.¶
Collected gas will be flared and/or routed to the gas to energy facility. Details pertaining to these features are included on the drawings in **Appendix E-19**. Condensate will be pumped to the dual contained less than 90-day accumulation tank and transported offsite with the leachate accumulating from Site 1A. Copies of the manifests for the hazardous waste hauled off site will be kept in the facility record. ¶
Over the last 10 years, the landfill gas collection system has functioned as designed. The results from regular inspection and maintenance work performed on the gas monitoring system is included in the Annual Reports regularly submitted to the Illinois EPA by March 1, each year.¶

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

E.6.1.1 Items Inspected

The items inspected are discussed above in Section D.3.1.1.

E.6.1.2 Types of Problems

The types of problems the inspector must look for during an inspection are discussed above in Section D.3.1.2.

E.6.1.3 Inspection Frequency

The inspection frequency for each item to be inspected is presented above in Section D.3.1.3.

E.6.2 Repair Log

A repair log, to be utilized if inspections identify items needing repair, is presented above in Section D.3.2.

E.6.3 24 Hour Reporting

If an inspection identifies an issue that may endanger human health or the environment, the 24 hour reporting procedures are presented above in Section D.3.3.

E.7 Post-Closure Monitoring Plan

The monitoring to be performed during the post-closure care period is discussed throughout this permit application.

E.7.1 Facility Controls

E.7.2 Surveys and Corrective Action

The permittee shall protect and maintain the surveyed benchmarks present at or near the closed Site 1 Phase A facility, in accordance with Permit Condition III.C.8. No revisions to the General Post-Closure Care Requirements contained in Permit Condition III.C are being sought as part of this Permit Renewal Application. The Site 1 Phase A survey benchmarks used to identify the location of the disposal unit will be re-surveyed once every five years, beginning with the date the Agency issues the permit renewal, unless the permit is appealed.

The closed Site 1 Phase A Landfill is subject to post-closure requirements in accordance with 35 IAC 724.210(b). A surveyed plat prepared and certified by a professional land surveyor indicating the type, location, and quantity of wastes disposed at the facility was previously provided to the

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

local zoning authority following closure. A copy of this information was previously also transmitted to Illinois EPA. A copy of this documentation is presented in **Appendix E-1**.

No solid waste management units (SWMUs) with cover systems and/or engineered barriers or units/areas subject to an Environmental Land Use Control (ELUC) or Uniform Environmental Covenants Act (UECA). Therefore, no ongoing survey requirements are applicable.

E.7.3 Leachate Collection System

Monitoring of the leachate collection system is proposed to continue in accordance with the monitoring program implemented in accordance with the effective Permit.

E.7.3.1 Leachate Quality

A representative sample of the leachate will be collected and analyzed by a laboratory in accordance with Section E.3.1 above.

E.7.3.2 Leachate Quantity

The quantity of leachate that accumulates in the leachate tank will be quantified as discussed above in Section E.3.4. In addition, each tanker load of leachate hauled from the facility is documented on a manifest that includes the total quantity of leachate hauled. The quantities of leachate removed from the facility are regularly tabulated and presented within the Annual Facility Reports, due by March 1 each year.

E.7.3.3 Leachate Reporting

The quality and quantity of leachate generated at the closed Site 1 Phase A landfill will be regularly reported to Illinois EPA with the Annual Report due by March 1 each year.

E.7.4 Leak Detection System (LDS)

As a leak detection system is not required at the facility due to the age of the facility, this section is not applicable.

E.7.5 Groundwater Monitoring System

The groundwater monitoring program to be performed during the post-closure period is presented above in Section C.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

E.7.6 Gas Collection System

E.7.6.1 Gas Quality

The quality of gas collected from the closed Site 1 Phase A facility will be monitored in accordance with the Gas Monitoring Plan included in this Permit Renewal Application as **Appendix E-20.**

The results of the annual gas probe monitoring are presented in the Annual Reports, due each year by March 1. The results from the perimeter gas monitoring program over the last several years has not identified instances of landfill gas in a probe over 50 percent of the lower explosive limit (LEL).

E.7.6.2 Gas Quantity

As of 2020, the gas extraction system contains 28 gas extraction wells that are tuned monthly to optimize gas extraction and maintain compliance with New Source Performance Standards regulations. Monthly gas extraction well monitoring data is maintained within the facility's record files. Information gathered from 2018-20 related to the gas collection and control system is presented in **Appendix E-22**.

E.7.6.3 Summary of Results from the Gas Collection/Monitoring System

The information obtained from the gas collection, monitoring, and processing systems will be maintained in the facility's operating records and submitted each year with the Annual Report, due by March 1 of the following year.

There have been no major upgrades of the gas system in the last three years. However, a minor upgrade was completed in 2024 when several small-diameter out-of-waste gas wells were installed on the west side of the Zion Landfill Site 1 Phase A. These were installed in response to an exceedance of methane in gas monitoring probe GMP-2R, as described in Section E.5.

Deleted: above

E.8 Post-Closure Maintenance Plan

E.8.1 Procedures, Equipment & Materials

The preventative and corrective maintenance procedures, equipment, and materials required to properly maintain adequate post-closure care of the closed landfill are presented above in Section D. The following items are included in the maintenance plan, as applicable:

- Security control devices;
- Erosion damage repair;

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

- Settlement, subsidence, and displacement;
- Mowing, fertilization, and other vegetative cover maintenance;
- Run-on and run-off control features;
- Leachate removal system;
- Gas monitoring/extraction system; and
- Replacement of groundwater monitoring wells, as needed.

Additionally, the final cover elevation reference points (i.e., survey control points) consisting of surveyed monuments will be regularly inspected for structural integrity. These reference points may be surveyed periodically during post-closure to assess the degree of subsidence and/or differential settlement that may occur during post-closure (if visual evidence of subsidence and/or differential settlement is observed).

Leachate and Gas Collection System Maintenance. Visual inspections will be performed during the gas monitoring events to verify the condition of the wellheads and the cap. The visual inspection of the wellheads will ensure there are no cracks, bad o-rings, or blockages that could be caused by liquid, ice, or other substances. The well casings above grade will be visually inspected along with the surrounding area for signs of damage, deterioration, or potential problems. There must be a tight seal between the boot and the well casing.

The isolation valve on the collection header will be exercised as necessary to ensure performance. If monitoring of the operating parameters indicates surging or a pipe break, the following procedure will be implemented:

- Close the inline valve on the problem length of pipe to isolate it from the entire system and prevent having to shut down the entire system. Close all wellhead valves on the isolated portion of the header.
- Repair the damaged pipe.

Additional details pertaining to the maintenance of the gas monitoring and maintenance system are provided in the Operations and Maintenance Manual, Landfill Gas Extraction System, dated August 1998, which is provided in **Appendix E-21**. This document contains the following information:

- Purpose of the landfill gas extraction system;
- Site and system description;

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

- The physical components of the system, including: extraction wells, gas collection header and lateral piping network, condensate pump stations, condensate/leachate collection tank, knockout pot, extraction system blowers, blower building, air compressor, and flare system;
- Maintenance of each of the above physical components;
- Testing procedures;
- Contingency measures; and
- Safety procedures.

Over the last 10 years, the landfill gas collection system has functioned as designed. The results from regular inspection and maintenance work performed on the gas monitoring system are included in the Annual Reports submitted to the Illinois EPA by March 1.

E.8.2 Rationale

The above maintenance program was devised to remedy identified deterioration or malfunction of equipment or structures revealed by the inspection on a schedule which ensures the problem does not lead to an unacceptable environmental or human health hazard. Where a hazard is imminent or has already occurred, remedial action will be taken.

E.8.3 Frequency

The frequency for maintaining the items mentioned above is presented in Section D.3 of this Permit Renewal Application, Inspection Requirements.

E.9 Survey Plat

A survey plat for the Zion Site 1A facility is presented in **Appendix E-1.** This survey plat was prepared by a professional land surveyor and identifies the Zion Site 1A Landfill property with respect to permanently surveyed benchmarks and the legal boundary of the facility. The plat contains a note, prominently displayed stating that the land has been used to manage hazardous wastes and the owner/operator obligations to restrict disturbance of the units containing hazardous waste in accordance with the applicable Subpart G regulations. The survey plat was previously filed with the local zoning authority over local land use and a copy provided to Illinois EPA.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

E.10 Notice in Deed and Certification

A notice has been previously filed on the deed to the property notifying any potential purchaser that:

- The land has been used to manage hazardous waste;
- Use of these areas is restricted;
- A survey plat of the type/location/quantity of material in the disposal units or areas has been filed with the Illinois EPA, and the County Recorder; and
- For hazardous waste disposed prior to January 12, 1981, identify the type, location, and quantity of the hazardous waste to the best of the owner or operator's knowledge and in accordance with any records the owner or operator has kept.

A copy of the above notice is contained in **Appendix E-1**.

E.11 Post Closure Cost Estimate

A table estimating the costs for performing the required post-closure care activities is presented as **Table E-3**. This table includes a summary of the costs, including calculations and supporting information used in developing the estimate. The cost estimate is based on third party costs and includes the number of years post-closure care must still be provided. The post-closure cost estimate identifies the various tasks needed to carry out the required post-closure care activities, the cost associated with each task, and the amount of time/materials/efforts needed to perform each task, along with their unit costs.

Deleted: ,

Deleted: , and specifies that the costs are based on 2021 costs

Table E-3 of the 2021 application has been updated in June 2025 to reflect 2025 costs in response to notice of deficiency (NOD) comments from the Agency. In some cases, current 2025 costs are provided, while in others the 2021 costs have been updated using Agency-provided inflation factors. Documentation of current costs is provided in Appendix E-25.

E.12 Financial Assurance Mechanism for Post-Closure Care

The permittee is utilizing post-closure insurance as the mechanism to satisfy the financial assurance requirements for post-closure care of the facility. A copy of the latest insurance policy #CPC-IL96-010 is presented in **Appendix E-23**. This documentation was previously provided to Illinois EPA in a separate letter from the permittee dated December 18, 2020. Once Illinois EPA approves the Post-Closure Cost Estimate included in this Permit Renewal Application, future

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

updates to the financial assurance mechanism will be consistent with the latest approved post-closure cost estimate.

E.13 State Mechanisms

The state of Illinois has not assumed legal responsibility for compliance with post-closure requirements or assured that state funds are available to cover post-closure requirements. Therefore, this section is not applicable.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

F. CORRECTIVE ACTION

In accordance with Section 3004(u) of RCRA and 35 Ill. Adm. Code 724.201, the Permittee shall institute such corrective action as necessary to protect human health and the environment from all releases of hazardous wastes or hazardous constituents, listed in 35 Ill. Adm. Code 721, Appendix H from any solid waste management unit (SWMU) at the Zion facility. Illinois EPA and USEPA issued a joint RCRA permit to this facility in 1988. The USEPA portion of that permit contained requirements for addressing two SWMUs at the facility. According to Permit Condition V.A.2 in the Effective Permit, the Permittee has adequately addressed corrective action at these two SWMUs.

No additional SWMUs have since been identified at the facility. Therefore, Sections F.1 through F.7 are not applicable. However, the Permittee must provide corrective action, as appropriate, for any future releases from SWMUs.

F.1 Identification of SWMUs

Not applicable.

F.2 Characterization of SWMUs

Not applicable.

F.3 Characterization of Releases from SWMUs

Not applicable.

F.4 Information Required for Renewal Applications

Not applicable.

F.5 Proposed Interim Measures to be Conducted

Not applicable.

F.6 Cost Estimate for Required Corrective Action

Not applicable.

F.7 Financial Assurance for Corrective Action

Not applicable.

Deleted: j:\projects\0100-0199\0120\37\01\renewal ap 2021\nod may 2025\pc permit renewal ap zion may 2021 rev 6-2025.docj:\projects\0100-0199\0120\37\01\renewal ap 2021\pc permit renewal ap zion may 2021 rev.doc¶

Appendix E-15

(Reserved)

Deleted: Contingency Plan

Appendix E-19

(Reserved)

Deleted: Blower Building, Flare, and Power Plant As-Built Drawings

Appendix E-25

Documentation of Post-Closure Costs

June 06, 2025
Zion Site 1 Phase A Landfill
Addendum No. 1 to Log B-23R2
Response to NOD

Attachment 4
Revised Gas/Leachate System Drawing

June 06, 2025
Zion Site 1 Phase A Landfill
Addendum No. 1 to Log B-23R2
Response to NOD

Attachment 5
Revised Forms 8700-23, PA23 and 39(i)

OMB# 2050-0024; Expires 05/31/2020

United States Environmental Protection Agency
RCRA SUBTITLE C SITE IDENTIFICATION FORM

1. Reason for Submittal (Select only one.)

☐	Obtaining or updating an EPA ID number for an on-going regulated activity that will continue for a period of time. (Includes HSM activity)
☐	Submitting as a component of the Hazardous Waste Report for _____ (Reporting Year)
	☐ Site was a TSD facility and/or generator of ≥ 1,000 kg of non-acute hazardous waste, > 1 kg of acute hazardous waste, or > 100 kg of acute hazardous waste spill cleanup in **one or more months of the reporting year** (or State equivalent LQG regulations)
☐	Notifying that regulated activity is no longer occurring at this Site
☐	Obtaining or updating an EPA ID number for conducting Electronic Manifest Broker activities
☑	Submitting a new or revised Part A Form

2. Site EPA ID Number

I	L	D	9	8	0	7	0	0	7	2	8

3. Site Name

Zion Landfill Site 1 Phase A

4. Site Location Address

Street Address: 701 Green Bay Rd.		
City, Town, or Village: Zion		County: Lake
State: IL	Country: United States	Zip Code: 60099

5. Site Mailing Address ☑ Same as Location Address

Street Address		
City, Town, or Village		
State	Country	Zip Code

6. Site Land Type

☑ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other

7. North American Industry Classification System (NAICS) Code(s) for the Site (at least 5-digit codes)

A. (Primary)	562212	C.	
B.	562211	D.	

EPA ID Number | I | L | D | 9 | 8 | 0 | 7 | 0 | 0 | 7 | 2 | 8 |

OMB# 2050-0024; Expires 05/31/2020

8. Site Contact Information ☐ Same as Location Address

First Name **James**	MI **W**	Last Name **Hitzeroth**
Title **Environmental Manager**		
Street Address **26 W. 580 Schick Rd.**		
City, Town, or Village **Hanover Park**		
State **IL**	Country **United States**	Zip Code **60133**
Email **JHitzeroth@republicservices.com**		
Phone **224-970-1129**	Ext **--**	Fax

9. Legal Owner and Operator of the Site

A. Name of Site's Legal Owner ☐ Same as Location Address

Full Name **Zion Landfill, Inc.**	Date Became Owner (mm/dd/yyyy) **1/7/2021**

Owner Type

☑ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other

Street Address **701 Green Bay Road**		
City, Town, or Village **Zion**		
State **IL**	Country **United States**	Zip Code **60099-9564**
Email **bstenzel@gflenv.com**		
Phone **847-732-2048**	Ext	Fax
Comments		

B. Name of Site's Legal Operator ☐ Same as Location Address

Full Name **BFI Waste Systems of North America, LLC**	Date Became Operator (mm/dd/yyyy) **10/15/1976**

Operator Type

☑ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other

Street Address **26 W. Schick Rd**		
City, Town, or Village **Hanover Park**		
State **IL**	Country **United States**	Zip Code **60133**
Email **JHitzeroth@republicservices.com**		
Phone **224-970-1129**	Ext	Fax
Comments		

EPA ID Number | I | L | D | 9 | 8 | 0 | 7 | 0 | 0 | 7 | 2 | 8 |

Type of Regulated Waste Activity (at your site)
Mark "Yes" or "No" for all current activities (as of the date submitting the form); complete any additional boxes as instructed.

A. Hazardous Waste Activities

☑ Y ☐ N	1. Generator of Hazardous Waste—If "Yes", mark only one of the following—a, b, c		
	☑	a. LQG	-Generates, in any calendar month (includes quantities imported by importer site) 1,000 kg/mo (2,200 lb/mo) or more of non-acute hazardous waste; or - Generates, in any calendar month, or accumulates at any time, more than 1 kg/mo (2.2 lb/mo) of acute hazardous waste; or - Generates, in any calendar month or accumulates at any time, more than 100 kg/mo (220 lb/mo) of acute hazardous spill cleanup material.
	☐	b. SQG	100 to 1,000 kg/mo (220-2,200 lb/mo) of non-acute hazardous waste and no more than 1 kg (2.2 lb) of acute hazardous waste and no more than 100 kg (220 lb) of any acute hazardous spill cleanup material.
	☐	c. VSQG	Less than or equal to 100 kg/mo (220 lb/mo) of non-acute hazardous waste.
☐ Y ☑ N	2. Short-Term Generator (generates from a short-term or one-time event and not from on-going processes). If "Yes", provide an explanation in the Comments section. *Note: If "Yes", you MUST indicate that you are a Generator of Hazardous Waste in Item 10.A.1 above.*		
☑ Y ☐ N	3. Treater, Storer or Disposer of Hazardous Waste—Note: Part B of a hazardous waste permit is required for these activities.		
☐ Y ☑ N	4. Receives Hazardous Waste from Off-site		
☐ Y ☑ N	5 Recycler of Hazardous Waste		
	☐	a. Recycler who stores prior to recycling	
	☐	b. Recycler who does not store prior to recycling	
☐ Y ☑ N	6. Exempt Boiler and/or Industrial Furnace—If "Yes", mark all that apply.		
	☐	a. Small Quantity On-site Burner Exemption	
	☐	b. Smelting, Melting, and Refining Furnace Exemption	

B. Waste Codes for Federally Regulated Hazardous Wastes. Please list the waste codes of the Federal hazardous wastes handled at your site. List them in the order they are presented in the regulations (e.g. D001, D003, F007, U112). Use an additional page if more spaces are needed.

F039						

C. Waste Codes for State Regulated (non-Federal) Hazardous Wastes. Please list the waste codes of the State hazardous wastes handled at your site. List them in the order they are presented in the regulations. Use an additional page if more spaces are needed.

EPA ID Number | I | L | D | 9 | 8 | 0 | 7 | 0 | 0 | 7 | 2 | 8 |

OMB# 2050-0024; Expires 05/31/2020

11. Additional Regulated Waste Activities (NOTE: Refer to your State regulations to determine if a separate permit is required.)

A. Other Waste Activities

☐ Y ☑ N	1. Transporter of Hazardous Waste—If "Yes", mark all that apply.
☐	a. Transporter
☐	b. Transfer Facility (at your site)
☐ Y ☑ N	2. Underground Injection Control
☐ Y ☑ N	3. United States Importer of Hazardous Waste
☐ Y ☑ N	4. Recognized Trader—If "Yes", mark all that apply.
☐	a. Importer
☐	b. Exporter
☐ Y ☑ N	5. Importer/Exporter of Spent Lead-Acid Batteries (SLABs) under 40 CFR 266 Subpart G—If "Yes", mark all that apply.
☐	a. Importer
☐	b. Exporter

B. Universal Waste Activities

☐ Y ☑ N	1. Large Quantity Handler of Universal Waste (you accumulate 5,000 kg or more) - If "Yes" mark all that apply. Note: Refer to your State regulations to determine what is regulated.
☐	a. Batteries
☐	b. Pesticides
☐	c. Mercury containing equipment
☐	d. Lamps
☐	e. Other (specify) _____
☐	f. Other (specify) _____
☐	g. Other (specify) _____
☐ Y ☑ N	2. Destination Facility for Universal Waste Note: A hazardous waste permit may be required for this activity.

C. Used Oil Activities

☐ Y ☑ N	1. Used Oil Transporter—If "Yes", mark all that apply.
☐	a. Transporter
☐	b. Transfer Facility (at your site)
☐ Y ☑ N	2. Used Oil Processor and/or Re-refiner—If "Yes", mark all that apply.
☐	a. Processor
☐	b. Re-refiner
☐ Y ☑ N	3. Off-Specification Used Oil Burner
☐ Y ☑ N	4. Used Oil Fuel Marketer—If "Yes", mark all that apply.
☐	a. Marketer Who Directs Shipment of Off-Specification Used Oil to Off-Specification Used Oil Burner
☐	b. Marketer Who First Claims the Used Oil Meets the Specifications

EPA ID Number | I | L | D | 9 | 8 | 0 | 7 | 0 | 0 | 7 | 2 | 8 | **OMB# 2050-0024; Expires 05/31/2020**

D. Pharmaceutical Activities

☐ Y ☑ N	1. Operating under 40 CFR 266 Subpart P for the management of hazardous waste pharmaceuticals—if "Yes", mark only one. Note: See the item-by-item instructions for definitions of healthcare facility and reverse distributor.
☐	a. Healthcare Facility
☐	b. Reverse Distributor
☐ Y ☑ N	2. Withdrawing from operating under 40 CFR 266 Subpart P for the management of hazardous waste pharmaceuticals. Note: You may only withdraw if you are a healthcare facility that is no longer an LQG or SQG.

12. Eligible Academic Entities with Laboratories—Notification for opting into or withdrawing from managing laboratory hazardous wastes pursuant to 40 CFR 262 Subpart K.

☐ Y ☑ N	A. Opting into or currently operating under 40 CFR 262 Subpart K for the management of hazardous wastes in laboratories— If "Yes", mark all that apply. Note: See the item-by-item instructions for definitions of types of eligible academic entities.
☐	1. College or University
☐	2. Teaching Hospital that is owned by or has a formal written affiliation with a college or university
☐	3. Non-profit Institute that is owned by or has a formal written affiliation with a college or university
☐ Y ☑ N	B. Withdrawing from 40 CFR 262 Subpart K for the management of hazardous wastes in laboratories.

13. Episodic Generation

☐ Y ☑ N	Are you an SQG or VSQG generating hazardous waste from a planned or unplanned episodic event, lasting no more than 60 days, that moves you to a higher generator category. If "Yes", you must fill out the Addendum for Episodic Generator?

14. LQG Consolidation of VSQG Hazardous Waste

☐ Y ☑ N	Are you an LQG notifying of consolidating VSQG Hazardous Waste Under the Control of the Same Person pursuant to 40 CFR 262.17(f)? If "Yes", you must fill out the Addendum for LQG Consolidation of VSQGs hazardous waste.

15. Notification of LQG Site Closure for a Central Accumulation Area (CAA) (optional) OR Entire Facility (required)

☐ Y ☑ N	LQG Site Closure of a Central Accumulation Area (CAA) or Entire Facility.
	A. ☐ Central Accumulation Area (CAA) or ☐ Entire Facility
	B. Expected closure date: _____ mm/dd/yyyy
	C. Requesting new closure date: _____ mm/dd/yyyy
	D. Date closed : _____ mm/dd/yyyy ☐ 1. In compliance with the closure performance standards 40 CFR 262.17(a)(8) ☐ 2. Not in compliance with the closure performance standards 40 CFR 262.17(a)(8)

EPA ID Number | I | L | D | 9 | 8 | 0 | 7 | 0 | 0 | 7 | 2 | 8 |

OMB# 2050-0024; Expires 05/31/2020

16. Notification of Hazardous Secondary Material (HSM) Activity

☐ Y ☑ N	Are you notifying under 40 CFR 260.42 that you will begin managing, are managing, or will stop managing hazardous secondary material under 40 CFR 260.30, 40 CFR 261.4(a)(23), (24), (25), or (27)? If "Yes", you must fill out the Addendum to the Site Identification Form for Managing Hazardous Secondary Material.

17. Electronic Manifest Broker

☐ Y ☑ N	Are you notifying as a person, as defined in 40 CFR 260.10, electing to use the EPA electronic manifest system to obtain, complete, and transmit an electronic manifest under a contractual relationship with a hazardous waste generator?

18. Comments (include item number for each comment)

19. Certification I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations. **Note: For the RCRA Hazardous Waste Part A permit Application, all owners and operators must sign (see 40 CFR 270.10(b) and 270.11).**

Signature of legal owner, operator or authorized representative	Date (mm/dd/yyyy)
Printed Name (First, Middle Initial Last) **Mike Stoeckigt**	Title **Region Vice President**
Email **mike.stoeckigt@gflenv.com**	

Signature of legal owner, operator or authorized representative	Date (mm/dd/yyyy)
Printed Name (First, Middle Initial Last) **Matthew R. Healy**	Title **Vice President**
Email **mhealy@republicservices.com**	

EPA ID Number | I | L | D | 9 | 8 | 0 | 7 | 0 | 0 | 7 | 2 | 8 |

OMB# 2050-0024; Expires 05/31/2020

ADDENDUM TO THE SITE IDENTIFICATION FORM: NOTIFICATION OF HAZARDOUS SECONDARY MATERIAL ACTIVITY

ONLY fill out this form if:

- You are located in a State that allows you to manage excluded hazardous secondary material (HSM) under 40 CFR 260.30, 261.4(a)(23), (24), (25), or (27) (or state equivalent; See https://www.epa.gov/epawaste/hazard/dsw/statespf.htm for a list of eligible states; AND
- You are or will be managing excluded HSM in compliance with 40 CFR 260.30, 261.4(a)(23), (24), (25), or (27) (or state equivalent) or have stopped managing excluded HSM in compliance with the exclusion(s) and do not expect to manage any amount of excluded HSM under the exclusion(s) for at least one year. Do not include any information regarding your hazardous waste activities in this section. Note: If your facility was granted a solid waste variance under 40 CFR 260.30 prior to July 13, 2015, your management of HSM under 40 CFR 260.30 is grandfathered under the previous regulations and you are not required to notify for the HSM management activity excluded under 40 CFR 260.30.

1. Reason for Notification (Include dates where requested)

☐ Facility will begin managing excluded HSM as of _____ (mm/dd/yyyy).

☐ Facility is still managing excluded HSM/re-notifying as required by March 1 of each even-numbered year.

☐ Facility has stopped managing excluded HSM as of _____ (mm/dd/yyyy) and is notifying as required.

2. Description of Excluded HSM Activity. Please list the appropriate codes (see Code List section of the instructions) and quantities, in short tons, to describe your excluded HSM activity ONLY (do not include any information regarding your hazardous wastes). Use additional pages if more space is needed.

A. Facility Code	B. Waste Code(s) for HSM	C. Estimate Short Tons of excluded HSM to be managed annually	D. Actual Short Tons of excluded HSM that was managed during the most recent odd-numbered year	E. Land-based Unit Code

EPA ID Number | I | L | D | 9 | 8 | 0 | 7 | 0 | 0 | 7 | 2 | 8 |

OMB# 2050-0024; Expires 05/31/2020

ADDENDUM TO THE SITE IDENTIFICATION FORM: EPISODIC GENERATOR

ONLY fill out this form if:

- You are an SQG or VSQG generating hazardous waste from a planned or unplanned episodic event, lasting no more then 60 days, that moves the generator to a higher generator category pursuant to 40 CFR 262 Subpart L. Note: Only one planned and one unplanned episodic event are allowed within one year; otherwise, you must follow the requirements of the higher generator category. Use additional pages if more space is needed.

Episodic Event	
1. Planned ☐ Excess chemical inventory removal ☐ Tank cleanouts ☐ Short-term construction or demolition ☐ Equipment maintenance during plant shutdowns ☐ Other _____	2. Unplanned ☐ Accidental spills ☐ Production process upsets ☐ Product recalls ☐ "Acts of nature" (Tornado, hurricane, flood, etc.) ☐ Other _____
3. Emergency Contact Phone	4. Emergency Contact Name
5. Beginning Date _____ (mm/dd/yyyy)	6. End Date _____ (mm/dd/yyyy)

Waste 1

7. Waste Description				8. Estimated Quantity (in pounds)	
9. Federal and/or State Hazardous Waste Codes					

Waste 2

7. Waste Description				8. Estimated Quantity (in pounds)	
9. Federal and/or State Hazardous Waste Codes					

Waste 3

7. Waste Description				8. Estimated Quantity (in pounds)	
9. Federal and/or State Hazardous Waste Codes					

EPA ID Number | I | L | D | 9 | 8 | 0 | 7 | 0 | 0 | 7 | 2 | 8 |

OMB# 2050-0024; Expires 05/31/2020

United States Environmental Protection Agency

HAZARDOUS WASTE PERMIT PART A FORM

1. Facility Permit Contact

First Name	James	MI		Last Name	Hitzeroth
Title	Environmental Manager				
Email	JHitzeroth@republicservices.com				
Phone	224-970-1129	Ext		Fax	

2. Facility Permit Contact Mailing Address

Street Address	26W580 Schick Rd.		
City, Town, or Village	Hanover Park		
State IL	Country United States	Zip Code 60133	

3. Facility Existence Date (mm/dd/yyyy)

10/15/1976

Other Environmental Permits

A. Permit Type	B. Permit Number	C. Description
N	0 0 6 7 7 2 5	Stormwater Discharge Permit
E	1 9 9 5 3 4 3	IL Solid Waste Dispoal Permit
E	1 9 9 2 3 2 8	IL Solid Waste Disposal Permit

5. Nature of Business

Closed RCRA Subtitle C Landfill

EPA ID Number | I | L | D | 9 | 8 | 0 | 7 | 0 | 0 | 7 | 2 | 8 |

OMB# 2050-0024; Expires 05/31/2020

6. Process Codes and Design Capacities

Line Number		A. Process Code			B. Process Design Capacity		C. Process Total Number of Units	D. Unit Name
					(1) Amount	(2) Unit of Measure		
0	1	D	8	0	5,160,000	Y	1	Zion LF Site 1 Phase A
0	2	S	0	2	8,000	G	1	Leachate Tank

7. Description of Hazardous Wastes (Enter codes for Items 7.A, 7.C and 7.D(1))

Line No.		A. EPA Hazardous Waste No.				B. Estimated Annual Qty of Waste	C. Unit of Measure	D. Processes								
								(1) Process Codes								(2) Process Description (if code is not entered in 7.D1))
0	1	F	0	3	9	200,000	gallons	S	0	2						

8. Map

Attach to this application a topographical map, or other equivalent map, of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all spring, rivers, and other surface water bodies in this map area. See instructions for precise requirements.

9. Facility Drawing

All existing facilities must include a scale drawing of the facility. See instructions for more detail.

10. Photographs

All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment, and disposal areas; and sites of future storage, treatment, or disposal areas. See instructions for more detail.

11. Comments

A map satisfying Item 8 above is provided in the Part B Post-Closure Permit Renewal Application as Figure B-2. A drawing satisfying Item 9 above is provided in the Part B Post-Closure Permit Renewal Application as Figure B-3. Photographs satisfying Item 10 showing existing structures and storage areas are presented in the Part B Post-Closure Permit Renweal Application in Appendix A-1, immediately following this Part A Application Form.

Illinois Environmental Protection Agency

2520 West Iles Avenue • P.O. Box 19276 • Springfield • Illinois • 62794-9276 • (217) 782-3397

RCRA Permit Application Form (LPC-PA23)

This form must be used for any permit application for a hazardous waste management facility regulated in accordance with RCRA, Subtitle C, including all requests to modify an existing permit. One original and three (3) copies, of all permit applications must be submitted. Attach the original and appropriate number of copies of a cover letter, any necessary plans, specifications, reports, forms, (e.g., corrective action certification form), and any other certifications etc. to fully support and describe the activities or modifications being proposed. Attach sufficient information to demonstrate compliance with all applicable regulatory requirements. Applications without this form will be deemed incomplete. Please refer to the RCRA checklist and decision guide documents for further guidance. For RCRA corrective action, this form should only be used if requesting an actual modification to a RCRA permit. A RCRA Corrective Action Certification form should be used in all other instances.

Note: Permit applications which are hand-delivered to the Bureau of Land, Permit Section must be delivered to 1021 North Grand Avenue East between the hours of 8:30 a.m. to 5:00 p.m., Monday through Friday (excluding State holidays).

Please type or print all information legibly.

I. Site Identification

Site # (Illinois EPA): 0978020001 USEPA ID Number: ILD980700728

Site Name: Zion Landfill Site 1 Phase A

Physical Site Location (street, road, etc.): 701 Green Bay Road

City: Zion Zip Code: 60099 County: Lake

Existing RCRA Permit (if applicable): B-23R

II. Owner/Operator Identification

Owner Information

Name: Zion Landfill, Inc.

Mailing Address:

701 Green Bay Rd.
Zion, IL 60099

Contact Name: Brad Stenzel

Phone #: 847-732-2048

Email: bstenzel@gflenv.com

Operator Information

Name: BFI Waste Systems of North America, LLC

Mailing Address:

25 W. 580 Schick Rd.
Hanover Park, IL 60103

Contact Name: James Hitzeroth

Phone #: 224-970-1129

Email: JHitzeroth@republicservices.com

A 39(i) certification must be submitted with information concerning the following persons or entities:

- the owner of the business entity applying for the permit;
- the operator of the business entity applying for the permit;
- each employee or officer of the owner or operator who signed the permit application or has managerial authority at the site; and
- any additional owner, operator, or officer or employee of the owner or operator from whom a certification is requested by the Illinois EPA, including any officer or employee who will be responsible for overseeing or implementing regulated activities governed by the permit.

III. Permit Application Identification

Application Type

- ☐ New Part B Permit
- ☑ Part B Permit Renewal
- ☐ Class 1 Modification
- ☐ Class 1* (prior approval required) Modification
- ☐ Class 2 Modification
- ☐ Class 3 Modification
- ☐ Additional information to supplement UIC Class I application Log Number

_____

- ☐ Remedial Action Plan Permit (RAPP)
- ☐ Sig RAPP Modification
- ☐ Non Sig RAPP Modification
- ☐ Major UIC Modification
- ☐ Minor UIC Modification

This Application Involves

- ☐ Storage
- ☐ Treatment
- ☑ Disposal
- ☐ Incineration
- ☐ Groundwater
- ☐ Corrective Action
- ☐ UIC Class I
- ☐ UIC Class V

Description of This Permit Request: (Include a brief narrative description here.)

Permit Renewal Application, due every 10 years.

IV. SIGNATURES

Original signatures required. Signature stamps or applications transmitted electronically or by facsimile are not acceptable. All applications shall be signed by the person in accordance with 35 IAC 702.126(a).

Please check the box of the appropriate certification.

Owner

☒ I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Alternative owner certification. For remedial action plans (RAPs) permit under Subpart H of 35 IAC 703, the owner may choose to make the following certification instead of the certification above.

☐ Based on my knowledge of the conditions of the property described in the RAP and my inquiry of the person or persons that manage the system referenced in the operator's certification, or those persons directly responsible for gathering the information, the information submitted is, upon information and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner Name (Printed or Typed): Mike Stoeckigt

Owner Signature: _____ Date: _____

Title: Region Vice President

Operator

I certify under penalty of law that this document and all attachment were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Operator Name (Printed or Typed): Matthew Healy

Operator Signature: _____ Date: _____

Title: Vice President

Notary (Required for both owner and operator signatures)

Subscribed and Sworn before me this _____day of _____ 20___ .

Notary Signature: _____

My commission expires on: _____ Notary Seal

Engineer

I certify under penalty of law that this document and all attachment were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Engineer Name (Print or Type): Ed Doyle, P.E.

Engineer Signature: Edward J. Doyle

Illinois License No.: 062-048126

Expiration Date of License: 11/30/2025

Engineer Phone No. 630-254-9388

Email: edoyle@EILLLC.com

Engineer Address:

1323 Butterfield Rd.
Suite 104
Downers Grove, IL 60515-5620

EDWARD J. DOYLE REGISTERED No. 062-048126 STATE OF ILLINOIS PROFESSIONAL ENGINEER
Renewal Date 11/30/2025
Engineer Seal

Environmental Information Logistics, LLC
IL Design Firm Registration # 184004752-0002
Renewal Date: 4/30/2027

All information submitted as part of the Application is available to the public except when specifically designated by the Applicant to be treated confidentially as a trade secret or secret process in accordance with Section 7(a) of the Environmental Protection Act, applicable Rules and Regulations of the Illinois Pollution Control Board and applicable Illinois EPA rules and guidelines.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Instructions for RCRA Permit Application Form LPC-PA23

The following instructions are designed to aid in the completion of the RCRA Permit Application Form LPCPA23. If you have additional questions regarding the form, or the informational requirements, please contact the Illinois EPA Bureau of Land (BOL) Permit Section at 217-524-3300.

This form must be used for any permit application for a hazardous waste management facility regulated in accordance with RCRA, Subtitle C, including all requests to modify an existing permit. If an application has already been submitted to the Agency, a completed RCRA Permit Application Form must accompany all additional information that is submitted to the agency for that application. An example of "additional information" would be a response to verbal or written comments from the Agency. For RCRA corrective action, this form should only be used if requesting an actual modification to a RCRA permit. A RCRA Corrective Action Certification form should be used in all other instances.

I. Site Identification

Enter all of the required information in the space provided. If you do not have an Illinois or USEPA identification number, call the Illinois EPA BOL Waste Reduction and Compliance Section at 217-785-8604 to obtain these numbers prior to completing the form.

II. Owner/Operator Identification

The terms "owner" and "operator" are defined at 35 IAC 720.110 and 702.110. If the facility has the same owner and operator, you may type in "same" under operator information. Also, if the contact person for an application is different from the owner or operator (i.e. the consultant), please indicate this in the cover letter for the application.

III. Permit Application Identification

Indicate both the type of application and the kind of waste management involved. For instance, if the application involves more than one type of waste management, check all applicable options.

. Signatures

The signatory requirements for permit applicants are identified at 35 IAC 702.126 and 702.151. If the facility has the same owner and operator, you may type in "same" under operator information.

Notary Public: A notary public's signature and stamp are required for both the owner and operator signatures on the form.

Engineer Certification: A professional engineer that is licensed in the State of Illinois must certify all technical information provided in a permit application. 35 IAC 703.182 describes the types of information that must be certified by a professional engineer.

June 06, 2025
Zion Site 1 Phase A Landfill
Addendum No. 1 to Log B-23R2
Response to NOD

Attachment 6
Drawings B-3A and B-4

June 06, 2025
Zion Site 1 Phase A Landfill
Addendum No. 1 to Log B-23R2
Response to NOD

Attachment 7
Revised Table C-2 – Groundwater Monitoring Parameter List

June 06, 2025
Zion Site 1 Phase A Landfill
Addendum No. 1 to Log B-23R2
Response to NOD

Attachment 8
Table of Groundwater Well Survey and Depth Information

June 06, 2025
Zion Site 1 Phase A Landfill
Addendum No. 1 to Log B-23R2
Response to NOD

Attachment 9
Revised Sample Contractor Handout

June 06, 2025
Zion Site 1 Phase A Landfill
Addendum No. 1 to Log B-23R2
Response to NOD

Attachment 10
Revised Drawing A-14

June 06, 2025
Zion Site 1 Phase A Landfill
Addendum No. 1 to Log B-23R2
Response to NOD

Attachment 11
Revised Post-Closure Cost Estimate

June 06, 2025
Zion Site 1 Phase A Landfill
Addendum No. 1 to Log B-23R2
Response to NOD

Attachment 12
Post-Closure Cost Documentation – Groundwater Sampling and Analysis

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
2520 WEST ILES AVENUE, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JAMES JENNINGS, ACTING DIRECTOR

217/524-3301

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
9589 0710 5270 0389 7041 21

MAY 07 2025

Republic Services
Attn.: Matthew Healy, Vice President
8525 West 183rd Street, Suite K
Tinley Park, IL 60487

GFL Environmental
Attn.: Mike Stoeckigt, Area Vice President
2124 Kohler Memorial Drive
Sheboygan, WI 53081

Re: 0978020001 -- Lake County
Zion Site 1 Phase A Landfill
ILD980700728
Log No. B-23R2
RCRA Permits Administrative Record – 24D
Permit NOD

Dear Mr. Stoeckigt and Mr. Stenzel:

The Illinois EPA has completed its initial technical review of the Resource Conservative and Recovery Act (RCRA) post-closure permit renewal application (application). The application, dated May 6, 2021, was received on May 7, 2021, for the above-referenced facility located at 701 Green Bay Road, Zion, Illinois. This application was assigned Log No. B-23R2 by the Illinois EPA.

Deficiencies in the permit application are identified in the attached Notice of Deficiency (NOD). Each of the deficiencies must be addressed before the Illinois EPA can continue the technical review of the application. Revisions to the application to address these deficiencies must be submitted to the Illinois EPA and be postmarked no later than 30 days from the date of this letter.

Revisions to the application should include one original and three copies and be in a format which allows incorporation of the new information into the appropriate sections of the application. To allow for a proper review of this new information, the response to this NOD must include a table that lists each comment in the NOD, the response, and the location in the application that was revised in response to the comment. Each revised page or drawing must have the revision date identified on them for tracking purposes. Responses should be mailed to the following address:

Illinois Environmental Protection Agency
Bureau of Land -- #33
Permit Section
2520 West Iles Avenue
Post Office Box 19276
Springfield, Illinois, 62794-9276

Send an additional copy of the response to:

Illinois EPA
Des Plaines Field Office
9511 Harrison Street
Des Plaines, Illinois 60016

All applications must be signed in accordance with the requirements of 35 IAC 702.126 and be accompanied by a completed Illinois EPA Form LPC-PA23: RCRA Permit Application Instructions and Form which can be obtained at the Illinois EPA's website.

Work required by this letter, submittal(s) or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

For questions concerning the groundwater related aspects of this matter, please contact Shawntay Dial by email at Shawntay.Dial@Illinois.gov or by phone at 217/558-0177. For all other questions regarding other aspects of this matter, please contact Kelly Huser by email at Kelly.Huser@Illinois.gov or by phone at 217/524-3867.

Sincerely,

Joshua L. Rhoades, P.G.
Permit Section Manager
Bureau of Land

JLR: kl:/0978020001-RCRA-B23R2-NOD.docx
TNH KDH QMB
Attachment: Notice of Deficiency

cc: Brad Stenzel, Landfill General Manager II -- GFL Environmental
Jim Hitzeroth, BFI Waste Systems of North America, LLC
Ed Doyle, P.E., Environmental Information Logistics, LLC

ATTACHMENT

NOTICE OF DEFICIENCY

0978020001 -- Lake County
Zion Site 1 Phase A Landfill
ILD980700728
Log No. B-23R2

The following comments are provided as part of the Illinois EPA's technical review of the post-closure permit renewal application (application) for Zion Site 1 Phase A Landfill received by the Illinois EPA on May 7, 2021. The review was conducted in accordance with the requirements of Title 35 Illinois Admin Code (35 IAC) Subtitle G and the Illinois EPA's guidance document titled, "Information Required in an Application for a RCRA Post-Closure Permit" (May 2021).

1. General Comment

   The renewal application must be updated to include information related to the following permit modification applications which were submitted after the submittal of the renewal application:

   a. A permit modification application submitted to address a landfill gas exceedance reported at gas monitoring well GMP-2. This modification request was assigned Log No.: Log B-23R-M-8 by the Illinois EPA and included the following submittals:

      i. Initial submittal, dated October 11, 2024;

      ii. Notification of Connection of Probe GMP2 to GCCS, dated October 16, 2024; and

      iii. Notification of Installation of Vacuum Curtain Wells, dated December 16, 2024.

   b. A permit modification application titled, "Leachate Forcemain Repair", dated December 16, 2024, submitted to address a replacement of a portion of the leachate forced main. This modification request was assigned Log No.: Log B-23R-M-9 by the Illinois EPA.

Section A--Forms, Certifications, Confidentiality, and Public Involvement

2. The Illinois EPA has become aware of new personnel associated with the owner or operator who can sign the permit application or who has control over operating decisions regarding the facility, such as a corporate officer or a delegated employee. Section A.1. and A.2. of the application must be updated to reflect these changes.

3. Section A.1. RCRA Part A Application Form

   a. The Zion Site 1 Phase A Landfill is a co-disposal landfill that disposed of solid waste and hazardous waste. The RCRA Subtitle C Site Identification Form, Item 7, should be

revised to include NAICS code 562211 (Hazardous waste disposal facilities) to identify the co-disposal of solid and hazardous waste at the landfill.

b. The United States Environmental Protection Agency (USPEA) Hazardous Waste Permit Part A Form located in Appendix A-1, Item 4, Other Environmental Permits, must be updated to identify the current environmental permits for the facility. The Illinois EPA Air Permit, Number 93080012, appears to have been withdrawn in 2011. The NPDES Permit Number is incorrect.

Section B--Facility Description

4. Section B.2.2. Facility + 1000 feet

Figure B-3 is at a scale of 1 inch equal to 400 feet rather than 1 inch equal to not more than 200 feet. The figure also does not include the surrounding area 1,000 feet outside the facility's property line.

The topographic map must show the layout of the facility and the surrounding area a distance of 1,000 feet outside the facility's property line. This map must be at a scale of 1 inch equal to not more than 200 feet. Ground surface contours must be shown on the map; the contour interval must be sufficient to clearly show the pattern of surface water flow in the vicinity of and from each hazardous waste management unit at the facility (a two-foot interval should be used if the ground surface relief at the facility is less than 20 feet and a five-foot interval should be used if the relief is greater than 20 feet).

The map(s) should contain/identify the following:

Map Requirements: Facility + 1,000 feet	
Map Orientation (north arrow)	Areas in the 100-year flood plain
Map Date	Flood control or drainage barriers
Scale	Run-on/run-off control systems
Legal boundaries of the facility	Fire control facilities
Surrounding land uses	A wind rose
Access controls	Hazardous waste management units
Buildings and Structures	Solid waste management units
Storm drains	Equipment required by Item D.2 below
Sewers: storm, sanitary and process	Surface waters including intermittent streams
Any waste injection or groundwater withdrawal wells (both on-site and off-site)	

Multiple maps may be submitted to meet this requirement if necessary. If multiple maps are used, a discussion of how the various maps meet the above requirements must be provided. If the applicant determines that some of these requirements cannot be met or are not applicable, then sufficient information must be provided in the application to support this

position. Finally, with appropriate supporting justification/discussion in the application, the applicant may vary from the above requirements if what is provided meets the general intent of these requirements.

5. Section B.4. Operating Record

The location where the Operating Record is maintained at the facility, and the procedures used to record the required records must be provided in this section of the application. If details describing how the requirements of this section are met are provided in other sections of the application the locations of the required information must be provided in this section.

Section C--Groundwater Monitoring

6. Section C.6.1. Indicator Parameters, Waste Constituents, Reaction Products to be Monitored

This section must be revised to meet the requirements of 35 IAC 703.185(f)(1) and 35 IAC 724.198(a). The request to update the STORET number in the existing Permit for 1,2-dichloropropane to 34541 is not approved. The Permittee needs to provide additional information. The following items are required: 1) Provide data that shows the STORET number currently in use sampling Cyanide (total) and Cyanide (dissolved) at Site 1 Phase A Landfill; and 2) Provide confirmation that the analyses under STORET 31541 and STORET 34541 are the same.

7. Section C.6.3. Groundwater Monitoring System

This section must be revised to meet the requirements of 35 IAC 703.185(f)(2), 35 IAC 724.197(a) and (b), 35 IAC 724.198(b). The Groundwater Monitoring System requires that the applicant reference by location, boring logs and well completion reports. A table of wells must be submitted identifying the well ID numbers and measurements for the following in both feet Mean Sea Level (MSL) and feet below ground surface (ft. bgs): well depth, screen interval, ground surface, and stickup. The listed items are required for wells: Shallow wells (Wells GT02 and GT05), Background wells (Wells G121, R123, R136, and R127), and POC wells (Wells R124, R126, R128, C129, G131, G132, and R133).

8. Section C.6.4. Description of Sampling and Analysis Procedures

a. Revise Section C.6.4. The description of Sampling and Analysis Procedures states that, "groundwater purged from detection monitoring wells will be directed into the adjacent perimeter stormwater ditch and disposed of on the ground within the waste limits". The statement needs to be revised to include "Purged groundwater will be collected, containerized, and upon receipt of groundwater analysis, disposed of properly."

b. To meet the requirements of 35 IAC 620.510(b)(4), the sampling and analysis plan must be revised to propose a methodology for analyzing constituents which complies with the Lower Limit of Quantitation (LLOQ) instead of the Practical Quantitation Limit (PQL)

and those values must be equal to or less than the groundwater standards of 35 IAC Part 620, Subpart D, effective March 28, 2025.

c. Propose a timeline within the Permit application for sampling and development of new background values to be conducted which meets 35 IAC Part 620 for all new and existing parameters and their respective standards based on the revisions to 35 IAC Part 620, effective March 28, 2025.

Section D--Procedures to Prevent Hazards

9. Section D.2.2. Internal Communications

Personnel using cellular phones to communicate must have access to phone numbers to allow them to summon emergency assistance and communicate with other facility personnel. The application must describe how this will be accomplished. Non-employees who are not accompanied by facility personnel, such as contractors should be provided with an emergency facility contact (person and phone number). In addition, this information should be provided to contractors as part of the contractor handout located in Appendix D-1 of the application.

10. Section D.2.3. External Communications

See the comment on Section D.2.2 above.

11. Section D.2.4. Emergency Response Equipment

The location of first aid stations, eyewash, and showers should be identified on a facility map available to facility personnel and contractors. The map with this information should be provided as part of the contractor handout (Appendix D-1). Non-employees who are not accompanied by facility personnel, such as contractors should be provided with an emergency facility contact (person and phone number).

The application must describe the capabilities of the water supply tanks and water dispersion equipment.

12. Section D.2.5. Water for Fire Control

The application does not provide information on the adequacy of the water retention basin to provide water to address concerns of the "hazards posed by waste handled at the facility" as required by 35 IAC 724.132(d). The application must include a discussion of:

a. the amount and the adequacy of water present in the retention basin;

b. the capabilities and adequacy equipment used to deliver water in response to a fire at the landfill;

c. any municipal fire department(s) that may respond to a fire;

d. the location of fire hydrants near or at the facility that may be used to as a source of water; and

e. the adequacy of the available water supply and equipment to address hazards posed by waste handled at the facility.

13. Section D.2.6. Personnel Protection Equipment

The application must describe Personnel Protection Equipment (PPE) required for workers, including contractors, performing tasks that are expected to be regularly performed at the facility. This would include task such as collection of groundwater samples, gas monitoring, and maintenance of the cover.

14. Section D.2.7. Testing & Maintenance of Emergency Equipment

The application must include a description of the testing and maintenance of emergency equipment identified in the application, including:

a. Equipment used to deliver water for fire control, mentioned in Section D.2.5 of the application.

b. First aid kits, assure the kits are properly stocked and have not exceeded the kits expiration date.

c. Radios and cellphones used by contractors or employees should be checked prior to entering the site to ensure that they are operating, and cellular service is available.

d. PPE maintained on-site.

15. Section D.2.7.1. Equipment Testing

The application states "the safety eye bath requires no periodic testing or maintenance." The application must provide documentation that the safety eye bath requires no periodic testing or maintenance.

All equipment used to deliver water to a potential fire, discussed in Section 2.5 of the application, must be identified and a schedule for maintenance and testing of the equipment must be included in the application.

16. Section D.2.7.2. Schedule

Schedules for inspection, maintenance and/or testing of equipment identified in Section D.2.7.1 and D.2.7.2 of the application must be provided.

17. Section D.3.1. Inspection Log

The Post-Closure Inspection Log Forms, located in Appendix D-2 of the application, must include the equipment and other items identified in Section D.2, and any other items added in response to deficiencies noted elsewhere in this NOD which are required to be inspected. The remainder of Sections D.3 must be updated to address any additional items added in response to this comment.

Section E--Post-Closure Requirements

18. Section E.3.1. Quality of Leachate in the Leachate Collection System

The proposed leachate sampling parameters do not meet the requirements of this section. The leachate sampling parameter list has been expanded since the permit was last renewed. The expanded list includes additional chemical constituents added in the March 28, 2025, update to 35 IAC Part 620.

The Permittee must revise the list in accordance with Section E.3.1, Items 1 and 2 below from the Illinois EPA's guidance document, Information Required in an Application for a RCRA Post-Closure Permit May 2021, and the March 28, 2025, update to 35 IAC Part 620:

a. The leachate needs to be analyzed for the parameters listed below, and the results of annual analyses conducted on representative samples of leachate must be provided in the permit application. This will give an indication of the potential contaminants in a subsurface release from the unit to the groundwater. The leachate needs to be analyzed for:

   i. Those constituents for which a public or food processing water supply standard has been established in 35 IAC Part 302;

   ii. Those constituents for which a groundwater quality standard has been established in 35 IAC Part 620, including but not limited to the following constituents for which groundwater quality standards were established in the March 28, 2025, updates to 35 IAC Part 620:

      1) HFPO-DA (hexafluoropropylene oxide dimer acid GenX);

      2) PFBS (perfluorobutanesulfonic acid);

      3) PFHxS (perfluorohexanesulfonic acid);

      4) PFNA (perfluorononanoic acid);

      5) PFOA (perfluorooctanoic acid); and

      6) PFOS (perfluorooctanesulfonic acid).;

iii. The 51 organic chemicals in drinking water described in 40 CFR 141.40.

iv. Any other contaminants expected to be present in the leachate, based on the characteristics of the waste and materials present in the unit.

b. If the list of analytes has been reduced, provide an analysis for all constituents listed in Section E.3.1.1 each time the post-closure permit is renewed. Compare the reduced list, to the full list. If no new parameters are detected, the application can propose to resume analyzing leachate for the previously approved reduced list. If any new parameters are detected, they must be added to the reduced list and the list of groundwater monitoring parameters.

c. Describe the procedures used to collect, handle, and analyze the leachate samples discussed above. All such efforts must be carried out in accordance with procedures approved/established by Illinois EPA or USEPA. To meet the requirements of 35 IAC 620.510(b)(4), the leachate sampling and analysis plan must be revised to propose a methodology for analyzing constituents which complies with the Lower Limit of Quantitation (LLOQ) instead of the Practical Quantitation Limit (PQL) and those values must be equal to or less than the groundwater standards of 35 IAC Part 620, Subpart D, effective March 28, 2025.

19. Section E.3.5. Summary of Leachate Management Program Conducted to Date

The application should discuss the efficacy of the existing leachate management program or identify deficiencies which must be addressed to ensure leachate is adequately managed in the landfill.

20. Section E.5. Operation of the Gas Monitoring/Collection System

Section E.5. of the application must be updated to address modifications to the Gas Monitoring/Collection System described in permit modification applications identified in Item 1 of this NOD.

21. Section E.5.3. Landfill Gas Disposal/Processing System

Sections E.5.3. and E.5.4. of the application must be updated to reflect the current landfill gas disposal/processing system, including the replacement of the gas-to-energy plant with a system to process landfill gas to provide pipeline quality gas for commercial use.

22. Section E.5.4. Summary of the Landfill Gas Collection / Monitoring / Processing Systems

a. See comments above for Sections E.5 and E.5.3. of the application.

b. The application must include the following:

i. The procedures followed to document/record information associated with the operation of the landfill gas collection, monitoring, and processing systems in the operating record is not provided.

ii. A summary of the operation of the landfill gas collection, monitoring, and processing systems during the past ten years is not provided.

23. Section E.6. Post-Closure Inspection Plan

This section of the application (E.6) refers to Section D.3 Inspection Requirements to meet the requirement of this section. Deficiencies identified in Section D.3 apply to the subsections below. Only additional deficiencies specific to the requirements of this section are identified below.

24. Section E.6.1.3. Inspection Frequency

The inspection frequency identified in Section D.3.1.1., Section D.3.1.3 and this section (E.6.1.1.) must be revised to include inspections to be completed within 24 hours of any rain fall event of two or more inches in 24 hours to detect evidence of any of deterioration, malfunctions, or improper operation of run-on and run off system. The application must state that appropriate corrective action must be taken if problems, including erosion, blockage of the channels, slope failure, etc. are observed.

25. Section E.7.1. Facility Controls

The application must state, the benchmarks present at or near the closed Site 1 Phase A Landfill that are utilized to identify the location of the disposal unit will be surveyed once every five years. Any other solid waste management units and units/areas covered by an established institutional control must also be surveyed at least once every five years.

26. Section E.7.2. Surveys and Corrective Action

The application must identify the units at the facility that will be surveyed every five years. This includes the Site 1 Phase A Landfill as a unit subject to post-closure requirements per 35 IAC 724.210(b).

27. Section E.7.2.1. Provide the following for the units identified in Item E.7.2:

The application must be revised to include:

a. A copy of the survey for the closed Site 1 Phase A Landfill generated every five years since the unit was closed that shows the horizontal and vertical extent of the unit, drainage control structures, leachate collection wells, and groundwater monitoring wells.

b. Scale drawing(s) (1 inch = 200ft) and cross sections that identify those areas of the cover system or engineered barrier that have changed 1 foot or more in elevation since the unit was closed.

c. If corrective action was required in response to a release, damage to the cover system, settlement, erosion, stressed vegetation, or damage to a leachate well, groundwater monitoring well, or benchmark since post-closure care began, identify the date and location of the corrective action on the scale drawings required above. Also, provide copies of the inspection and repair logs that includes the date each incident was discovered, a description of the incident and corrective action taken, and the date corrective action was completed.

d. If corrective action occurred in the same general area two or more times since post-closure began, discuss the actions the permittee has implemented to prevent this from happening again.

28. Section E.7.3. Leachate Collection System

The application must describe how information about the leachate collection system for the closed Site 1 Phase A Landfill is monitored, evaluated, and recorded.

29. Section E.7.3.1. Leachate Quality

The application must discuss if the concentrations of the constituents in the leachate have changed during the post-closure period and any actions taken in response. This discussion must include:

a. Summary of Sample Results: Provide a summary table of the leachate sampling results for Site 1 Phase A Landfill since post-closure began. Identify the concentration for each parameter detected in each sampling event.

b. Parameter Comparison: Indicate if any of the leachate analyses detected a parameter for which the groundwater is/was not being analyzed and the actions taken if this occurred.

30. Section E.7.3.2. Leachate Quantity

a. The application must provide a record of the amount of liquid removed from the leachate collection sump (in gallons) at least monthly after closure of the Site 1 Phase A Landfill. The following information regarding leachate generation rates needs to be provided both in table form and graphically:

   i. Monthly for each year for each sump since the unit was closed

   ii. Annually for each sump since the unit was closed

   iii. Annually for each unit since the unit was closed

b. If the leachate generation rates are not trending downward during the post closure period, discuss why this is not happening. Provide information regarding precipitation rates during the post-closure period, as well as groundwater elevations relative to the leachate extraction wells within the landfill.

31. Section E.7.3.3. Leachate Reporting

The application must describe the procedures followed to electronically report the quality and quantity of leachate generated at the facility to the Illinois EPA.

32. Section E.7.6.1. Gas Quality

The application must include a discussion of how the parameters (methane, pressure, oxygen; and carbon dioxide) in the gas system have changed during the post-closure period and any actions taken in response to those changes.

a. Summary of Sample Results: Provide a summary table of the gas sampling results for each unit since post closure began for that unit. Identify the concentration for each parameter detected in each sampling event.

b. Parameter Comparison: Describe the parameter thresholds used to adjust the gas collection system to improve overall efficiency of the system. Describe any major gas system upgrades/ overhauls since post-closure began.

33. Section E.7.6.2. Gas Quantity

a. The application must include a record of the amount of gas removed from each unit at least monthly following closure. The following information regarding gas generation rates needs to be provided both in table form and graphically:

   i. Monthly for each year for each unit since the unit was closed; and

   ii. Annually for each unit since the unit was closed

b. If the gas generation rates are not trending downward during the post-closure period, discuss why this is not happening.

34. Section E.7.6.3. Summary of Results from the Gas Collection / Monitoring System

a. The application must describe the procedures followed to document/record information associated with the operation of the landfill gas collection, monitoring, and processing systems in the operating record.

b. Summarize the operation of the landfill gas collection, monitoring, and processing systems since the unit was closed. Describe any adjustments to the design or operation of the systems since the unit was closed.

35. Section E.8.1. Procedures, Equipment & Materials:

A list of the items to be maintained and inspected is provided in the application; however, it does not describe the preventive and corrective maintenance procedures, equipment and materials required to provide adequate post-closure care of the landfill. Include the following items in the maintenance plan, as applicable:

a. Repair of security control devices;

b. Erosion damage repair;

c. Correction of settlement, subsidence and displacement;

d. Mowing, fertilization and other vegetative cover maintenance;

e. Repair of run-on and run-off control structures;

f. Maintenance of any leachate removal system(s) including the flushing of the LCS;

g. Maintenance of the gas monitoring/extraction system;

h. Replacement of groundwater monitoring wells; and

i. Surveyed benchmarks.

36. Section E.8.2. Rationale

The application must provide the rationale which will be used to determine the need for corrective maintenance activities for each of the items mentioned for Section E.8.1 above.

37. Section E.8.3. Frequency

The application must provide the frequency for maintaining each of the items mentioned for Section E.8.1 above if it is known. This needs to include, but not be limited to:

a. The frequency for mowing, fertilization and other vegetative cover maintenance, and

b. Annual maintenance / cleaning of pumps used in the LCS, and gas collection systems.

c. The manufacturer's recommended replacement rate for the pumps used in the LCS, or gas collection systems.

d. High pressure jet flushing of the LCS collection pipes and sumps every 5 years.

e. Procedures and scheduling of non-routine maintenance and change-out of equipment.

38. Section E.11. Post-Closure Cost Estimate

The post-closure cost estimate must be revised to address the following to meet the requirements of 35 IAC 703.183(p), 35 IAC 724.244:

a. All cost must be updated to reflect the current costs in 2025 dollars. Contact Daniel Britton by email at Daniel.Britton@illinois.gov or 217/524-3497 for inflation factors.

b. The cost-estimate must be updated to address additional cost to be incurred to address comments/deficiencies identified in this NOD. These include:

   i. revisions to the gas extraction and monitoring system;

   ii. revisions to leachate extraction and monitoring system;

   iii. revisions to groundwater monitoring system;

   iv. revisions to inspection and maintenance procedures; and

   v. any other revisions impacting cost associate with post-closure care.

c. Costs related to groundwater monitoring identified in Section C of the application must be updated to reflect the most current costs and inflation rates. Additionally, third party costs for groundwater monitoring requirements and separate laboratory analysis (2nd quarter and 4th quarter) estimates from First Environmental Laboratories must be submitted.

JLR:KL\0978020001-RCRA-B23R2-NOD.docx

BOL Permit Section RCRA Tracking Sheet

BOLSiteCode ***0978020001*** *Federal ID(s)* ***ILD980700728*** *Respond by:* ***6/6/2025***

Site: ***Zion Site 1 Phase A Landfill*** *Region:* ***Des Plaines***

City: Zion *County:* Lake

Data Regarding Logged Submittal(s) per Log # ***B-23R2***

Review Status	PermitClass	AppType	Reviewers: RCRA, CAU, DAU, RCRA GAU
Active	Renewal Part B Pmt	RCRA Part B	KL, , , SDD

DocTitle_Description	Submittal Type	Review Type	Agency Response
Renewal application	1st Submittal	Technical	Technical NOD

Date Received 05/07/2021 Date Due 08/05/2021 Date Mailed 05/07/2025

Submittal Comment:

Final Action Data

For Log No: B-23R2

Units Addressed	Final Action Status	Date FA Issued	Date NFA	Date Closure Cert Accepted	Acres Remediated
					0

Closure Type:	Institutional Control	Clean Closed:	1 Institutional Control:	2 Institutional Control:
	☐			

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

217/524-3301

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
7020 2450 0000 1709 7534
7020 2450 0000 1709 8081

JUL 02 2021

BFI Waste Systems of North America, LLC
Attn: James Hitzeroth
26 W 580 Schick Road
Hanover Park, Illinois 60103

Advanced Disposal Services
Attn: James Lewis
701 Green Bay Road
Zion, Illinois 60099

Re: 0978020001 -- Lake County
Zion Site 1 Landfill
ILD980700728
Log No. B-23R2
RCRA Permit Admin Record File
Permit Correspondence

Dear Mr. Hitzeroth and Mr. Lewis:

The Illinois EPA received your application for a RCRA Part B Post-Closure Permit Renewal application for the post-closure care of a former hazardous waste landfill at the above referenced facility. This facility is located at 701 Green Bay Road, Zion, Illinois. The application, dated May 6, 2021, was received by the Agency on May 7, 2021. This application was assigned Log No. B-23R2 by the Illinois EPA.

In accordance with 35 Ill. Adm. Code 702.122 the Illinois EPA has determined that the application is complete. With this determination of completeness, a review of the application for technical adequacy can begin. Comments on any deficiencies identified during the technical review will be provided at a later date.

If you have any questions concerning the groundwater related aspects of this permit, please contact Shantay D. Dial at 217/558-0177. If you have any questions about the remainder of the permit, please feel free to contact Kevin Lesko at 217-524-3271.

Sincerely,

Kenneth E. Smith, P.E., Manager
Permit Section
Division of Land Pollution Control
Bureau of Land

KC WRW
KES:kl:\0978020001-RCRA-B23R2-Complete.docx

cc: Kevin Bremer - Republic Services Co.
Daniel DeWaard - Advanced Disposal Services

bcc: RCRA Permit - 24D
Des Plains Region
Ken Smith
Rob Watson
Curtis Samson
Shawntay Dial
Kevin Lesko

BOL Permit Section RCRA Tracking Sheet

BOLSiteCode ***0978020001*** *FedID:* ***ILD980700728*** *Respond by:* ***7/31/2021***

Site: ***Zion Site 1 Phase B Landfill*** *Region:* ***Des Plaines***

City: Zion *County:* Lake

Facility Permit Universe: ☐ **OperatingUniverse** ☑ **PostClosureUniverse** ☐ **CorrActionUniverse** ☐ **UIC**

Facility Type: ***Right-to-Know Status:*** ***RTK Status Change Date:***

Site Comments:

Data Regarding Log #: *B-23R2*

Review Status	PermitClass	AppType	Reviewers: RCRA	CAU	DAU	GU
Active	Renewal Part B Pmt	RCRA Part B	KL	CS		SDD

LogComments: APPLICATION IS COMPLETE

Submittals:

DocTitle_Description	Submittal Type	Review Type	Agency Response
Renewal application	1st Submittal	Technical	

Submittal Received: 05/07/2021 **Date Due:** 08/05/2021 **Date Mailed:**

Submittal Comments:

Final Action Data

For Log No: **B-23R2**

Units Addressed	Final Action Status	Date FA Issued	Date NFA	Date Closure Cert Accepted	Acres Remediated
					0

Closure Type:	Institutional Control	Clean Closed:	1 Institutional Control:	2 Institutional Control:
	☐			

R 000517

May 6, 2021

Public Notice of Submittal of RCRA Part B Post-Closure Permit Renewal Application

Zion Site 1 Landfill

Facility address: 701 Green Bay Road
Zion, IL 60099

Hazardous Waste Management Operations: Closed Landfill

The above referenced permit application materials have been prepared and are available for community members to review and copy at the following repositories:

Zion-Benton Public Library
2400 Gabriel Ave.
Zion, IL 60099

The current library hours (with limited lobby service) are:

Mon, Wed, Th:	10 AM – 6 PM
Tue:	10 AM – 7 PM
Sat:	10 AM – 5 PM

Office of County Board Chair
Lake Co. Board Office
18 North County Street
Waukegan, IL 60085

Normal business hours are: 8:30 AM – 4:30 PM (M-F).

The applicant will update the repository materials periodically during the Illinois EPA's review of the permit application.

Name, Address, Telephone # of Permittee's Contact:

Mr. Jim Hitzeroth
BFI Waste Systems of North America, LLC
26 West 580 Schick Road
Hanover Park, Illinois 60103
Ph: (224) 970-1129

For general information on the hazardous waste management permit program in Illinois, please contact: the Illinois EPA RCRA Community Involvement Coordinator.

B-23R2 R 000518

REPUBLIC SERVICES

BFI Waste Systems of North America, LLC.
26W580 Schick Road
Hanover Park, IL 60133

cc: DesPlaines
CS
SDD

May 6, 2021

Illinois EPA
Bureau of Land, Division of Land Pollution Control
Permit Section
1021 North Grand Ave. East
Springfield, IL 62794-9276
Attn: Permit Section Manager

RECEIVED
MAY 07 2021
IEPA-BOL
PERMIT SECTION

Re: RCRA Part B Post-Closure Permit Renewal Application
0978020001 – Lake County
Zion Site 1 Landfill
ILD980700728
Log No. B-23R2

To Whom It May Concern,

Enclosed, please find the original signed versions of forms included in the above referenced application being submitted on behalf of permittee, operator, BFI Waste Systems of North America, LLC. Four copies of the above referenced permit application, including scanned copies of the enclosed original forms contained in Appendix A-1 (Part A Application and LPC-PA23 Forms) and Appendix A-2 (39i Forms) are being submitted to the above address under separate cover.

If you have any questions concerning this submittal, feel free to contact me at (224) 970-1129 or JHitzeroth@republicservices.com.

Sincerely,
BFI Waste Systems of North America, LLC

James Hitzeroth

Enclosure: Original Signed Part A Application, LPC-PA23, and 39i Forms

Appendix A-1

Part A Permit Application and Supporting Materials/LPC-PA23 Form

Illinois Environmental Protection Agency

1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276 • (217) 782-3397

RCRA Permit Application Form (LPC-PA23)

This form must be used for any permit application for a hazardous waste management facility regulated in accordance with RCRA, Subtitle C, including all requests to modify an existing permit. One original and three (3) copies, of all permit applications must be submitted. Attach the original and appropriate number of copies of a cover letter, any necessary plans, specifications, reports, forms, (e.g., corrective action certification form), and any other certifications etc. to fully support and describe the activities or modifications being proposed. Attach sufficient information to demonstrate compliance with all applicable regulatory requirements. Applications without this form will be deemed incomplete. Please refer to the RCRA checklist and decision guide documents for further guidance. For RCRA corrective action, this form should only be used if requesting an actual modification to a RCRA permit. A RCRA Corrective Action Certification form should be used in all other instances.

Note: Permit applications which are hand-delivered to the Bureau of Land, Permit Section must be delivered to 1021 North Grand Avenue East between the hours of 8:30 a.m. to 5:00 p.m., Monday through Friday (excluding State holidays).

Please type or print all information legibly.

I. Site Identification

Site # (Illinois EPA): 0978020001 USEPA ID Number: ILD980700728

Site Name: Zion Site 1 Landfill

Physical Site Location (street, road, etc.): 701 Green Bay Road

City: Zion Zip Code: 60099 County: Lake

Existing RCRA Permit (if applicable): B-23R

II. Owner/Operator Identification

Owner Information

Name: Zion Landfill, Inc.

Mailing Address:

701 Green Bay Rd.
Zion, IL 60099

Contact Name: Jim Lewis

Phone #: 847-599-5910

Email: james.lewis@advanceddisposal.com

Operator Information

Name: BFI Waste Systems of North America, LLC

Mailing Address:

26 W. 580 Schick Rd.
Hanover Park, IL 60103

Contact Name: James Hitzeroth

Phone #: 224-970-1129

Email: JHitzeroth@republicservices.com

A 39(i) certification must be submitted with information concerning the following persons or entities:

- the owner of the business entity applying for the permit;
- the operator of the business entity applying for the permit;
- each employee or officer of the owner or operator who signed the permit application or has managerial authority at the site; and
- any additional owner, operator, or officer or employee of the owner or operator from whom a certification is requested by the Illinois EPA, including any officer or employee who will be responsible for overseeing or implementing regulated activities governed by the permit.

III. Permit Application Identification

Application Type

- ☐ New Part B Permit
- ☑ Part B Permit Renewal
- ☐ Class 1 Modification
- ☐ Class 1* (prior approval required) Modification
- ☐ Class 2 Modification
- ☐ Class 3 Modification
- ☐ Additional information to supplement UIC Class I application Log Number _____
- ☐ Remedial Action Plan Permit (RAPP)
- ☐ Sig RAPP Modification
- ☐ Non Sig RAPP Modification
- ☐ Major UIC Modification
- ☐ Minor UIC Modification

This Application Involves

- ☐ Storage
- ☐ Treatment
- ☑ Disposal
- ☐ Incineration
- ☐ Groundwater
- ☐ Corrective Action
- ☐ UIC Class I
- ☐ UIC Class V

Description of This Permit Request: (Include a brief narrative description here.)

Permit Renewal Application, due every 10 years.

RECEIVED
MAY 07 2021
IEPA-BOL
PERMIT SECTION

IV. SIGNATURES

Original signatures required. Signature stamps or applications transmitted electronically or by facsimile are not acceptable. All applications shall be signed by the person in accordance with 35 IAC 702.126(a).

Please check the box of the appropriate certification.

Owner

☒ I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Alternative owner certification. For remedial action plans (RAPs) permit under Subpart H of 35 IAC 703, the owner may choose to make the following certification instead of the certification above.

☐ Based on my knowledge of the conditions of the property described in the RAP and my inquiry of the person or persons that manage the system referenced in the operator's certification, or those persons directly responsible for gathering the information, the information submitted is, upon information and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner Name (Printed or Typed): Mike Stoeckigt

Owner Signature: _____ Date: 4-26-21

Title: Region Vice President

Subscribed & Sworn before me in Sheboygan, WI, Sheboygan County WI on 04-26-2021. Floyd Leo Notary Public

My Commission expires on 02-23-2025

FLOYD LEO NOTARY PUBLIC STATE OF WISCONSIN

Operator

I certify under penalty of law that this document and all attachment were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Operator Name (Printed or Typed): Matthew Healy

Operator Signature: _____ Date: 05/04/2021

Title: Vice President

Notary (Required for both owner and operator signatures)

Subscribed and Sworn before me this 4th day of May 2021.

OFFICIAL SEAL
HELGA M DEJONGH
NOTARY PUBLIC - STATE OF ILLINOIS
MY COMMISSION EXPIRES:10/24/22

Notary Signature: _____

My commission expires on: 24 October 2022

Notary Seal

Engineer

I certify under penalty of law that this document and all attachment were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

RECEIVED
MAY 07 2021
IEPA-BOL
PERMIT SECTION

Engineer Name (Print or Type): John Bossert

Engineer Signature: _____

Illinois License No.: 062-050455

Expiration Date of License: Nov 30, 2021

Engineer Phone No. 217-787-0290

Email: jbossert@wcgrp.com

Engineer Address:

3516 Ogden Rd.
Springfield, IL 62711

JOHN W. BOSSERT 5/6/21
062-050455
REGISTERED
PROFESSIONAL
ENGINEER
OF
ILLINOIS
Expires 11/30/21

Engineer Seal

All information submitted as part of the Application is available to the public except when specifically designated by the Applicant to be treated confidentially as a trade secret or secret process in accordance with Section 7(a) of the Environmental Protection Act, applicable Rules and Regulations of the Illinois Pollution Control Board and applicable Illinois EPA rules and guidelines.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Appendix A-2

39i Certification

Illinois Environmental Protection Agency

1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276 • (217) 782-3397

39(i) Certification for Operating a Waste Management Facility

Pursuant to 415 ILCS 5/39(i), prior to issuing any RCRA permit, or any permit for a waste storage site, sanitary landfill, waste disposal site, waste transfer station, waste treatment facility, waste incinerator, clean construction or demolition debris fill operation, or used tire storage site, the Illinois EPA must conduct an evaluation of the prospective owner's or operator's prior experience in waste management operations, clean construction or demolition debris fill operations, and tire storage site management. As part of that evaluation please complete and submit this form with your permit application.

This form may be completed online and saved locally before printing, signing and submitting it to the Illinois EPA at the address below. If the form is completed manually, please type or print clearly.

Illinois Environmental Protection Agency
Division of Land Pollution Control - #33
39(i) Certification
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

I. Applicant Information

Site Name: Zion Site 1 Landfill — IEPA BOL No.: 0978020001
Site Address: 701 Green Bay Road
City: Zion — State: IL — Zip Code: 60099
Permit Numbers (if applicable): B-23R

Owner

Owner Name: Zion Landfill, Inc.
Street Address: 701 Green Bay Road
City: Zion — State: IL — Zip: 60099

Operator

Operator Name: BFI Waste Systems of North America, LLC
Street Address: 26 W. 580 Schick Rd.
City: Hanover Par — State: IL — Zip: 60099

Is this 39(i) certification for the owner or the operator?

○ Owner ◉ Operator ○ Owner and operator are the same entity

II. Officers and Employees with Site Responsibility

Unless the owner and operator are the same entity, a separate 39(i) form must be submitted for both the owner and operator. Persons operating under the authority of the owner should be listed on the owner's 39(i) form and persons operating under authority of the operator should be listed on the operator's 39(i) form.

A. Officers: List the name and title of all officers of the owner or operator that will have personal involvement or active participation in the operation or management of the site or facility for which the application is submitted.

Name	Title
Matthew Healy	Vice President

RECEIVED
MAY 07 2021
IEPA-BOL
PERMIT SECTION

B. Employees: List the name and title of each employee of the owner or operator that will have personal involvement or active participation in the overall operation or management of the site or facility for which the application is submitted (e.g. site managers, site engineers, and other persons who direct or control the overall day-to-day management of the operation, but not persons whose duties are exclusively limited to equipment operation, labor, or similar non-managerial functions).

Name	Title
James Hitzeroth	Environmental Manager

III. Owner, Operator, Officer, and Employee Information

A. Prior Conduct Identification

The applicant must answer each of the following questions for every owner or operator, and for any officer or employee identified under Section II. If the answer to any of the following questions is affirmative, the applicant must complete an Attachment A for each person for whom the answer is affirmative and include a copy of each final administrative or judicial determination that required an affirmative response. If the information for each owner, operator, officer, and employee has not changed since the applicant's last submission of a 39(i) certification, the applicant can skip to Section III(C), below.

1) Has there been a finding that any person named in Section II violated federal, State, or local laws, regulations, standards, or ordinances in the operation of one or more waste management facilities or sites, clean construction or demolition debris fill operation facilities or sites, or tire storage sites? ○ Yes ⊘ No

2) Has any person named in Section II ever been convicted in this or another State of any crime which is a felony under the laws of this State, or convicted of a felony in a federal court; or convicted in this or another state or federal court of any of the following crimes: forgery, official misconduct, bribery, perjury, or knowingly submitting false information under any environmental law, regulation, or permit term or condition? ○ Yes ⊘ No

3) Has there been a finding against any person named in Section II of gross carelessness or incompetence in handling, storing, processing, transporting or disposing of waste, clean construction or demolition debris, or used or waste tires, or a finding of gross carelessness or incompetence in using clean construction or demolition debris as fill? ○ Yes ⊘ No

B. Pending Proceedings

The applicant must answer each of the following questions for every owner or operator, and for any officer or employee identified in Section II. If the answer to any of the following questions is affirmative, the applicant must complete an Attachment A for each person for whom the answer is affirmative and provide information identified in Attachment A regarding the pending proceeding.

1. Is there any proceeding currently pending against any person named in Section II that could result in a conviction or finding described in subsection A, above? ○ Yes ⊘ No

2. Is there any proceeding currently pending against any person named in Section II that could result in the reversal of a conviction or finding described in subsection A, above? ○ Yes ⊘ No

C. Prior Application Information

If (i) the applicant has previously submitted the Attachments required pursuant to subsections A and B above and (ii) the Attachments previously submitted are still complete, true, and correct, then the applicant does not need to include Attachments with this submission if the following box is checked:

☐ By checking this box, I affirm that the Attachments previously submitted are still complete, true, and correct and wish to incorporate them into this Certification.

If the above box is checked, identify the application that contains the previously submitted Attachments that are complete, true, and correct.

RECEIVED
MAY 07 2021
IEPA-BOL
PERMIT SECTION

Authorization for Release of Information

This Certification must be signed by an officer of the applicant.

The undersigned authorizes any representative of the Illinois Environmental Protection Agency bearing this release to obtain any information from the Illinois State Police pertaining to the criminal records of the applicant and hereby directs the Illinois State Police to release such information upon request of the bearer. The undersigned authorizes a review of and full disclosure of all records, or any part thereof, concerning the applicant's criminal records by and to a duly authorized agent of the Illinois Environmental Protection Agency, whether the records are of public, private, or confidential nature. The intent of this authorization is to give consent for full and complete disclosure of the applicant's criminal records.

The undersigned fully understands that any information which is developed directly or indirectly, in whole or in part, as a result of this authorization will be considered in determining whether a permit shall be issued by the Illinois Environmental Protection Agency under the Environmental Protection Act [415 ILCS 5]. The undersigned further agrees to release the Illinois State Police and the Illinois Environmental Protection Agency, its agents and designees under this release, from any and all liability which may be incurred as a result of compliance with this authorization for release of information.

Certification Statements

I certify under penalty of law that the information submitted, including information on any Attachments submitted as part of or incorporated into this Certification, is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Signature of Applicant Officer

05/04/2021
Date

Matthew Healy
Printed Name

Vice President
Title

RECEIVED
MAY 07 2021
IEPA-BOL
PERMIT SECTION

Illinois Environmental Protection Agency

1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276 • (217) 782-3397

39(i) Certification
for Operating a Waste Management Facility

Pursuant to 415 ILCS 5/39(i), prior to issuing any RCRA permit, or any permit for a waste storage site, sanitary landfill, waste disposal site, waste transfer station, waste treatment facility, waste incinerator, clean construction or demolition debris fill operation, or used tire storage site, the Illinois EPA must conduct an evaluation of the prospective owner's or operator's prior experience in waste management operations, clean construction or demolition debris fill operations, and tire storage site management. As part of that evaluation please complete and submit this form with your permit application.

This form may be completed online and saved locally before printing, signing and submitting it to the Illinois EPA at the address below. If the form is completed manually, please type or print clearly.

Illinois Environmental Protection Agency
Division of Land Pollution Control - #33
39(i) Certification
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

I. Applicant Information

Site Name: Zion Site 1 Landfill — IEPA BOL No.: 0978020001
Site Address: 701 Green Bay Road
City: Zion — State: IL — Zip Code: 60099
Permit Numbers (if applicable): B-23R

Owner

Owner Name: Zion Landfill, Inc.
Street Address: 701 Green Bay Road
City: Zion — State: IL — Zip: 60099

Operator

Operator Name: BFI Waste Systems of North America, LLC
Street Address: 26 W. 580 Schick Rd.
City: Hanover Par — State: IL — Zip: 60099

Is this 39(i) certification for the owner or the operator?

(✓) Owner ( ) Operator ( ) Owner and operator are the same entity

II. Officers and Employees with Site Responsibility

Unless the owner and operator are the same entity, a separate 39(i) form must be submitted for both the owner and operator. Persons operating under the authority of the owner should be listed on the owner's 39(i) form and persons operating under authority of the operator should be listed on the operator's 39(i) form.

A. Officers: List the name and title of all officers of the owner or operator that will have personal involvement or active participation in the operation or management of the site or facility for which the application is submitted.

Name	Title
Mike Stoeckigt	Region Vice President

RECEIVED
MAY 07 2021
IEPA-BOL
PERMIT SECTION

B. Employees: List the name and title of each employee of the owner or operator that will have personal involvement or active participation in the overall operation or management of the site or facility for which the application is submitted (e.g. site managers, site engineers, and other persons who direct or control the overall day-to-day management of the operation, but not persons whose duties are exclusively limited to equipment operation, labor, or similar non-managerial functions).

Name	Title
James Lewis	

III. Owner, Operator, Officer, and Employee Information

A. Prior Conduct Identification

The applicant must answer each of the following questions for every owner or operator, and for any officer or employee identified under Section II. If the answer to any of the following questions is affirmative, the applicant must complete an Attachment A for each person for whom the answer is affirmative and include a copy of each final administrative or judicial determination that required an affirmative response. If the information for each owner, operator, officer, and employee has not changed since the applicant's last submission of a 39(i) certification, the applicant can skip to Section III(C), below.

1) Has there been a finding that any person named in Section II violated federal, State, or local laws, regulations, standards, or ordinances in the operation of one or more waste management facilities or sites, clean construction or demolition debris fill operation facilities or sites, or tire storage sites? ○ Yes ⊘ No

2) Has any person named in Section II ever been convicted in this or another State of any crime which is a felony under the laws of this State, or convicted of a felony in a federal court; or convicted in this or another state or federal court of any of the following crimes: forgery, official misconduct, bribery, perjury, or knowingly submitting false information under any environmental law, regulation, or permit term or condition? ○ Yes ⊘ No

3) Has there been a finding against any person named in Section II of gross carelessness or incompetence in handling, storing, processing, transporting or disposing of waste, clean construction or demolition debris, or used or waste tires, or a finding of gross carelessness or incompetence in using clean construction or demolition debris as fill? ○ Yes ⊘ No

B. Pending Proceedings

The applicant must answer each of the following questions for every owner or operator, and for any officer or employee identified in Section II. If the answer to any of the following questions is affirmative, the applicant must complete an Attachment A for each person for whom the answer is affirmative and provide information identified in Attachment A regarding the pending proceeding.

1. Is there any proceeding currently pending against any person named in Section II that could result in a conviction or finding described in subsection A, above? ○ Yes ⊘ No

2. Is there any proceeding currently pending against any person named in Section II that could result in the reversal of a conviction or finding described in subsection A, above? ○ Yes ⊘ No

C. Prior Application Information

If (i) the applicant has previously submitted the Attachments required pursuant to subsections A and B above and (ii) the Attachments previously submitted are still complete, true, and correct, then the applicant does not need to include Attachments with this submission if the following box is checked:

☐ By checking this box, I affirm that the Attachments previously submitted are still complete, true, and correct and wish to incorporate them into this Certification.

If the above box is checked, identify the application that contains the previously submitted Attachments that are complete, true, and correct.

Authorization for Release of Information

This Certification must be signed by an officer of the applicant.

The undersigned authorizes any representative of the Illinois Environmental Protection Agency bearing this release to obtain any information from the Illinois State Police pertaining to the criminal records of the applicant and hereby directs the Illinois State Police to release such information upon request of the bearer. The undersigned authorizes a review of and full disclosure of all records, or any part thereof, concerning the applicant's criminal records by and to a duly authorized agent of the Illinois Environmental Protection Agency, whether the records are of public, private, or confidential nature. The intent of this authorization is to give consent for full and complete disclosure of the applicant's criminal records.

The undersigned fully understands that any information which is developed directly or indirectly, in whole or in part, as a result of this authorization will be considered in determining whether a permit shall be issued by the Illinois Environmental Protection Agency under the Environmental Protection Act [415 ILCS 5]. The undersigned further agrees to release the Illinois State Police and the Illinois Environmental Protection Agency, its agents and designees under this release, from any and all liability which may be incurred as a result of compliance with this authorization for release of information.

Certification Statements

I certify under penalty of law that the information submitted, including information on any Attachments submitted as part of or incorporated into this Certification, is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Signature of Applicant Officer

4-26-21
Date

MIKE STOECKIGT
Printed Name

REGION VICE PRESIDENT
Title

RECEIVED
MAY 07 2021
IEPA-BOL
PERMIT SECTION

OMB# 2050-0024; Expires 05/31/2020

United States Environmental Protection Agency
RCRA SUBTITLE C SITE IDENTIFICATION FORM

1. Reason for Submittal (Select only one.)

☐	Obtaining or updating an EPA ID number for an on-going regulated activity that will continue for a period of time. (Includes HSM activity)
☐	Submitting as a component of the Hazardous Waste Report for _____ (Reporting Year)
	☐ Site was a TSD facility and/or generator of ≥ 1,000 kg of non-acute hazardous waste, > 1 kg of acute hazardous waste, or > 100 kg of acute hazardous waste spill cleanup in **one or more months of the reporting year** (or State equivalent LQG regulations)
☐	Notifying that regulated activity is no longer occurring at this Site
☐	Obtaining or updating an EPA ID number for conducting Electronic Manifest Broker activities
☑	Submitting a new or revised Part A Form

2. Site EPA ID Number

I	L	D	9	8	0	7	0	0	7	2	8

3. Site Name

Zion Landfill Site 1, Phase A

4. Site Location Address

Street Address: 701 Green Bay Rd.		
City, Town, or Village: Zion		County: Lake
State: IL	Country: United States	Zip Code: 60099

5. Site Mailing Address ☑ Same as Location Address

Street Address		
City, Town, or Village		
State	Country	Zip Code

6. Site Land Type

☑ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other

7. North American Industry Classification System (NAICS) Code(s) for the Site (at least 5-digit codes)

A. (Primary) 562212	C.
B.	D.

RECEIVED
MAY 07 2021
IEPA-BOL
PERMIT SECTION
IEPA - DIVISION OF RECORDS MANAGEMENT
RELEASABLE

OCT 21 2025

REVIEWER: MED

EPA ID Number | I | L | D | 9 | 8 | 0 | 7 | 0 | 0 | 7 | 2 | 8 |

OMB# 2050-0024; Expires 05/31/2020

8. Site Contact Information ☐ Same as Location Address

First Name **James**	MI **W**	Last Name **Hitzeroth**
Title **Environmental Manager**		
Street Address **26 W. 580 Schick Rd.**		
City, Town, or Village **Hanover Park**		
State **IL**	Country **United States**	Zip Code **60133**
Email **JHitzeroth@republicservices.com**		
Phone **224-970-1129**	Ext --	Fax

9. Legal Owner and Operator of the Site

A. Name of Site's Legal Owner ☐ Same as Location Address

Full Name **Zion Landfill, Inc.**	Date Became Owner (mm/dd/yyyy) **1/7/2021**

Owner Type: ☑ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other

Street Address **701 Green Bay Road**		
City, Town, or Village **Zion**		
State **IL**	Country **United States**	Zip Code **60099-9564**
Email **james.lewis@advanceddisposal.com**		
Phone **847-599-5910**	Ext	Fax
Comments		

B. Name of Site's Legal Operator ☐ Same as Location Address

Full Name **BFI Waste Systems of North America, LLC**	Date Became Operator (mm/dd/yyyy) **10/15/1976**

Operator Type: ☑ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other

Street Address **26 W. Schick Rd**		
City, Town, or Village **Hanover Park**		
State **IL**	Country **United States**	Zip Code **60133**
Email **JHitzeroth@republicservices.com**		
Phone **224-970-1129**	Ext	Fax
Comments		

RECEIVED
MAY 07 2021
IEPA-BOL
PERMIT SECTION

EPA ID Number | I | L | D | 9 | 8 | 0 | 7 | 0 | 0 | 7 | 2 | 8 | **OMB# 2050-0024; Expires 05/31/2020**

10. Type of Regulated Waste Activity (at your site)

Mark "Yes" or "No" for all current activities (as of the date submitting the form); complete any additional boxes as instructed.

A. Hazardous Waste Activities

☑ Y ☐ N	1. Generator of Hazardous Waste—If "Yes", mark only one of the following—a, b, c		
	☑	a. LQG	-Generates, in any calendar month (includes quantities imported by importer site) 1,000 kg/mo (2,200 lb/mo) or more of non-acute hazardous waste; or - Generates, in any calendar month, or accumulates at any time, more than 1 kg/mo (2.2 lb/mo) of acute hazardous waste; or - Generates, in any calendar month or accumulates at any time, more than 100 kg/mo (220 lb/mo) of acute hazardous spill cleanup material.
	☐	b. SQG	100 to 1,000 kg/mo (220-2,200 lb/mo) of non-acute hazardous waste and no more than 1 kg (2.2 lb) of acute hazardous waste and no more than 100 kg (220 lb) of any acute hazardous spill cleanup material.
	☐	c. VSQG	Less than or equal to 100 kg/mo (220 lb/mo) of non-acute hazardous waste.
☐ Y ☑ N	2. Short-Term Generator (generates from a short-term or one-time event and not from on-going processes). If "Yes", provide an explanation in the Comments section. *Note: If "Yes", you MUST indicate that you are a Generator of Hazardous Waste in Item 10.A.1 above.*		
☑ Y ☐ N	3. Treater, Storer or Disposer of Hazardous Waste—Note: Part B of a hazardous waste permit is required for these activities.		
☐ Y ☑ N	4. Receives Hazardous Waste from Off-site		
☐ Y ☑ N	5 Recycler of Hazardous Waste		
	☐	a. Recycler who stores prior to recycling	
	☐	b. Recycler who does not store prior to recycling	
☐ Y ☑ N	6. Exempt Boiler and/or Industrial Furnace—If "Yes", mark all that apply.		
	☐	a. Small Quantity On-site Burner Exemption	
	☐	b. Smelting, Melting, and Refining Furnace Exemption	

B. Waste Codes for Federally Regulated Hazardous Wastes. Please list the waste codes of the Federal hazardous wastes handled at your site. List them in the order they are presented in the regulations (e.g. D001, D003, F007, U112). Use an additional page if more spaces are needed.

F039						

RECEIVED
MAY 07 2021
IEPA-BOL
PERMIT SECTION

C. Waste Codes for State Regulated (non-Federal) Hazardous Wastes. Please list the waste codes of the State hazardous wastes handled at your site. List them in the order they are presented in the regulations. Use an additional page if more spaces are needed.

EPA ID Number | I | L | D | 9 | 8 | 0 | 7 | 0 | 0 | 7 | 2 | 8 |

OMB# 2050-0024; Expires 05/31/2020

11. Additional Regulated Waste Activities (NOTE: Refer to your State regulations to determine if a separate permit is required.)

A. Other Waste Activities

☐ Y ☑ N	1. Transporter of Hazardous Waste—If "Yes", mark all that apply.
☐	a. Transporter
☐	b. Transfer Facility (at your site)
☐ Y ☑ N	2. Underground Injection Control
☐ Y ☑ N	3. United States Importer of Hazardous Waste
☐ Y ☑ N	4. Recognized Trader—If "Yes", mark all that apply.
☐	a. Importer
☐	b. Exporter
☐ Y ☑ N	5. Importer/Exporter of Spent Lead-Acid Batteries (SLABs) under 40 CFR 266 Subpart G—If "Yes", mark all that apply.
☐	a. Importer
☐	b. Exporter

B. Universal Waste Activities

☐ Y ☑ N	1. Large Quantity Handler of Universal Waste (you accumulate 5,000 kg or more) - If "Yes" mark all that apply. Note: Refer to your State regulations to determine what is regulated.
☐	a. Batteries
☐	b. Pesticides
☐	c. Mercury containing equipment
☐	d. Lamps
☐	e. Other (specify) _____
☐	f. Other (specify) _____
☐	g. Other (specify) _____
☐ Y ☑ N	2. Destination Facility for Universal Waste Note: A hazardous waste permit may be required for this activity.

C. Used Oil Activities

☐ Y ☑ N	1. Used Oil Transporter—If "Yes", mark all that apply.
☐	a. Transporter
☐	b. Transfer Facility (at your site)
☐ Y ☑ N	2. Used Oil Processor and/or Re-refiner—If "Yes", mark all that apply.
☐	a. Processor
☐	b. Re-refiner
☐ Y ☑ N	3. Off-Specification Used Oil Burner
☐ Y ☑ N	4. Used Oil Fuel Marketer—If "Yes", mark all that apply.
☐	a. Marketer Who Directs Shipment of Off-Specification Used Oil to Off-Specification Used Oil Burner
☐	b. Marketer Who First Claims the Used Oil Meets the Specifications

RECEIVED
MAY 07 2021
IEPA-BOL
PERMIT SECTION

EPA ID Number | I | L | D | 9 | 8 | 0 | 7 | 0 | 0 | 7 | 2 | 8 | OMB# 2050-0024; Expires 05/31/2020

D. Pharmaceutical Activities

☐ Y ☑ N	1. Operating under 40 CFR 266 Subpart P for the management of hazardous waste pharmaceuticals—if "Yes", mark only one. Note: See the item-by-item instructions for definitions of healthcare facility and reverse distributor.
☐	a. Healthcare Facility
☐	b. Reverse Distributor
☐ Y ☑ N	2. Withdrawing from operating under 40 CFR 266 Subpart P for the management of hazardous waste pharmaceuticals. Note: You may only withdraw if you are a healthcare facility that is no longer an LQG or SQG.

12. Eligible Academic Entities with Laboratories—Notification for opting into or withdrawing from managing laboratory hazardous wastes pursuant to 40 CFR 262 Subpart K.

☐ Y ☑ N	A. Opting into or currently operating under 40 CFR 262 Subpart K for the management of hazardous wastes in laboratories— If "Yes", mark all that apply. Note: See the item-by-item instructions for definitions of types of eligible academic entities.
☐	1. College or University
☐	2. Teaching Hospital that is owned by or has a formal written affiliation with a college or university
☐	3. Non-profit Institute that is owned by or has a formal written affiliation with a college or university
☐ Y ☑ N	B. Withdrawing from 40 CFR 262 Subpart K for the management of hazardous wastes in laboratories.

13. Episodic Generation

☐ Y ☑ N	Are you an SQG or VSQG generating hazardous waste from a planned or unplanned episodic event, lasting no more than 60 days, that moves you to a higher generator category. If "Yes", you must fill out the Addendum for Episodic Generator?

14. LQG Consolidation of VSQG Hazardous Waste

☐ Y ☑ N	Are you an LQG notifying of consolidating VSQG Hazardous Waste Under the Control of the Same Person pursuant to 40 CFR 262.17(f)? If "Yes", you must fill out the Addendum for LQG Consolidation of VSQGs hazardous waste.

15. Notification of LQG Site Closure for a Central Accumulation Area (CAA) (optional) OR Entire Facility (required)

☐ Y ☑ N	LQG Site Closure of a Central Accumulation Area (CAA) or Entire Facility.
	A. ☐ Central Accumulation Area (CAA) or ☐ Entire Facility
	B. Expected closure date: _____ mm/dd/yyyy
	C. Requesting new closure date: _____ mm/dd/yyyy
	D. Date closed : _____ mm/dd/yyyy ☐ 1. In compliance with the closure performance standards 40 CFR 262.17(a)(8) ☐ 2. Not in compliance with the closure performance standards 40 CFR 262.17(a)(8)

RECEIVED
MAY 07 2021
IEPA-BOL
PERMIT SECTION

EPA ID Number | I | L | D | 9 | 8 | 0 | 7 | 0 | 0 | 7 | 2 | 8 | OMB# 2050-0024; Expires 05/31/2020

16. Notification of Hazardous Secondary Material (HSM) Activity

☐ Y ☑ N	Are you notifying under 40 CFR 260.42 that you will begin managing, are managing, or will stop managing hazardous secondary material under 40 CFR 260.30, 40 CFR 261.4(a)(23), (24), (25), or (27)? If "Yes", you must fill out the Addendum to the Site Identification Form for Managing Hazardous Secondary Material.

17. Electronic Manifest Broker

☐ Y ☑ N	Are you notifying as a person, as defined in 40 CFR 260.10, electing to use the EPA electronic manifest system to obtain, complete, and transmit an electronic manifest under a contractual relationship with a hazardous waste generator?

18. Comments (include item number for each comment)

19. Certification I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations. **Note: For the RCRA Hazardous Waste Part A permit Application, all owners and operators must sign (see 40 CFR 270.10(b) and 270.11).**

Signature of legal owner, operator or authorized representative	Date (mm/dd/yyyy): 4-26-21
Printed Name (First, Middle Initial Last): MIKE STOECKIOT	Title: REGION VICE PRESIDENT
Email: MIKE.STOECKIOT@GFLENV.COM	

RECEIVED
MAY 07 2021
IEPA-BOL
PERMIT SECTION

Signature of legal owner, operator or authorized representative	Date (mm/dd/yyyy): 05/04/2021
Printed Name (First, Middle Initial Last): Matthew R Healy	Title: Vice President
Email: MHEALY@Republicservices.com	

EPA ID Number | I | L | D | 9 | 8 | 0 | 7 | 0 | 0 | 7 | 2 | 8 |

OMB# 2050-0024; Expires 05/31/2020

ADDENDUM TO THE SITE IDENTIFICATION FORM: NOTIFICATION OF HAZARDOUS SECONDARY MATERIAL ACTIVITY

ONLY fill out this form if:

- You are located in a State that allows you to manage excluded hazardous secondary material (HSM) under 40 CFR 260.30, 261.4(a)(23), (24), (25), or (27) (or state equivalent; See https://www.epa.gov/epawaste/hazard/dsw/statespf.htm for a list of eligible states; AND
- You are or will be managing excluded HSM in compliance with 40 CFR 260.30, 261.4(a)(23), (24), (25), or (27) (or state equivalent) or have stopped managing excluded HSM in compliance with the exclusion(s) and do not expect to manage any amount of excluded HSM under the exclusion(s) for at least one year. Do not include any information regarding your hazardous waste activities in this section. Note: If your facility was granted a solid waste variance under 40 CFR 260.30 prior to July 13, 2015, your management of HSM under 40 CFR 260.30 is grandfathered under the previous regulations and you are not required to notify for the HSM management activity excluded under 40 CFR 260.30.

1. Reason for Notification (Include dates where requested)

☐ Facility will begin managing excluded HSM as of _____ (mm/dd/yyyy).

☐ Facility is still managing excluded HSM/re-notifying as required by March 1 of each even-numbered year.

☐ Facility has stopped managing excluded HSM as of _____ (mm/dd/yyyy) and is notifying as required.

2. Description of Excluded HSM Activity. Please list the appropriate codes (see Code List section of the instructions) and quantities, in short tons, to describe your excluded HSM activity ONLY (do not include any information regarding your hazardous wastes). Use additional pages if more space is needed.

A. Facility Code	B. Waste Code(s) for HSM	C. Estimate Short Tons of excluded HSM to be managed annually	D. Actual Short Tons of excluded HSM that was managed during the most recent odd-numbered year	E. Land-based Unit Code

RECEIVED
MAY 07 2021
IEPA-BOL
PERMIT SECTION

EPA ID Number | I | L | D | 9 | 8 | 0 | 7 | 0 | 0 | 7 | 2 | 8 |

OMB# 2050-0024; Expires 05/31/2020

ADDENDUM TO THE SITE IDENTIFICATION FORM:
EPISODIC GENERATOR

ONLY fill out this form if:

- You are an SQG or VSQG generating hazardous waste from a planned or unplanned episodic event, lasting no more then 60 days, that moves the generator to a higher generator category pursuant to 40 CFR 262 Subpart L. Note: Only one planned and one unplanned episodic event are allowed within one year; otherwise, you must follow the requirements of the higher generator category. Use additional pages if more space is needed.

Episodic Event	
1. Planned ☐ Excess chemical inventory removal ☐ Tank cleanouts ☐ Short-term construction or demolition ☐ Equipment maintenance during plant shutdowns ☐ Other _____	2. Unplanned ☐ Accidental spills ☐ Production process upsets ☐ Product recalls ☐ "Acts of nature" (Tornado, hurricane, flood, etc.) ☐ Other _____
3. Emergency Contact Phone	4. Emergency Contact Name
5. Beginning Date _____ (mm/dd/yyyy)	6. End Date _____ (mm/dd/yyyy)

Waste 1

7. Waste Description				8. Estimated Quantity (in pounds)	
9. Federal and/or State Hazardous Waste Codes					

Waste 2

7. Waste Description				8. Estimated Quantity (in pounds)	
9. Federal and/or State Hazardous Waste Codes					

Waste 3

7. Waste Description				8. Estimated Quantity (in pounds)	
9. Federal and/or State Hazardous Waste Codes					

EPA ID Number | I | L | D | 9 | 8 | 0 | 7 | 0 | 0 | 7 | 2 | 8 |

OMB# 2050-0024; Expires 05/31/2020

United States Environmental Protection Agency

HAZARDOUS WASTE PERMIT PART A FORM

1. Facility Permit Contact

First Name	James	MI		Last Name	Hitzeroth
Title	Environmental Manager				
Email	JHitzeroth@republicservices.com				
Phone	224-970-1129	Ext		Fax	

2. Facility Permit Contact Mailing Address

Street Address	26W580 Schick Rd.		
City, Town, or Village	Hanover Park		
State IL	Country	United States	Zip Code 60133

3. Facility Existence Date (mm/dd/yyyy)

10/15/1976

4. Other Environmental Permits

A. Permit Type	B. Permit Number	C. Description
N	0 0 6 7 7 2 4	Stormwater Discharge Permit
E	1 9 9 5 3 4 3	IL Solid Waste Dispoal Permit
E	9 3 0 8 0 0 1 2	IL Air Permit
E	1 9 9 2 3 2 8	IL Solid Waste Disposal Permit

RECEIVED
MAY 07 2021
IEPA-BOL
PERMIT SECTION

5. Nature of Business

Closed RCRA Subtitle C Landfill

EPA ID Number | I | L | D | 9 | 8 | 0 | 7 | 0 | 0 | 7 | 2 | 8 |

OMB# 2050-0024; Expires 05/31/2020

6. Process Codes and Design Capacities

Line Number		A. Process Code			B. Process Design Capacity		C. Process Total Number of Units	D. Unit Name
					(1) Amount	(2) Unit of Measure		
0	1	D	8	0	5,160,000	Y	1	Zion Site 1A Landfill
0	2	S	0	2	8,000	G	1	Leachate Tank

7. Description of Hazardous Wastes (Enter codes for Items 7.A, 7.C and 7.D(1))

Line No.		A. EPA Hazardous Waste No.				B. Estimated Annual Qty of Waste	C. Unit of Measure	D. Processes								
								(1) Process Codes								(2) Process Description (if code is not entered in 7.D1))
0	1	F	0	3	9	200,000	gallons	S	0	2						

8. Map

Attach to this application a topographical map, or other equivalent map, of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all spring, rivers, and other surface water bodies in this map area. See instructions for precise requirements.

9. Facility Drawing

All existing facilities must include a scale drawing of the facility. See instructions for more detail.

10. Photographs

All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment, and disposal areas; and sites of future storage, treatment, or disposal areas. See instructions for more detail.

11. Comments

A map satisfying Item 8 above is provided in the Part B Post-Closure Permit Renewal Application as Figure B-2. A drawing satisfying Item 9 above is provided in the Part B Post-Closure Permit Renewal Application as Figure B-3. Photographs satisfying Item 10 showing existing structures and storage areas are presented in the Part B Post-Closure Permit Renweal Application in Appendix A-1, immediately following this Part A Application Form.

GROUNDWATER REVIEW

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
2520 WEST ILES AVENUE, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JAMES JENNINGS, ACTING DIRECTOR

MEMORANDUM

DATE: June 26, 2025

TO: Kelly Huser, RCRA Unit

FROM: Shawntay Dial, Groundwater Unit
SDD AMB

SUBJECT: Technical Review-RCRA Part B Permit Renewal Application, Response to NOD

RE: 0978020001- Lake County
Zion Site 1 Phase A Landfill
ILD980700728
RCRA Permit, Log No. B-23R2

The groundwater aspects of the "RCRA Part B Renewal Application, Response to NOD" (NOD Response) dated June 6, 2025 and received June 9, 2025 by the Illinois EPA, was reviewed. The NOD Response was submitted by James Hitzeroth on behalf of Browning-Ferris Industries (BFI) Waste Systems of North America, LLC. The Completeness Review was completed by Shawntay Dial, Groundwater Unit and submitted to Kevin Lesko, RCRA Unit, June 30, 2021. The initial Technical Review was completed by Shawntay Dial, Groundwater Unit and submitted to Kevin Lesko, RCRA Unit, February 28, 2024. The memorandum only addresses the technical adequacy of groundwater issues of the NOD Response.

ENVIRONMENTAL JUSTICE (EJ), 39(i), FOS, RIGHT TO KNOW (RTK)

A search of the SWAP tool and EJ Database will be performed by the project manager.

A 39i form on file will be verified by the project manager.

A Bureau of Land RTK checklist has been completed and the site does not meet the requirements as a potential RTK site.

Anthony Guido of FOS was contacted on October 31, 2023 and there are no new comments.

INTRODUCTION

The original waste disposal permit for Zion Site 1 Landfill (Zion) was issued to BFI to operate a 59-acre non-hazardous waste disposal facility at Zion in October 1976. Zion operated under RCRA hazardous waste interim standards from 1980 to April 1988. During operation, Zion received and disposed of hazardous and non-hazardous waste in the unit now known as Site 1 Phase A. The disposed hazardous wastes at Zion originated from a range of businesses and industries including manufacturing, petrochemical, steel, and utilities. BFI ceased disposing hazardous waste in 1990. Closure activities were completed in 1997, and BFI certified

completion of closure on February 10, 1998. Permit Condition III.A states the Permittee must continue to provide post-closure care for Site 1 Phase A until, at minimum, until February 9, 2028. Zion Landfill, Inc. is the entity that owns the Zion Landfill Site 1, the operator (BFI) has retained the post-closure care responsibilities for the Zion Landfill Site 1 Phase A.

SUBJECT SUBMITTAL

The RCRA Part B Renewal Application (Renewal Application) was determined to be technically deficient. More specifically, for items relating to groundwater issues, the Renewal Application was deficient due to items missing from Section C and Section E. The listed sections were to be updated with provided additional information in response to the Notice of Deficiency (NOD).

The following are the NOD groundwater related items and Zion's responses:

1. **Illinois EPA's May 7, 2025 comment for Section C.6.1**
   "This section must be revised to meet the requirements of 35 IAC 703.185(f)(1) and 35 IAC 724.198(a). The request to update the STORET number in the existing Permit for 1,2-dichloropropane to 34541 is not approved. The Permittee needs to provide additional information. The following items are required: 1) Provide data that shows the STORET number currently in use sampling Cyanide (total) and Cyanide (dissolved) at Site 1 Phase A Landfill; and 2) Provide confirmation that the analyses under STORET 31541 and STORET 34541 are the same."

   Zion's response for Section C.6.1
   a. Table C-2 has been revised to show separate STORET numbers for the dissolved and total species of the List G2 metals. The table is provided as Attachment 7.

   b. Although dichloropropane (1,2) is included in Illinois EPA's master STORET list, it is a non-standard alternate name for 1,2-dichloropropane. We also note that 1,2-dichloropropane is included in the 35 IAC 620.410 list, however, dichloropropane (1,2) is not. We again request that STORET number 34541 (1,2-dichloropropane) replace 31541 (dichloropropane (1,2)).

2. **Illinois EPA's May 7, 2025 comment for Section C.6.3**
   "This section must be revised to meet the requirements of 35 IAC 703.185(f)(2), 35 IAC 724.197(a) and (b), 35 IAC 724.198(b). The Groundwater Monitoring System requires that the applicant reference by location, boring logs and well completion reports. A table of wells must be submitted identifying the well ID numbers and measurements for the following in both feet Mean Sea Level (MSL) and feet below ground surface (ft. bgs): well depth, screen interval, ground surface, and stickup. The listed items are required for wells: Shallow wells (Wells GT02 and GT05), Background wells (Wells G121, R123, R136, and R127), and POC wells (Wells R124, R126, R128, C129, G131, G132, and R133)."

Zion's response for Section C.6.3
A table of well information has been prepared. It is provided as Attachment 8.

3. **Illinois EPA's May 7, 2025 comment for Section C.6.4(a)**
"Revise Section C.6.4. The description of Sampling and Analysis Procedures states that, "groundwater purged from detection monitoring wells will be directed into the adjacent perimeter stormwater ditch and disposed of on the ground within the waste limits". The statement needs to be revised to include "Purged groundwater will be collected, containerized, and upon receipt of groundwater analysis, disposed of properly."

Zion's response for Section C.6.4(a)
The facility has completed over 27 years of post-closure care groundwater monitoring (in addition to multiple years of groundwater monitoring performed prior to certification of post-closure in 1998). Groundwater monitoring data collected twice per year over the 27 years of post-closure care overseen by the Agency has not identified confirmed statistically significant concentrations of indicator parameters. Accordingly, implementation of a Detection Groundwater Monitoring system was proposed to continue in the May 2021 Permit Renewal Application.

Given the extensive historical data documenting that no adverse groundwater impacts have occurred, returning purged groundwater to the ground surface as proposed (where it will infiltrate back into the monitored aquifer) creates no threat to human health or the environment. If confirmed statistical exceedances are identified in the future, a permit modification to begin a Compliance Groundwater Monitoring Program is required to be submitted and approved by the Agency. BFI acknowledges that containerization of purged groundwater would be appropriate if Compliance Monitoring is necessary. Accordingly, BFI agrees to modify the groundwater sampling procedure to include containerizing purged groundwater as indicated in this comment if Compliance Groundwater Monitoring is implemented in the future.

4. **Illinois EPA's May 7, 2025 comment for Section C.6.4(b)**
"To meet the requirements of 35 IAC 620.510(b)(4), the sampling and analysis plan must be revised to propose a methodology for analyzing constituents which complies with the Lower Limit of Quantitation (LLOQ) instead of the Practical Quantitation Limit (PQL) and those values must be equal to or less than the groundwater standards of 35 IAC Part 620, Subpart D, effective March 28, 2025."

Zion's response for Section C.6.4(b)
The term Lower Limit of Quantitation (LLOQ) does not appear in the RCRA regulations pertaining to groundwater monitoring. The term practical quantitation limit (PQL) appears in 35 IAC 724.197(i)(5) and therefore was included in the May 2021 Permit Renewal Application. Because the term LLOQ does not appear in the RCRA groundwater monitoring regulations, it isn't clear that this term is applicable to the groundwater monitoring program being implemented at Site 1A.

Regardless of the regulatory applicability of the term LLOQ to the groundwater monitoring program at Zion Landfill Site 1 Phase, the analytical laboratory contracted to perform the analysis of groundwater samples at Site 1A has indicated that there's essentially no difference between the LLOQ as defined in the regulation listed above and the PQL as defined in the RCRA groundwater monitoring regulations. Therefore, the historical reporting limits utilized by the contracted analytical laboratory for groundwater analysis remain appropriate. The analytical laboratory will continue to report the groundwater data at a reporting limit at or below the applicable standard specified in both the May 2021 Permit Renewal Application and the existing effective permit. This value is the greater of the historical background value and the 35 IAC 620 Class 1 groundwater quality standard.

5. **Illinois EPA's May 7, 2025 comment for Section C.6.4(c)**
"Propose a timeline within the Permit application for sampling and development of new background values to be conducted which meets 35 IAC Part 620 for all new and existing parameters and their respective standards based on the revisions to 35 IAC Part 620, effective March 28, 2025."

Zion's response for Section C.6.4(c)
This item will be addressed in a future submittal.

6. **Illinois EPA's May 7, 2025 comment for Section E.11**
"The post-closure cost estimate must be revised to address the following to meet the requirements of 35 IAC 703.183(p), 35 IAC 724.244:
Costs related to groundwater monitoring identified in Section C of the application must be updated to reflect the most current costs and inflation rates. Additionally, third party costs for groundwater monitoring requirements and separate laboratory analysis (2nd quarter and 4th quarter) estimates from First Environmental Laboratories must be submitted."

Zion's response for Section E.11
The current 2025 costs for groundwater and leachate monitoring included in the revised Table E-3 are based on quotes from independent third-party contractors attained in 2025. These line items are noted on the table with the notation "Current (2025) Costs Utilized" in the columns that were adjusted for inflation based on the annual inflation factor for other line items. Copies of the documentation from the third-party contractor implementing the groundwater monitoring and laboratory analysis services are also provided in Attachment 12.

7. ***Illinois EPA's May 7, 2025 comment for Section E.3.1(c)***
"Describe the procedures used to collect, handle, and analyze the leachate samples discussed above. All such efforts must be carried out in accordance with procedures approved/established by Illinois EPA or USEPA. To meet the requirements of 35 IAC 620.510(b)(4), the leachate sampling and analysis plan must be revised to propose a methodology for analyzing constituents which complies with the Lower Limit of Quantitation (LLOQ) instead of the Practical Quantitation Limit (PQL) and those

values must be equal to or less than the groundwater standards of 35 IAC Part 620, Subpart D, effective March 28, 2025."

Zion's response for Section E.3.1 (c)

Despite the applicable RCRA regulations not explicitly requiring ongoing collection and analysis of leachate samples, BFI has proposed to continue monitoring leachate, as has been done for the 27 years of the post-closure care period completed to date. The procedures used to collect, handle, and analyze the leachate samples are presented in Section E.3.1 of the Permit Renewal Application. While it is acknowledged that specialized, more detailed procedures would be applicable if the PFAS/PFOA compounds listed in NOD Comment 18.a.ii were to be analyzed (due to the ubiquitous nature of these compounds in everyday products creating cross-contamination concerns), there is no need for these specialized procedures because there is no regulatory or technical basis for sampling for these compounds at this facility at this time. In fact, the cross-contamination concerns with these compounds make them an unreliable indicator of impacts from the closed landfill. Other constituents that are more common in waste and are more detectable that are already included in the list of groundwater indicator parameters will provide a more reliable indication of potential impacts from the closed landfill, as required by the RCRA groundwater monitoring regulations.

The Lower Limit of Quantitation (LLOQ) is not a term that currently appears in the above RCRA regulations. The term Practical Quantitation Limit (PQL) appears in 35 IAC 724.197(i)(5), but this regulation pertains to groundwater monitoring. There are no RCRA regulations that explicitly require ongoing leachate monitoring at this facility, thus neither term appears in RCRA regulations pertaining to leachate monitoring. Moreover, the 35 IAC 620 regulations that use the term LLOQ pertain to groundwater, not leachate. There is no regulatory obligation to compare leachate concentrations to groundwater quality standards. Due to the nature of the leachate matrix, it is common for laboratories to dilute samples to attain the quality assurance/quality control (QA/QC) requirements mandated by the standard analytical methods. Accordingly, it is possible that some leachate constituents may not be reported to a groundwater LLOQ or PQL that would allow for comparing leachate concentrations to the 35 IAC 620 groundwater quality standards. However, there is no practical implication resulting from this, as the purpose of leachate monitoring is only to assist in the establishment of groundwater monitoring parameters.

Nevertheless, in response to the Agency's comment, the contracted analytical laboratory was consulted about the definitions of LLOQ and PQL, as defined in the 35 IAC 620 and 35 IAC 724 regulations. They indicated that there is essentially no difference between the LLOQ and PQL, as defined in the applicable regulations. Therefore, the historical reporting limits utilized by the contracted laboratory for leachate analysis will be sufficient for purposes of a periodic screen of the leachate to confirm that the groundwater monitoring parameters remain appropriate, after 27 years of leachate data have already been collected.

ILLINOIS EPA COMMENTS AND RECOMMENDATIONS

A technical review of the groundwater aspects of the RCRA Part B Permit Renewal Application response to Notice of Deficiency (NOD) has been completed. The following technical deficiencies must be incorporated into the Compliance Schedule of the Draft Permit to be issued:

1. Section C.6.1:

   a. Updated Table C-2 is approved. Attachment 7 of the NOD Response will be added to the Renewal Application.

   b. The update of 1,2-dichloropropane STORET 34541 in Attachment 8 is approved and will be added to the Renewal Application and Draft Permit updated.

2. Section C.6.3: Updated Table C-3 is approved. Attachment 8 of the NOD Response will be added to the Renewal Application.

3. Section C.6.4(a): The statement still needs to be revised to include "Purged groundwater will be collected, containerized, and upon receipt of groundwater analysis, disposed of properly." The facility may expand upon how groundwater will be addressed following receipt of the results in their revisions to the Groundwater Sampling and Analysis Plan to indicate how uncontaminated and contaminated groundwater would be managed. Groundwater without exceedances may be disposed of as described, while groundwater with exceedances would need to be disposed of differently. For example, purge water with exceedances can typically be consolidated with leachate currently managed for disposal. Although it is understood that groundwater sampling has continued for 27 years, it is not known until after each sampling event whether or not there are exceedances of groundwater constituents. Water should not be added within the waste limits given landfills are not intended to accept free liquids. A condition will be added to the Compliance Schedule in the Draft Permit.

4. Section C.6.4(b): The following comments address the response to Section C.6.4.b:

   a. Since the submittal of the Permit application, 35 IAC Part 620 was updated March 28, 2025. In part, the regulations now require the Lower Limit of Quantitation (LLOQ) instead of the Practical Quantitation Limit (PQL), include different standards, and more chemical constituents have been added. To meet the requirements of 35 IAC 620.510(b)(4), the draft permit will include a condition in the compliance schedule that will require the sampling and analysis plan be revised within 90 days and propose a methodology which complies with the LLOQ instead of the PQL and those values must be equal to or less than the 35 IAC Part 620 standards effective March 28, 2025.

   b. The LLOQ (and PQL) are independent of any background or 35 IAC Part 620 value. The historical PQLs used by the laboratory are no longer adequate if they do not meet the LLOQ.

i) "Lower limit of quantitation" or "LLOQ" means the minimum concentration of a substance that can be measured or reported under "Test Methods of Evaluation Solid Wastes, Physical/Chemical Methods", incorporated by reference in Section 620.125.

ii) "Practical quantification limit" or "PQL" means the lowest concentration or level that can be reliably measured within specified limits of precision and accuracy during routine laboratory operating conditions.

c. In addition, the LLOQ may be used for background values if constituents are not detected. These values should not be defaulted to 35 IAC Part 620 values.

d. A condition will not be added to the Compliance Schedule in the Draft Permit. Instead, a requirement for leachate analysis to meet the most current requirements of the SW-846 method will be incorporated by the RCRA Unit.

5. Section C.6.4(c): The Draft Permit will include a condition in the Compliance Schedule that will require within 60 days, propose a timeline for sampling and development of new background values to be conducted which meets 35 IAC Part 620 for all new and existing parameters and their respective standards based on the revisions to 35 IAC Part 620, effective March 28, 2025. In addition, method SW-846 no longer references PQL and instead uses LLOQ.

6. Section E.11: Updated Attachment 11 Table E-3 Cost Estimate for Post-Closure care and Attachment 12, in regard to groundwater items, is approved.

7. Section E.3.1(c): Based on discussion with the RCRA Unit, the Illinois EPA concurs the requirement for sampling additional contaminants expected to be in leachate is not necessary at this time given the facility is in a Detection Monitoring program. The following comments address the response to Section E.3.1.c:

a. Leachate analysis is conducted in accordance with SW-846 test methods which reference LLOQ and not PQL. The Agency acknowledges it is common for dilution to occur; however, this process is independent of the LLOQ required by the test method. The RCRA Unit will add a requirement for leachate analysis to be conducted in accordance with the most current SW-846 methods.

b. Sampling of leachate for necessary parameters does not automatically add the parameter to the Detection Monitoring List. The indicator parameters currently required are used to determine if the landfill has had a release and the current list is adequate to meet this purpose. In the event Assessment Monitoring is required, those parameters in 35 IAC Part 724, Appendix, I plus any other parameters in 35 IAC Part 620, which have not been eliminated through leachate analysis, must be sampled. Language will be added to Condition III.I.10 and III-A.I.9 of the Draft permit requiring the 35 IAC Part 620 constituents, in addition to the already required

sampling of the constituents in 35 IAC 724, Appendix I, be analyzed once an exceedance has been confirmed. State regulations in 35 IAC Part 620 apply to all groundwater in the State of Illinois.

Illinois Environmental Protection Agency

2520 West Iles Avenue • P.O. Box 19276 • Springfield • Illinois • 62794-9276 • (217) 782-3397

Right-to-Know Evaluation

Date: 7-2-2025

Site Information		Employee Information	
Site Name:	Zion Site 1 Phase A Landfill	Name:	Shawntay Dial
Site ID Number:	0978020001	Section/Unit:	Permit Section/Groundwater Unit
Site County:	Lake County	Phone:	217-558-0177
Site Address:	701 Green Bay Road	Email:	shawntay.dial@illinois.gov
City, State, Zip:	Zion, Illinois 60099		

Criteria (check all that apply)

☐ Groundwater contamination (including soil contamination exceeding the applicable remediation objectives for the soil component of the groundwater ingestion exposure route) from the site where the release occurred poses a threat of exposure to the public above the Class I groundwater quality standards or the Class I groundwater remediation objectives within the setback zone of a potable water supply well:

- ○ Limited community relations activities are required: Five (5) or fewer potable water supply wells, other than a community water system well, are affected by the release at the site.
- ○ Expanded community relations activities are required: More than five (5) potable water supply wells, or one (1) or more community water system wells, are affected by the release at the site.

☐ Groundwater contamination or soil gas contamination from volatile chemicals beyond the boundary of the site where the release occurred poses a threat of indoor inhalation exposure to the public above the appropriate Tier 1 remediation objectives, based on the current use of the off-site property:

- ○ Limited community relations activities are required: Five (5) or fewer off-site properties are affected by the release at the site.
- ○ Expanded community relations activities are required: More than five (5) off-site properties are affected by the release at the site.

☐ Soil contamination or soil gas contamination beyond the boundary of the site where the release occurred poses a threat of exposure to the public above the appropriate Tier 1 remediation objectives, based on the current use of the off-site property:

- ○ Limited community relations activities are required: Five (5) or fewer off-site properties are affected by the release at the site.
- ○ Expanded community relations activities are required: More than five (5) off-site properties are affected by the release at the site.

☐ The Illinois EPA refers a matter for enforcement under Section 43(a) of the Act.

☐ The Illinois EPA issues a seal order under Section 34 of the Act.

☐ The Illinois EPA, U.S. EPA, or a third party under Illinois EPA or U.S. EPA oversight performs an immediate/ emergency removal under the federal Comprehensive Environmental Response, Compensation, and Liability Act.

Summary

☑ None of the above criteria are met and the site does not warrant further evaluation.

○ At least one of the above criteria is met and the site must be further evaluated: this Right-to-Know Evaluation should be submitted to the Office of Community Relations Right-to-Know Coordinator along with a Right-to-Know Referral. Both forms should be completed, digitally signed, and submitted electronically.

Project Manager: Shawntay Dial (Signature) 7-2-2025 (Date)

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
2520 WEST ILES AVENUE, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JAMES JENNINGS, ACTING DIRECTOR

MEMORANDUM

DATE: April 23, 2025

TO: Kevin Lesko, RCRA Unit

FROM: Shawntay Dial, Groundwater Unit
SDD AMB

SUBJECT: Technical Review-RCRA Part B Permit Renewal Application

RE: 0978020001- Lake County
Zion Site 1 Phase A Landfill
ILD980700728
Received: May 07, 2021
RCRA Permit, Log No. B-23R2

Since submittal of the Permit application, 35 IAC Part 620 was updated March 28, 2025. In part, the regulations now require the Lower Limit of Quantitation (LLOQ) instead of the Practical Quantitation Limit (PQL), include different standards, and more chemical constituents have been added. In addition to disposal of hazardous waste at the facility, this includes a requirement to establish background values for new constituents: HFPO-DA (hexafluoropropylene oxide dimer acid GenX), PFBS (perfluorobutanesulfonic acid), PFHxS (perfluorohexanesulfonic acid), PFNA (perfluorononanoic acid), PFOA (perfluorooctanoic acid), and PFOS (perfluorooctanesulfonic acid). Based on these changes to 35 IAC Part 620, the following deficiencies are noted:

1. The Groundwater Unit requests an NOD be added by the RCRA Unit to request these constituents be sampled in leachate and proposed for addition to the groundwater samples list if detected. In addition, Part A of the Permit Application should be updated to add NAICS code 562211 to reflect co-disposal of hazardous waste in the unit.

The following NODs are needed with regards to groundwater:

2. To meet the requirements of 35 IAC 620.510(b)(4), the sampling and analysis plan must be revised to propose a methodology which complies with the Lower Limit of Quantitation (LLOQ) instead of the Practical Quantitation Limit (PQL) and those values must be equal to or less than the 35 IAC Part 620 standards effective March 28, 2025.

3. Propose a timeline within the Permit application for sampling and development of new background values to be conducted which meets 35 IAC Part 620 for all new and existing parameters and their respective standards based on the revisions to 35 IAC Part 620 effective March 28, 2025.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

MEMORANDUM

DATE: December 18, 2023; Modified February 28, 2024

TO: Kevin Lesko, RCRA Unit

FROM: Shawntay Dial, Groundwater Unit SDD 3-7-24

SUBJECT: Technical Review-RCRA Part B Permit Renewal Application

RE: 0978020001- Lake County
Zion Site 1 Phase A Landfill
ILD980700728
Received: May 07, 2021
RCRA Permit, Log No. B-23R2

The groundwater aspects of the RCRA Part B Renewal Application (Renewal Application) dated May 6, 2021 and received May 7, 2021 by the Illinois EPA, were reviewed. The Renewal Application was submitted by James Hitzeroth on behalf of Browning-Ferris Industries (BFI) Waste Systems of North America, LLC. The Completeness Review was completed by Shawntay Dial, Groundwater Unit and submitted to Kevin Lesko, RCRA Unit, June 30, 2021. The memorandum only addresses the technical adequacy of groundwater issues of the subject submittal.

ENVIRONMENTAL JUSTICE (EJ), 39(i), FOS, RIGHT TO KNOW (RTK)

A new search of the SWAP tool and EJ Database will be performed by the project manager.

A 39i form on file will be verified by the project manager.

A Bureau of Land RTK checklist has been completed and the site does not meet the requirements as a potential RTK site.

Anthony Guido of FOS was contacted on October 31, 2023 and there were no comments.

INTRODUCTION

The original waste disposal permit for Zion Site 1 Landfill (Zion) was issued to BFI to operate a 59-acre non-hazardous waste disposal facility at Zion in October 1976. Zion operated under RCRA hazardous waste interim standards from 1980 to April 1988. During operation, Zion received and disposed of hazardous and non-hazardous waste in the unit now known as Site 1 Phase A. The disposed hazardous wastes at Zion originated from a range of businesses and

industries including manufacturing, petrochemical, steel, and utilities. BFI ceased disposing hazardous waste in 1990. Closure activities were completed in 1997, and BFI certified completion of closure on February 10, 1998. Permit Condition III.A states the Permittee must continue to provide post-closure care for Site 1 Phase A until, at minimum, February 9, 2028. Zion Landfill, Inc. is the entity that owns the Zion Landfill Site 1, the operator (BFI) has retained the post-closure care responsibilities for the Zion Landfill Site 1 Phase A (RCRA unit).

SECTION C: GROUNDWATER MONITORING

Interim Status Groundwater Monitoring Data

Interim status groundwater monitoring reports are contained in the Permittee's operating record. The Permittee states that due to the volume of historical documents, the reports were not reproduced for the Renewal Application.

Permittee states that many of the original permitted wells were damaged during various landfill construction activities. In 1991, Volatile Organic Constituents (VOCs) were detected in the wells, and the Permittee notified Illinois EPA (in a Subpart F document dated December 17, 1991 and approved by Illinois EPA January 24, 1992) and initiated several investigations. The conclusion of the investigations was that the source of the contamination was landfill gas. Damaged wells and wells that had gone dry due to construction activities acted as conduits for the gas.

March 19, 1992, the Permittee submitted a Class 3 permit modification Log No. B-23-M-12 (which was not approved by Illinois EPA in a July 16, 1992 letter) proposing corrective action which included construction of an active gas extraction system. The gas extraction system application was received by the Illinois EPA May 8, 1996 and approved under temporary authorization by the Illinois EPA in Log No. B-23-TA-1 on July 16, 1996. The system was installed in 1997 and approved by Illinois EPA in Log No. B-23-M-13 on September 2, 1998. Other actions taken in response to the 1991 VOCs detections, included replacing damaged wells G129 and G131 in 1992 and 1993 (Approved by Illinois EPA in a record review on January 30, 1992 and included in Subpart F documentation on May 20, 1993).

Regional and Site Geology

Northeastern Lake County is underlain by 200 feet of Pleistocene glacial drift overlying Paleozoic bedrock. Surficial glacial tills in Lake County consist of the Wadsworth Till Member of the Wisconsinan Wedron Formation. The Wadsworth Till Member was deposited by the Joliet Sublobe of the Lake Michigan Glacial Lobe. The Lake Michigan Glacial Lobe eroded and incorporated clay-rich shales from the Lake Michigan Basin. Clay content of the Wadsworth Till Member is 40 to 50 percent.

Deposits present in the vicinity of Zion, include moraines composed of the Wadsworth Till Member and interglacial deposits of lacustrine and fluvial environments. The Wadsworth Till Member consists of a clayey gray till, which is high in expandable clay minerals and contains Mississippian black shale pebbles. The lake border drifts are higher in expandable clay minerals and less pebbly. Other regional superficial deposits include the Henry Formation (which consists of sand and gravel out wash and ice contact deposits), the Grayslake Peat (consisting of organic deposits developed in swampy depressions) and the Equality Formation (consisting of lacustrine deposits).

Drift thickness is 200 feet in the Zion region and overlies Silurian Niagaran dolomite bedrock. Zion is located at the head of a small tributary to an unnamed buried bedrock valley. The Silurian Niagaran dolomite is 150 to 200 feet thick. In Lake County, Silurian, Ordovician, and Cambrian sandstones, dolomites, and shales are present. Younger rocks are eroded with some having been incorporated as glacial till at Zion.

Through the history of Zion, there has been at least 30 subsurface investigations conducted for purposes including hydrogeologic exploration and piezometer and monitoring well installation. Since 1975, over 250 borings, piezometers, gas probes, monitoring wells, and replacement wells have been drilled or installed at Zion. The initial hydrogeologic report was prepared by Soil Testing Services in 1975 and was based on 10 soil borings from November 1974. Using the Soil Testing services data and data from 10 additional borings from the eastern side of Zion, Environmental Engineering, Inc. prepared additional reports which became a part of the 1980 permit application.

In 1983 and 1984, hydrogeologic investigations were conducted by Wehran Engineering and Recra Research, Inc. to develop site specific information that was used in the original RCRA Part B Permit Application. In 1995, Roberta Jennings and Belinda Staurowsky, consulting hydrogeologists, integrated all of the investigations at the site into a single report. The primary focus of the report was the expansion area east of the Zion Site 1 Phase A Landfill (now known as Site 2), but also contains Site 1 Phase A features. The report includes the natural ground surface elevation at Zion that ranges from 720 feet Mean Sea Level (MSL) to 760 feet MSL. The upper aquifer unit is the glacial till, which is 100 feet thick and has both weathered and unweathered sections. The weathered section ranges from 10 to 20 feet thick and includes two (2) feet of topsoil. Below the weathered section lies 80 to 90 feet of unweathered clay soil.

Within the glacial tills are discontinuous lenses of silts and silty clayey sands which make up interglacial lacustrine and fluvial deposits. Where the lenses are present, they are encountered between 20 and 60 feet Below Ground Surface (bgs). The lenses do not constitute an aquifer but are monitored as potential contaminant pathways due to the lenses being more permeable than the surrounding glacial till. The hydraulic gradient through the lenses is mostly vertical, with horizontal flow negligible except to and from an intercepting well or where lenses intersect a surface boundary. Locally continuous interglacial sand is beneath Zion at 100 feet deep.

Beneath Site 1 Phase A, the sand layer is 20 to 50 feet thick. This zone has historically been referred to as the "Shallow Drift Aquifer".

The Shallow Drift Aquifer is the uppermost aquifer underlying Zion and is in the interglacial sand deposits. The Shallow Drift Aquifer meets the definition of 35 Ill. Adm. Code 620.210 for Class I, Potable Resource Groundwater. Vertical flow predominates, although horizontal flow is present. The general groundwater flow direction in the Shallow Drift Aquifer is from west to east, with a component to the northeast over the southern portion of Site 1 Phase A. Below the sand layer lies unconsolidated material consisting of interfingering dense clay, silty clay/clayey silt, sandy clay, clayey sand, and fine silty sand. The unconsolidated material has a higher percentage of coarser grained material than the glacial till. A second sand unit is encountered at 150 feet below ground surface and is 15 to 60 feet thick. Bedrock is encountered at 200 to 225 feet below ground surface.

Hydraulic Properties

Glacial Till

Property	Approximate Value	Source of Data
Particle Size Analysis	Clay: aprox. 39% Silt: aprox. 42% Sand: aprox.19%	Report of Hydrogeological Investigations: Zion Sanitary Landfill- Jennings & Staurowsky, 1995
Porosity	30%	Report of Hydrogeological Investigations: Zion Sanitary Landfill- Jennings & Staurowsky, 1995
Hydraulic Conductivity	2.80 x 10 ^-8 cm/sec (recompacted) 2.65 x 10^-8 cm/sec (mean value for site)	Report of Hydrogeological Investigations: Zion Sanitary Landfill- Jennings & Staurowsky, 1995

Intratill (Discontinuous Lenses) Sediments

Property	Approximate Value	Source of Data
Porosity	40%	Report of Hydrogeological Investigations: Zion Sanitary Landfill- Jennings & Staurowsky, 1995
Transmissivity	0.09 to 53.18 gal/day/ft	Report of Hydrogeological Investigations: Zion

		Sanitary Landfill- Jennings & Staurowsky, 1995
Hydraulic Conductivity	3.66 x 10^-5 cm/sec (geometric mean)	Report of Hydrogeological Investigations: Zion Sanitary Landfill- Jennings & Staurowsky, 1995

Interglacial Sand/ Shallow Drift Aquifer

Property	Approximate Value	Source of Data
Porosity	25-50%	Report of Hydrogeological Investigations: Zion Sanitary Landfill- Jennings & Staurowsky, 1995
Transmissivity	< 1 to > 12,0000 gal/day/ft	Report of Hydrogeological Investigations: Zion Sanitary Landfill- Jennings & Staurowsky, 1995
Hydraulic Conductivity	3.97 x 10^-4 cm/sec (geometric mean)	Report of Hydrogeological Investigations: Zion Sanitary Landfill- Jennings & Staurowsky, 1995
General Flow Direction	Generally to the east	Four (4) quarters of potentiometric contour maps from 1995 and 2009 and 2019/2020
Rate	1.02 ft/year (average over 4 quarters)	Four (4) quarters of groundwater elevation contour maps from 1995

Detection Monitoring Program

The detection monitoring program currently consists of sampling groundwater monitoring wells in the Shallow Drift Aquifer semi-annually through the remainder of the post-closure care period. Another zone that yields water and is being monitored (in the current RCRA Part B Permit) is the Shallow Zone.

The list of indicator parameters historically monitored in the groundwater is based on waste previously accepted for disposal at Zion. The parameters were selected because they are persistent, quantifiable, mobile, and have established 35 Ill. Adm. Code Part 620 Groundwater Quality Standards (GQS). The indicator parameters represent the following families of constituents: 1) VOCs and 2) Metals and Cyanide. VOCs are prominent in the waste historically disposed at Zion and in landfill leachate. A series of metals representative of historic hazardous

wastes disposed at Zion is also monitored along with cyanide. Two (2) sets of samples will be analyzed for metals. One (1) sample container will not be filtered, and the results from the container are to represent total metals. Another container will be filtered in the field with a 0.45 micron filter and considered dissolved analysis. Large concentrations of these metals do not occur naturally and therefore metals also represent quality indicator parameters. The specific metals selected are based upon the hazardous wastes that have been historically disposed at Zion. In addition to the VOCs, metal, and cyanide indicator parameters, field parameters will also be monitored including specific conductance, pH, temperature, and turbidity.

The list of VOC indicator parameters are:

Parameters	Storet Number
Acetone	81552
Acrolein	34210
Acrylonitrile	34215
Benzene	34030
Bromodichloromethane	32101
Bromoform	32104
Bromomethane	34413
Carbon Tetrachloride	32102
Chlorobenzene	34301
Chloroethane	34311
2-Chloroethyl Vinyl Ether	34576
Chloroform	32106
Chloromethane	34418
1,1-Dichloroethane	34496
1,2-Dichloroethane	34531
1,1-Dichloroethene	34501
trans-1,2-Dichloroethene	34546
1,2-Dichloropropane	31541
cis-1,3-Dichloropropene	34704
trans-1,3-Dichloropropene	34699
1,4-Dioxane	81582
Ethyl Benzene	78113
Isobutyl Alcohol	77033
Methylene Chloride	34423
Pyridine	77045
1,1,2,2-Tetrachloroethane	34516
Toluene	34010
1,1,1-Trichloroethane	34506
1,1,2-Trichloroethane	34511
Trichloroethene	39180
Vinyl Chloride	39175
1,2-Dichlorobenzene	34536
1,3-Dichlorobenzene	34566

1,4-Dichlorobenzene	34571
Hexachlorobutadiene	39702
Hexachloroethane	34396
Naphthalene	34696
Nitrobenzene	34447
1,2,4-Trichlorobenzene	34551

The metal indicator parameters being sampled are:

Parameters	Storet Number
Barium, (total and dissolved)	01005
Cadmium, (total and dissolved)	01025
Chromium, (total and dissolved)	01034
Cyanide, (total and dissolved)	00723
Lead, (total and dissolved)	01049
Mercury, (total and dissolved)	71890
Nickel, (total and dissolved)	01065

The Point Of Compliance (POC) is defined as the vertical surface located at the hydraulically downgradient limit of the landfill that extends down into the uppermost aquifer underlying the landfill.

Groundwater monitoring system well locations are based on their positions with respect to groundwater flow lines. Upgradient wells are located on the west side of Zion and are selected to represent groundwater that is unimpacted. Downgradient wells are located to the east. The POC is formed by the downgradient wells. Additional monitoring wells are north and south of the POC, and in a side gradient position relative to groundwater flow.

Through the current RCRA Part B Permit, the Permittee also monitors Shallow Zone wells. The Shallow Zone is 50 to 70 feet above the Shallow Drift Aquifer. The interglacial deposits are discontinuous where the Shallow Zone wells are screened. The Shallow Zone wells serve as an early warning system to detect leaks before constituents can migrate to the Shallow Drift Aquifer.

Wells monitoring both the Shallow Zone and Shallow Drift Aquifer:

Well Designation	Geologic Formation Monitored
G121	Shallow Drift Aquifer-Upgradient
R127	Shallow Drift Aquifer-Upgradient
R136	Shallow Drift Aquifer-Upgradient
R123	Shallow Drift Aquifer-Upgradient
R124	Shallow Drift Aquifer
R128	Shallow Drift Aquifer
R126	Shallow Drift Aquifer

C129	Shallow Drift Aquifer
G131	Shallow Drift Aquifer
G132	Shallow Drift Aquifer
R133	Shallow Drift Aquifer
GT02	Shallow Zone
GT05	Shallow Zone

Sampling and Analysis Procedure

Sampling events are scheduled at least three (3) weeks in advance of the sampling event. Prior to sampling, monitoring equipment will be assembled and inspected to ensure proper working order. Worn or discolored equipment will be replaced or repaired. The expiration date of the calibration buffers will be checked. If expired, fresh buffers will be obtained. The field meters will be calibrated and evaluated for drift and stability.

The laboratory performing the groundwater analysis will supply the coolers, pre-cleaned containers, trip blanks, chemical preservatives, labels, custody seals, and shipping forms. A specific contact person shall be established at Zion and contract laboratory for communication between the two (2) parties.

Every effort will be made to adhere to established schedules however, no sampling will occur during inclement weather conditions. The decision to postpone or delay a sampling event will be at the discretion of the Project Manager and reported to the Illinois EPA if such a delay extends beyond the permitted timeframe. Water levels will be measured at the monitoring wells and recorded. The depth below ground surface of the wells that do not have a dedicated pump will be measured on an annual basis. The depth below ground surface of wells having a dedicated pump will be measured every five (5) years or whenever it is pulled.

Dedicated purge and sampling equipment serves to minimize cross-contamination between wells. Groundwater samples are extracted using individual dedicated submersible pumps. If dedicated equipment is not functional for a sampling event, the affected well(s) will be sampled with a disposable bailer or with equipment that has been decontaminated in the field prior to the sampling event.

Groundwater will be purged prior to sampling, and the water level will not be allowed to lower within the screen interval. Wells installed in poor productive horizons will be purged until the water level is lowered to above the well screen. Three (3) well volumes of groundwater will be purged from each well (where possible). Less volume will be purged from wells in which the static water level lies close to or within the screen interval or that recharge slowly. The temperature, pH, and specific conductance of groundwater will be monitored during the purge and the results recorded. Groundwater purged from detection monitoring wells will be directed into the adjacent perimeter stormwater ditch or disposed of on the ground within the waste limits. Groundwater purged from wells undergoing assessment and/or corrective action will be containerized and disposed with leachate.

Upon arrival at each well location, the condition of the well and its surrounding area is observed and recorded on a field information form. Each well or piezometer is observed for signs of deterioration or other problems. If problems are observed, the problem is reported to appropriate personnel. Groundwater will be sampled following purging. The pump rate will be maintained at 100 ml/minute or less prior to sample collection. Field measurements for pH, specific conductance, and temperature will be performed and recorded. Samples will be containerized in order of volatility.

Samples will be collected in the following order:

- Field parameters
- VOCs
- Total metals
- Dissolved metals
- Inorganics

When sampling for VOCs, precautionary measures will be taken including: 1) drawing VOC samples slowly from the dedicated tubing and 2) filling bottles to capacity with sample and eliminate air bubbles. Each piece of down hole equipment is dedicated to a specific well. Filtering will be performed in-line as the groundwater is removed from each well.

Sample Preservation and Shipment Procedures

Multiple analyses will be required, so different types of containers and preservatives will be necessary. Pre-labeled containers will be supplied by the laboratory for each sampling point. Appropriate preservatives will be attached to the bottle in small vials or will have been added to each container during sample preparation by the analytical laboratory. Sample preservation shall be performed upon sample collection. After collection, bottles will be placed in coolers with ice. The samples will be sent to the laboratory and arrive within 48 hours of collection. Temperature inside the cooler will be verified upon receipt of the cooler.

Parameter Group	Container	Preservative
VOCs	40 mL glass vials with no headspace	HCL to pH < 2
Metals (Total and Dissolved)	500 mL plastic (sample unfiltered for total metals and filtered for dissolved metals)	HNO3 to pH < 2
Cyanide	500 mL plastic	NAOH to pH > 12

Chain of Custody Procedures

At the time each sample is taken, a chain-of-custody record and groundwater samples will be completed and sent to the laboratory. Upon transfer of samples to subsequent custodians, the chain-of-custody record will be signed by the person taking custody of the sample container and the person giving up custody. Upon receipt of samples at the laboratory, the date and time of arrival will be noted on the chain-of-custody records. The laboratory will verify the seal is

intact, if present, and custody has not been broken. Chain-of-custody records will be included in the analytical report prepared by the laboratory. Each sample container will be labeled with the sample identification and the parameter to be analyzed.

Quality Control Samples

Field and trip blanks may be used to assess the integrity of the sampling and shipping process. Trip blanks will only be analyzed for VOCs. If contamination during sampling is suspected, a field blank will be analyzed for the same list of parameters using the same analytical methods used for groundwater samples. The blank results will be provided in the laboratory reports for the groundwater event.

Analytical Procedures

During the post-closure care period, the Permittee may contract analytical services from laboratories. A single laboratory will perform analysis for one or more full calendar year(s). Each contracted laboratory will be required to provide a copy of its laboratory quality procedures, which shall be maintained by the permittee and be available for review by Illinois EPA inspectors, upon request. When matrix conditions in a sample allow, the Practical Quantitation Limit (PQL) for each indicator parameter will be at least equal to the 35 Ill. Adm. Code Part 620 Class I GQS. The PQL utilized will be identified on the reports provided by the laboratory. PQLs may vary due to interferences, changes in laboratory procedures, or other factors.

Analytical methods for indicator parameters proposed in the detection groundwater monitoring program will be the following:

VOCs	SW-846 8260
Total and Dissolved Ba, Cd, Cr, Pb, Ni	SW-846 6010B
Total and Dissolved Hg	SW-846 7470A
Cyanide	SW-846 9012

The Shallow Drift Aquifer groundwater elevations will be measured when groundwater samples are collected. Prior to groundwater purging and sample withdrawal, depth to water-level measurement will be taken with a portable conventional static water level indicator. The depth to water-level meter will be properly decontaminated prior to the first measurement and after each measurement has been recorded for each well. Water-level measurements will be recorded, and a groundwater elevation contour map will be developed.

The Shallow Zone groundwater elevations will be measured on a regular basis using the same procedures as listed for the Shallow Drift Aquifer. A groundwater elevation contour map will not be developed for the Shallow Zone due to the unit being discontinuous.

Background Quality

Background groundwater quality has been evaluated for both the Shallow Drift Aquifer and Shallow Zone based on previously approved statistical procedures contained in the prior permit renewal application and the current effective Permit (Log No. B-23R). Background values for List G1 parameters were approved by Illinois EPA in permit Log No. B-23R-M-1 (on October 19, 2012) and are listed in Section IV of the current effective Permit. Background values for List G2 parameters were received November 18, 2013 and were approved by Illinois EPA in Log No. B-23R-M-3 (on March 25, 2014) and also listed in Section IV of the current effective Permit.

Statistical Evaluations

Background groundwater quality values have been developed for each indicator parameter. Interwell statistical procedures are applied to the Shallow Drift Aquifer and the background data is obtained from the upgradient wells screened in the Shallow Drift Aquifer. The methodology for calculating the prediction limit is based upon the normality characteristics of the background data. Data from each of the upgradient wells was pooled for subsequent statistical evaluation. Based on the Shapiro-Wilk normality tests, the data was separated according to data normality or percentage of data below the PQL. The intrawell prediction limits for normally distributed parameters were calculated according to the methods in American Standards for Testing and Materials (ASTM). The method provides for prediction limit calculations based on the number of background values, the number of future observations, and the false positive rate. The prediction limit approach utilizes verification sampling to differentiate statistically significant increases from false positive errors. Prediction limits for log normally distributed data is calculated using natural logarithms of the original data.

The nonparametric prediction limits were established as the maximum detected concentration in the pooled background database. Parameters with greater than 50 percent of the background data reported below the PQL will be considered to have an indeterminate distribution. The background levels will be based on parametric prediction limits.

The same statistical procedure has been applied to data collected from wells screened in the Shallow Zone. Background data from each individual well was utilized for purposes of computing the background prediction limits, rather than the pooled background data from upgradient wells.

Statistically Significant Increases

In the Shallow Drift Aquifer, the procedures for evaluating a preliminary statistically significant increase are based upon whether or not the indicator parameter is present in the background data set. If a parameter is present in the background data, then the data obtained from POC wells will be compared to the background prediction limit established or the 35 Ill. Adm. Code Part 620, Class I GQS, whichever is greater, each time groundwater quality is evaluated at the point of compliance.

If a parameter is not present in the background data, a preliminary statistically significant increase will be identified if either the measured concentration of a single constituent is greater than two (2) times the PQL or the measured concentration of two (2) or more constituents is greater than the PQL for each constituent.

If a preliminary statistically significant change is noted, the Permittee has the option of declaring the preliminary increase a confirmed increase without performing verification sampling or may initiate verification procedures to evaluate whether the increase will be considered confirmed. The verification procedures will include collection of another sample from the specific well(s) for the specific parameter(s) exhibiting the preliminary statistically significant increase. The verification sample will be collected within 45 days of receipt of the laboratory report that indicates an exceedance.

Only wells and/or parameters exhibiting a preliminary statistical increase will be included in the scope of the verification sampling. If the resample results are equal to or less than the standard, then detection monitoring will continue. If the second round of sampling and analysis confirms the initial findings, the permittee may declare a confirmed increase, or has the option of further evaluating the validity of the statistics using the trend analysis approach.

Trends will be maintained for the parameters and may be used to demonstrate the change is normal as evidenced by natural fluctuations over time. The Mann-Kendall Test will be the trend evaluation used to determine natural fluctuation over time. If trend analyses fail to show a pattern indicating a statistically significant upward trend, routine detection monitoring will continue. If trend analyses show a statistically significant upward trend for the specific indicator parameter at a specific well, then it will be concluded that a statistically significant increase has occurred in the affected well. The permittee will then notify Illinois EPA in writing within seven (7) business days indicating the affected well(s) and the parameter(s).

Upon identification of a confirmed statistically significant increase, all point of compliance wells will be sampled and analyzed for the parameters listed in 35 Ill. Adm. Code 724 Appendix I (Appendix I). If any Appendix I parameters are detected, additional sampling/analysis for the detected parameter(s) will be performed within 30 days of receipt of the final laboratory data from the initial Appendix I event. The Permittee will prepare a Class 3 permit modification to propose a Compliance Monitoring Program for the POC wells, which will be based on the results from the Appendix I sampling event(s). The Class 3 modification application will be submitted within 120 days of receipt of the final laboratory data from the Appendix I resample event. The application must include: 1) an identification of the concentration of any constituent in Appendix I detected in the groundwater at each monitoring well at the POC; 2) any proposed changes to the groundwater monitoring system, monitoring frequency, sampling and analysis procedures or methods, or statistical methods used at Zion necessary to meet the requirements of 35 Ill. Adm. Code 724.199 and; 3) for each hazardous constituent detected at the POC, a proposed concentration limit under 35 Ill. Adm. Code 724.194(a)(1)(2) or a notice of intent to seek an alternate concentration limit under 35 Ill. Adm. Code 724.14(b).

As an alternative to performing the Appendix I sampling, the permittee also has the option of demonstrating that the confirmed statistically significant increase is from a source other than the

landfill or the increase resulted from an error in sampling, analysis, or evaluation. The Permittee will: 1) notify the Illinois EPA in writing that they intend to make a demonstration and submitted to the Illinois EPA within seven (7) days of the date that the increased is discovered; 2) submit a report to the Illinois EPA which demonstrates that a source other than a regulated unit caused the increase, or that the increase resulted from error in sampling, analysis, or evaluation. The report must be submitted in 90 days of the date that the increase is discovered; 3) submit to the Illinois EPA an application to make changes to the groundwater detection monitoring program and; 4) continuc to monitor in accordance with the detection monitoring program at Zion.

If the demonstration is denied by the Illinois EPA, then the Permittee would then be obligated to perform the Appendix I sampling. The permittee is also not relieved of the requirement to submit a permit modification to begin a compliance groundwater monitoring program, unless the demonstration successfully shows the source of the statistical increase was related to a source other than the regulated unit or the increase resulted from error in sampling, analysis, or evaluation.

The procedures for evaluating a statistically significant increase in the Shallow Zone will be the same as the procedures implemented for the Shallow Drift Aquifer, except that the statistical analysis will be performed on an intrawell basis, rather than an interwell basis.

Reporting Requirements

Groundwater monitoring, testing, and analytical data obtained as part of the detection monitoring program will be compiled in the Zion operating record. The groundwater samples will be collected to meet the requirements of the detection groundwater monitoring program, and applicable data will be submitted to Illinois EPA in accordance with the following schedule:

Samples To Be Collected During the Months Of:	Results Submitted To The Illinois EPA By The Following:	Parameters
April-May	July 15th	VOCs, Metals, and Cyanide
October-November	January 15th	VOCs

Groundwater surface elevation data and field parameters (pH, specific conductance, temperature, and turbidity) shall be collected each sampling event and submitted to the Illinois EPA. The groundwater flow rate and direction in the Shallow Drift Aquifer will be reported annually by July 15th each year.

The Permittee will report the surveyed elevation of the top of the well casing stick-up in accordance with the following schedule:

- For current wells, every five (5) years during the annual sampling event or at the request of the Illinois EPA or whenever the elevation changes.

- For any new wells at the time of the installation and reported in the diagrams, measurements will be made every five (5) years or at the request of the Illinois EPA or whenever the elevation changes.

The elevation of the bottom of each monitoring well, is to be reported every five (5) years or more frequently if the dedicated pumps are removed from the monitoring wells for maintenance. The measurement will be taken during the annual sampling event.

SECTION E.11: POST-CLOSURE COST ESTIMATE

The post-closure cost estimate is based on third party costs and includes the number of years post-closure care must still be provided. The post-closure cost estimate identifies the tasks needed to carry out the required post-closure care activities, the cost associated with each task, and the amount of time, material, and efforts needed to perform each ask and their unit costs.

Zion states the proposed post-closure cost estimates are as follows (annual inflation costs through 2021 calculated in the estimated grand total):

- Groundwater sample collections (13 wells sampled semi-annually) - $100 Unit Cost * 26 Quantity = $2600
- Laboratory analysis - 2nd quarter event (list G1/G2) - 13 Wells * $303 Unit Cost = $3939
- Laboratory analysis - 4th quarter event (list G1) -13 Wells * $195 Unit Cost = $2535
- Groundwater reporting - semi-annual basis - 2 Events * $1500 Unit Cost = $3000
- Monitoring well decommissioning/abandonment -13 Wells * $1000 = $13,000
- Final post-closure care certification - $500

ILLINOIS EPA COMMENTS AND RECOMMENDATIONS

A technical review of the groundwater aspects of the RCRA Part B Permit Renewal Application was completed. The groundwater related portions of the Renewal Application are considered technically incomplete due to the following:

1. Section C.6.1 must be revised. The request to update the STORET number in the existing Permit for 1,2-dichloropropane to 34541 is not approved. The Permittee needs to provide additional information. The following items are required: 1) Provide data that shows the STORET number currently in use sampling Cyanide (total) and Cyanide (dissolved) at Site 1 Phase A. 2) Provide confirmation that the analyses under STORET 31541 and STORET 34541 are the same.

2. Section C.6.3 must be revised. The Groundwater Monitoring System requires that the applicant reference by location, boring logs and well completion reports. A table of wells must be submitted identifying the well ID numbers and measurements for the following in both feet Mean Sea Level (MSL) and feet below ground surface (ft. bgs): well depth, screen interval, ground surface, and stickup. The listed items are required for wells: Shallow wells (Wells GT02 and GT05), Background wells (Wells G121, R123, R136, and R127), and POC wells (Wells R124, R126, R128, C129, G131, G132, and R133).

3. Section C.6.4 must be revised. Description of Sampling and Analysis Procedures states that, "groundwater purged from detection monitoring wells will be directed into the adjacent perimeter stormwater ditch and disposed of on the ground within the waste limits". The statement needs to be revised to include "Purged groundwater must be collected, containerized, and upon receipt of groundwater analysis, disposed of properly."

4. Section E.11 must be revised. All costs related to groundwater monitoring must be updated to reflect the most current costs and inflation rates. Additionally, third party costs for groundwater monitoring requirements and separate laboratory analysis (2nd quarter and 4th quarter) estimates from First Environmental Laboratories must be submitted.

Attachment: Technical Evaluation Checklist

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
RCRA PART B HAZARDOUS WASTE PERMIT APPLICATION
COMPLETENESS & TECHNICAL EVALUATION CHECKLIST

Facility Name: Zion Site 1 Phase A Landfill
Log No.: B-23R2
State ID No.: 0978020001
USEPA No.: ILD980700728

Date application received: May 7,2021
Revision No.:
Reviewer: Shawntay Dial
Review Dates: September 28, 2023 to November 13, 2023

	Section	Technically Adequate (Y/N)	Location	Comments
C	**Groundwater Monitoring**		Section C	
C.1	**Exemption from Groundwater Protection Requirements**	Y	C-1	Waiver not being requested.
C.2	**Interim Status Groundwater Monitoring Data**	Y	C-1/ C-2	
C.3	**Historical Hydrogeological Summary**	Y	C-2/C-5 Appen. C-1	
C.4	**Topographic Map Requirements**	Y	C-6/C-7	Topo map - Figure B-3; Site 1A property boundary - Appendix B-2; Wind rose - App. B-3; Groundwater Monitoring network-App. C-1 and Figure B-3
C.6	**Detection Monitoring Program**	Y	C-7	

	Section	Technically Adequate (Y/N)	Location	Comments
C.6.1	Constituents to be Monitored	Y	C-7/C-8	Additionally Table C-1(indicator parameters) and Table C-2 (specific metals and VOCs)
C.6.2	General Monitoring Program Requirements	Y	C-8/C-9	Additionally, Figure C-1(Point of Compliance and proposed groundwater monitoring system)
C.6.3	Groundwater Monitoring System	N	C-9	Additionally, Table C-3 (construction details for wells) and Figure C-1 (location of wells); ** Missing boring logs and well completion reports for wells GT02 and GT05(shallow zone wells), G121, R123, R136 and R127 (background wells), R124, R126, R128, C129, G131, G132, and R133 (POC wells) **
C.6.4	Description of Sampling and Analysis Procedures	Y	C-9/C-14	
C.6.5	Evaluation of Groundwater Surface	Y	C-15	
C.6.6	Background Quality	Y	C-15	Background groundwater values established in Log Nos. B-23R-M-1 and M-3. Permittee asking for Permit errors fixed for background values associated with Cyanide (Total and Dissolved). Pg C-15
C.6.7	Statistical Evaluations	Y	C-16/ C-17	Appendix C-3
C.6.8	Statistically Significant Increases	Y	C-17/ C-21	Appendix C-3
C.9	Reporting Requirements	Y	C-26/ C-27	
E.11	Post-Closure Cost Estimate	Y	E-33	Cost Estimate in 2021 dollars/ Inflation %

MAS\mls\Document1

Dial, Shawntay D.

From: Guido, Anthony
Sent: Thursday, November 2, 2023 10:44 AM
To: Dial, Shawntay D.
Subject: RE: Zion Permit Renewal

Hey Shawntay, I just perused the application for this one. I have no comments. If this gets approved and without any changes made to the SAP, please let me know so I can document their SAP! It is very detailed in the application. Once approved, I will scan the SAP part so I can keep it on file to evaluate for their OAM inspections. Typically, I only ever see that the SAP was "approved with so and so application" so it will be good to have the actual plan I know was approved in my records.

Thanks!

Anthony Guido
o) 847/294 4072
c) 224/688 2530

From: Dial, Shawntay D. <Shawntay.Dial@Illinois.gov>
Sent: Tuesday, October 31, 2023 2:39 PM
To: Guido, Anthony <Anthony.Guido@Illinois.gov>
Subject: RE: Zion Permit Renewal

I have Site 1 Phase A (Phase B is SW) do you have it as well?

I am working to finish up the permit renewal and wanted to reach out and see if there were any comments regarding the site or the permit renewal before finish.

Hope you are having a great day 😊

Shawntay Dial
Environmental Protection Geologist
Bureau of Land, Permit Section
217/558-0177
Shawntay.Dial@illinois.gov

From: Guido, Anthony <Anthony.Guido@Illinois.gov>
Sent: Tuesday, October 31, 2023 2:33 PM
To: Dial, Shawntay D. <Shawntay.Dial@Illinois.gov>
Subject: RE: Zion Permit Renewal

Zion Site 1 Phase B? That's me!

Anthony Guido
[redacted]) 847/294 4072
c) 224/688 2530

From: Dial, Shawntay D. <Shawntay.Dial@Illinois.gov>
Sent: Tuesday, October 31, 2023 2:29 PM
To: Guido, Anthony <Anthony.Guido@Illinois.gov>
Subject: Zion Permit Renewal

Anthony,

Good afternoon! Do you by chance know who covers Zion for FOS? I didn't want to assume it was you but thought you may direct me to the correct person.

Thank you!

Shawntay Dial
Environmental Protection Geologist
Bureau of Land, Permit Section
217/558-0177
Shawntay.Dial@illinois.gov

Right-to-Know Evaluation Form

(2023)

Date:

Site Information	Staff Information
Zion Site 1 Phase A Landfill	Shawntay Dial
0978020001/ Lake County	Groundwater Unit/ Permits
701 Green Bay Road	217-558-0177
Zion, Illinois 60099	Shawntay.dial@illinois.gov

Criteria *(check all that apply)*

☐ Measured or modeled groundwater contamination (including soil contamination exceeding the applicable remediation objectives for the soil component of the groundwater ingestion exposure route) poses a threat of exposure to the public above the Class I groundwater quality standards or the Tier 1, Class I groundwater remediation objectives within the setback zone or regulated recharge area of a community water system (CWS) well, or within the setback zone of a private, semi-private, or non-CWS well;

- ☐ Limited community relations: Five or fewer potable wells, other than a CWS well, are affected by the release.
- ☐ Expanded community relations: More than five potable wells, or one or more CWS wells, are affected by the release.

☐ Groundwater or soil gas contamination beyond the boundary of the site where the release occurred poses a threat of exposure to the public above the appropriate Tier 1 indoor inhalation remediation objectives, based on the current use of the offsite property;

- ☐ Limited community relations: Five or fewer offsite properties are affected by the release.
- ☐ Expanded community relations: More than five offsite properties are affected by the release.

☐ Soil contamination beyond the boundary of the site where the release occurred poses a threat of exposure to the public above the appropriate Tier 1 remediation objectives, based on the current use of the offsite property;

- ☐ Limited community relations: Five or fewer offsite properties are affected by the release.
- ☐ Expanded community relations: More than five offsite properties are affected by the release.

☐ The Agency refers a matter for enforcement under Section 43(a) of the Act;

☐ The Agency issues a seal order under Section 34 of the Act; or

☐ The Agency, USEPA, or a third party under Agency or USEPA oversight performs an immediate/emergency removal under the federal Comprehensive Environmental Response, Compensation, and Liability Act.

Summary

☒ None of the above criteria are met and the site does not warrant further evaluation.

☐ At least one of the above criteria is met and the site must be further evaluated by submittal of a Contaminant Evaluation Group (CEG) Referral Memorandum to the Office of Community Relations.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

MEMORANDUM

DATE: 6/29/2021

TO: Kevin Lesko, RCRA Unit

FROM: Shawntay Dial, Groundwater Unit SDD 6/30/21

SUBJECT: **Completeness Review**-RCRA Part B Permit Renewal Application

RE: 0978020001- Lake County
Zion Site 1 Phase A Landfill
ILD980700728
RCRA Permit, Log No. B-23R2

As requested, I have conducted a completeness review of the subject submittal received by the Illinois EPA on May 7, 2021. The renewal application was submitted by James Hitzeroth on behalf of BFI Waste Systems of North America, LLC of Hanover Park, Illinois. The completeness review has a 60-day review period and Illinois EPA comments are due July 6, 2021. This memorandum only addresses the completeness of groundwater issues.

The original waste disposal permit for the facility was issued to Browning-Ferris Industries (BFI) to operate a 59-acre solid waste disposal facility at the location known as Zion Site 1 Landfill in October 1976. The permit was issued before the effective date of the RCRA hazardous waste regulations. The Zion Site 1 Landfill operated under RCRA hazardous waste interim standards from 1980 until the first RCRA disposal permit was issued by the Illinois EPA in April 1988. During operation, the 40-acre waste disposal facility received hazardous and non-hazardous waste and was disposed in the unit now known as Site 1 Phase A. The hazardous wastes disposed at the facility originated from a range of business and industry including manufacturing, petrochemical, steel, utilities, and government. BFI ceased disposing hazardous waste in this unit in 1990. Closure activities were completed in 1997, and BFI certified completion of closure on February 10, 1998. According to Permit Condition III.A, the Permittee must continue to provide post-closure care for Site 1A until at least February 9, 2028. Zion Landfill, Inc. is the entity that owns the Zion Landfill Site 1, however the operator (BFI) has retained the post-closure care responsibilities for the Zion Landfill Site 1A (RCRA unit) and Site 1B (non-hazardous unit).

A completeness review for the Zion Site 1 Landfill site was completed and Section C: Groundwater Monitoring and groundwater-related portions of Section E: Post-Closure Requirements, of the Completeness and Technical Evaluation Checklist is attached.

ILLINOIS EPA COMMENTS AND RECOMMENDATIONS

The groundwater related portions of the subject submittal are considered administratively complete, at this time, and there are no further comments.

Attachment: Completeness and Technical Evaluation Checklist

Revised: July 2006

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
RCRA PART B HAZARDOUS WASTE PERMIT APPLICATION
COMPLETENESS & TECHNICAL EVALUATION CHECKLIST

Facility Name: Zion Site 1 Phase A Landfill
Log No.: B-23R2
State ID No.: 0978020001
USEPA No.: ILD980700728

Date application received: 5-7-2021
Revision No.:
Reviewer: Shawntay Dial
Review Dates: 6-28-2021

	Section	Complete (Y/N)	Technically Adequate (Y/N)	Location	Comments
C	**Groundwater Monitoring**	Yes		C-1	
C.1	**Exemption from Groundwater Protection Requirements**	NA		C-1	Permittee not asking or a waiver. Not applicable.
C.1.1	Waste Piles	NA		C-1	Not applicable
C.1.2	Landfills	NA		C-1	Not applicable
C.1.3	No Migration	NA		C-1	Not applicable
C.2	**Interim Status Groundwater Monitoring Data**	Yes		C-1	
C.3	**Historical Hydrogeological Summary**	Yes		C-2	Summary in Appendix C-1
C.4	**Topographic Map Requirements**	Yes		C-6	Figure B-3- Topographic map Appendix B-2-Site 1 Phase A boundary

	Section	Complete (Y/N)	Technically Adequate (Y/N)	Location	Comments
C.5	**Contaminant Plume Description**	NA		C-7	No plume of contamination has been identified for Site 1 Phase A.
C.6	**Detection Monitoring Program**	Yes		C-7	
C.6.1	Constituents to be Monitored	Yes		C-7	Table C-1 and Table C-2
C.6.2	General Monitoring Program Requirements	Yes		C-8	Figure C-1
C.6.3	Groundwater Monitoring System	Yes		C-9	Table C-3 Well Designations Figure C-1 Location of wells
C.6.4	Description of Sampling and Analysis Procedures	Yes		C-9	
C.6.5	Evaluation of Groundwater Surface	Yes		C-15	
C.6.6	Background Quality	Yes		C-15	Background quality approved in Log # B-23R-M-3
C.6.7	Statistical Evaluations	Yes		C-16	
C.6.8	Statistically Significant Increases	Yes		C-17	Appendix C-3
C.7	**Compliance Monitoring Program**	NA			In detection monitoring. Not applicable
C.8	**Corrective Action Monitoring Program**	NA			In detection monitoring. Not applicable
C.9	Reporting Requirements	Yes		C-26	
E.7	**Post Closure Cost Estimate**	Yes		E-33	Table E-33. No itemized list for costs

Corrective Action Review

Memorandum

Date: June 28, 2021

To: Kevin Lesko, BOL/ Permit Section/ RCRA Unit

From: Curtis Samson, P.E., BOL/ Permit Section/ RCRA Unit
CS CS

Re: 0978020001 --- Lake County
Zion Landfill Site, Phase A
ILD980700728
Received: May 10, 2021
Log No. B-23R2
RCRA Permits Admin Record

Subject: Completeness Evaluation of Corrective Action Section of the RCRA Part B Renewal Permit Application

As requested, I have conducted a completeness evaluation of the Corrective Action section (Section F) of the RCRA Part B Permit Renewal Application for the above-referenced facility, received on May 10, 2021.. Enclosed, please find the completed Corrective Action section of the completeness checklist for of the subject application.

Note, Log No. B23R (issued Sept. 30, 2011) stated Illinois EPA and USEPA had concluded the Permittee adequately addressed corrective action at the (2) SWMUs. The RCRA Post-Closure Permit requires notification to the Illinois EPA of any newly identified SWMUs. The Permittee stated in the renewal application (dated May 6, 2021) no new SWMUs have been identified.

Sections F.1 through F.3 are identified as "Not applicable" in the permit renewal application. According to the IEPA's guidance ("Information Which Must be Provided in an Application for a RCRA Post-Closure Permit" May 2021), the information regarding SWMUs are not required for a renewal post-closure application. Sections F.1 (Identification of Solid Waste Management Units), F.2 (Characterization of the SWMUs), and F.3 (Characterization of Releases from SWMUs) must be contained in the original RCRA permit application submitted by a facility to allow Illinois EPA to develop permit conditions for ensuring this requirement is met. Only the information in Item F.4 needs to be submitted by a facility seeking a renewed RCRA permit.

Section F.4.1 (F4.1 through F4.1.5) was identified as "Not applicable" in the permit renewal application. The Permittee stated these sections are not applicable, as no additional SWMUs have been identified at the above-referenced facility. Per the document issued to the facility on September 30, 2011, HAZARDOUS WASTE MANAGEMENT RCRA POST-CLOSURE PERMIT, Illinois EPA and USEPA issued the joint permit on April 5, 1988. Per Condition A.2. of Section V, "the Permittee adequately addressed corrective action at these two SWMUs." Additionally, Condition

A.3., states "The requirements of 35 Ill. Admin. Code 620 and 742 must be met in determining remediation objectives for all corrective action activities. However, the Permittee must provide corrective action, as appropriate, for any future releases from SWMUs present at the facility.". Thus, these sections are not required for a renewal post-closure application.

Section F.4.2 (F.4.2.1 through F.4.2.4) addresses information if IEPA oversaw the initial corrective action program. Per the reasons stated above, these sections are not required for a renewal post-closure application.

Section F.5 addresses proposed interim measure to be conducted. The Permittee identified this section "Not applicable" in the permit renewal application. The Permittee has adequately addressed corrective action at this SWMU site, per the permit issued in 2011. Additionally, no new SWMU has since been identified at the above-referenced facility. Thus, this section is not required for a renewal post-closure application.

Section F.6 addresses cost estimate for required corrective action. The permittee identified this section "Not applicable" in the permit renewal application. The Permittee has adequately addressed corrective action at this SWMU site and no additional SWMUs have been identified for the above-referenced facility. Thus, this section is not required for a renewal post-closure application.

Section F.7 addresses financial assurance for corrective action. The Permittee identified this section "Not applicable" in the permit renewal application. The Permittee has adequately addressed corrective action at this SWMU site and no additional SWMUs have been identified for the above-referenced facility. Thus, section is not required for a renewal post-closure application.

In conclusion, my completeness evaluation of the Corrective Action section of the RCRA Part B Renewal Application for the above-referenced site indicates that all applicable check list items to this facility are correctly addressed in the subject application. Corrective actions pertinent to the subject SWMUs in the referenced renewal application were adequately addressed prior to the permit issued in 2011. The Permittee has also not identified new SMWUs since the 2011 permit issuance. Therefore, the corrective action section of the subject application is considered complete.

Enclosure: Section F (Corrective Action) portion of IEPA RCRA Part B Hazardous Waste Permit Application, Completeness & Technical Evaluation Check List

CC: Rob Watson P.E., Unit Manager, BOL/ Permit Section/ RCRA Unit
Takako Halteman P.E., Lead Worker, BOL/ Permit Section/ RCRA Unit

RCRA POST-CLOSURE PERMIT APPLICATION
COMPLETENESS AND TECHNICAL REVIEW CHECKLIST
June 24, 2021

Facility Name : Zion Landfill Site, Phase A
Log No. : B-23R2
State ID No. : ILD980700728
USEPA No. : 0978020001

Date Application Received : May 10, 2021
Revision No. : 0
Reviewer : C. Samson CS
Review Dates : June 28, 2021

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
A	**Forms, Certifications, Confidentiality, and Public Involvement**	**XX**	**XX**		
A.1	**RCRA Part A Application Form**				
A.2	**Certification Using the LPC-PA23 Form**				
A.2.1	Facility Certification				
A.2.2	Technical Information Certification				
A.2.3	39i Certification				
A.3	**Public Disclosure Exemption Claims and Trade Secret Claims**				
A.3.1	No information Claimed Exempt from Public Disclosure				
A.3.2	Trade Secrets Claims				
A.3.3	Exempt or Exempt In-Part Data Claims				
A.3.4	Privileged Information				
A.4	**Public Participation: Facility Mailing List & Information Repositories**				
A.4.1	Facility Mailing				
A.4.2	Identification of Repositories				
A.4.3	Contents of Repository				

R 000578

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
A.4.4	Public Notice of Repository Availability				
B	**Facility Description**	**XX**	**XX**		
B.1	**General Facility Description**				
B.1.1	Operation of Facility				
B.1.2	Hazardous Waste Management Units at the Facility				
B.1.3	Solid Waste Management Units at the Facility				
B.2	**Topographic Map**				
B.2.1	Facility + 1 mile				
B.2.2	Facility + 1000 feet				
B.3	**Location Standards**				
B.3.1	Seismic Standard				
B.3.2	Floodplain Standard				
B.3.3	Facilities in the 100-year Floodplain				
B.3.3.1	Engineering Analysis and Structural/Engineering Study				
B.3.3.2	Procedures to Remove Waste				
B.3.4	Existing Facilities not in Compliance with 35 Ill. Admin Code 724.118(b)				
B.4	**Operating Record**				

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
C	**Groundwater Monitoring**	**XX**	**XX**		
C.1	**Exemption from Groundwater Protection Requirements**				
C.1.1	Waste Piles				
C.1.2	Landfills				
C.1.3	No Migration				
C.2	**Interim Status Groundwater Monitoring Data**				
C.3	**Historical Hydrogeological Summary**				
C.4	**Topographic Map Requirements**				
C.5	**Contaminant Plume Description**				
C.6	**Detection Monitoring Program**				
C.6.1	Indicator Parameters, Waste Constituents, Reaction Productions to be Monitored				
C.6.2	General Monitoring Program Requirements				
C.6.3	Groundwater Monitoring System				
C.6.4	Description of Sampling and Analysis Procedures				
C.6.5	Evaluation of Groundwater Surface				
C.6.6	Background Quality				
C.6.7	Statistical Evaluations				
C.6.8	Statistically Significant Increases				
C.7	**Compliance Monitoring Program**				
C.7.1	Description of the Monitoring Program				
C.7.1.1	Waste Description				

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
C.7.1.2	Concentration Limits				
C.7.1.3	Compliance Point				
C.7.1.4	Compliance Period				
C.7.2	Alternate Concentration Limits				
C.7.2.1	Adverse Effects on Groundwater Quality				
C.7.2.2	Potential Adverse Effects on Hydraulically Connected Surface Water Quality				
C.7.3	General Monitoring Program Requirements				
C.7.4	Groundwater Monitoring System				
C.7.5	Description of Sampling and Analysis Procedures				
C.7.6	Background Quality				
C.7.7	Statistical Evaluations				
C.7.8	Evaluation of Groundwater Surface				
C.7.9	Annual Appendix I				
C.7.10	Statistically Significant Increases				
C.8	**Corrective Action Program**				
C.8.1	Description of Corrective Action Program				
C.8.1.1	Characterization of Contaminated Groundwater				
C.8.1.2	Concentration Limits				
C.8.1.3	Compliance Point				
C.8.1.4	Compliance Period				
C.8.1.5	Construction Detail				
C.8.1.6	Effectiveness of Corrective Action				

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
C.8.2	Alternate Concentration Limits				
C.8.2.1	Adverse Effects on Groundwater Quality				
C.8.2.2	Potential Adverse Effects on Hydraulically-Connected Surface Water Quality				
C.8.3	Corrective Action Plan				
C.8.4	Groundwater Monitoring Program				
C.8.4.1	General Monitoring Program Requirements				
C.8.4.2	Groundwater Monitoring System				
C.8.4.3	Description of Sampling and Analysis Procedures				
C.8.4.4	Background Quality				
C.8.4.5	Statistical Evaluations				
C.8.4.6	Evaluation of Groundwater Surface				
C.8.4.7	Extension of Compliance Period				
C.8.4.8	Effectiveness of Corrective Action				
C.8.4.9	Evaluation of the Corrective Action Program				
C.9	**Reporting Requirements**				
D	**Procedures to Prevent Hazards**	**XX**	**XX**		
D.1	**Security**				
D.1.1	Waiver from the Security Requirements				
D.1.2	Restricting Entry to the Facility				
D.1.3	Warning Signs				
D.2	**Equipment Requirements**				

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
D.2.1	Waiver				
D.2.2	Internal Communications				
D.2.3	External Communications				
D.2.4	Emergency Response Equipment				
D.2.5	Water for Fire Control				
D.2.6	Personnel Protection Equipment				
D.2.7	Testing & Maintenance of Emergency Equipment				
D.2.7.1	Equipment Testing				
D.2.7.2	Schedule				
D.2.8	Equipment and Power Failure				
D.3	**Inspection Requirements**				
D.3.1	Inspection Log				
D.3.1.1	Items Inspected				
D.3.1.2	Types of Problems				
D.3.1.3	Inspection Frequency				
D.3.2	Repair Log				
D.3.3	24 Hour Reporting				
E	**Post-Closure Requirements**	**XX**	**XX**		
E.1	**Information Regarding the Unit(s) Closed as a Landfill**				
E.1.1	General Information Regarding the Unit to Receive Post-Closure Care				

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
E.1.2	Geology and Hydrogeology Around/ Beneath the Unit				
E.1.3	Characterization of Waste/ Contaminated Soil Present in the Landfill Unit				
E.1.4	Initial Closure Activities				
E.1.5	Details Associated with the Closed Unit				
E.2	**Contact Person**				
E.3	**Operation of the Leachate Collection System**				
E.3.1	Quality of Leachate in the Leachate Collection System				
E.3.2	Leachate Collection System Within the Landfill				
E.3.3	Leachate Collection System Outside the Landfill				
E.3.4	Management of Leachate Collection System				
E.3.5	Summary of Leachate Management Program Conducted to Date				
E.4	**Operation of the Leak Detection System**				
E.4.1	Description of the Leak Detection System Within the Landfill				
E.4.2	Description of the Leak Detection System Outside the Landfill				
E.4.3	Management of Leachate Accumulating in the Leak Detection System				
E.4.4	Recent Operation of the Leak Detection System				
E.5	**Operation of the Gas Monitoring/ Collection System**				

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
E.5.1	Detailed Description of the Landfill Gas Collection System				
E.5.2	Landfill Gas Monitoring Plan				
E.5.3	Landfill Gas Disposal/ Processing System				
E.5.4	Summary of the Landfill Gas Collection/ Monitoring/ Processing Systems				
E.6	**Post-Closure Inspection Plan**				
E.6.1	Inspection Log				
E.6.1.1	Items Inspected				
E.6.1.2	Types of Problems				
E.6.1.3	Inspection Frequency				
E.6.2	Repair Log				
E.6.3	24-Hour Reporting				
E.7	**Post-Closure Monitoring Plan**				
E.7.1	Facility Controls				
E.7.2	Surveys and Corrective Action				
E.7.2.1	Provide the Following				
E.7.3	Leachate Collection System (LCS)				
E.7.3.1	Leachate Quality				
E.7.3.2	Leachate Quantity				
E.7.3.3	Leachate Reporting				
E.7.4	Leak Detection System (LDS)				
E.7.4.1	LDS Leachate Quantity				
E.7.4.2	Action Leakage Rate (ALR)				

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
E.7.5	Groundwater Monitoring System				
E.7.6	Gas Collection System				
E.7.6.1	Gas Quality				
E.7.6.2	Gas Quantity				
E.7.6.3	Summary of Results from the Gas Collection/ Monitoring System				
E.8	**Post-Closure Maintenance Plan**				
E.8.1	Procedures, Equipment & Materials				
E.8.3	Frequency				
E.9	**Survey Plat**				
E.10	**Notice in Deed and Certification**				
E.11	**Post Closure Cost Estimate**				
E.12	**Financial Assurance Mechanism for Post-Closure Care**				
E.13	**State Mechanisms**				
F	**Corrective Action (CA)**	**Y**		**F-1 Located before the FIGURE S tab, Volume I**	**"No additional SWMUs have since been identified at the facility. Therefore, Sections F.1 through F.7 are not applicable. However, the Permittee must provide corrective action, as appropriate, for any future releases from SMWUs."**
F.1	**Identification of Solid Waste Management Units (SWMUs)**	Y		F-1	Permittee stated "Not applicable."
F.2	**Characterization of the SWMUs**	Y		F-1	Permittee stated "Not applicable."

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
F.3	**Characterization of Releases from SWMUs**	Y		F-1	Permittee stated "Not applicable."
F.4	**Information Required for Renewal Applications**	Y		F-1	Permittee stated "Not applicable."
F.4.1	Required Information if USEPA Oversaw Initial Corrective Action Program	Y		F-1	Permittee stated "Not applicable."
	(1) Chronology of all CA related correspondence between USEPA & facility	N/A		F-1	Permittee stated "Not applicable."
	(2) Copies of all letters received from USEPA regarding CA	N/A		F-1	Permittee stated "Not applicable."
	(3) Copies of all letters regarding CA sent to USEPA	N/A		F-1	Permittee stated "Not applicable."
	(4) Detailed discussion of each SWMU	N/A		F-1	Permittee stated "Not applicable."
	(5) Information in Section C regarding any on-going groundwater monitoring/remediation	N/A		F-1	Permittee stated "Not applicable."
F.4.2	Required Information if IEPA Oversaw Initial Corrective Action Program	Y		F-1	Permittee stated "Not applicable."
	(1) Chronology of all corrective action efforts completed to date	N/A		F-1	Permittee stated "Not applicable."
	(2) Discussion of all CA related correspondence between IEPA and facility & copies of all correspondence	N/A		F-1	Permittee stated "Not applicable."
	(3) Detailed discussion of each SWMU	N/A		F-1	Permittee stated "Not applicable."
	(4) Information in Section C regarding any on-going groundwater monitoring/remediation effort	N/A		F-1	Permittee stated "Not applicable."
F.5	**Proposed Interim Measures to be Conducted**	Y		F-1	Permittee stated "Not applicable."

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
F.6	**Cost Estimate for Required Corrective Action**	Y		F-1	Permittee stated "Not applicable."
F.7	**Financial Assurance for Corrective Action**	Y		F-2	Permittee stated "Not applicable."